Haier





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MRV INDOOR UNITSService ManualSyjs-09-2017 REV.AEdition: 2017-09



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1. Products Lineup

4-WAY CASSETTE TYPE/PB-700IB	ROUND-WAY SMART AIR FLOW CASSETTE/ PB-
AB052MCERA	950KC
AB072MCERA	AB072MRERA
AB092MCERA AB122MCERA	AB092MRERA
AB162MCERA	AB122MRERA
AB182MCERA(C)	AB162MRERA AB182MRERA
	ABIOZINIALIVA
4-WAY CASSETTE TYPE/PB-950JB	AB242MRERA
AB182MCERA AB242MCERA	AB282MRERA
AB282MCERA	AB302MRERA
	AB382MRERA
AB302MCERA AB382MCERA	AB482MRERA
AB482MCERA	AB602MRERA
MINI 4-WAY CASSETTE TYPE/PB-620KB	ONE WAY CASSETTE TYPE/P1B-1050IB
AB052MCERA(M)	AB052MAERA
AB072MCERA(M)	AB072MAERA
AB092MCERA(M) AB122MCERA(M)	AB092MAERA
AB162MCERA(M) AB182MCERA(M)	AB122MAERA
2-WAY CASSETTE TYPE/ P1B-1055IB	LOW ESP DUCT TYPE
	AD072MLERA
AB072MBERA	AD092MLERA
AB092MBERA	AD122MLERA
AB122MBERA	
AB162MBERA	AD162MLERA
AB182MBERA	AD182MLERA
	AD242MLERA
SLIM LOW ESP DUCT	DC SLIM LOW ESP DUCT
AD072MSERA	AD072MSERA(D)
AD092MSERA	AD092MSERA(D)
AD122MSERA AD162MSERA	AD122MSERA(D) AD162MSERA(D)
AD182MSERA	AD182MSERA(D)
AD242MSERA	AD242MSERA(D)



MED ESP DUCT TYPE (80/120Pa)	MED ESP DUCT TYPE (50/96Pa)
AD182MZERA AD242MZERA AD282MZERA	AD182MMERA AD242MMERA AD282MMERA
AD302MNERA AD382MNERA AD482MNERA	AD302MMERA AD382MMERA AD482MMERA
MED ESP DUCT TYPE (50/100Pa)	CONSTANT AIR VOLUME DUCT TYPE
AD052MJERA AD072MJERA AD092MJERA AD122MJERA AD162MJERA	AD072MQERA AD092MQERA AD122MQERA AD152MQERA AD182MQERA
AD182MJERA AD242MJERA AD282MJERA	AD242MQERA AD282MQERA AD302MQERA
	AD362MQERA AD422MQERA AD482MQERA AD542MQERA
HIGH ESP DUCT TYPE	CONVERTIBLE TYPE
AD182MHERA AD242MHERA AD282MHERA	AC092MCERA AC122MCERA AC162MCERA AC182MCERA AC242MCERA
AD302MHERA AD382MHERA AD482MHERA	AC282MFERA AC302MFERA AC382MFERA
AD722MHERA AD962MHERA	AC482MFERA
FRESH AIR	BUILIT-IN FLOOR STANDING
AD482MPERA	AE072MLERA AE092MLERA AE122MLERA
AD722MPERA AD962MPERA	AE162MLERA AE182MLERA AE242MLERA

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CONSOLE		EK HIGH WALL	
AF072MAERA AF092MAERA AF122MAERA AF182MAERA		AS072MGERA AS092MGERA AS122MGERA AS162MGERA AS182MGERA AS242MGERA	New (
N HIGH WALL			
AS052MNERA AS072MNERA AS092MNERA AS122MNERA AS162MNERA AS182MNERA	Hater t 21 : 100	AS052MFERA AS072MFERA AS092MFERA AS122MFERA AS162MFERA AS182MFERA	How Solaris
AS242MNERA AS282MNERA AS302MNERA		AS242MFERA	
HRV ERV0150ANN ERV0260ANN ERV0500ANN ERV0800ANN ERV1000ANN			

Products Lineup

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2. 4-Way Cassette Type Indoor Unit

2.1 Features



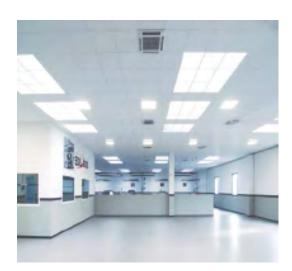
AB052MCERA AB072MCERA AB092MCERA AB122MCERA AB162MCERA AB182MCERA(C) PANEL: PB-700IB



AB182MCERA AB242MCERA AB282MCERA PANEL: PB-950JB

Totally new appearance design AB05-18 adopt the 700*700 panel with 660*570 unit body. And AB18-48 use the same panel, more easy installation and design. Compact and unitary appearance to get perfect harmonized indoor

decoration.





AB302MCERA AB382MCERA AB482MCERA PANEL: PB-950JB

Low operation noise level

Model	AB05	AB07-12	AB16-18(C)	AB18	AB24	AB28	AB30	AB38	AB48
Noise level H/M/L	31/29/28	32/30/29	33/30/29	34/32/30	35/34/31	37/35/31	37/35/31	37/35/31	42/39/35

Built-in high head drainage

A Standard built-in drain pump can realize up to Max. 600mm drainage head, which creates the ideal solution for perfect water drainage.

Fresh air inlet

Pre-set fresh air inlet hole, which can lead the fresh air from outside into indoor, greatly improves indoor air quality. Long life filter is standard part with the unit.



2.2 Specification

MODEL			AB052MCERA	AB072MCERA	AB092MCERA	
Power supply	Power supply Ph-V-Hz			1,220~230,50/60	1,220~230,50/60	
	Capacity	kBtu/h	5.1	7.5	9.6	
Qaaliaa	Capacity	kW	1.5	2.2	2.8	
Cooling	Power input	W	80	80	80	
	Current	А	0.47	0.47	0.47	
	Capacity	kBtu/h	5.8	8.5	10.9	
	Capacity	kW	1.7	2.5	3.2	
Heating	Power input	W	80	80	80	
	Current	A	0.47	0.47	0.47	
	Heating capacity at low temp.	kW	2.5	2.5	2.5	
Operating cu	rrent	А	0.47	0.47 0.47		
Power consu	mption	kW	0.08	0.08 0.08		
	Brand		Broad Ocean	Broad Ocean	Broad Ocean	
	Model		Y5S613B231 Y5S613B231		Y5S613B231	
	Туре		AC	AC	AC	
	Insulation class		В	В	В	
Indoor motor	IP class		IP20	IP20	IP20	
	Power input	W	72	72	72	
	Power output	W	40	40	40	
	Capacitor	μF	2µF /450v	2µF /450v	2µF /450v	
	Speed (High/Middle/Low)	rpm	760/650/520	760/650/520	760/650/520	
	Brand		Haier	Haier	Haier	
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal	
	Quantity		1	1	1	
	a. Number of rows		1	1	1	
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	21*13.3	
	c. Fin spacing	mm	1.35 1.35		1.35	
Indoor coil	d. Fin type (code)		ŀ	lydrophilic aluminum		
	e. Tube outside dia. and type	mm		Þ7 Inner groove tube		
	f. Coil length×height×width	mm	1330×13.3×210	30×13.3×210 1330×13.3×210 1330×13.3		
	g. Number of circuits 2 2 2				2	



MODEL			AB052MCERA	AB072MCERA	AB092MCERA
	Cabinet coating type		Galvanized	Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	72	72	72
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		0.8	0.8	0.8
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		Standard 700mm	Standard 700mm	Standard 700mm
	Branch outlet option		No	No	No
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	0.8	0.8	0.8
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
	Liquid pipe	mm	6.35	6.35	6.35
Piping dimension	Gas pipe	mm	9.52	9.52	9.52
	Drain hose	mm	32	32	32
	Model		PB-700IB	PB-700IB	PB-700IB
	Dimension	mm	700*700*60	700*700*60	700*700*60
Panel	Packing	mm	740*740*115	740*740*115	740*740*115
	Net weight	kg	2.8	2.8	2.8
	Gross weight	kg	4.5	4.5	4.5
Fresh air dimensio	bn	mm	Ф100	Ф100	Ф100
Sound pressure le	evel (H/M/L)	dB (A)	31/29/28	32/30/29	32/30/29
Sound power leve	I (H/M/L)	dB (A)	45/43/42	46/44/43	46/44/43
Standard static pro	essure	Pa	0	0	0
Indoor air flow (H/	M/L)	m³/h	650/540/430	700/590/480	700/590/480
Dimension (W*H*D)		mm	570*260*570	570*260*570	570*260*570
Packing (W*H*D)		mm	718/380/680	718/380/680	718/380/680
Net weight		kg	17	17	17
Gross weight		kg	21	21	21
Nominal condition: indoor temperature (cooling): 27DE Outdoor temperature (cooling): 35DB (°C)/24WB (°C) The noise level will be measured in the third octave			C), outdoor temperatu	ure (heating): 7DB (°C	C)/6WB (°C)
The noise level w	ill be measured in the th	ird octav	e band limited value	es, using a Real Time	e Analyser calibra

sound intensity meter. It is a sound pressure noise level.

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MODEL			AB122MCERA	AB162MCERA	AB182MCERA(C)
Power supply	1	Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1/220~230/50/60
	Capacity	kBtu/h	12.3	15.4	19.1
Onalina	Capacity	kW	3.6	4.5	5.6
Cooling	Power input	W	80	80	80
	Current	А	0.47	0.47	0.47
	Capacity	kBtu/h	13.6	17.1	21.5
	Capacity	kW	4.0	5.0	6.3
Heating	Power input	W	80	80	80
	Current	A	0.47	0.47	0.47
	Heating capacity at low temp.	kW	3.2	4.0	4.0
Operating cu	rrent	A	0.47	0.47	0.47
Power consu	mption	kW	0.08	0.08	0.08
	Brand		Broad Ocean	Broad Ocean	Broad Ocean
	Model		Y5S613B231 Y5S613B231		Y5S613B231
	Туре		AC	AC	AC
	Insulation class		В	В	В
Indoor motor	IP class		IP20	IP20	IP20
	Power input	W	72	72	72
	Power output	W	40	40	40
	Capacitor	μF	2µF /450v	2µF /450v	2µF /450v
	Speed (High/Middle/Low)	rpm	760/650/520	760/650/520	760/650/520
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		1	1	1
	a. Number of rows		2	2	2
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	21*13.3
	c. Fin spacing	mm	1.35 1.35		1.35
Indoor coil	d. Fin type (code)		Hydrophilic aluminum		1
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube		
	f. Coil length×height×width	mm	1260×26.6×210	1260×26.6×210	1260×26.6×210
	g. Number of circuits		4	4	4

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	MODEL		AB122MCERA	AB162MCERA	AB182MCERA(C)
Cabinet coating type			Galvanized	Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	72	72	72
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		0.8	0.8	0.8
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		Standard 700mm	Standard 700mm	Standard 700mm
	Branch outlet option		No	No	No
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	0.8	0.8	0.8
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Ра	5	5	5
	Liquid pipe	mm	6.35	6.35	6.35
Piping dimension	Gas pipe	mm	12.7	12.7	12.7
	Drain hose	mm	32	32	32
	Model		PB-700IB	PB-700IB	PB-700IB
	Dimension	mm	700*700*60	700*700*60	700*700*60
Panel	Packing	mm	740*740*115	740*740*115	740/740/115
	Net weight	kg	2.8	2.8	2.8
	Gross weight	kg	4.5	4.5	4.5
Fresh air dimensio	n	mm	Φ100	Ф100	Ф100
Sound pressure le	vel (H/M/L)	dB (A)	32/30/29	33/30/29	33/30/29
Sound power leve	I (H/M/L)	dB (A)	46/44/43	47/44/43	47/44/43
Standard static pressure		Pa	0	0	0
Indoor air flow (H/M/L)		m³/h	700/590/480	700/590/480	700/590/480
Dimension (W*H*D)		mm	570*260*570	570*260*570	570*260*570
Packing (W*H*D)		mm	718/380/680	718/380/680	718/380/680
Net weight		kg	19	19	19
Gross weight		kg	23	23	23
Outdoor temperate	: indoor temperature (coc ure (cooling): 35DB (°C)/2 ill be measured in the th	24WB (°C	C), outdoor temperatu	ure (heating): 7DB (°C	C)/6WB (°C)

sound intensity meter. It is a sound pressure noise level.

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	MODEL		AB182MCERA	AB242MCERA	AB282MCERA
Power supply	,	Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	19.1	24.2	27.3
Casling	Capacity	kW	5.6	7.1	8
Cooling	Power input	W	145	145	145
	Current	A	0.67	0.67	0.67
	Capacity	kBtu/h	21.5	27.3	30.7
	Capacity	kW	6.3	8	9
Heating	Power input	W	145	145	145
	Current	A	0.67	0.67	0.67
	Heating capacity at low temp.	kW	5	6	7.0
Operating cu	rrent	A	0.67	0.51	0.51
Power consu	mption	kW	0.09	0.1	0.1
	Brand		Broad ocean	Broad ocean	Broad ocean
	Model		Y5S612C81	Y5S612C81	Y5S612C81
	Туре		AC	AC	AC
	Insulation class		В	В	В
Indoor motor	IP class		IP20	IP20	IP20
	Power input	w	142	142	142
	Power output	w	50	50	50
	Capacitor	μF	3µF /450v	3µF /450v	3µF /450v
	Speed (High/Middle/Low)	rpm	710/620/520	710/620/520	710/620/520
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		1	1	1
	a. Number of rows		2	2	2
Indoor coil	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	21*13.3
	c. Fin spacing	mm	1.45 1.45		1.45
	d. Fin type (code)		Hydrophilic aluminum		ו
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube		9
	f. Coil length×height×width	mm	1935×26.6×168 1935×26.6×168		1935×26.6×168
	g. Number of circuits		8	8	8

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	MODEL		AB182MCERA	AB242MCERA	AB282MCERA
Cabinet coating type			Galvanized	Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	72	72	72
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		0.8	0.8	0.8
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		Standard 700mm	Standard 700mm	Standard 700mm
	Branch outlet option		No	No	No
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	0.8	0.8	0.8
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Ра	5	5	5
	Liquid pipe	mm	6.35	9.52	9.52
Piping dimension	Gas pipe	mm	12.7	15.88	15.88
	Drain hose	mm	32	32	32
	Model		PB-950JB	PB-950JB	PB-950JB
	Dimension	mm	950*950*60	950*950*60	950*950*60
Panel	Packing	mm	992*992*115	992*992*115	992*992*115
	Net weight	kg	6	6	6
	Gross weight	kg	7.5	7.5	7.5
Fresh air dimensio	n n	mm	/	/	1
Sound pressure le	vel (H/M/L)	dB (A)	34/32/30	35/34/31	37/35/31
Sound power leve	I (H/M/L)	dB (A)	48/46/44	49/48/45	51/49/45
Standard static pro	essure	Pa	0	0	0
Indoor air flow (H/M/L)		m³/h	1200/1010/820	1200/1010/820	1200/1010/820
Dimension (W*H*D)		mm	840*240*840	840*240*840	840*240*840
Packing (W*H*D)		mm	930/390/930	930/390/930	930/390/930
Net weight		kg	30	30	30
Gross weight		kg	32.5	32.5	32.5
Outdoor temperate	: indoor temperature (coo ure (cooling): 35DB (°C)/2 ill be measured in the th	24WB (°C	C), outdoor temperatu	ure (heating): 7DB (°C	C)/6WB (°C)

sound intensity meter. It is a sound pressure noise level.

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MODEL			AB302MCERA	AB382MCERA	AB482MCERA
Power supply			1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	Btu/h	30.7	38.2	47.8
Casling	Capacity	kW	9	11.2	14
Cooling	Power input	W	150	150	150
	Current	А	0.76	0.76	0.76
	Capacity	Btu/h	34.1	42.7	54.6
	Capacity	kW	10	12.5	16
Heating	Power input	W	150	150	150
	Current	А	0.76	0.76	0.76
	Heating capacity at low temp.	kW	8.0	10	12.5
Operating cu	urrent	А	0.76	0.76	0.76
Power consu	umption	kW	0.15	0.15	0.15
	Brand		Broad Ocean	Broad Ocean	Broad Ocean
	Model		Y6S643C01	Y6S643C01	Y6S643C01
	Туре		AC	AC	AC
	Insulation class		В	В	В
Indoor motor	IP class		IP20	IP20	IP20
	Power input	W	148	148	148
	Power output	W	90	90	90
	Capacitor	μF	8µF /450v	8µF /450v	8µF /450v
	Speed (High/Middle/Low)	rpm	675/610/530	675/610/530	675/610/530
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		1	1	1
	a. Number of rows		2	2	2
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	21*13.3
	c. Fin spacing	mm	1.45 1.45		1.45
Indoor coil	d. Fin type (code)		H	Hydrophilic aluminun	l I
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube		e
	f. Coil length×height×width	mm	1935×26.2×252	1935×26.2×252	1935×26.2×252
	g. Number of circuits		11	11	11

11 -

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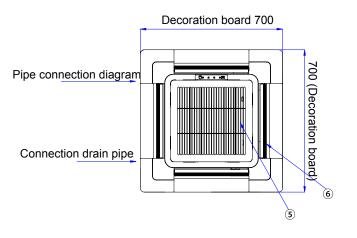


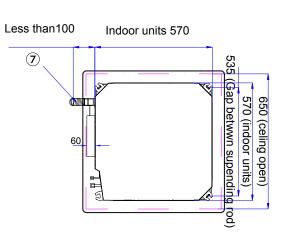
MODEL			AB302MCERA	AB382MCERA	AB482MCERA
Cabinet coating type			Galvanized	Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	72	72	72
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		0.8	0.8	0.8
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		Standard 700mm	Standard 700mm	Standard 700mm
	Branch outlet option		No	No	No
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	0.8	0.8	0.8
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Ра	5	5	5
	Liquid pipe	mm	9.52	9.52	9.52
Piping dimension	Gas pipe	mm	15.88	15.88	15.88
	Drain hose	mm	32	32	32
	Model		PB-950JB	PB-950JB	PB-950JB
	Dimension	mm	950*950*60	950*950*60	950*950*60
Panel	Packing	mm	992*992*115	992*992*115	992*992*115
	Net weight	kg	6	6	6
	Gross weight	kg	7.5	7.5	7.5
Fresh air dimensio	n	mm	Φ70	Φ70	Φ70
Sound pressure le	evel (H/M/L)	dB (A)	37/35/31	37/35/31	42/39/35
Sound power leve	I (H/M/L)	dB (A)	51/49/45	51/49/45	56/53/49
Standard static pre	essure	Ра	0	0	0
Indoor air flow (H/M/L)		m³/h	1800/1610/1420	1800/1610/1420	1800/1610/1420
Dimension (W*H*D)		mm	840*295*840	840*295*840	840*295*840
Packing (W*H*D)		mm	930/390/930	930/390/930	930/390/930
Net weight		kg	38	38	38
Gross weight		kg	40	40	40
Outdoor temperate The noise level w	: indoor temperature (coc ure (cooling): 35DB (°C)/2 ill be measured in the th eter. It is a sound pressur	24WB (°C ird octav	c), outdoor temperature band limited value	ure (heating): 7DB (°C	C)/6WB (°C)

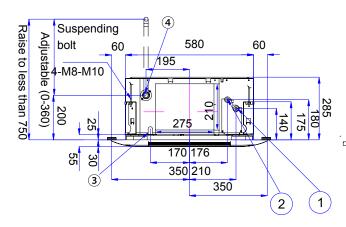


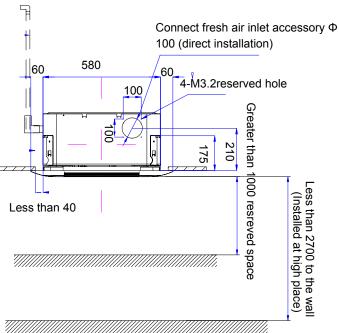
2.3 Dimension

AB052MCERA AB072MCERA AB092MCERA AB122MCERA AB162MCERA AB182MCERA (C)



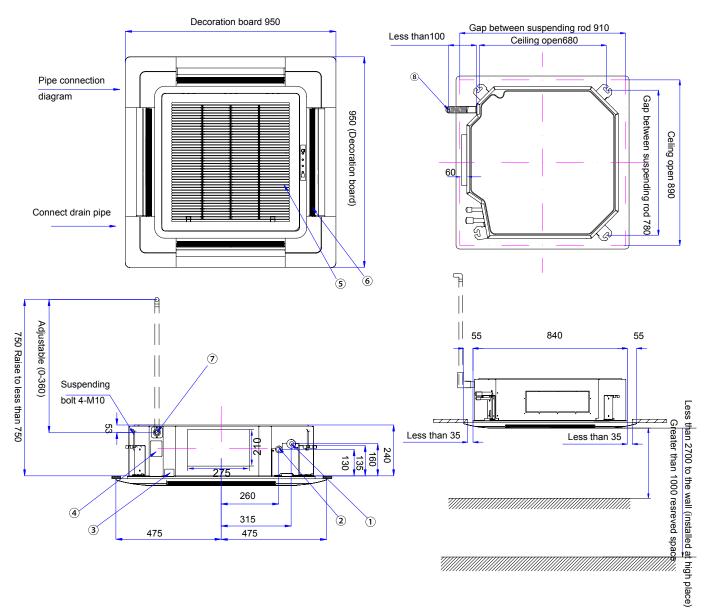






SN	Part name						
1	Connection port of gas pipe						
2	Connection of liquid pipe						
3	Wiring connection port of motor						
5	/pumping motor						
4	Connect drain pipe						
5	Inlet grille						
6	Outlet grille						
7	Drain hose (accessory)						





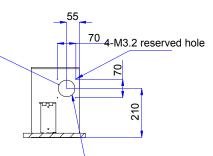
AB182MCERA AB242MCERA AB282MCERA

SN	Part name						
1	Connection port of gas pipe						
2	Connection of liquid pipe						
3	Wiring connection port of motor/pumping motor						
4	Observe plate for water pump						
5	Inlet grille						
6	Outlet grille						
7	Connect drain pipe						
8	Drain hose (accessory)						



Ceiling open 910 Gap between suspending rod 680 100 Decoration board 950 8 Gap between suspending rod 780 Pipe connection Ceiling open 890 diagram 950 (Decoration board) 60 **0**••• •• 5 S Connect drain pipe R F 6 5 ||₅₅ 840 55 P 750 Raise to less than 750 Adjustable (0-360) Ċ 0 Greater than 1000 resreved space Suspending bolt Less than 35 Less than 2700 to the wall Less than 35 4-M10 ø 210 210 295 120 120 \$ 295 260 4 315 2 (1)(3) 475 475

AB302MCERA AB382MCERA AB482MCERA



SN	Part name
1	Connection port of gas pipe
2	Connection of liquid pipe
3	Wiring connection port of motor/pumping motor
4	Observe plate for water pump
5	Inlet grille
6	Outlet grille
7	Connect drain pipe
8	Drain hose (accessory)

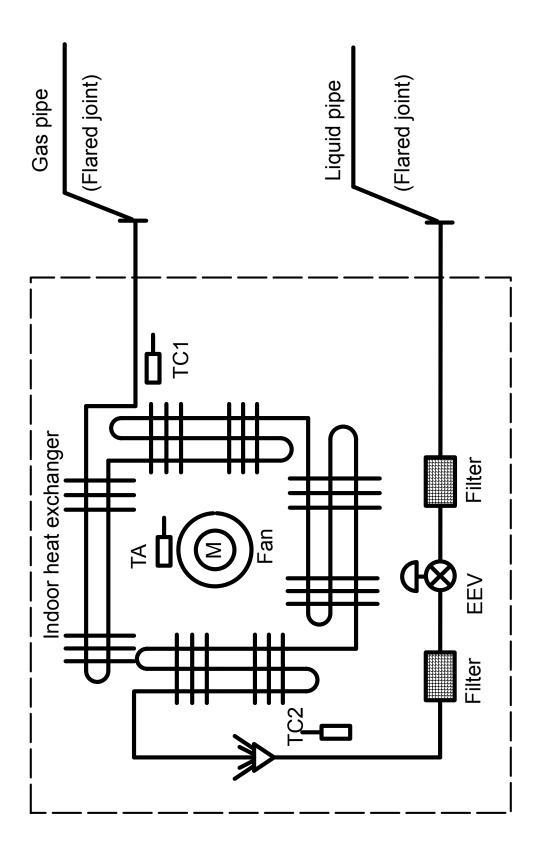
Connect fresh air inlet accessory (direct installation)

See from A side

-



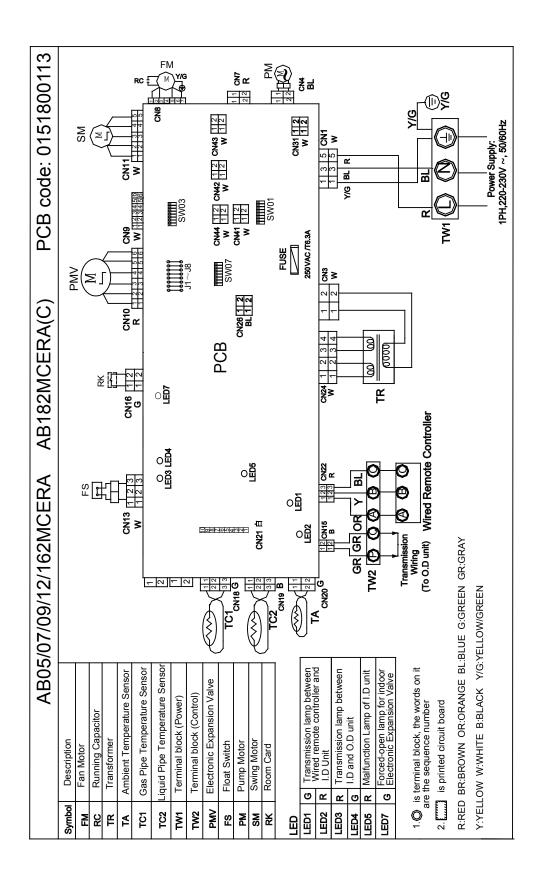
2.4 Piping diagram



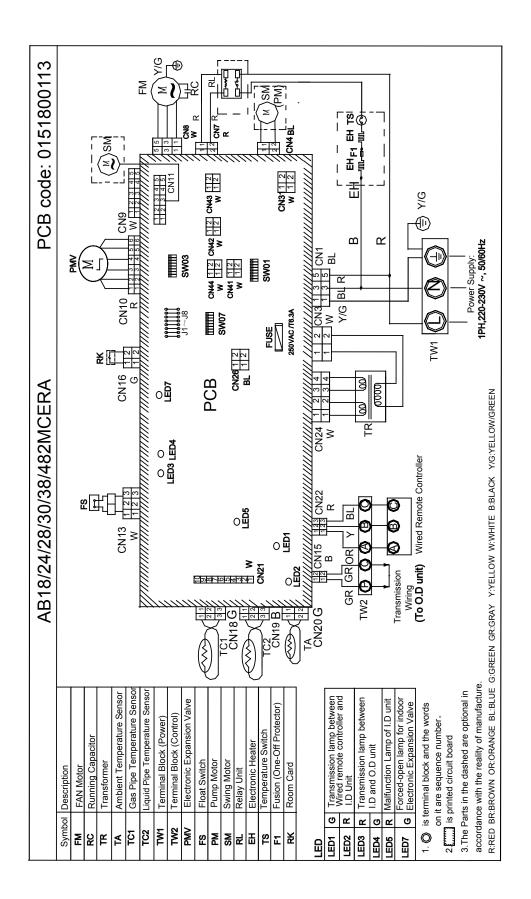
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2.5 Wiring diagram









2.6 Electric characteristics

	Units					supply	Indoor fa	in motor	Power i	nput (w)
Model	Phase	FQY	Voltage	Volt. range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AB052MCERA	1	50/60	220	198~242	0.5	1.6	40	0.4	80	80
AB072MCERA	1	50/60	220	198~242	0.5	1.6	40	0.4	80	80
AB092MCERA	1	50/60	220	198~242	0.5	1.6	40	0.4	80	80
AB122MCERA	1	50/60	220	198~242	0.5	1.6	40	0.4	80	80
AB162MCERA	1	50/60	220	198~242	0.5	1.6	40	0.4	80	80
AB182MCERA(C)	1	50/60	220	198~242	0.5	1.6	40	0.4	80	80
AB182MCERA	1	50/60	220	198~242	0.69	2.2	50	0.55	145	145
AB242MCERA	1	50/60	220	198~242	0.69	2.2	50	0.55	145	145
AB282MCERA	1	50/60	220	198~242	0.69	2.2	50	0.55	145	145
AB302MCERA	1	50/60	220	198~242	1.38	4.4	90	1.1	150	150
AB382MCERA	1	50/60	220	198~242	1.38	4.4	90	1.1	150	150
AB482MCERA	1	50/60	220	198~242	1.38	4.4	90	1.1	150	150

Symbols:

MCA: Min. circuit amps (A) MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

Note:

1. Voltage range

The units are applicable for the electrical systems where voltage supplied to unit is in the range.

2. Maximum allowable voltage unbalance between phases is 2%.

3. MCA=1.25*FLA MFA≤4*FLA

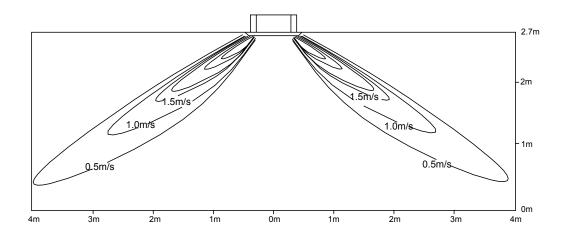
4. Power supply uses the circuit breaker.



2.7 Air velocity and temperature distribution

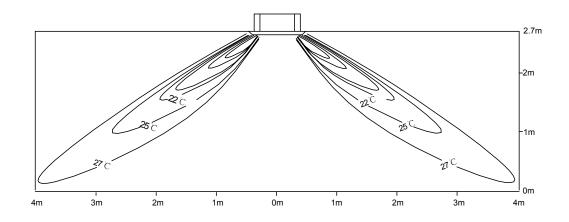
AB052MCERA, AB072MCERA, AB092MCERA, AB122MCERA, AB162MCERA, AB182MCERA(C)

a. Cooling / Air velocity distribution
 Cooling
 Blowy angle: 40
 Air velocity distribution



b. Cooling / Temperature distribution

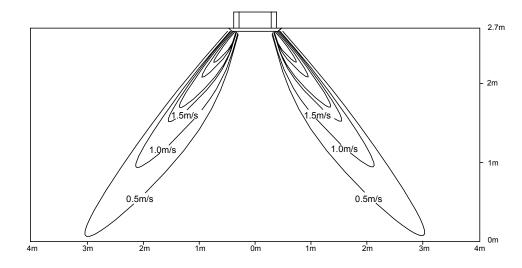
Cooling Blowy angle: 40 Temperature distribution



20

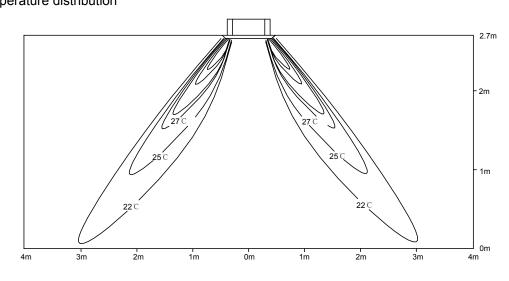


c. Heating / Air velocity distribution
Heating
Blowy angle: 70
Air velocity distribution



d. Heating / Temperature distribution

Heating Blowy angle: 70 Temperature distribution

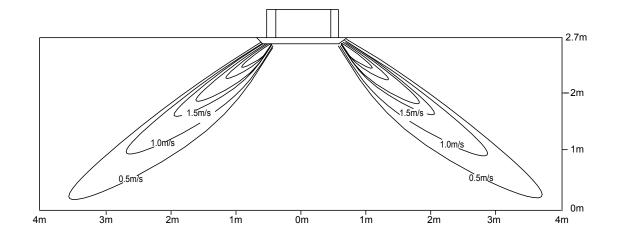


21

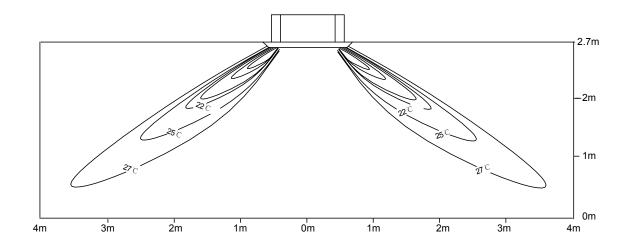


AB182, 242, 282, 302, 382, 482MCERA

a. Cooling / Air velocity distribution
 Cooling
 Blowy angle: 40
 Air velocity distribution



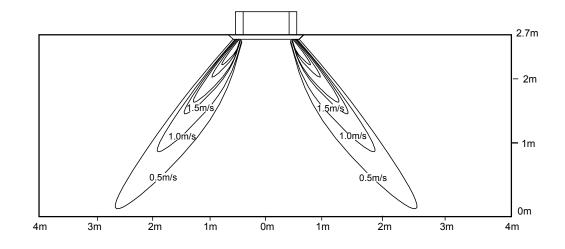
b. Cooling / Temperature distribution
 Cooling
 Blowy angle: 40
 Temperature distribution



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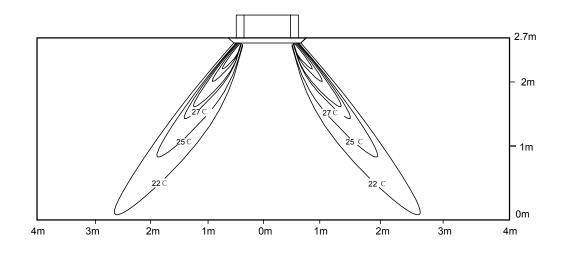


c. Heating / Air velocity distribution Heating Blowy angle: 70 Air velocity distribution



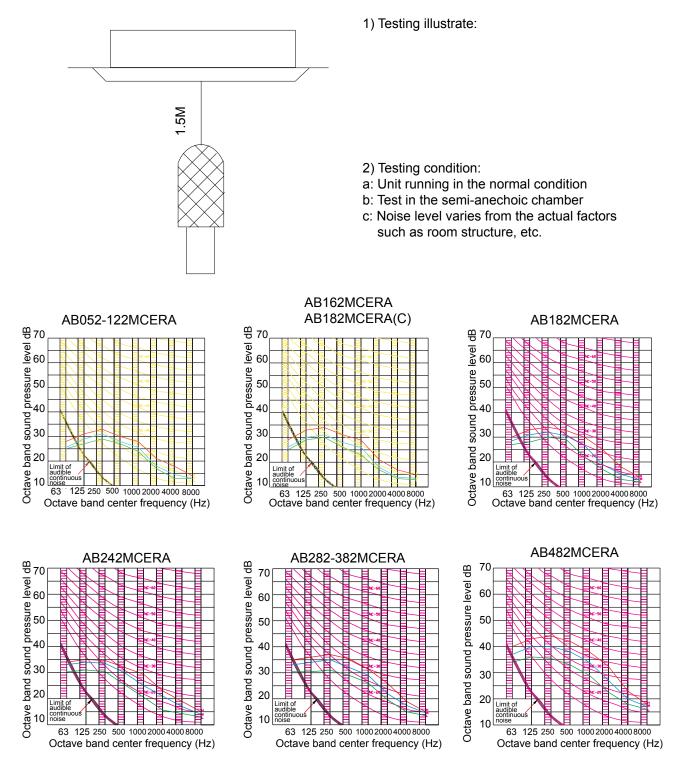
d. Heating / Temperature distribution

Heating Blowy angle: 70 Temperature distribution





2.8 Sound pressure level





2.9 Installation

2.9.1 Installation procedures

The standard attached accessories of the units of this series refer to the packing list; prepare other accessories according to the requirements of the local installation point of our company.

Indoor units should be installed in places with the environment of even circulation of cool and warm blows. The following places should be avoided.

- Places with high salinity (beach), high sulfureted gas (such as the thermal spring regions where copper tubes and soft soldering are easy to be eroded), much oil (including mechanical oil) and steam; places where organic substance solvent is used; where special spray is frequently used;
- Places where machines generate the high frequency electromagnetic wave (abnormal condition will appear in the control system);
- Places where there are high humidity exists near the door or windows (dew is easily formed).

Protect the machine from gales or earthquake, make the installation according to the regulations. Improper installation will cause accidents due to the overturn of the air conditioner.

1. Select the following places to install indoor units.

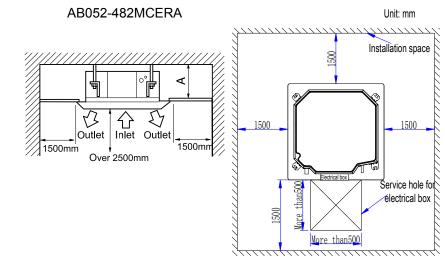
- (1) Where there is enough room for the machine above the ceiling;
- (2) Where the drainpipes can be well arranged;
- (3) Where the distance between the air outlet port of the machine and the floor is not more than 2.7m;
- (4) Where air inlet & outlet of the indoor units are not blocked;
- (5) Where it is hard enough to bear the weight of the unit;
- (6) Where there are no televisions, pianos and other valuables under the indoor units as to avoid condensate dropping down, causing damage.
- (7) Where it is over 1m away from the television and radio as to avoid the disturbance from television and radio.

Installation Space

Ensure the required space for installation and maintenance (refer to the following drawings).

The installation height should be kept within 2.7m.

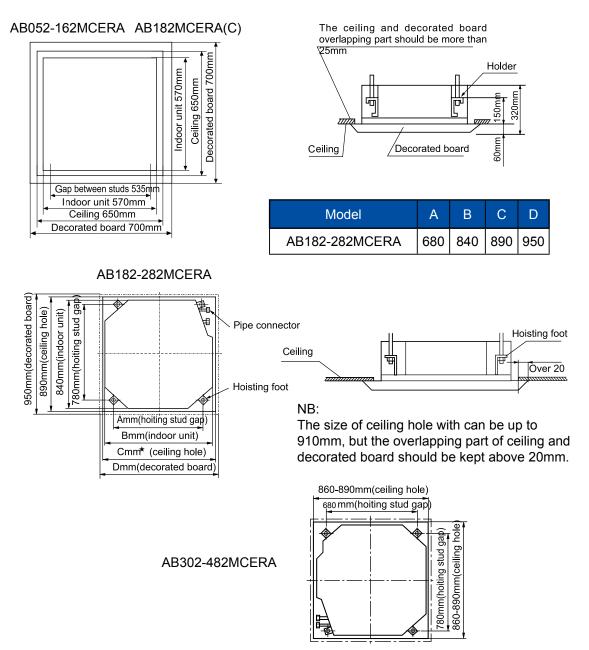
When the height of the ceiling exceeds 2.7m, the warm air is hard to blow to the ground.



Model	A (mm)
AB052-162MCERA	320
AB182MCERA(C)	320
AB182-282MCERA	280
AB302-482MCERA	335



2. Location relationship among ceiling hole, unit and suspender



Note:

Before suspending the indoor unit, select the installation location according to the piping and wiring in the ceiling, and determine the lead direction of the piping. Prepare all pipes (refrigerator and drainage) and wiring (connection line for remote control and connection line of indoor units and outdoor units) connected to indoor units before suspending the indoor unit so as to make the connections right after the installation.

- In the situation with the ceiling, before suspending the unit, set refrigerant pipe, drainpipe, connection line in the room, lead wire of wired control to the locations of piping and wiring.
- Confirm the size of the indoor unit and fix it according to the requirements in the manual.

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3. Ceiling hole & reinforcement

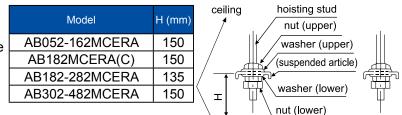
- Cut and take the ceiling according to the size of indoor unit.
- After cutting an appropriate hole, reinforce the cutting area on the foundation of indoor unit, and append the rim to the ceiling to secure its foundation. In order to prevent the ceiling from vibrating, it is vital to reinforce the ceiling foundation and ensure the original levelness of the ceiling.

4. Suspender installation

- To support the weight of the unit, use barb bolts in the situation with the ceiling. In the situation with the new ceiling, use inlaid bolts, embedded bolts or other parts provided on site. Before proceeding the installation, adjust the gap between the bolts and the ceiling.
- Use four M10 suspenders (provided on site) (when the height of the suspender exceeds 0.9m, M10 studs should be used.). The gaps should be kept according to the overall drawing of the air conditioner. Make the installation according to regulations for various building structures as to ensure the safety. Use the level meter to perform the parallel installation.

Ceiling suspending

Adjust the location of the nut at the lower part as to keep the gap between the washer at the lower part (provided on site) and the ceiling is Hmm.



water leve

Situation with new ceiling

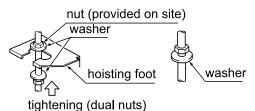
- Install the indoor unit temporarily:
- Attach the hoisting foot to hoisting stud. Make sure that nuts and washers should be used at two ends of the foot to secure the foot.

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- For the size of the ceiling hole, please refer to the schematic drawing at the previous page. installation of the ceiling>
- Adjust the unit to the proper installation location.
- Check if the unit is in the horizontal level:
- The indoor unit is equipped with a built-in drainage pump and a floater switch. Check if the 4 angles of the unit are in the horizontal level with the water level or the polythene tube with water, as shown in the figure, taking only one indoor unit as an example. If the unit inclines opposite to the direction of condensate flow, the floater switch might have faults, causing water dropping.
- Tighten the nut on the washer.

Situation with original ceiling

- Install the indoor unit temporarily: attach the hoisting foot to hoisting stud. Make sure that nuts and washers (provided on site) should be used at two ends of the foot to secure the foot.
- Adjust the height and location of the unit.
- Perform step 4 and 5 in situation with new ceiling.



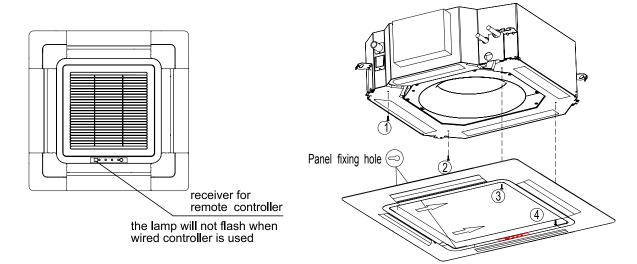
[secure hoisting foot]

[secure washer foot]

polythene tube



Installing the panel board on the body of indoor unit:

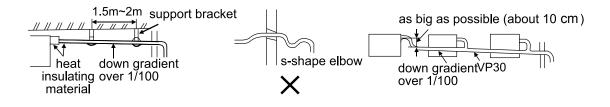


- Limits when mounting the panel: mount the panel as shown in the figure. Incorrect direction may cause air leakage, and meanwhile the swinging and receiving displays can't be connected.
- Fixing the screw 1 and 2 to the fixing holes which are in the indoor unit(don't tighten them); hanging the panel on screw 1 and 2; moving the panel according to the arrow direction to fixed it temporarily.
- Through the panel to fix the screw 3 and 4 to the fixing holes which are in the indoor unit and then tighten the 4 screws.
- Connect it to the motor line, communication line and power line, and check with the controller if the connections are correct. Mount air inlet grid and corner covers after making sure that the machine can operate normally.

Requirements:

Ceiling Hole & Reinforcement

- The drainpipe of the indoor unit should be heat-insulated.
- Heat insulation should be treated for the connection with the indoor unit. Improper heat insulation may cause condensing.
- The drainpipe with the down gradient of over 1/100 can't be in the S shape, or abnormal sound can be caused.
- The horizon length of the drainpipe should be kept with 20m. Under the condition of long pipes, supports can be provided every 1.5~2m as to avoid unevenness.
- The central piping should be connected according the following drawing.
- Take care not to apply external force on the connection of the drainpipes.





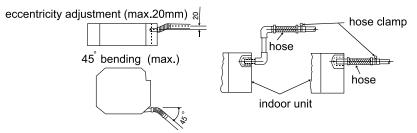
Pipe materials & heat insulation materials

As to prevent condensation, heat insulating treatment should be performed. The heat	Piping Material	Hard PVC tube VP 31.5mm (inner bore)
insulating treatment for piping should be done respectively.	Heat Insulating Material	Vesicant polythene thickness: over 7mm

Hose

The attached hoses can be used to adjust the eccentricity and angle of the hard PVC tube.

- Stretch the hose directly to make connections as to avoid distortion. The soft end of the hose should be positioned with a clamp.
- The hose should be used in the horizon direction.



Heat insulating treatment:

Wrap the connection between the clamp and the root segment of the indoor unit without any gap with heat insulating materials as shown in the drawing.

Lifting drainpipe

The drainpipe can be lifted 360mm.

When the down gradient of the drainpipe can't be ensured, after upright lifting, the drainpipe is in the down slope.

Confirm drainage

The drainage should be confirmed during the test run to make sure that there is leakage at the connection.

The confirmation of drainage should be also performed during the installation in the winter season.

Charge water from the outlet or the specified position and confirm the drainage.

Charge 600cc water with a hose from the outlet or the specified location on the machine. Add the water slowly. Don't add water to the motor of the drainage pump.

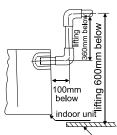
- After mounting the electrical system, do cooling operation and meanwhile add water and check.
- If the electrical installation hasn't been completed, pull out the terminal (2P) of the floater switch on the electrical cabinet. After confirming the drainage, connect the terminal of the floater switch and run the drainage pump for 5 minutes until it stops automatically.

Confirm the sound of the motor:

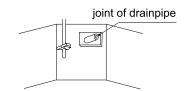
Confirm the sound of the motor of the drainage pump and meanwhile check the drainage.

høse hose clamp

attached heat heat insulating material horniness pvc pipe



under the ceiling





Pipe length & height difference

Please refer to the attached manual of outdoor units.

Tubing materials & specifications

Model		AB052-092MCERA	AB122-182MCERA	AB242-482MCERA		
Tubing Size (mm) Gas pipe Liquid pipe		Ф9.52	Ф12.7	Ф15.88		
		Φ6.35 Φ6.35		Ф9.52		
Tubing Material	Phosphor deoxy bronze seamless pipe (TP2) for air conditioner					

Refrigerant recharge amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount while compressor failure can be caused by filling too much or little refrigerant.

Connecting procedures of refrigerant tubing

Proceed the flare tube connecting operation to connect all the refrigerant tubes.

- Dual wrenches must be used in the connection of indoor unit tubing.
- Mounting torque refers to the right table.



Outer diameter of tubing (mm)	Mounting torque (N.m)	Increase mounting torque (N.m)
Φ6.35	11.8 (1.2kgf.m)	13.7 (1.4kgf.m)
Φ9.52	24.5 (2.5kgf.m)	29.4 (3.0kgf.m)
Φ12.70	49.0 (5.0kgf.m)	53.9 (5.5kgf.m)
Ф15.88	78.4 (8.0kgf.m)	98.0 (10.0kgf.m)

Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one master unit.]

Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds. Connecting Connecting circular terminals: 1. Connecting circular terminals: The connecting method of circular terminal is shown is the fire Take off the correct optic to the

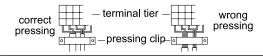
in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it.

2. Connecting straight terminals:

The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier, tighten the screw and confirm it has been clamped by pulling the line gently.

3. Pressing connecting line:

After connecting line is completed, press the connecting line with clips which should press on the protective sleeve of the connecting line.

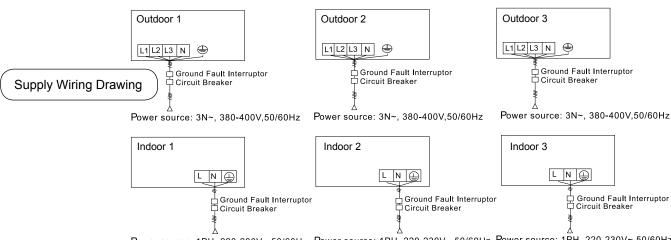




2.9.2 Electrical wiring

- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while ④ should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below: 3×(1.0-1.5) mm²; parameters for signal line: 2×(0.75-1.25)mm² (shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.

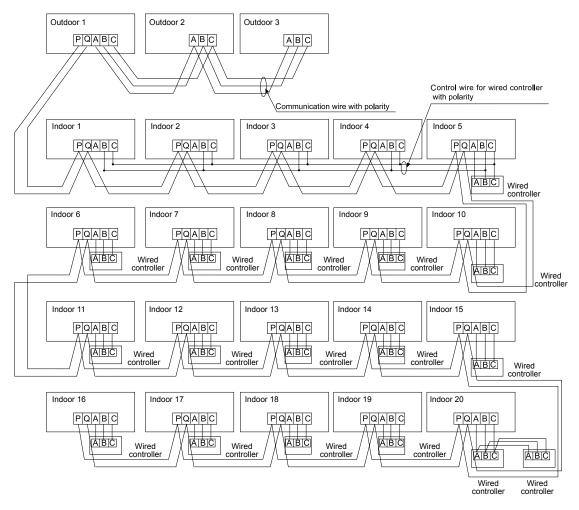


Power source: 1PH, 220-230V~,50/60Hz Power source: 1PH, 220-230V~,50/60Hz Power source: 1PH, 220-230V~,50/60Hz

- Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated.
- Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.



Signal Wiring Drawing



Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure (1-5 indoor units). The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)
- B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired control are connected via three lines with polarity.
- C. Two wired controllers control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controls can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.



The combination of multiple indoor units can be controlled by wired controller or remote controller.

* Switching mode of wired control master unit/ wired control slave unit/ remote control types can be used for switching over *

Setting mode Socket/dip switch	Wired control master unit	Wired control slave unit	Remote control
SW01-[1][2][3][4]	All OFF	[0][0][0][1]	All OFF
CN21 socket	Null	Null	Connect to remote receiver
Terminal block (control)	A, B, C connect with wired controller	B, C connect with wired controller	A, B, C Null

Note:

The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Items	Cross	Length	Rated current of	Rated current of residual circuit breaker (A)	Cross se area of si	
Total current of indoor units (A)	section (mm²)	(m)	overflow breaker (A)	Ground fault interrupter (mA)	Outdoor -indoor (mm²)	Indoor -indoor (mm²)
<10	2	20	20	20 A, 30 mA, 0.1S or below		
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below	2 cores×(0.	75-2.0)mm ²
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below		
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below		

% The electrical power line and signal lines must be fastened tightly.

% Every indoor unit must have the ground connection.

% The power line should be enlarged if it exceeds the permissible length.

% Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.

% It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm ² ×3 core shielded line

% The shielding lay of the signal line must be grounded at one end.

% The total length of the signal line shall not be more than 250m.



2.9.3 Test run

Before test run

- Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above 1MΩ. It can't be operated if it is below 1MΩ.
- Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.
- Check if the arrangements of the drainpipe and connection line are correct.
- The drainpipe shall be placed at the lower part while the connection line placed at the upper part.
- Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials.
- The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.
- Checkup of Installation
- \Box Check if the mains voltage is matching
- □ Check if there is air leakage at the piping joints
- □ Check if the connections of mains power and indoor & outdoor units are correct
- □ Check if the serial numbers of terminals are matching
- Check if the installation place meets the requirement
- \Box Check if there is too much noise
- Check if the connecting line is fastened
- $\hfill\square$ Check if the connectors for tubing are heat insulated
- $\hfill\square$ Check if the water is drained to the outside
- \Box Check if the indoor units are positioned

Ways of test run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

Set the wired controller to cooling/heating mode, press "ON/OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/OFF" button to quit the compulsive running and stop the operation of the air conditioner.



3. Round-way Smart Air Flow Cassette Type Indoor Unit

3.1 Features



AB072MRERA AB092MRERA AB122MRERA AB162MRERA AB182MRERA AB242MRERA AB282MRERA AB302MRERA AB382MRERA AB482MRERA AB602MRERA

- Unique round-way air outlet, no blind spot
- Innovative 4 independent air flow control
- 6 adjustable louver positions, 1296 air flow combinations
- Move eye intelligent system, intelligence all around (optional)



3.2 Specification

Model		AB072MRERA	AB092MRERA	AB122MRERA	
Power supply		V-Ph-Hz	1/220~230/50/60	1/220~230/50/60	1/220~230/50/60
	Capacity	kBtu/h	7.5	9.5	12.3
Cooling	Capacity	kW	2.2	2.8	3.6
	Power input	W	30	30	30
	Current	А	0.15	0.15	0.15
	Capacity	kBtu/h	8.5	10.9	13.6
	Capacity	kW	2.5	3.2	4
Heating	Power input	W	30	30	30
5	Current	А	0.15	0.15	0.15
	Heating capacity at low temp.	kW	1	1	1
Operating curr	ent	А	0.15	0.15	0.15
	Brand		Broad ocean	Broad ocean	Broad ocean
	Model		ZWK465B500011	ZWK465B500011	ZWK465B500011
	Туре		DC	DC	DC
	Insulation class		E	E	E
Indoor motor	IP class		IP40	IP40	IP40
	Power input	W	30	30	30
	Power output	W	22	22	22
	Capacitor	μF	1	1	/
	Speed (High/ Middle/Low)	rpm	300-600	300-600	300-600
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		1	1	1
	Number of rows		2	2	2
	Tube pitch (a) x row pitch (b)	mm	21*13.3	21*13.3	21*13.3
	Fin spacing	mm	1.45	1.45	1.45
Indoor coil	Fin type (code)			Hydrophilic aluminum	
	Tube outside dia. and type	mm	Φ7	Φ7	Φ7
	Coil length x height x width	mm	2132*147*26.6	2132*147*26.6	2132*147*26.6
	Number of circuits		6	6	6



	Model		AB072MRERA	AB092MRERA	AB122MRERA
	Cabinet coating type		Galvanized	Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	100	100	100
	Control box IP class		IP40	IP40	IP40
	Sheet metal thickness		0.8	0.8	0.8
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		Standard 1200mm	Standard 1200mm	Standard 1200mm
	Branch outlet option		No	No	No
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	0.8	0.8	0.8
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Ра	5	5	5
	Liquid pipe	mm	6.35	6.35	6.35
Piping dimension	Gas pipe	mm	9.52	9.52	12.7
	Drain hose	mm	Φ25	Φ25	Φ25
	Model		PB-950KC	PB-950KC	PB-950KC
	Dimension	mm	950/950/50	950/950/50	950/950/50
Panel	Packing	mm	1013/1025/123	1013/1025/123	1013/1025/123
	Net weight	kg	6.5	6.5	6.5
	Gross weight	kg	9	9	9
Fresh air dime	ension	mm	/	/	1
Sound pressu	re level (H/M/L)	dB(A)	30/27/25	30/27/25	30/27/25
Sound power	level (H/M/L)	dB(A)	44/41/39	44/41/39	44/41/39
Standard stati	c pressure	Ра	0	0	0
Indoor air flow (H/M/L)		m³/h	1000/810/620	1000/810/620	1000/810/620
Dimension (W*H*D)		mm	840/840/183	840/840/183	840/840/183
Packing (W*H*D)		mm	983/983/268	983/983/268	983/983/268
Net weight		kg	28	28	28
Gross weight		kg	31	31	31
Outdoor tempo level will be m	lition: indoor temperature erature (cooling): 35°C easured in the third oc r. It is a sound pressure	DB/24°C WB tave band lim	, outdoor temperature	e (heating): 7°C DB/6	°C WB. The noise

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Model		AB162MRERA	AB182MRERA	AB242MRERA	
Power supply		V-Ph-Hz	1/220~230/50/60	1/220~230/50/60	1/220~230/50/60
	Capacity	kBtu/h	15.3	19.1	24.2
Cooling	Capacity	kW	4.5	5.6	7.1
	Power input	W	30	30	50
	Current	А	0.15	0.15	0.25
	Capacity	kBtu/h	17.1	21.5	27.3
	Capacity	kW	5	6.3	8
Heating	Power input	W	30	30	50
5	Current	А	0.15	0.15	0.25
	Heating capacity at low temp.	kW	1	1	/
Operating current		А	0.15	0.15	0.25
	Brand		Broad ocean	Broad ocean	Broad ocean
	Model		ZWK465B500011	ZWK465B500011	ZWK465A000007
	Туре		DC	DC	DC
	Insulation class		E	E	E
Indoor motor	IP class		IP40	IP40	IP40
	Power input	W	30	30	50
	Power output	W	22	22	36
	Capacitor	μF	1	/	/
	Speed (High/ Middle/Low)	rpm	300-600	300-600	300-750
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		1	1	1
	Number of rows		2	2	2
	Tube pitch (a) x row pitch (b)	mm	21*13.3	21*13.3	21*13.3
	Fin spacing	mm	1.45	1.45	1.45
Indoor coil	Fin type (code)			Hydrophilic aluminum	1
	Tube outside dia. and type	mm	Φ7	Φ7	Φ7
	Coil length x height x width	mm	2132*147*26.6	2132*147*26.6	2132*168*26.6
	Number of circuits		6	6	8

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	Model		AB162MRERA	AB182MRERA	AB242MRERA
	Cabinet coating type		Galvanized	Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	100	100	100
	Control box IP class		IP40	IP40	IP40
	Sheet metal thickness		0.8	0.8	0.8
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		Standard 1200mm	Standard 1200mm	Standard 1200mn
	Branch outlet option		No	No	No
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	0.8	0.8	0.8
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
	Liquid pipe	mm	6.35	6.35	9.52
Piping dimension	Gas pipe	mm	12.7	12.7	15.88
umension	Drain hose	mm	Ф25	Ф25	Φ25
	Model		PB-950KC	PB-950KC	PB-950KC
	Dimension	mm	950/950/50	950/950/50	950/950/50
Panel	Packing	mm	1013/1025/123	1013/1025/123	1013/1025/123
	Net weight	kg	6.5	6.5	6.5
	Gross weight	kg	9	9	9
Fresh air dime	ension	mm	/	/	1
Sound pressu	re level (H/M/L)	dB(A)	32/29/27	33/30/29	35/34/31
Sound power	level (H/M/L)	dB(A)	46/43/41	47/44/43	49/48/45
Standard stati	c pressure	Ра	0	0	0
Indoor air flow (H/M/L)		m³/h	1000/810/620	1000/810/620	1380/1190/1000
Dimension (W*H*D)		mm	840/840/183	840/840/183	840/840/204
Packing (W*H*D)		mm	983/983/268	983/983/268	983/983/290
Net weight		kg	28	28	29
Gross weight		kg	31	31	32
Outdoor temp level will be m	lition: indoor temperatu erature (cooling): 35°C easured in the third oc r. It is a sound pressure	DB/24°C WE tave band lim	, outdoor temperature	e (heating): 7°C DB/6	°C WB. The noise

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Model		AB282MRERA	AB302MRERA	AB382MRERA	
Power supply		V-Ph-Hz	1/220~230/50/60	1/220~230/50/60	1/220~230/50/60
	Capacity	kBtu/h	27.3	30.7	38.2
Cooling	Capacity	kW	8	9	11.2
	Power input	W	50	90	90
	Current	А	0.25	0.45	0.45
	Capacity	kBtu/h	30.7	34.1	42.6
	Capacity	kW	9	10	12.5
Heating	Power input	W	50	90	90
5	Current	А	0.25	0.45	0.45
	Heating capacity at low temp.	kW	1	1	1
Operating current		А	0.25	0.45	0.45
	Brand		Broad ocean	Broad ocean	Broad ocean
	Model		ZWK465A000007	ZWK511B51008	ZWK511B51008
	Туре		DC	DC	DC
	Insulation class		E	E	E
Indoor motor	IP class		IP40	IP40	IP40
	Power input	W	50	90	90
	Power output	W	36	63	63
	Capacitor	μF	1	/	/
	Speed (High/ Middle/Low)	rpm	300-750	350-850	350-850
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		1	1	1
	Number of rows		2	2	2
	Tube pitch (a) x row pitch (b)	mm	21*13.3	21*13.3	21*13.3
	Fin spacing	mm	1.45	1.45	1.45
Indoor coil	Fin type (code)			Hydrophilic aluminum	I
	Tube outside dia. and type	mm	Φ7	Φ7	Φ7
	Coil length x height x width	mm	2132*168*26.6	2132*210*26.6	2132*210*26.6
	Number of circuits		8	10	10

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	Model		AB282MRERA	AB302MRERA	AB382MRERA
	Cabinet coating type		Galvanized	Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	100	100	100
	Control box IP class		IP40	IP40	IP40
	Sheet metal thickness		0.8	0.8	0.8
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		Standard 1200mm	Standard 1200mm	Standard 1200mm
	Branch outlet option		No	No	No
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	0.8	0.8	0.8
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Ра	5	5	5
	Liquid pipe	mm	9.52	9.52	9.52
Piping dimension	Gas pipe	mm	15.88	15.88	15.88
unicrision	Drain hose	mm	Ф25	Φ25	Ф25
	Model		PB-950KC	PB-950KC	PB-950KC
	Dimension	mm	950/950/50	950/950/50	950/950/50
Panel	Packing	mm	1013/1025/123	1013/1025/123	1013/1025/123
	Net weight	kg	6.5	6.5	6.5
	Gross weight	kg	9	9	9
Fresh air dime	ension	mm	1	/	1
Sound pressu	re level (H/M/L)	dB(A)	37/35/31	37/35/31	37/35/31
Sound power	level (H/M/L)	dB(A)	51/49/45	51/49/45	51/49/45
Standard stati	c pressure	Ра	0	0	0
Indoor air flow (H/M/L)		m³/h	1380/1190/1000	2050/1860/1670	2050/1860/1670
Dimension (W*H*D)		mm	840/840/204	840/840/246	840/840/246
Packing (W*H*D)		mm	983/983/290	983/983/331	983/983/331
Net weight		kg	29	34	34
Gross weight		kg	32	37	37
Outdoor tempo level will be m	dition: indoor temperatu erature (cooling): 35°C easured in the third oc r. It is a sound pressure	DB/24°C WB tave band lim	, outdoor temperature	e (heating): 7°C DB/6	°C WB. The noise

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Model			AB482MRERA	AB602MRERA	
Power supply		V-Ph-Hz	1/220~230/50/60	1/220~230/50/60	
	Capacity	kBtu/h	47.7	54.6	
Occline	Capacity	kW	14	16	
Cooling	Power input	W	110	110	
	Current	А	0.55	0.55	
	Capacity	kBtu/h	54.6	61.2	
	Capacity	kW	16	18	
Heating	Power input	W	110	110	
	Current	A	0.55	0.55	
	Heating capacity at low temp.	kW	1	/	
Operating curr	ent	А	0.55	0.55	
	Brand		Broad ocean	Broad ocean	
	Model		ZWK511B51008	ZWK511B51008	
	Туре		DC	DC	
	Insulation class		E	E	
Indoor motor	IP class		IP40	IP40	
	Power input	W	110	110	
	Power output	W	78	78	
	Capacitor	μF	1	1	
	Speed (High/ Middle/Low)	rpm	350-850	400-850	
	Brand		Haier	Haier	
Indoor fan	Туре		Centrifugal	Centrifugal	
	Quantity		1	1	
	Number of rows		2	2	
	Tube pitch (a) x row pitch (b)	mm	21*13.3	21*13.3	
Indoor coil	Fin spacing	mm	1.45	1.45	
	Fin type (code)		Hydrophili	c aluminum	
	Tube outside dia. and type	mm	Φ7	Φ7	
	Coil length x height x width	mm	2132*252*26.6	2132*252*26.6	
	Number of circuits		8	8	

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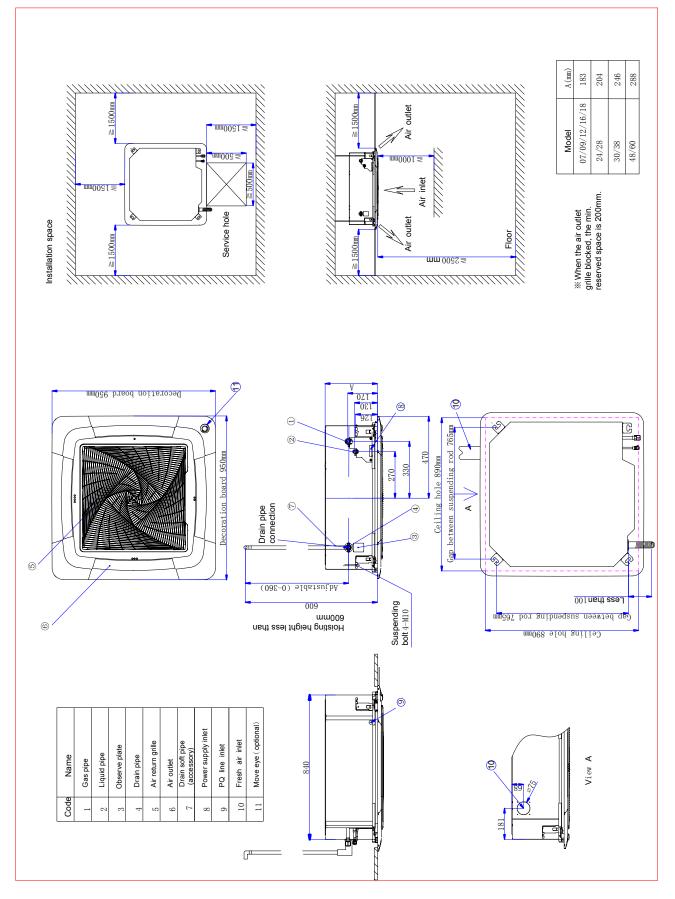
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Haier	

	Model		AB482MRERA	AB602MRERA	
	Cabinet coating type		Galvanized	Galvanized	
Cabinet	Cabinet salt spray test duration	Hour	100	100	
	Control box IP class		IP40	IP40	
	Sheet metal thickness		0.8	0.8	
	Drain pan material		PS	PS	
Construction	Drain pan insulation		20	20	
	Drain pump option		standard 1200mm	standard 1200mm	
	Branch outlet option		no	no	
	Material		Hot zinc plate	Hot zinc plate	
Indoor wall	Thickness	mm	0.8	0.8	
	Double or single skin		Single	Single	
	Material		PP	PP	
Air filter	Mesh		100	100	
	Pressure drop	Pa	5	5	
	Liquid pipe	mm	9.52	9.52	
Piping dimension	Gas pipe	mm	15.88	15.88	
amenoion	Drain hose	mm	Ф25	Ф25	
	Model		PB-950KC	PB-950KC	
	Dimension	mm	950/950/50	950/950/50	
Panel	Packing	mm	1013/1025/123	1013/1025/123	
	Net weight	kg	6.5	6.5	
	Gross weight	kg	9	9	
Fresh air dime	ension	mm	1	1	
Sound pressu	re level (H/M/L)	dB(A)	44/40/36	44/40/36	
Sound power	level (H/M/L)	dB(A)	58/54/50	58/54/50	
Standard stati	c pressure	Ра	0	0	
Indoor air flow (H/M/L)		m³/h	2100/1910/1720	2100/1910/1720	
Dimension (W*H*D)		mm	840/840/288	840/840/288	
Packing (W*H*D)		mm	983/983/373	983/983/373	
Net weight		kg	35	35	
Gross weight		kg	38	38	
Norminal condition: indoor temperature (cooling): 27°C DB/19°C WB, indoor temperature (heating): 20°C DB Outdoor temperature (cooling): 35°C DB/24°C WB, outdoor temperature (heating): 7°C DB/6°C WB. The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.					

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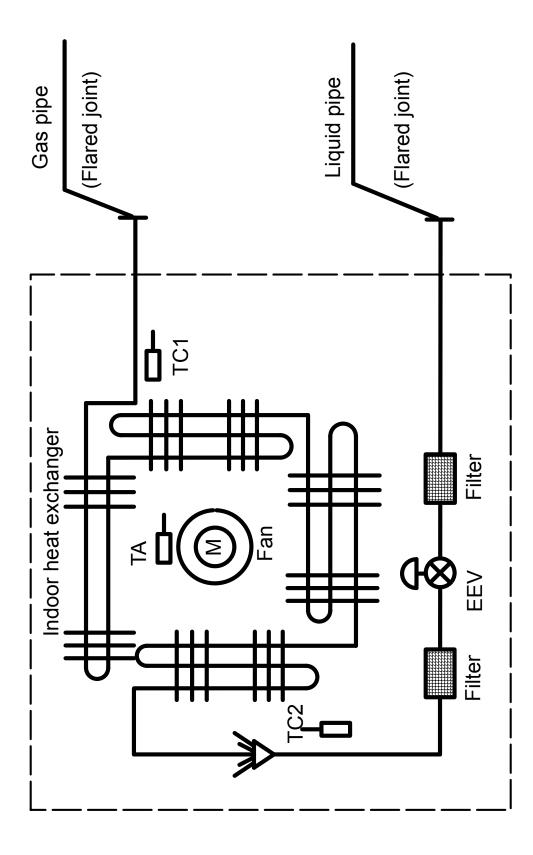


3.3 Dimension





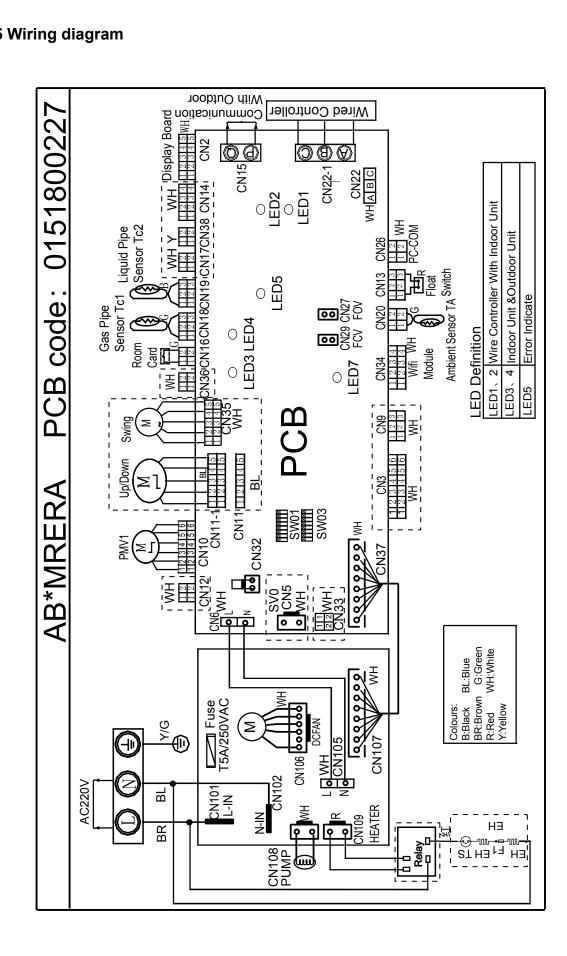
3.4 Piping diagram



360°C Smart Air Flow Cassette Type Indoor Unit



3.5 Wiring diagram





3.6 Electric characteristics

Units					Power supply		Indoor fan motor		Power input (w)	
Model	Phase	FQY	Voltage	Volt. range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AB072MRERA	1	50/60	220	198~242	0.39	1.24	22	0.31	30	30
AB092MRERA	1	50/60	220	198~242	0.39	1.24	22	0.31	30	30
AB122MRERA	1	50/60	220	198~242	0.39	1.24	22	0.31	30	30
AB162MRERA	1	50/60	220	198~242	0.39	1.24	22	0.31	30	30
AB182MRERA	1	50/60	220	198~242	0.39	1.24	22	0.31	30	30
AB242MRERA	1	50/60	220	198~242	0.39	1.24	36	0.31	50	50
AB282MRERA	1	50/60	220	198~242	0.39	1.24	36	0.31	50	50
AB302MRERA	1	50/60	220	198~242	0.71	2.28	63	0.57	90	90
AB382MRERA	1	50/60	220	198~242	0.71	2.28	63	0.57	90	90
AB482MRERA	1	50/60	220	198~242	0.71	2.28	78	0.57	110	110
AB602MRERA	1	50/60	220	198~242	0.71	2.28	78	0.57	110	110

Symbols:

MCA: Min. circuit amps (A) MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

Note:

1. Voltage range

The units are applicable for the electrical systems where voltage supplied to unit is in the range.

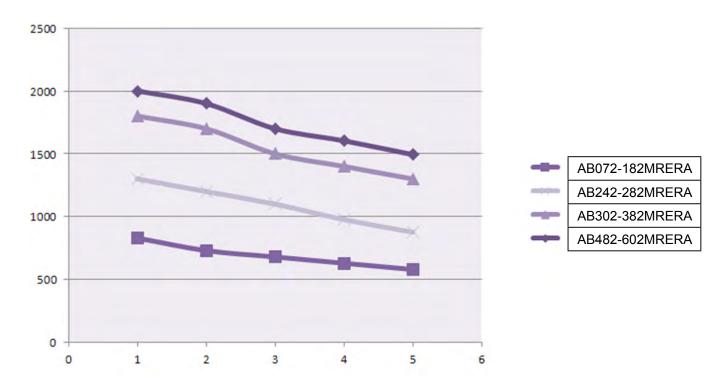
2. Maximum allowable voltage unbalance between phases is 2%.

3. MCA=1.25*FLA MFA≤4*FLA

4. Power supply uses the circuit breaker.



3.7 Air flow and fan speed curve



Air flow (m³/h)

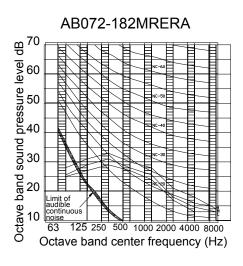
- 1. Strong speed
- 2. High speed
- 3. Medium speed
- 4. Low speed
- 5. Quiet

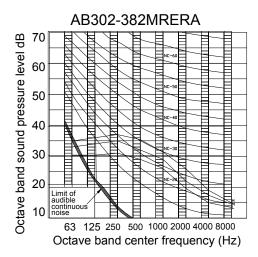


3.8 Sound pressure level

1) Testing illustrate:

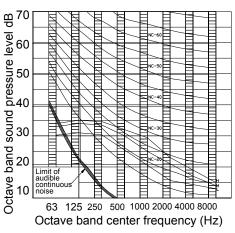
- 2) Testing condition:
- a: Unit running in the normal condition
- b: Test in the semi-anechoic chamber
- c: Noise level varies from the actual factors such as room structure, etc.

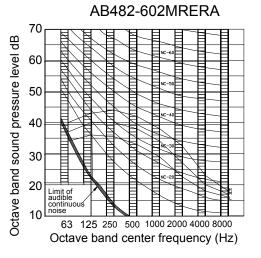




AB242-282MRERA

1.5M







3.9 Installation

3.9.1 Safety

- If the air conditioner is transferred to a new user, this manual shall be transferred to the user, together with the conditioner.
- Before installation, be sure to read Safety Considerations in this manual for proper installation.
- The safety considerations stated below is divided into "▲WARNING" and "▲ ATTENTION". The matters on severe accidents caused from wrong installation, which is likely to lead to death or serious injury, are listed in "▲WARNING". However, the matters listed in "▲ ATTENTION" are also likely cause the severe accidents. In general, both of them are the important items related to the security, which should be strictly abided by.
- After the installation, perform test run to make sure everything is in normal conditions, and then operate and maintain the air conditioner in accordance with the User Manual. The User Manual should be delivered to the user for proper keeping.

- Please ask the special maintenance station for installation and repair. Water leakage, electric shocks or fire accidents might be caused from improper installation if you conduct the installation by your own.
- The installation should be conducted properly according to this manual. Water leakage, electric shocks or fire accidents might be caused from improper installation.
- Please make sure to install the air conditioner on the place where can bear the weight of the air conditioner. The air conditioner can't be installed on the grids such as the non-special metal burglar-proof net. The place with insufficient support strength might cause the dropdown of the machine, which may lead to personal injuries.
- The installation should be ensured against typhoons and earthquakes, etc. The installation unconformable to the requirements will lead to accidents due to the turnover of the machine.
- Specific cables should be used for reliable connections of the wirings. Please fix the terminal connections reliably to avoid the outside force applied on the cables from being impressed on the cables. Improper connections and fixings might lead to such accidents as heating or fire accidents.
- Correct shapes of wirings should be kept while the embossed shape is not allowed. The wirings should be reliably connected to avoid the cover and the plate of the electrical cabinet lipping the wiring. Improper installation might cause such accidents as heating or fire accidents.
- While placing or reinstalling the air conditioner, except the specific refrigerant (R410A), don't let the air go into the refrigeration cycle system. The air in the refrigeration cycle system might lead to the cracking or personal injuries due to abnormal high pressure of the refrigeration cycle system.
- During installation, please use the accompanied spare parts or specific parts. If not, water leakage, electric shocks, fire accidents or refrigerant leakage might be caused.
- Don't drain the water from the drainpipe to the waterspout where may exist harmful gases such as sulfureted gas to avoid the harmful gases entering into the room.
- During installation, if refrigerant leakage occurs, ventilation measures should be taken, for the refrigerant gas might generate harmful gases upon contacting the flame.
- After installation, check if any refrigerant leakage exists. If the refrigerant gas leaks in the room, such things as air blowing heaters and stoves, etc. may generate harmful gases.
- Don't install the air conditioner at the places where the flammable gases may leak. In case the gas leakage occurs around the machine, such accidents as fire disasters may be caused.
- The drainpipe should be properly mounted according to this manual as to ensure the smooth drainage. In addition, heat preservation should be taken to avoid condensation. Improper drainpipe mounting might cause water leakage, which will get the articles at home wet.
- The refrigerant gas pipe and liquid pipe should be heat insulated to preserve heat. For inappropriate heat insulation, the water caused from the condensation will drop to get the article at home wet.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.



- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- The appliances are not intended to be operated by means of an external timer or separate remote-control system.
- Keep the appliance and its cord out of reach of children less than 8 years.



- The air conditioner should be effectively grounded. Electric shocks may occur if the air conditioner is ungrounded or inappropriately grounded. The wire for earthing shouldn't be connected to the connections on the gas pipe, water pipe, lightning rod or telephone.
- The breaker for electricity leakage should be mounted. If not, accidents such as electric shocks may happen.
- The installed air conditioner should be checked for electricity leakage by being powered.
- If the ambient humidity bigger than 80%, when the water discharge hole be blocked or the filter becomes dirty, or airflow speed change, there maybe leads to condensing water drop down, and at the same time there maybe some drops of water spit out.





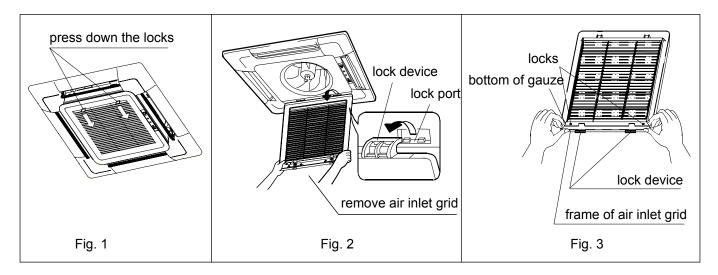
3.9.2 Maintenance

- Repair can only be performed by professional personnel.
- Before touching the connection line, all power supplies should be switched off. Only after switching off the power supply can the operator clean the air conditioner as to avoid electric shock or injury.
- When cleaning the air cleaner, make sure to use a stable platform; don't flush the air conditioner with water, or the electric shock might be caused.

Daily Maintenance:

Clean the air cleaner & air inlet grid.

- Don't dismantle the air cleaner if not cleaning, or faults might be caused.
- When the air conditioner operates in the environment with too much dust, clean the air conditioner more times (generally once every two weeks).
- 1. Remove the air inlet grid as shown in the figure: press down the two locks on the grid (as shown in Fig. 1) to move it close to the nearby grid, gently lift it 45 degree (as shown in Fig. 2), and then remove the air inlet grid.
- 2. Dismantle the gauze: press the outer frame of the air inlet grid by the thumb, and draw the base angle of gauze by the forefinger and pull it out as to make the gauze disengage the locks, and dismantle the gauze (as shown in Fig. 3).



Cleaning Air Cleaner

Cleaning

Clean the air cleaner with the dust collector or water to remove dusts.

For too much dust, use the fan or directly spray the special cookware detergent on the air inlet grid, and then clean it with water after 10 minutes.

- (A) Remove dust with dust collector.
- (B) For too much dust, use soft-hair brush and mild detergent to clean.
- (C) Throw off water and then dry it at cool places.

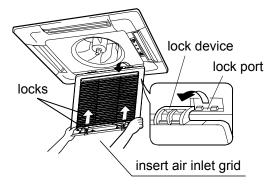


- Don't clean it with hot water of over 50°C to avoid fading or distortion.
- Don't dry it on the fire, or the cleaner might cause fire.



Installing air cleaner and air inlet grid:

- 1. Mounting the gauze: opposite to the ways of dismantling the gauze (as shown in Fig. 3 above).
- 2. Mounting the air inlet grid: as shown in the right figure, nip the locks on the grid as directed by arrows, put the side with the lock device into the lock port, and then put the side with locks into the panel frame. Release the locks to position the grid after determining that the grid is abutting upon the bottom of the panel frame.



Cleaning the air outlet port and the shell:

- Don't use gasoline, benzene, diluents, polishing powder or liquid insecticide to clean them.
- Do not clean them with hot water of above 50°C to avoid fading or distorting.
- Wipe them with soft dry cloth.
- Water or neutral dry cleanser is recommended if the dust cannot be removed.
- The Wind Deflector can be dismantled to clean (as below).

Cleaning Wind Deflector:

Do not wipe the wind deflector with water forcibly to avoid the floss falling off.

Maintenance before and after Operating Season

Before Operating Season:

- 1. Please make the following checkup:
 - There is no blockage in inlet port and outlet port of outdoor and indoor units.
 - The ground line and the wiring are in the proper state. If abnormal condition occurs, consult the after-service personnel.
- 2. Clean the air cleaner and the shell.■ After cleaning, the air cleaner must be mounted.
- 3. Switch it on to the power.
 - After cleaning, the air cleaner must be mounted.

After Operating Season:

- 1. In sunny days, blowing operation can be performed for half a day to make the inside of machine dry.
- 2. Switch it off.
 - Electrical power should be cut down to economize electricity, or the machine will still consume power.
- 3. Clean the air cleaner and the shell.
 - Air cleaner and shell must be mounted after cleaning. For cleaning details, refer to Maintenance.

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3.9.3 Fault checkup

Please check the following when consigning repair service:

	Symptoms	Reasons				
	Water flow sound	Water flow sound can be heard when starting operation, during operation or immediately after stopping operation. When it starts to work for 2-3 minutes, the sound may become louder, which is the flowing sound of refrigerant or the draining sound of condensed water.				
sm	Cracking sound	During operation, the air conditioner may make the cracking sound, which is caused from the temperature changes or the slight dilation of heat exchanger.				
proble	Terrible smell in outlet air	The terrible smell, caused from walls, carpet, furniture, clothing, cigarette and cosmetics, attaches on the conditioner.				
are not problems	Flashing operating indicator	When switching it on again after power failure, turn on the manual power switch and the operating indicator flashes.				
All these ar	Awaiting indication	It displays the awaiting indication as it fails to perform refrigerating operation while other indoor units are in heating operation. When the operator set it to the refrigerating or heating mode and the operation is opposite to the setting, it displays the awaiting indication.				
	Sound in shutdown indoor unit or white steam or cold air	To prevent oil and refrigerant from blocking the shutdown indoor units, refrigerant flows in the short time and make the sounds of refrigerant flowing. Otherwise, when other indoor units perform heating operation, white steam may occur; during refrigerating operation, cold air may appear.				
	Clicking sound when switching the air condition on	When the conditioner is powered on, the sound is made due to the resetting of the expansion valve.				
	Start or stop working automatically	Check if it is in the state of Timer - ON and Timer - OFF.				
Please make another check	Failure to work	Check if there is a power failure. Check if the manual power switch is turned off. Check if the supply fuse and breaker are disconnected. Check if the protective unit is working. Check if refrigerating and heating functions are selected simultaneously with the awaiting indication on line control.				
	Bad cooling & heating effects	Check if air intake port and air outlet port of outdoor units are blocked. Check if the door and windows are open. Check if the filtering screen of air cleaner is blocked with sludge or dust. Check if the setting of wind quantity is at low wind. Check if the setting of operation is at the Fan Operation state. Check if the temperature setting is proper.				

Under the following circumstances, immediately stop the operation, disconnect the manual supply switch and contact the after-service personnel.

- When buttons are inflexible actuated;
- When fuse and breaker have been burnt over and over;
- When there are foreign objects and water in the refrigerator;
- When it cannot still be operated after removing the operation of protective unit;
- When other abnormal conditions occur.

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3.9.4 Installation procedures

The standard attached accessories of the units of this series refer to the packing list; prepare other accessories according to the requirements of the local installation point of our company.

Indoor units should be installed in places with the environment of even circulation of cool and warm blows. The following places should be avoided.

- Places with high salinity (beach), high sulfureted gas (such as the thermal spring regions where copper tubes and soft soldering are easy to be eroded), much oil (including mechanical oil) and steam; places where organic substance solvent is used; where special spray is frequently used;
- Places where machines generate the high frequency electromagnetic wave (abnormal condition will appear in the control system);
- Places where there is high humidity exists near the door or windows (dew is easily formed).

⚠ WARNING

protect the machine from gales or earthquake, make the installation according to the regulations. Improper installation will cause accidents due to the overturn of the air conditioner.

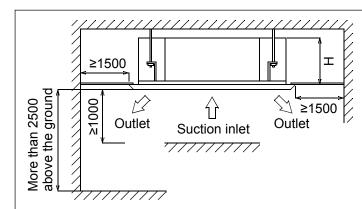
1. Select the following places to install indoor units

- (1) Where there is enough room for the machine above the ceiling;
- (2) Where the drainpipes can be well arranged;
- (3) Where the distance between the air outlet port of the machine and the floor is not more than 2.7m;
- (4) Where air inlet & outlet of the indoor units are not blocked;
- (5) Where it is hard enough to bear the weight of the unit;
- (6) Where there is no television, piano and other valuables under the indoor units as to avoid condensate dropping down, causing damage.
- (7) Where it is over 1m away from the television and radio as to avoid the disturbance from television and radio.

Installation Space

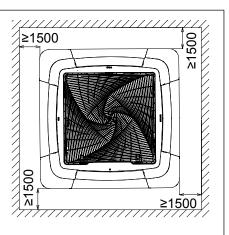
Ensure the required space for installation and maintenance (refer to the following drawings). The installation height should be kept within 2.7m.

When the height of the ceiling exceeds 2.7m, the warm air is hard to blow to the ground.



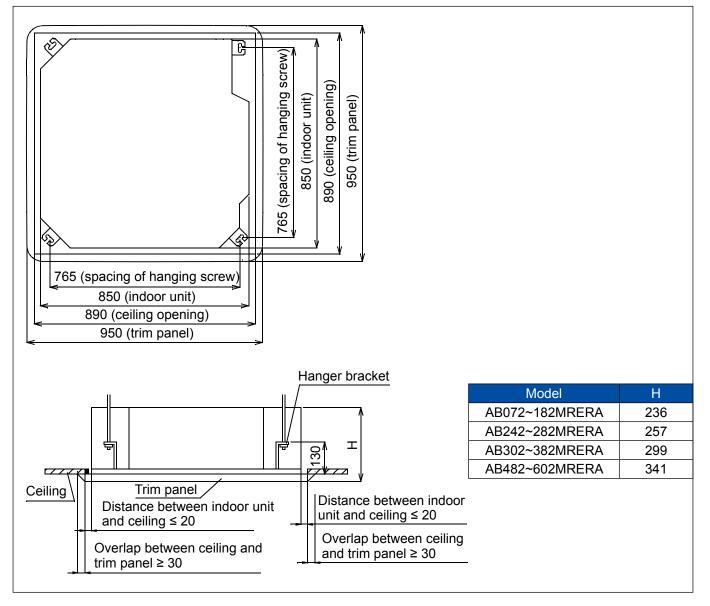
Space required for installation (unit: mm)

Model	Н
AB072~182MRERA	206
AB242~282MRERA	227
AB302~382MRERA	269
AB482~602MRERA	311





2. Location Relationship Among Ceiling Hole, Unit and Hoisting Studs



Note:

Before suspending the indoor unit, select the installation location according to the piping and wiring in the ceiling, and determine the lead direction of the piping. Prepare all pipes (refrigerator and drainage) and wiring (connection line for remote control and connection line of indoor units and outdoor units) connected to indoor units before suspending the indoor unit so as to make the connections right after the installation.

- In the situation with the ceiling, before suspending the unit, set refrigerant pipe, drainpipe, connection line in the room, lead wire of line control to the locations of piping and wiring.
- Confirm the size of the indoor unit and fix it according to the requirements in the manual.

3. Ceiling Hole & Reinforcement

(1) Cut and withdraw the foundation of ceiling according to the size of indoor unit.

(2) After cutting an appropriate hole, reinforce the cutting area on the foundation of indoor unit, and append the rim to the ceiling to secure its foundation. In order to prevent the ceiling from vibrating, it is vital to reinforce the ceiling foundation and ensure the original levelness of the ceiling.



4. Hoisting Stud Installation

- To support the weight of the unit, use barb bolts in the situation with the ceiling. In the situation with the new ceiling, use inlaid bolts, embedded bolts or other parts provided on site. Before proceeding the installation, adjust the gap between the bolts and the ceiling.
- Use four M10 hoisting studs (provided on site) (when the height of the hoisting stud exceeds 0.9m, M10 studs should be used.). The gaps should be kept according to the overall drawing of the air conditioner. Make the installation according to regulations for various building structures as to ensure the safety. Use the level meter to perform the parallel installation.

Ceiling Suspending

Situation with New Ceiling

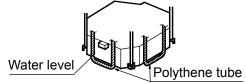
(1) Install the indoor unit temporarily:

Attach the hoisting foot to hoisting stud. Make sure that nuts and washers should be used at two ends of the foot to secure the foot.

- (2) For the size of the ceiling hole, please refer to the schematic drawing at the previous page. <After finishing the installation of the ceiling>
- (3) Adjust the unit to the proper installation location.
- (4) Check if the unit is in the horizontal level:

The indoor unit is equipped with a built-in drainage pump and a floater switch. Check if the 4 angles of the unit are in the horizontal level with the water level or the polythene tube with water, as shown in the figure, taking only one indoor unit as an example. If the unit inclines opposite to the direction of condensate flow, the floater switch might have faults, causing water dropping.

(5) Tighten the nut on the washer.



Situation with Original Ceiling

- (1) Install the indoor unit temporarily: attach the hoisting foot to hoisting stud. Make sure that nuts and washers (provided on site) should be used at two ends of the foot to secure the foot.
- (2) Adjust the height and location of the unit.
- (3) Perform Step 4 and 5 in Situation with New Ceiling.

Nut (provided on site) Washer Hoisting foot

Washer

Tightening (dual nuts) [Secure hoisting foot]

[Secure washer foot]

Preparation of Decorated Board

- Don't put the decorated board downward to the floor. Putting it against the wall or on the extrusive objects is not allowed.
- Don't touch the wind deflector or apply force on it, or the wind deflector will have faults.

Cassette Type Indoor Unit

360°C Smart Air Flow

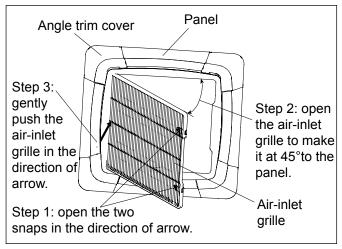


Installation

(1) Confirming the position of unit hanger Please confirm the installation position of the hanger for indoor unit is about 130mm above the ceiling. For details, please refer to the Instructions for Installation and Maintenance of indoor unit.

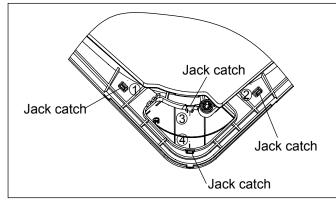
(2) Removing the air-inlet grille

Open the air-inlet grille to make it at an angle of 45° to the trim panel. As shown in the following figure, please remove the air-inlet grille as per the operation requirements.



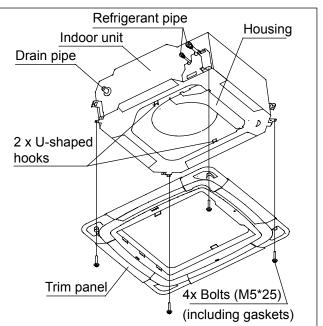
(3) Installing the panel

1) Please remove the four (4) angle trim panels. Removal method: Flip the jack catches of the angle trim panel in the order of (1/2)(3/4), as shown in the following figure. The flipping direction is indicated by the arrows. Then the angle trim panel can be removed.



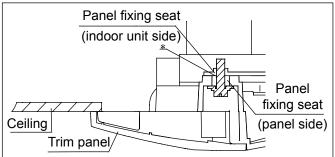
2) Pull out the two (2) U-shaped hooks on the indoor unit from below.

3) Adjust the panel direction to make the angle side engraved with "Pipe side" consistent with the refrigerant pipe of the indoor unit, and make the angle side engraved with "Drain side" consistent with the drain side of the indoor unit. Then hang the 2 hooks in the inner side of the panel on the 2 U-shaped hooks of the indoor unit.
4) Finally fix the panel on the indoor unit with the bolts (M5*25) and gaskets delivered with the unit. Caution: gaskets must be used for fixing, or else the panel would be easy to fall off.



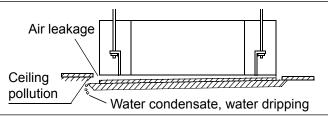
5) When tightening the four (4) bolts, please make sure there is no clearance between the panel fixing seat on the side of the indoor unit and the panel fixing seat on the side of the panel. That is to say: the bolts shall be fully tightened (see * in the figure).

If there is a clearance, air leakage or water leakage is likely to occur.

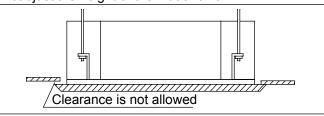


Caution:

Improper tightening of bolts would lead to the faults shown in the following figure.

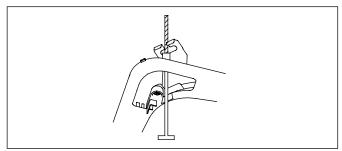


After tightening the bolts, if there is a clearance between the ceiling and the trim panel, please readjust the height of the indoor unit.



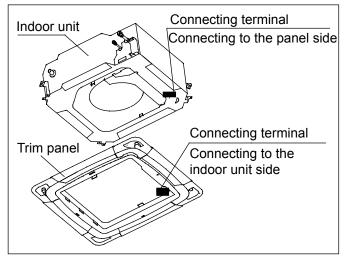


If the elevation level of the indoor unit and drain pipe are not affected, you can adjust the height of the indoor unit through the corner pore on the trim panel. Please keep the unit horizontal in the process of adjustment, or else water leakage is easy to occur.



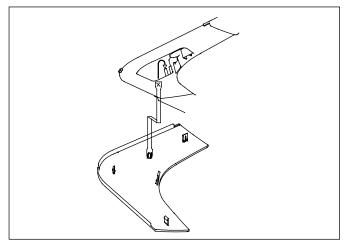
Please do not swing the louver blade by hand, or else the blade mechanism would be damaged.

6) Connection of trim panel. Connect the black lead-out terminal of the panel to the black lead-out terminal of the indoor unit housing.



7) When the installation of panel is complete, please fix the four (4) angle trim panels.

- Hang and tighten the strap of the angle trim panel on the shackle of the trim panel, as shown in the figure.
- Fix the angle trim panel on the trim panel.



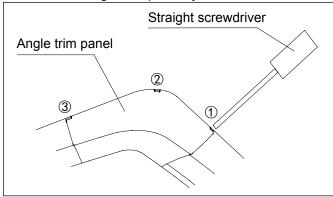
8) Installing the air-inlet grille.

Install the air-inlet grille with the steps opposite to that for removing.

For reference

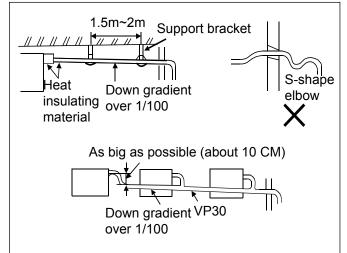
The method for removing angle trim panels when the installation of trim panel is complete:

a. Insert a straight screwdriver in the notch ①. Gently turn the screwdriver downward, and slowly insert it in, and then move it up and down to make the angle fall off.
b. Make the angle ② and ③ fall off in the same way.
c. Take off the angle trim panel by hand.



Requirements:

- The drainpipe of the indoor unit should be heatinsulated.
- Heat insulation should be treated for the connection with the indoor unit. Improper heat insulation may cause condensing.
- The drainpipe with the down gradient of over 1/100 can't be in the S shape, or abnormal sound can be caused.
- The horizon length of the drainpipe should be kept with 20m. Under the condition of long pipes, supports can be provided every 1.5~2m as to avoid unevenness.
- The central piping should be connected according the following drawing.
- Take care not to apply external force on the connection of the drainpipes.





Piping Materials & Heat Insulating Materials

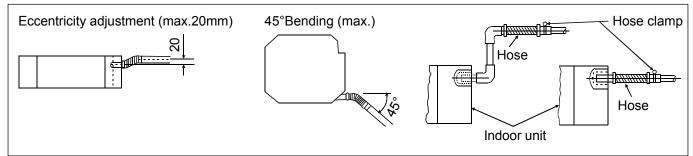
As to prevent condensation, heat insulating treatment should be performed. The heat insulating treatment for piping should be done respectively.

	Piping	Hard PVC tube VP31.5mm	
	material	(inner bore)	
9	Heat insulating	Vesicant polythene thickness:	
	material	over 7mm	

Hose

The attached hoses can be used to adjust the eccentricity and angle of the hard PVC tube.

- Stretch the hose directly to make connections as to avoid distortion. The soft end of the hose should be positioned with a clamp.
- The hose should be used in the horizon direction.



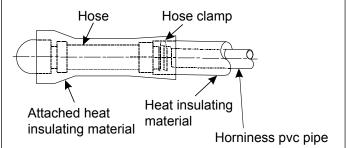
Heat Insulating Treatment:

Wrap the connection between the clamp and the root segment of the indoor unit without any gap with heat insulating materials as shown in the drawing.

Lifting Drainpipe

The drainpipe can be lifted 360mm.

When the down gradient of the drainpipe can't be ensured, after upright lifting, the drainpipe is in the down slope.



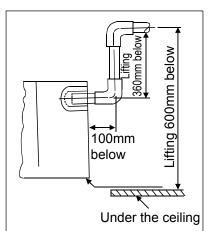
Confirming Drainage

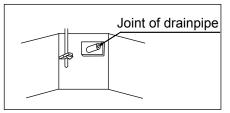
The drainage should be confirmed during the test run to make sure that there is leakage at the connection.

The confirmation of drainage should be also performed during the installation in the winter season.

Fill water from the outlet or the specified position and confirm the drainage. Fill 600cc water with a hose from the outlet or the specified location on the machine. Add the water slowly. Don't add water to the motor of the drainage pump.

- After mounting the electrical system, do cooling operation and meanwhile add water and check.
- If the electrical installation hasn't been completed, pull out the terminal (2P) of the floater switch on the electrical cabinet. After confirming the drainage, connect the terminal of the floater switch and run the drainage pump for 5 minutes until it stops automatically.
- Confirm the sound of the motor: Confirm the sound of the motor of the drainage pump and meanwhile check the drainage.







nting Torque

Tubing Permissible Length & Height Difference

Please refer to the attached manual of outdoor units.

Tubing Materials & Specifications

Please refer to the attached manual of outdoor units.

Model		AB072~092MRERA AB122~182MRERA		AB242~602MRERA	
Tubing size (mm)	Gas pipe	Ø9.52	Ø12.7	Ø15.88	
Tubing size (mm)	Liquid pipe	Ø6.35	Ø6.35	Ø9.52	
Tubing material	Phosphor deoxy bronze seamless pipe (TP2) for air conditioner				

Refrigerant Filling Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount while compressor failure can be caused by filling too much or little refrigerant.

Connecting Procedures of Refrigerant Tubing

Proceed the flare tube connecting operation to connect all the refrigerant tubes.

- Dual wrenches must be used in the connection of indoor unit tubing.
- Mounting torque refers to the right table.

,	Outer Diameter of Tubing	Mounting Torque	Increase mounting Tor
	(mm)	(N-m)	(N-m)
Prad	Ø6.35	11.8 (1.2kgf-m)	13.7 (1.4kgf-m)
	Ø9.52	24.5 (2.5kgf-m)	29.4 (3.0kgf-m)
T	Ø12.7	49.0 (5.0kgf-m)	53.9 (5.5kgf-m)
	Ø15.88	78.4 (8.0kgf-m)	98.0 (10.0kgf-m)

Cutting and Enlarging

Wrench

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one main unit.]

Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.



Connecting

1. Connecting circular terminals

The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it.

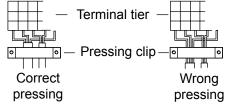


2.Connecting straight terminals

The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier, tighten the screw and confirm it has been clamped by pulling the line gently.

3. Pressing connecting line

After connecting line is completed, press the connecting line with clips which should press on the protective sleeve of the connecting line.





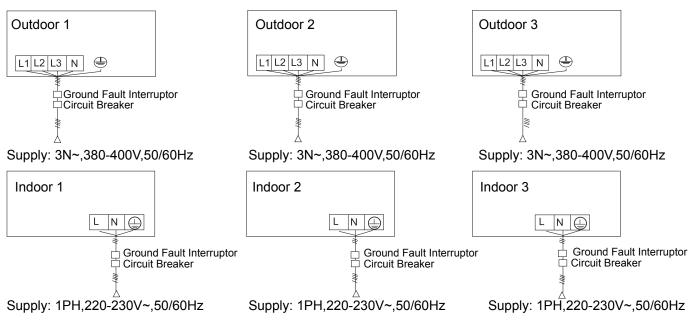
3.9.5 Electrical wiring

- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

ATTENTION

- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line, signal line are provided by users. Parameters for power lines are shown as below: 3×(1.0-1.5)mm²; parameters for signal line: 2×(0.75-1.25)mm² (shielded line)
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.

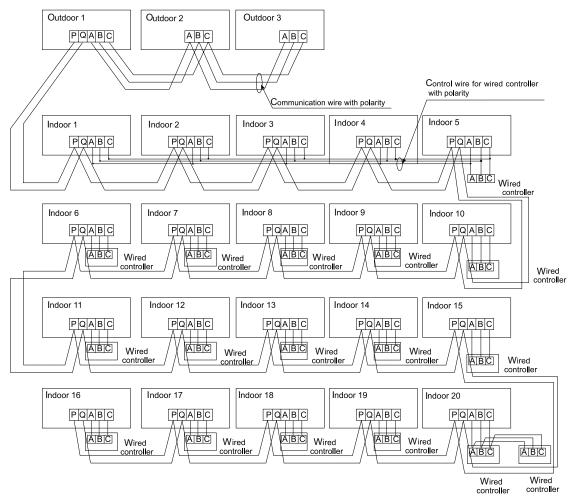
Supply Wiring Drawing



Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.



Signal Wiring Drawing



Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure (1-5 indoor units). The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via three lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)
- B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired control are connected via three lines with polarity.
- C. Two wired controllers control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controls can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.



The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Items Total	Cross section	Length	Rated current of	Rated current of residual circuit breaker (A)	area of si	ectional ignal Line
current of indoor units (A)	(mm ²)	(m)	overflow breaker (A)	ground fault Interruptor (mA) response time (S)	Outdoor-indoor (mm ²)	Indoor-indoor (mm²)
<10	2	20	20	20 A,30 mA,0.1S or below		
≥10 and <15	3.5	25	30	30 A,30 mA,0.1S or below	2 cores×(0.	75-2.0)mm ²
≥15 and <22	5.5	30	40	40 A,30 mA,0.1S or below	shield	ed line
≥22 and <27	10	40	50	50 A,30 mA,0.1S or below		

■ The electrical power line and signal lines must be fastened tightly.

- Every indoor unit must have the ground connection.
- The power line should be enlarged if it exceeds the permissible length.
- Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.
- It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm ² ×3 core shielded line

% The shielding lay of the signal line must be grounded at one end.

% The total length of the signal line shall not be more than 250m.



3.9.6 Test run

Before Test Run

- Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above 1MΩ. It can't be operated if it is below 1MΩ.
- Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.

Check if the arrangements of the drainpipe and connection line are correct.

The drainpipe shall be placed at the lower part while the connection line placed at the upper part. Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials. The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.

Checkup of Installation

- \Box check if the mains voltage is matching
- \Box check if there is air leakage at the piping joints
- check if the connections of mains power and indoor & outdoor units are correct
- □ check if the serial numbers of terminals are matching
- \Box check if the installation place meets the requirement \Box check if there is too much noise
- \Box check if the connecting line is fastened
- $\hfill\square$ check if the connectors for tubing are heat insulated
- \Box check if the water is drained to the outside \Box check if the indoor units are positioned

Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

Set the wired controller to cooling/heating mode, press "ON/OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/OFF" button to quit the compulsive running and stop the operation of the air conditioner.



4. MINI 4-way cassette type indoor unit

4.1 Features



- Compact design
- New panel design 620*620mm
- Low sound level



4.2 Specification

Model			AB052MCERA(M)	AB072MCERA(M)	AB092MCERA(M)
Power su	pply	V-Ph-Hz	220-240/1/50/60	220-240/1/50/60	220-240/1/50/60
	Capacity	kBtu/h	5.1	7.5	9.5
Quality	Capacity	kW	1.5	2.2	2.8
Cooling	Power Input	W	17	17	17
	Current	А	0.2	0.2	0.2
	Capacity	kBtu/h	5.8	8.5	10.9
	Capacity	kW	1.7	2.5	3.2
Heating	Power Input	W	17	17	17
	Current	А	0.2	0.2	0.2
	Heating capacity at low temp.	kW	1	1	/
Operating	j current	А	0.2	0.2	0.2
	Brand		Broad Ocean	Broad Ocean	Broad Ocean
	Model		ZW465C03	ZW465C03	ZW465C03
	Туре		DC	DC	DC
	Insulation Class		В	В	В
INDOOR MOTOR	IP Class		IP40	IP40	IP40
	Power Input	W	35	35	35
	Power output	W	26	26	26
	Capacitor	μF	/	1	/
	Speed (High/Middle/Low)	rpm	830	830	830
	Brand		Haier	Haier	Haier
INDOOR FAN	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		1	1	1
	a. Number of rows		1	1	1
	b. Tube pitch(a)x row pitch(b)	mm	21*13.3	21*13.3	21*13.3
	c. Fin spacing	mm	1.35	1.35	1.35
INDOOR COIL	d. Fin type (code)			Hydrophilic aluminun	n
	e. Tube outside dia. and type	mm	Φ7	Φ7	Φ7
	f. Coil length x height x width	mm	1330*147*13.3	1330*147*13.3	1330*147*13.3
	g. Number of circuits		5	5	5
	Cabinet Coating Type		Galvanized	Galvanized	Galvanized
Cabinet	Cabinet Salt Spray Test Duration	Hour	100	100	100
	Control Box IP Class		IP40	IP40	IP40

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Model			AB052MCERA(M)	AB072MCERA(M)	AB092MCERA(M)
	Sheet Metal Thickness		0.8	0.8	0.8
	Drain Pan Material		PS	PS	PS
Construction	Drain Pan Insulation		20	20	20
	Drain Pump Option		Standard 1200mm	Standard 1200mm	Standard 1200mm
	Branch Outlet Option		no	no	no
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor Wall	Thickness	mm	0.8	0.8	0.8
	Double or Single Skin		Single	Single	Single
	Material		PP	PP	PP
Air Filter	Mesh		100	100	100
	Pressure Drop	Pa	5	5	5
	Liquid pipe	mm	6.35	6.35	6.35
Piping dimension	Gas pipe	mm	9.52	9.52	9.52
	Drain hose	mm	Ф32	Ф32	Ф32
	Model		PB-620KB	PB-620KB	PB-620KB
	Dimension	mm	620/620/60	620/620/60	620/620/60
Panel	Packing	mm	660/660/115	660/660/115	660/660/115
	Net weight	kg	2.8	2.8	2.8
	Gross weight	kg	4.5	4.5	4.5
Fresh air dim	ension	mm	/	1	/
Sound pressu	ıre level (H/M/L)	dB(A)	32/30/29	32/30/29	32/30/29
Sound power	level (H/M/L)	dB(A)	46/44/43	46/44/43	46/44/43
Standard stat	ic pressure	Pa	0	0	0
Indoor air flow (H/M/L)		m³/h	520/450/400	520/450/400	520/450/400
Dimension (W	/*H*D)	mm	570/570/260	570/570/260	570/570/260
Packing (W*	H*D)	mm	718/680/380	718/680/380	718/680/380
Net weight		kg	17	17	17
Gross weight		kg	21	21	21

Norminal condition: indoor temperature (cooling): 27°C DB/19°C WB, indoor temperature (heating): 20°C DB Outdoor temperature(cooling): 35°C DB/24°C WB, outdoor temperature(heating): 7°C DB/6°C WB

The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



Model			AB122MCERA(M)	AB162MCERA(M)	AB182MCERA(M)
Power su	pply	V-Ph-Hz	220-240/1/50/60	220-240/1/50/60	220-240/1/50/60
	Capacity	kBtu/h	12.3	15.3	19.1
Quality	Capacity	kW	3.6	4.5	5.6
Cooling	Power Input	W	18	26	35
	Current	А	0.2	0.2	0.2
	Capacity	kBtu/h	13.6	17.1	21.5
	Capacity	kW	4	5	6.3
Heating	Power Input	W	18	26	35
	Current	А	0.2	0.2	0.2
	Heating capacity at low temp.	kW	/	/	/
Operating	l current	А	0.2	0.2	0.2
	Brand		Broad Ocean	Broad Ocean	Broad Ocean
	Model		ZW465C03	ZW465C03	ZW465C03
	Туре		DC	DC	DC
	Insulation Class		В	В	В
INDOOR MOTOR	IP Class		IP40	IP40	IP40
	Power Input	W	35	35	35
	Power output	W	26	26	26
	Capacitor	μF	/	/	/
	Speed (High/Middle/Low)	rpm	830	830	830
	Brand		Haier	Haier	Haier
INDOOR FAN	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		1	1	1
	a. Number of rows		2	2	2
	b. Tube pitch(a)x row pitch(b)	mm	21*13.3	21*13.3	21*13.3
	c. Fin spacing	mm	1.35	1.35	1.35
INDOOR COIL	d. Fin type (code)		I	Hydrophilic aluminun	ı
	e. Tube outside dia. and type	mm	Φ7	Φ7	Φ7
	f. Coil length x height x width	mm	1330*147*26.6	1330*147*26.6	1330*147*26.6
	g. Number of circuits		10	10	10
	Cabinet Coating Type		Galvanized	Galvanized	Galvanized
Cabinet	Cabinet Salt Spray Test Duration	Hour	100	100	100
	Control Box IP Class		IP40	IP40	IP40

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Model			AB122MCERA(M)	AB162MCERA(M)	AB182MCERA(M)
	Sheet Metal Thickness		0.8	0.8	0.8
	Drain Pan Material		PS	PS	PS
Construction	Drain Pan Insulation		20	20	20
	Drain Pump Option		Standard 1200mm	Standard 1200mm	Standard 1200mm
	Branch Outlet Option		no	no	no
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor Wall	Thickness	mm	0.8	0.8	0.8
	Double or Single Skin		Single	Single	Single
	Material		PP	PP	PP
Air Filter	Mesh		100	100	100
	Pressure Drop	Ра	5	5	5
	Liquid pipe	mm	6.35	6.35	6.35
Piping dimension	Gas pipe	mm	12.7	12.7	12.7
dimension	Drain hose	mm	Ф32	Ф32	Ф32
	Model		PB-620KB	PB-620KB	PB-620KB
	Dimension	mm	620/620/60	620/620/60	620/620/60
Panel	Packing	mm	660/660/115	660/660/115	660/660/115
	Net weight	kg	2.8	2.8	2.8
	Gross weight	kg	4.5	4.5	4.5
Fresh air dim	ension	mm	/	1	/
Sound pressu	ıre level (H/M/L)	dB(A)	33/30/29	33/30/29	34/32/30
Sound power	level (H/M/L)	dB(A)	47/44/43	47/44/43	48/46/44
Standard stat	ic pressure	Pa	0	0	0
Indoor air flov	v (H/M/L)	m³/h	520/450/400	650/520/450	760/650/520
Dimension (W	/*H*D)	mm	570/570/260	570/570/260	570/570/260
Packing (W*	H*D)	mm	718/680/380	718/680/380	718/680/380
Net weight		kg	19	19	19
Gross weight		kg	23	23	23

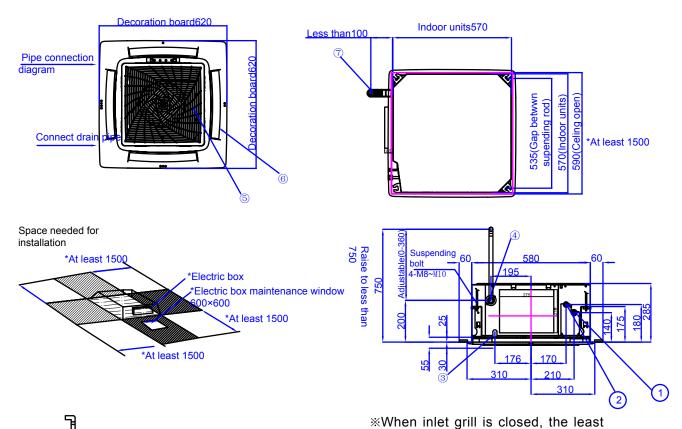
Norminal condition: indoor temperature (cooling): 27°C DB/19°C WB, indoor temperature (heating): 20°C DB Outdoor temperature(cooling): 35°C DB/24°C WB, outdoor temperature(heating): 7°C DB/6°C WB

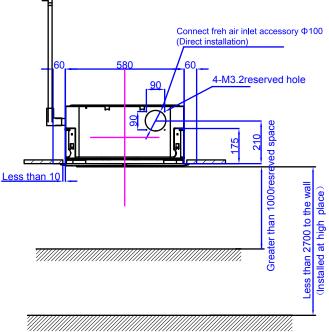
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

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4.3 Dimension





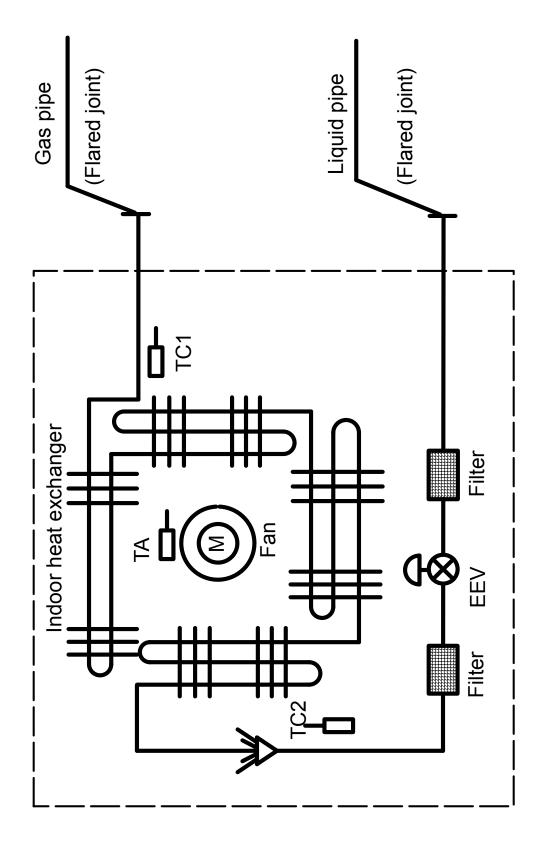
SN Part Name Connection port of gas pipe 1 2 Connection of liquid pipe 3 Wiring connection port of motor/ pumping motor 4 Connect drain pipe 5 Inlet grill 6 Outlet grill 7 Drain hose(Accessory)

reserved space is 200mm

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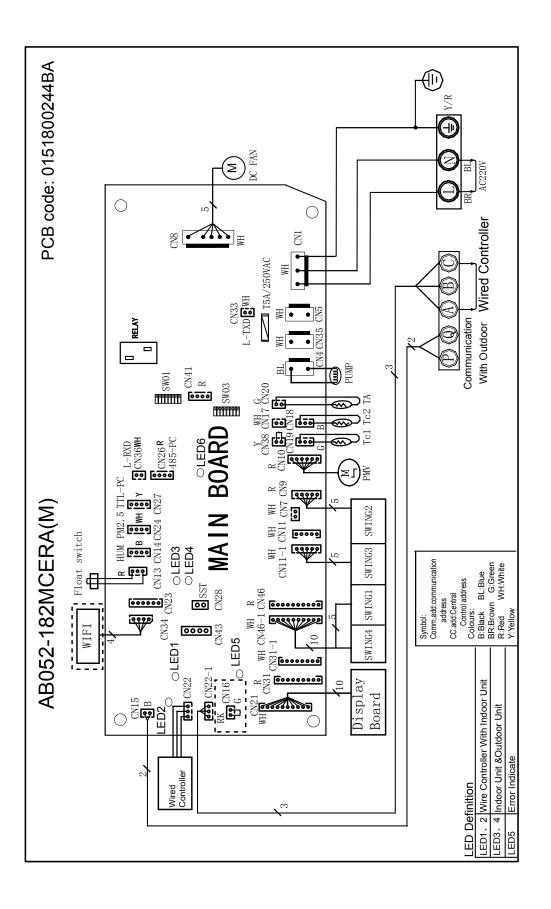


4.4 Piping diagram





4.5 Wiring diagram



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4.6 Electric characteristics

	Units					supply	Indoor fa	in motor	Power i	nput (w)
Model	Phase	FQY	Voltage	Volt. range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AB052MCERA(M)	1	50/60	220	198~242	0.325	1.04	26	0.26	17	17
AB072MCERA(M)	1	50/60	220	198~242	0.325	1.04	26	0.26	17	17
AB092MCERA(M)	1	50/60	220	198~242	0.325	1.04	26	0.26	17	17
AB122MCERA(M)	1	50/60	220	198~242	0.325	1.04	26	0.26	18	18
AB162MCERA(M)	1	50/60	220	198~242	0.325	1.04	26	0.26	26	26
AB182MCERA(M)	1	50/60	220	198~242	0.325	1.04	26	0.26	35	35

Symbols:

MCA: Min. circuit amps (A) MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

Note:

1. Voltage range

The units are applicable for the electrical systems where voltage supplied to unit is in the range.

2. Maximum allowable voltage unbalance between phases is 2%.

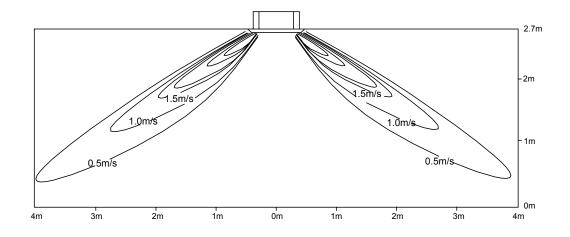
3. MCA=1.25*FLA MFA≤4*FLA

4. Power supply uses the circuit breaker.



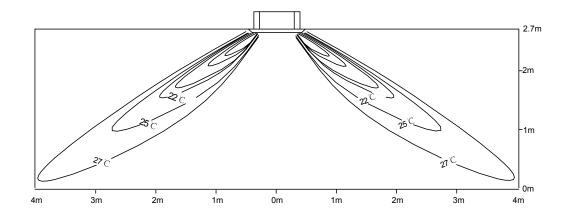
4.7 Air velocity and temperature distribution

a. Cooling / Air velocity distribution
 Cooling
 Blowy angle: 40
 Air velocity distribution



b. Cooling / Temperature distribution

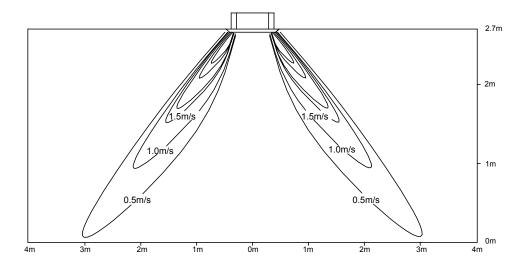
Cooling Blowy angle: 40 Temperature distribution





c. Heating / Air velocity distribution

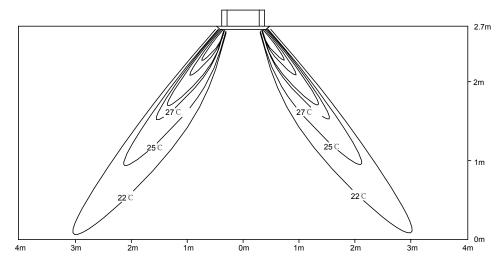
Heating Blowy angle: 70 Air velocity distribution



d. Heating / Temperature distribution

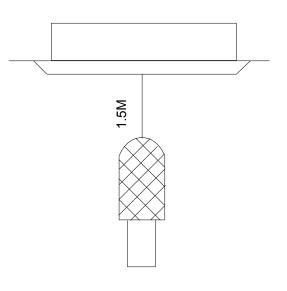
Heating Blowy angle: 70

Temperature distribution



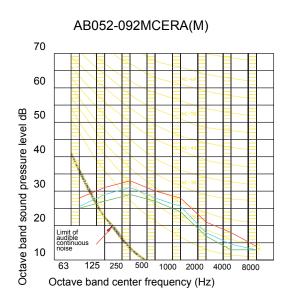


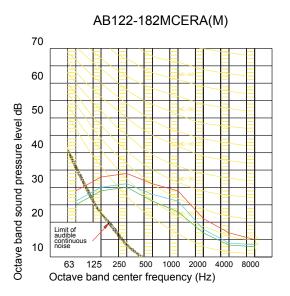
4.8 Sound pressure level



1) Testing illustrate:

- 2) Testing condition:
- a: Unit running in the normal condition
- b: Test in the semi-anechoic chamber
- c: Noise level varies from the actual factors, such as room structure, etc.

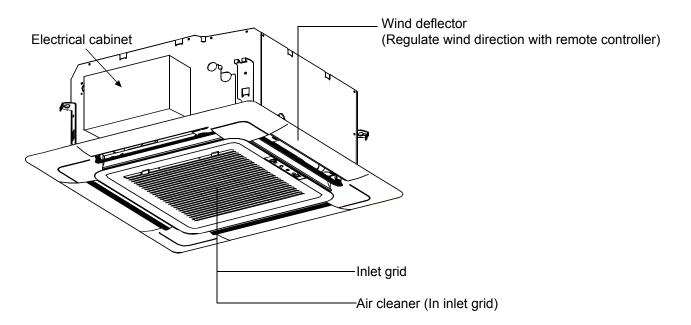






4.9 Installation 4.9.1Parts and functions

Indoor unit





4.9.2 Safety

- If the air conditioner is transferred to a new user, this manual shall be transferred to the user, together with the conditioner.
- Before installation, be sure to read Safety Considerations in this manual for proper installation.
- The safety considerations stated below is divided into "⚠Warning" and "⚠ Attention". The matters on severe accidents caused from wrong installation, which is likely to lead to death or serious injury, are listed in "⚠ Warning". However, the matters listed in "⚠ Attention" are also likely caused the severe accidents. In general, both of them are the important items related to the security, which should be strictly abided by.
- After the installation, perform test run to make sure everything is in normal conditions, and then operate and maintain the air conditioner in accordance with the User Manual. The User Manual should be delivered to the user for proper keeping.

∆WARNING

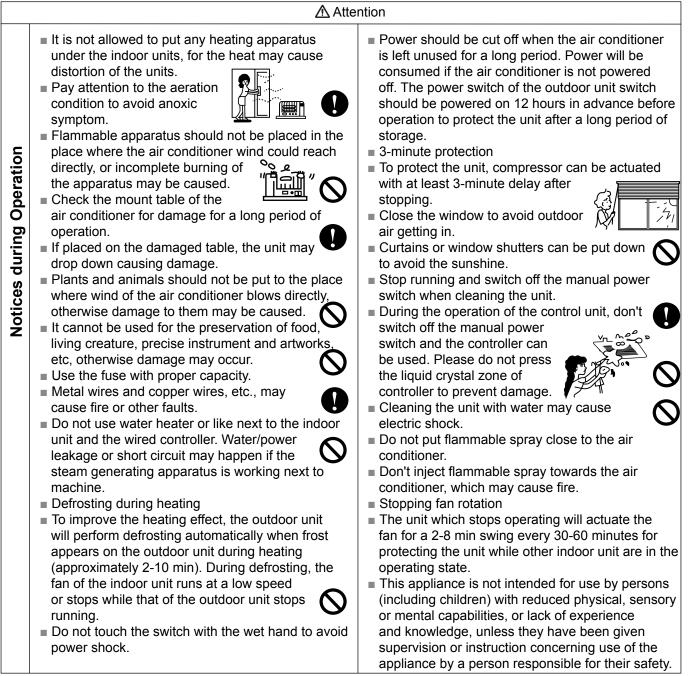
- Please ask the special maintenance station for installation and repair. Water leakage, electric shocks or fire accidents might be caused from improper installation if you conduct the installation by your own.
- The installation should be conducted properly according to this manual. Water leakage, electric shocks or fire accidents might be caused from improper installation.
- Please make sure to install the air conditioner on the place where can bear the weight of the air conditioner. The air conditioner can't be installed on the grids such as the non-special metal burglar-proof net. The place with insufficient support strength might cause the dropdown of the machine, which may lead to personal injuries.
- The installation should be ensured against typhoons and earthquakes, etc. The installation unconformable to the requirements will lead to accidents due to the turnover of the machine.
- Specific cables should be used for reliable connections of the wirings. Please fix the terminal connections reliably to avoid the outside force applied on the cables from being impressed on the cables. Improper connections and fixings might lead to such accidents as heating or fire accidents.
- Correct shapes of wirings should be kept while the embossed shape is not allowed. The wirings should be reliably connected to avoid the cover and the plate of the electrical cabinet lapping the wiring. Improper installation might cause such accidents as heating or fire accidents.
- While placing or reinstalling the air conditioner, except the specific refrigerant (R410A), don't let the air go into the refrigeration cycle system. The air in the refrigeration cycle system might lead to the cracking or personal injuries due to abnormal high pressure of the refrigeration cycle system.
- During installation, please use the accompanied spare parts or specific parts. If not, water leakage, electric shocks, fire accidents or refrigerant leakage might be caused.
- Don't drain the water from the drainpipe to the waterspout where may exist harmful gases such as sulfureted gas to avoid the harmful gases entering into the room.
- During installation, if refrigerant leakage occurs, ventilation measures should be taken, for the refrigerant gas might generate harmful gases upon contacting the flame.
- After installation, check if any refrigerant leakage exists. If the refrigerant gas leaks in the room, such things as air blowing heaters and stoves, etc. may generate harmful gases.
- Don't install the air conditioner at the places where the flammable gases may leak. In case the gas leakage occurs around the machine, such accidents as fire disasters may be caused.
- The drainpipe should be properly mounted according to this manual as to ensure the smooth drainage. In addition, heat preservation should be taken to avoid condensation. Improper drainpipe mounting might cause water leakage, which will get the articles at home wet.
- The refrigerant gas pipe and liquid pipe should be heat insulated to preserve heat. For inappropriate heat insulation, the water caused from the condensation will drop to get the article at home wet.

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≜CAUTION

- The air conditioner should be effectively grounded. Electric shocks may occur if the air conditioner is ungrounded or inappropriately grounded. The wire for earthing shouldn't be connected to the connections on the gas pipe, water pipe, lightning rod or telephone.
- The breaker for electricity leakage should be mounted. If not, accidents such as electric shocks may happen.
- The installed air conditioner should be checked for electricity leakage by being powered.
- If the ambient humidity bigger than 80%, when the water discharge hole be blocked or the filter becomes dirty, or airflow speed change, there maybe leads to condensing water drop down, and at the same time there maybe some drops of water spit out.



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4.9.3 Maintenance

▲ Attention

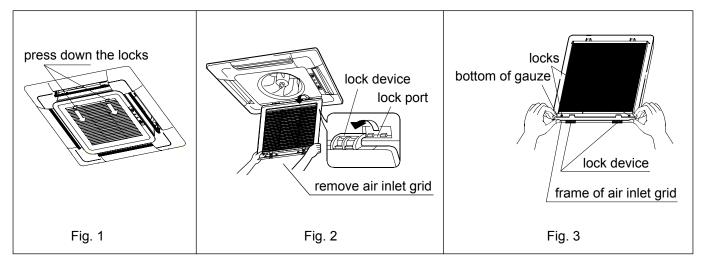
- Repair can only be performed by professional personnel.
- Before touching the connection line, all power supplies should be switched off. Only after switching off the power supply can the operator clean the air conditioner as to avoid electric shock or injury.
- When cleaning the air cleaner, make sure to use a stable platform; don't flush the air conditioner with water, or the electric shock might be caused.

Daily Maintenance:

Clean the air cleaner & air inlet grid.

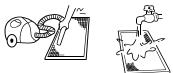
- Don't dismantle the air cleaner if not cleaning, or faults might be caused.
- When the air conditioner operates in the environment with too much dust, clean the air conditioner more times (generally once every two weeks).

1. Remove the air inlet grid as shown in the figure: press down the two locks on the grid (as shown in Fig. 1) to move it close to the nearby grid, gently lift it 45 degree (as shown in Fig. 2), and then remove the air inlet grid. 2. Dismantle the gauze: press the outer frame of the air inlet grid by the thumb, and draw the base angle of gauze by the forefinger and pull it out as to make the gauze disengage the locks, and dismantle the gauze (as shown in Fig. 3).



Cleaning Air Cleaner

- Cleaning
- Clean the air cleaner with the dust collector or water to remove dusts.
- For too much dust, use the fan or directly spray the special cookware detergent on the air inlet grid, and then clean it with water after 10 minutes.
- (A) Remove dust with dust collector.



- (B) For too much dust, use soft-hair brush and mild detergent to clean.
- (C) Throw off water and then dry it at cool places.

- \land Attention -

- Don't clean it with hot water of over 50°C to avoid fading or distortion.
- Don't dry it on the fire, or the cleaner might cause fire.

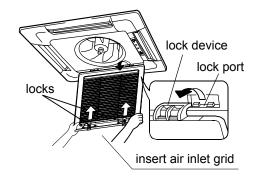
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Installing air cleaner and air inlet grid:

1. Mounting the gauze: opposite to the ways of dismantling the gauze (as shown in Fig. 3 above).

2. Mounting the air inlet grid: as shown in the right figure, nip the locks on the grid as directed by arrows, put the side with the lock device into the lock port, and then put the side with locks into the panel frame. Release the locks to position the grid after determining that the grid is abutting upon the bottom of the panel frame.



Cleaning the air outlet port and the shell:

Attention -

Don't use gasoline, benzene, diluents, polishing powder or liquid insecticide to clean them.
 Do not clean them with hot water of above 50°C to avoid fading or distorting.

- Wipe them with soft dry cloth.
- Water or neutral dry cleanser is recommended if the dust cannot be removed.
- The Wind Deflector can be dismantled to clean (as below).

Cleaning Wind Deflector:

Do not wipe the wind deflector with water forcibly to avoid the floss falling off.

Maintenance before and after Operating Season

Before Operating Season:

- 1. Please make the following checkup:
- There is no blockage in inlet port and outlet port of outdoor and indoor units.
- The ground line and the wiring are in the proper state.
- If abnormal condition occurs, consult the after-service personnel.
- 2. Clean the air cleaner and the shell.
- After cleaning, the air cleaner must be mounted.
- 3. Switch it on to the power.
 - After cleaning, the air cleaner must be mounted.

After Operating Season:

- 1. In sunny days, blowing operation can be performed for half a day to make the inside of machine dry.
- 2. Switch it off.
 - Electrical power should be cut down to economize electricity, or the machine will still consume power.
- 3. Clean the air cleaner and the shell.
 - Air cleaner and shell must be mounted after cleaning. For cleaning details, refer to Maintenance.



4.9.4 Fault checkup

Please check the following when consigning repair service:

	Symptoms	Reasons	
	Water flow sound	Water flow sound can be heard when starting operation, during operation or immediately after stopping operation. When it starts to work for 2-3 minutes, the sound may become louder, which is the flowing sound of refrigerant or the draining sound of condensed water.	
sm	Cracking sound	During operation, the air conditioner may make the cracking sound, which is caused from the temperature changes or the slight dilation of heat exchanger.	
problei	Terrible smell in outlet air	The terrible smell, caused from walls, carpet, furniture, clothing, cigarette and cosmetics, attaches on the conditioner.	
are not problems	Flashing operating indicator	When switching it on again after power failure, turn on the manual power switch and the operating indicator flashes.	
All these ar	Awaiting indication	It displays the awaiting indication as it fails to perform refrigerating operation while other indoor units are in heating operation. When the operator set it to the refrigerating or heating mode and the operation is opposite to the setting, it displays the awaiting indication.	
	Sound in shutdown indoor unit or white steam or cold air	To prevent oil and refrigerant from blocking the shutdown indoor units, refrigerant flows in the short time and make the sounds of refrigerant flowing. Otherwise, when other indoor units perform heating operation, white steam may occur; during refrigerating operation, cold air may appe	
	Clicking sound when switching the air condition on	When the conditioner is powered on, the sound is made due to the resetting of the expansion valve.	
	Start or stop working automatically	Check if it is in the state of Timer-ON and Timer-OFF.	
Please make another check.	Failure to work	Check if there is a power failure. Check if the manual power switch is turned off. Check if the supply fuse and breaker are disconnected. Check if the protective unit is working. Check if refrigerating and heating functions are selected simultaneously with the awaiting indication on line control.	
Please ma	Bad cooling & heating effects	Check if air intake port and air outlet port of outdoor units are blocked. Check if the door and windows are open. Check if the filtering screen of air cleaner is blocked with sludge or dust. Check if the setting of wind quantity is at low wind. Check if the setting of operation is at the Fan Operation state. Check if the temperature setting is proper.	

Under the following circumstances, immediately stop the operation, disconnect the manual supply switch and contact the after-service personnel.

- When buttons are inflexible actuated;
- When fuse and breaker have been burnt over and over;
- When there are foreign objects and water in the refrigerator;
- When it cannot still be operated after removing the operation of protective unit;
- When other abnormal conditions occur.

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4.9.5 Installation procedures

The standard attached accessories of the units of this series refer to the packing list; prepare other accessories according to the requirements of the local installation point of our company.

Indoor units should be installed in places with the environment of even circulation of cool and warm blows. The following places should be avoided.

- Places with high salinity (beach), high sulfureted gas(such as the thermal spring regions where copper tubes and soft soldering are easy to be eroded), much oil(including mechanical oil) and steam; places where organic substance solvent is used; where special spray is frequently used;
- Places where machines generate the high frequency electromagnetic wave (abnormal condition will appear in the control system);
- Places where there is high humidity exists near the door or windows (dew is easily formed).

Warning:

Protect the machine from gales or earthquake, make the installation according to the regulations. Improper installation will cause accidents due to the overturn of the air conditioner.

1. Select the following places to install indoor units.

(1) Where there is enough room for the machine above the ceiling;

(2) Where the drainpipes can be well arranged;

(3) Where the distance between the air outlet port of the machine and the floor is not more than 2.7m;

(4) Where air inlet & outlet of the indoor units are not blocked;

(5) Where it is hard enough to bear the weight of the unit;

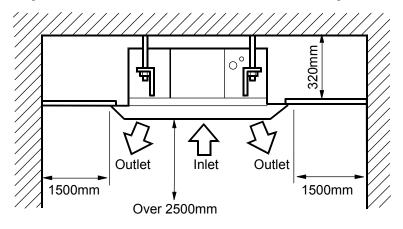
(6) Where there are no television, piano and other valuables under the indoor units as to avoid condensate dropping down, causing damage.

(7) Where it is over 1m away from the television and radio as to avoid the disturbance from television and radio.

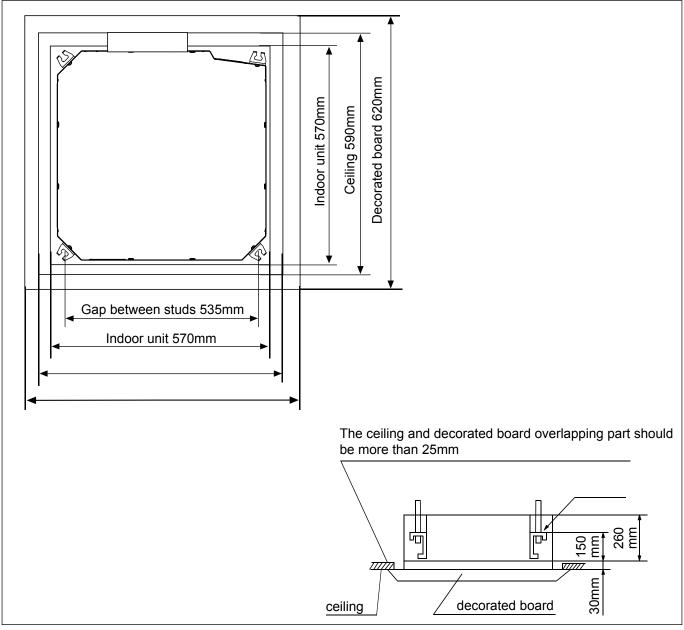
Installation Space

Ensure the required space for installation and maintenance (refer to the following drawings). The installation height should be kept within 2.7m.

When the height of the ceiling exceeds 2.7m, the warm air is hard to blow to the ground.







2. Location Relationship among Ceiling Hole, Unit and Hoisting Studs

Note:

Before suspending the indoor unit, select the installation location according to the piping and wiring in the ceiling, and determine the lead direction of the piping. Prepare all pipes (refrigerator and drainage) and wiring (connection line for remote control and connection line of indoor units and outdoor units) connected to indoor units before suspending the indoor unit so as to make the connections right after the installation.

- In the situation with the ceiling, before suspending the unit, set refrigerant pipe, drainpipe and connection line in the room, lead wire of line control to the locations of piping and wiring.
- Confirm the size of the indoor unit and fix it according to the requirements in the manual.

3. Ceiling Hole & Reinforcement

(1) Cut and withdraw the foundation of ceiling according to the size of indoor unit.

(2) After cutting an appropriate hole, reinforce the cutting area on the foundation of indoor unit, and append the rim to the ceiling to secure its foundation. In order to prevent the ceiling from vibrating, it is vital to reinforce the ceiling foundation and ensure the original levelness of the ceiling.

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4. Hoisting Stud Installation

- To support the weight of the unit, use barb bolts in the situation with the ceiling. In the situation with the new ceiling, use inlaid bolts, embedded bolts or other parts provided on site. Before installation, adjust the gap between the bolts and the ceiling.
- Use four M10 hoisting studs (provided on site) (when the height of the hoisting stud exceeds 0.9m, M10 studs should be used.). The gaps should be kept according to the overall drawing of the air conditioner. Make the installation according to regulations for various building structures as to ensure the safety. Use the level meter to perform the parallel installation.

Ceiling Suspending

Situation with New Ceiling

(1) Install the indoor unit temporarily:

Attach the hoisting foot to hoisting stud. Make sure that nuts and washers should be used at two ends of the foot to secure the foot.

(2) For the size of the ceiling hole, please refer to the schematic drawing at the previous page.

<After finishing the installation of the ceiling>

(3) Adjust the unit to the proper installation location.

(4) Check if the unit is in the horizontal level:

The indoor unit is equipped with a built-in drainage pump and a floater switch. Check if the 4 angles of the unit are in the horizontal level with the

water level or the polythene tube with water, as shown in the figure, taking <u>Water level</u> only one indoor unit as an example. If the unit inclines opposite to the

direction of condensate flow, the floater switch might have faults, causing water dropping.

(5) Tighten the nut on the washer.

Situation with Original Ceiling

(1) Install the indoor unit temporarily: attach the hoisting foot to hoisting stud. Make sure that nuts and washers (provided on site) should be used at two ends of the foot to secure the foot.

(2) Adjust the height and location of the unit.

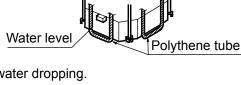
(3) Perform Step 4 and 5 in Situation with New Ceiling.

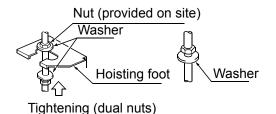
Preparation of Decorated Board

Don't put the decorated board downward to the floor. Putting it against the wall or on the extrusive objects is not allowed.

Don't touch the wind deflector or apply force on it, or the wind deflector will have faults.

(1) Check if the indoor unit is in the horizontal level with the water level and the polythene tube with water and check if the size of the ceiling hole is correct. Take away the water level before mounting the decorated board.(2) Fasten the screw to make the height difference between two sides of the indoor unit less than 5mm.



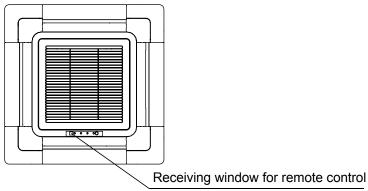


[Secure hoisting foot]

[Secure washer foot]

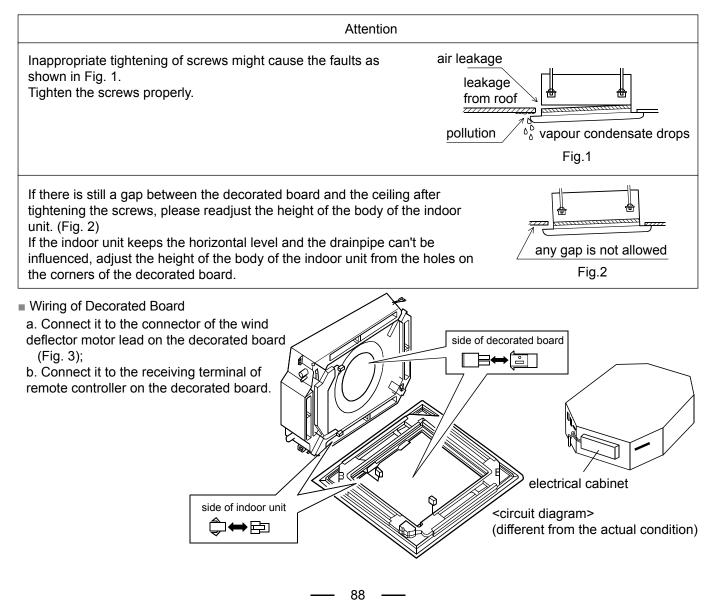


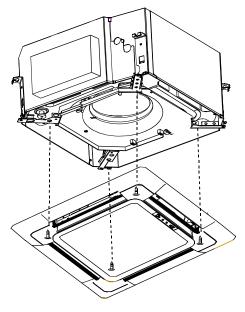
Installing the decorated board on the body of indoor unit:



The lamp will not flash when wired controller is used

- Limits when mounting the board: mount the board as shown in the figure. Incorrect direction may cause air leakage, and meanwhile the swinging and receiving displays can't be connected.
- Position it with screws temporarily first.
- Screw the two positioning screws and the other 2 screws and fasten them.
- Connect it to the motor line, communication line and power line, and check with the controller if the connections are correct. Mount air inlet grid and corner covers after making sure that the machine can operate normally.





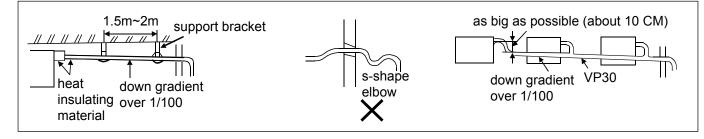


- \land Attention -

For proper drainage, the drainpipes should be connected according to the installation manual. Heat preservation should be performed as to prevent condensing. Improper connections may cause the water leakage.

Requirements:

- The drainpipe of the indoor unit should be heat-insulated.
- Heat insulation should be treated for the connection with the indoor unit. Improper heat insulation may cause condensing.
- The drainpipe with the down gradient of over 1/100 can't be in the S shape, or abnormal sound can be caused.
- The horizon length of the drainpipe should be kept with 20m. Under the condition of long pipes, supports can be provided every 1.5~2m as to avoid unevenness.
- The central piping should be connected according the following drawing.
- Take care not to apply external force on the connection of the drainpipes.



Piping Materials & Heat Insulating Materials

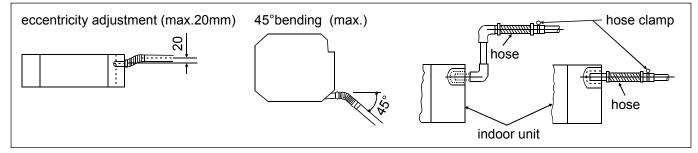
As to prevent condensation, heat insulating treatment should be performed. The heat insulating treatment for piping should be done respectively.

Piping Material	Hard PVC tube VP31.5mm
Fipility Material	(inner bore)
Heat Insulating	Vesicant polythene thickness:
Material	over 7mm

Hose

The attached hoses can be used to adjust the eccentricity and angle of the hard PVC tube.

- Stretch the hose directly to make connections as to avoid distortion. The soft end of the hose should be positioned with a clamp.
- The hose should be used in the horizon direction.



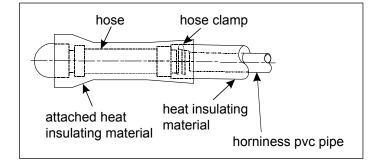
Heat Insulating Treatment:

Wrap the connection between the clamp and the root segment of the indoor unit without any gap with heat insulating materials as shown in the drawing



Lifting Drainpipe

The drainpipe can be lifted 360mm. When the down gradient of the drainpipe can't be ensured, after upright lifting, the drainpipe is in the down slope.

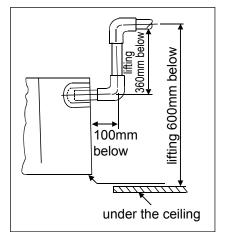


Confirming Drainage

The drainage should be confirmed during the test run to make sure that there is leakage at the connection.

The confirmation of drainage should be also performed during the installation in the winter season.

Fill water from the outlet or the specified position and confirm the drainage. Fill 600cc water with a hose from the outlet or the specified location on the machine. Add the water slowly. Don't add water to the motor of the drainage pump.



- After mounting the electrical system, do cooling operation and meanwhile add water and check.
- If the electrical installation hasn't been completed, pull out the terminal(2P) of the floater switch on the electrical cabinet. After confirming the drainage, connect the terminal of the floater switch and run the drainage pump for 5 minutes until it stops automatically.

Confirm the sound of the motor:

Confirm the sound of the motor of the drainage pump and meanwhile check the drainage.

Tubing Permissible Length & Height Difference

Please refer to the attached manual of outdoor units.

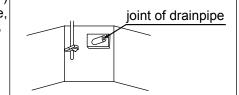
Tubing Materials & Specifications

Please refer to the attached manual of outdoor units.

Model		AB072~092MCERA(M)	AB122~182MCERA(M)	
Tubing Size (mm)	Gas pipe	Ø9.52	Ø12.7	
Tubing Size (mm)	Liquid pipe	Ø6.35	Ø6.35	
Tubing Material	Phosphor deoxy bronze seamless pipe (TP2) for air conditioner			

Refrigerant Filling Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount while compressor failure can be caused by filling too much or little refrigerant.



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Connecting Procedures of Refrigerant Tubing

Proceed the flare tube connecting operation to connect all the refrigerant tubes.

- Dual wrenches must be used in the connection of indoor unit tubing.
- Mounting torque refers to the right table

Outer Diameter of Tubing (mm)	Mounting Torque (N-m)	Increase mounting Torque (N-m)
Ø6.35	11.8(1.2kgf-m)	13.7(1.4kgf-m)
Ø9.52	24.5(2.5kgf-m)	29.4(3.0kgf-m)
Ø12.7	49.0(5.0kgf-m)	53.9(5.5kgf-m)

Cutting and Enlarging

wrench

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

(Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one main unit.]

Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.

Connecting

1. Connecting circular terminals:

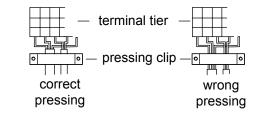
The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it. Connecting

circular s

2.Connecting straight terminals: terminals: The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier, tighten the screw and confirm it has been clamped by pulling the line gently.

3.Pressing connecting line

After connecting line is completed, press the connecting line with clips which should press on the protective sleeve of the connecting line.





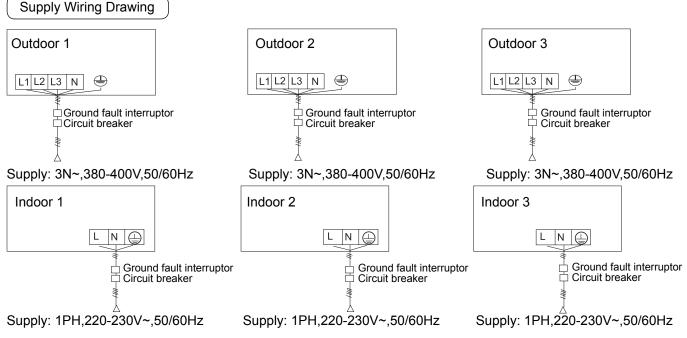
4.9.6 Electrical wiring

≜WARNING

- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

▲ Attention

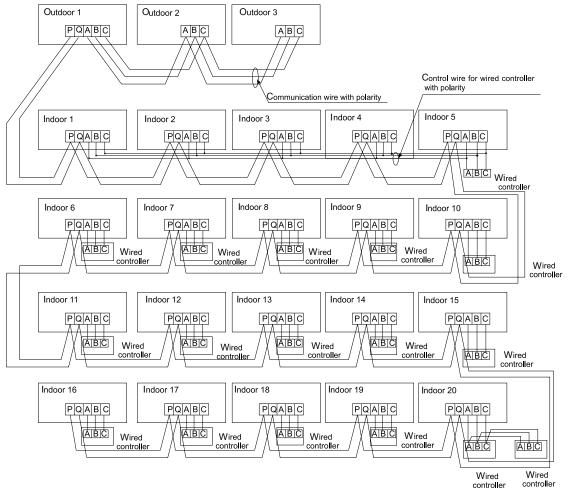
- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line, signal line are provided by users. Parameters for power lines are shown as below: 3×(1.0-1.5)mm²; parameters for signal line: 2×(0.75-1.25)mm² (shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.



Signal Wiring Drawing



Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure (1-5 indoor units). The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via three lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)
- B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired control are connected via three lines with polarity.
- C. Two wired controllers control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controls can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.



The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Items Total current of indoor units (A)	Cross section (mm²)	Length (m)	Rated current of overflow breaker (A)	Rated current of residual circuit breaker (A) ground fault Interruptor (mA) response time (S)	area of si	ectional Ignal Line Indoor-indoor (mm²)
<10	2	20	20	20 A,30 mA,0.1S or below		
≥10 and <15	3.5	25	30	30 A,30 mA,0.1S or below	2 cores×(0.	75-2.0)mm ²
≥15 and <22	5.5	30	40	40 A,30 mA,0.1S or below	shielded line	
≥22 and <27	10	40	50	50 A,30 mA,0.1S or below		

■ The electrical power line and signal lines must be fastened tightly.

- Every indoor unit must have the ground connection.
- The power line should be enlarged if it exceeds the permissible length.
- Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.
- It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions	
≤ 250	0.75mm ² ×3 core shielded line	

% The shielding lay of the signal line must be grounded at one end.

% The total length of the signal line shall not be more than 250m.



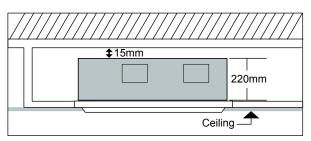
5. 2-Way Cassette Type Indoor Unit

5.1 Features



AB072MBERA
AB092MBERA
AB122MBERA
AB162MBERA
AB182MBERA

Compact design: only 220mm height





Built in high head drain pump



Ceiling antifouling design Unique antifouling design

Two way air flow Quite operation 5 models ranging from 2.2kW to 5.6kW



5.2 Specification

MODEL		AB072MBERA	AB092MBERA	AB122MBERA	
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	7.5	9.6	12.3
Qualizat	Capacity	kW	2.2	2.8	3.6
Cooling	Power input	W	90	90	90
	Current	А	0.5	0.5	0.5
	Capacity	kBtu/h	8.5	10.9	13.6
	Capacity	kW	2.5	3.2	4
Heating	Power input	W	90	90	90
	Current	Α	0.5	0.5	0.5
	Heating capacity at low temp.	kW	2	2.5	3.2
Operating of	current	Α	0.43	0.43	0.43
Power cons	sumption	kW	0.09	0.09	0.09
	Brand		Match-Well	Match-Well	Match-Well
	Model		YF120-30-6A2	YF120-30-6A2	YF120-30-6A2
	Туре		AC	AC	AC
	Insulation class		В	В	В
Indoor motor	IP class		IP20	IP20	IP20
motor	Power input	W	70	70	70
	Power output	W	35	35	35
	Capacitor	μF	3µF /450v	3µF /450v	3µF /450v
	Speed (High/Middle/Low)	rpm	670/530/440	670/530/440	670/530/440
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		1	1	1
	a. Number of rows		2	2	2
-	b. Tube pitch (a)×row pitch (b)	mm	22x19.04	22×19.04	22×19.04
	c. Fin spacing	mm	1.85 1.85		1.85
Indoor coil	d. Fin type (code)		Hydrophilic aluminum		
	e. Tube outside dia. and type	mm	Φ9.52 plate	Φ9.52 plate	Φ9.52 plate
	f. Coil length×height×width	mm	1542.6x101.6x38.08	1542.6×101.6×38.08	1542.6×101.6×38.08
	g. Number of circuits		1	1	1

	•
Ha	ler

MODEL			AB072MBERA	AB092MBERA	AB122MBERA
	Cabinet coating type		PS	PS	PS
Cabinet	Cabinet salt spray test duration	Hour	72	72	72
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		0.8	0.8	0.8
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		Standard 700mm	Standard 700mm	Standard 700mm
	Branch outlet option		No	No	No
	Material		PS	PS	PS
Indoor wall	Thickness	mm	20	20	20
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
	Liquid pipe	mm	6.35	6.35	6.35
Piping dimension	Gas pipe	mm	9.52	9.52	12.7
	Drain hose	mm	32	32	32
	Model		P2B-1055IB	P2B-1055IB	P2B-1055IB
	Dimension	mm	1055*68*680	1055*68*680	1055*68*680
Panel	Packing	mm	1110*161*720	1110*161*720	1110*161*720
	Net weight	kg	7	7	7
	Gross weight	kg	8	8	8
Fresh air dimensi	ion	mm	100*70	100*70	100*70
Sound pressure l	evel (H/M/L)	dB (A)	42/37/33	42/37/33	42/37/33
Sound power leve	el (H/M/L)	dB (A)	55/50/46	55/50/46	55/50/46
Standard static p	ressure	Pa	0	0	0
Indoor air flow (H/M/L)		m³/h	840/700/550	840/700/550	840/700/550
Dimension (W*H*D)		mm	817*220*620	817*220*620	817*220*620
Packing (W*H*D)		mm	1015*278*695	1015*278*695	1015*278*695
Net weight		kg	21	21	21
Gross weight		kg	23	23	23
Nominal condition: indoor temperature (cooling): 27DB (°C)/19 Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor), outdoor temperatu	re (heating): 7DB (°C	5)/6WB (°C)
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated					

sound intensity meter. It is a sound pressure noise level.



MODEL			AB162MBERA	AB182MBERA
Power supply	1	Ph-V-Hz	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	15.4	19.1
	Capacity	kW	4.5	5.6
Cooling	Power input	W	110	110
	Current	Α	0.62	0.62
	Capacity	kBtu/h	17.1	21.5
	Capacity	kW	5	6.3
Heating	Power input	W	110	110
	Current	Α	0.62	0.62
	Heating capacity at low temp.	kW	4	5
Operating cu	rrent	Α	0.56	0.56
Power consu	mption	kW	0.11	0.11
	Brand		Match-Well	Match-Well
	Model		YF120-30-6A2	YF120-30-6A2
	Туре		AC	AC
	Insulation class		В	В
Indoor motor	IP class		IP20	IP20
	Power input	W	70	70
	Power output	W	35	35
	Capacitor	μF	3µF /450v	3µF /450v
	Speed (High/Middle/Low)	rpm	670/530/440	670/530/440
	Brand		Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal
	Quantity		1	1
	a. Number of rows		2	2
	b. Tube pitch (a)×row pitch (b)	mm	21×13.2	21×13.2
	c. Fin spacing	mm	1.5	1.5
Indoor coil	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e. Tube outside dia. and type	mm	Φ6.35 Inner groove tube	Φ6.35 Inner groove tube
	f. Coil length×height×width	mm	1581×105.6×39.6	1581×105.6×39.6
	g. Number of circuits		4	4

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MODEL			AB162MBERA	AB182MBERA
	Cabinet coating type		PS	PS
Cabinet	Cabinet salt spray test duration	Hour	72	72
	Control box IP class		IP20	IP20
	Sheet metal thickness		0.8	0.8
	Drain pan material		PS	PS
Construction	Drain pan insulation		20	20
	Drain pump option		Standard 700mm	Standard 700mm
	Branch outlet option		No	No
	Material		PS	PS
Indoor wall	Thickness	mm	20	20
	Double or single skin		Single	Single
	Material		PP	PP
Air filter	Mesh		100	100
	Pressure drop	Pa	5	5
	Liquid pipe	mm	6.35	6.35
Piping dimension	Gas pipe	mm	12.7	12.7
	Drain hose	mm	32	32
	Model		P2B-1055IB	P2B-1055IB
	Dimension	mm	1055*68*680	1055*68*680
Panel	Packing	mm	1110*161*720	1110*161*720
	Net weight	kg	7	7
	Gross weight	kg	8	8
Fresh air dimensio	n	mm	100*70	100*70
Sound pressure le	evel (H/M/L)	dB (A)	44/39/34	44/39/34
Sound power leve	I (H/M/L)	dB (A)	57/52/47	57/52/47
Standard static pre	essure	Pa	0	0
Indoor air flow (H/M/L)		m³/h	840/700/550	840/700/550
Dimension (W*H*D)		mm	817*220*620	817*220*620
Packing (W*H*D)		mm	1015*278*695	1015*278*695
Net weight		kg	21	21
Gross weight		kg	23	23
Outdoor temperate The noise level w	ure (cooling): 35DB (°C)/24V	VB (°C), c octave b	•	

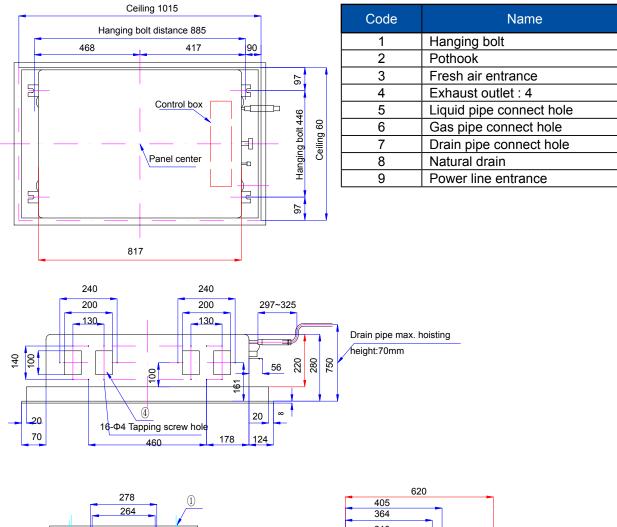
sound intensity meter. It is a sound pressure noise level.

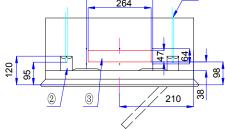
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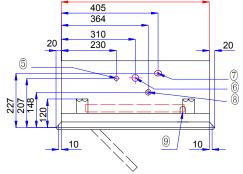
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5.3 Dimension

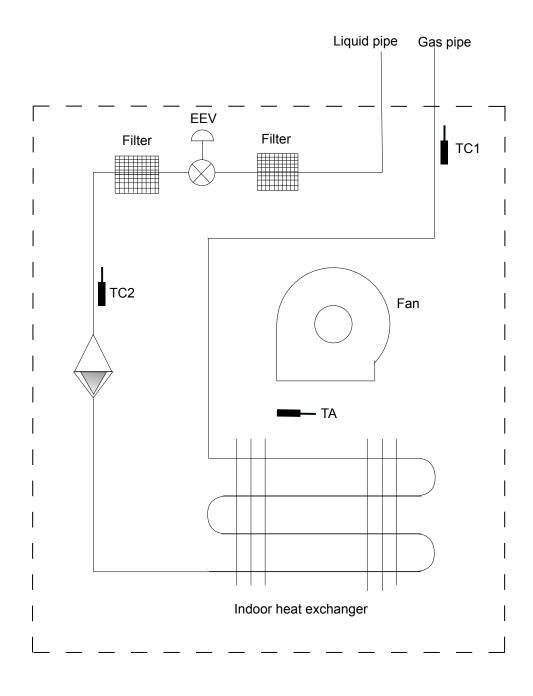








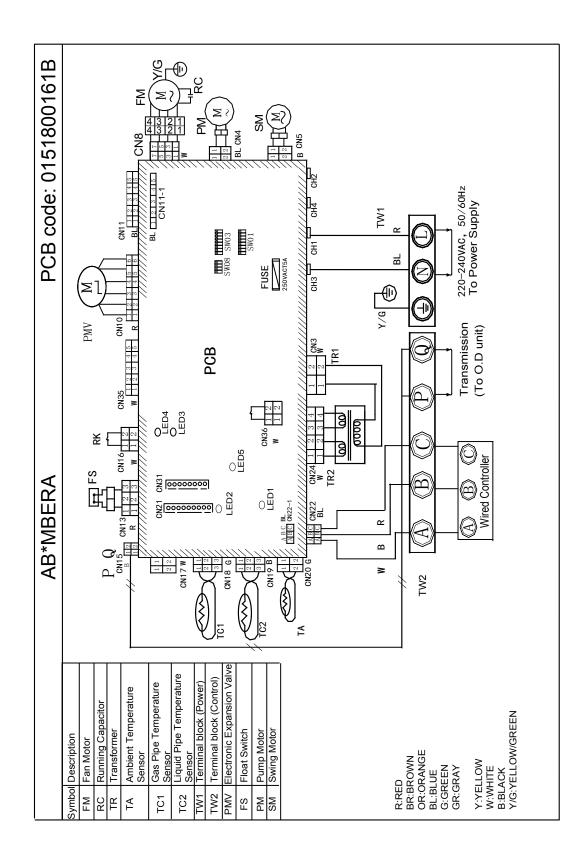
5.4 Piping diagram



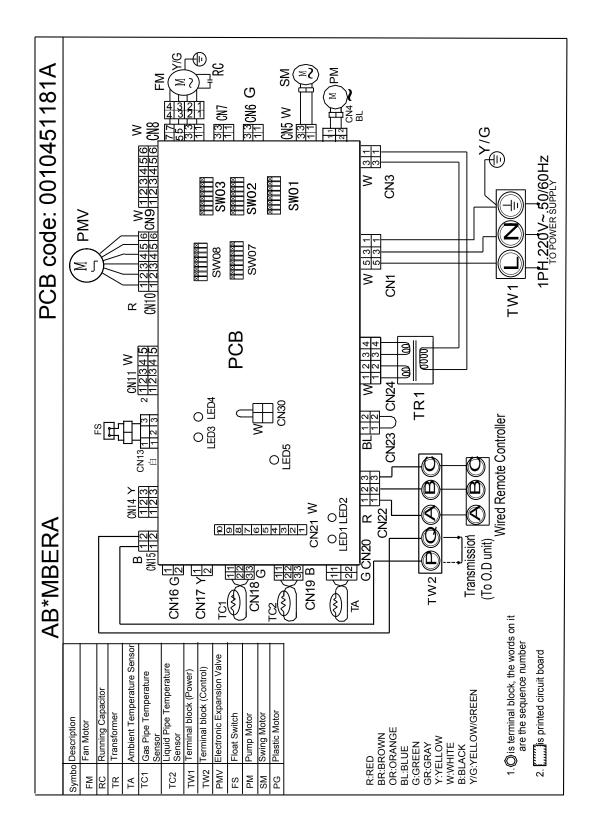
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5.5 Wiring diagram









5.6 Electric characteristics

Unit				Power	supply	Indoor fan motor		Power input (W)		
Model	Phase	Voltage	FQY	Volt. range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AB072MBERA	1	220	50/60	198~242	0.5	1.6	35	0.4	90	90
AB092MBERA	1	220	50/60	198~242	0.5	1.6	35	0.4	90	90
AB122MBERA	1	220	50/60	198~242	0.5	1.6	35	0.4	90	90
AB162MBERA	1	220	50/60	198~242	0.5	1.6	35	0.4	110	110
AB182MBERA	1	220	50/60	198~242	0.5	1.6	35	0.4	110	110

Symbols:

MCA: Min. circuit amps (A) MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

Note:

1. Voltage range

The units are applicable for the electrical systems where voltage supplied to unit is in the range.

2. Maximum allowable voltage unbalance between phases is 2%.

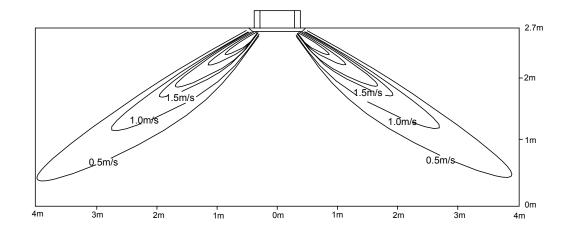
3. MCA=1.25*FLA MFA≤4*FLA

4. Power supply uses the circuit breaker.



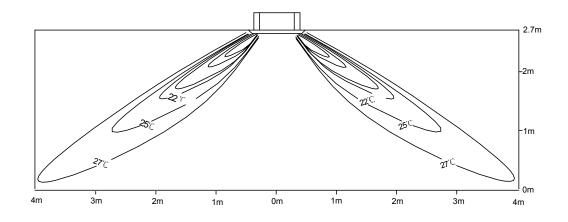
5.7 Air velocity and temperature distribution

a. Cooling / Air velocity distribution
 Cooling
 Blowy angle: 40
 Air Velocity distribution



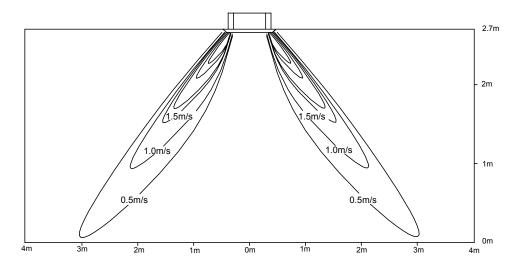
b. Cooling / Temperature distribution

Cooling Blowy angle: 40 Temperature distribution



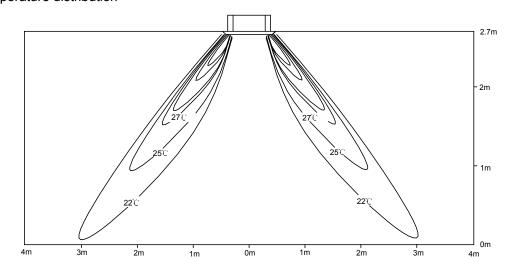


c. Heating / Air velocity distribution Heating Blowy angle: 70 Air velocity distribution



d. Heating / Temperature distribution

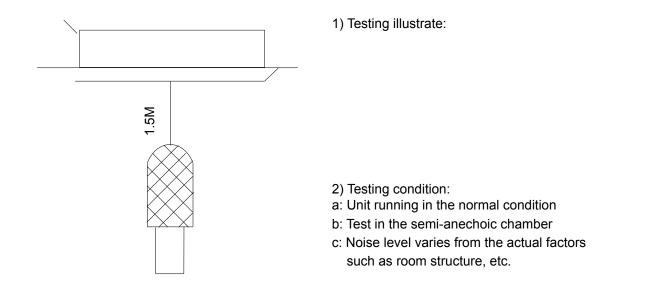
Heating Blowy angle: 70 Temperature distribution

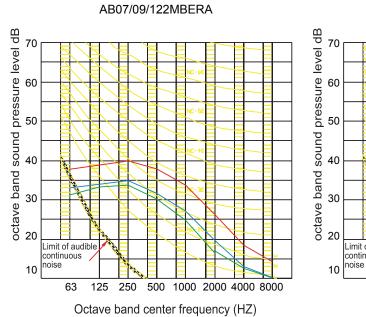


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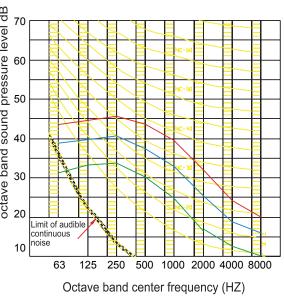


5.8 Sound pressure level





AB16/182MBERA





5.9 Installation

5.9.1 Installation procedures

Before installation

Make correct operation according to the manual when installation.

- Please confirm the below information:
- If operation plan has been discussed
- Model, power supply specs
- Pipe, wire, and the other parts
- Accessories (inside the unit, take it out after opening the filter)

Selection of installation location for the indoor unit

Indoor units should be installed in places with the environment of even circulation of cool and warm blows. The following places should be avoided.

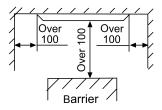
- Places with high salinity (beach), high sulfureted gas (such as the thermal spring regions where copper tubes and soft soldering are easy to be eroded), much oil (including mechanical oil) and steam; places where organic substance solvent is used; where special spray is frequently used;
- Places where machines generate the high frequency electromagnetic wave (abnormal condition will appear in the control system);
- Places where there are high humidity exists near the door or windows (dew is easily formed).

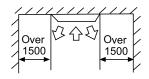
Protect the machine from gales or earthquake, make the installation according to the regulations. Improper installation will cause accidents due to the overturn of the air conditioner.

Select the following places to install indoor unit

- (1) The places where cool or warm air can ventilate smoothly. If the place is higher than 3m, the warm air will manifold around the ceiling. A circulator is necessary for this case.
- (2) The places where the wires and pipes are easy to outdoor.
- (3) The places where the condensate water can be drained out smoothly and the drainage pipe can lean appropriately.
- (4) The places where there is no obstacle at air inlet or outlet. And the places which will not alarm or not be in short circuit.
- (5) The place where the sunshine will not shoot directly.
- (6) The places around which the frosting temperature is below 28°C and the relative humidity is below 80% (when the unit is installed at place with high temperature, pay main attention to frosting issues, for example the unit can be equipped with heat insulation).

Take it into account that if the place is strong enough to support the unit. If not, please strengthen it with reinforced plate and horizontal plate.





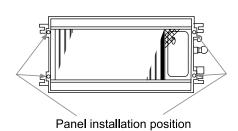


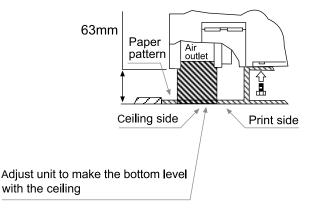
Suspension installation

Suspend the bolt with 4 M10 or W3/8. Fasten the bolt to make every bolt bear the load of 50kg. The suspension bolt should be about 95mm extending outward of ceiling.

When the ceiling exists already

- 1. Open a hole on the ceiling, and set the dimension appropriate for the installation.
- 2. Fasten the bolt (purchased locally) on the correct position.
- 3. After suspending indoor unit, install the template paper on the position of panel with 4 bolts, then adjust the height according to the below procedure. (The length from ceiling to unit bottom is AB072-182: 63mm)
- 4. Check if the unit is horizontal with a level. If not, the unit will leak water or float switch works badly.
- 5. Fix the unit after levelness adjustment.

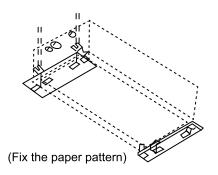




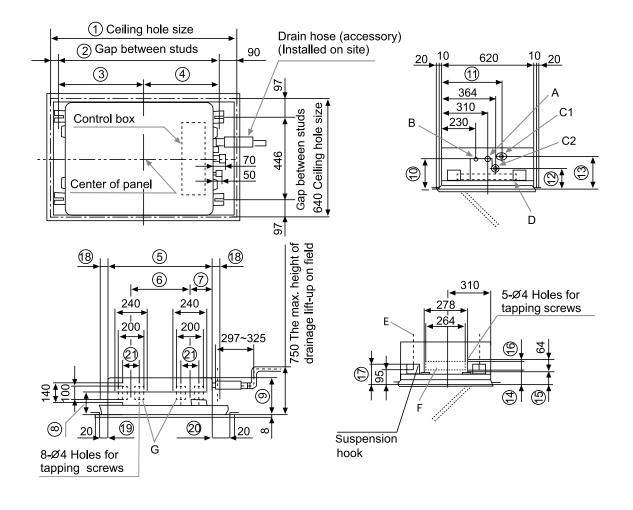
Install ceiling later

- 1. Install the unit block and template paper according to step 2-4.
- 2. Cut along external boundary line in the ceiling.
- 3. Fasten the unit after inspecting installation height and level.

A	Gas pipe connector	
В	Liquid pipe connector	
C1	Drainage pipe connector	VP25
C2	Natural drainage outlet	VP20
D	Power inlet	
E	Suspension bolts	M10 or M3/8
F	Fresh air inlet	
G	Air supply branch pipe connector	







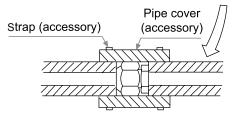
Model		2	3	4	5	6	7	8	9	10	1
AB072-182MBERA	1015	885	468	417	817	460	178	161	220	207	405
Model	12	13	14	15	16	17	18	19	20	2)]
AB072-182MBERA	148	227	98	91	47	120	56	74	124	130]

Refrigerant pipe

Please refer to accompanied manual to know refrigerant pipe plumbing.

Gas side and liquid side should take measure of heat insulation.

Inspect if gas leaks, joints heat insulation materials have to be used to connect refrigerant piping extender mouth, then, use strap to tie two parts.

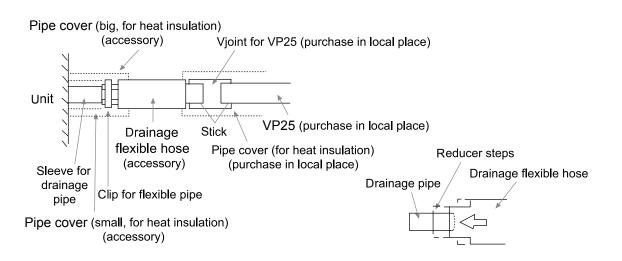


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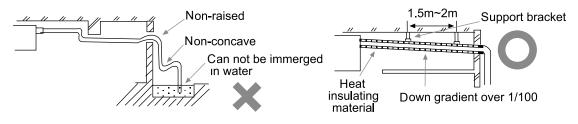


Drainage pipe

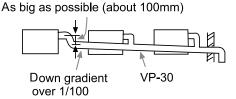
- Install attached flexible hose to adjust when installing panel. Bending or dragging intentionally will lead to leakage.
- Insert attached drainage flexible hose into fine mouth end of drainage, and then fix it with pipe clamp.
- Bind VP-25 joint (purchase in local place) to drainage flexible hose (Rigid PVC terminal) before suspending, then, bind VP-25 to this joint.
- Make sure binder does not flow into drainage pipe, otherwise, the pipe will be damaged after binder dries.



Make drainage slope down (slope is 1/50-1/100), and any part of drainage upheaval or cave in.



- Attention: make sure indoor unit side does not bear any pressure, and fix drainage near unit.
- Drainage can be normal rigid polyvinyl chloride pipe VP-25.
- When laying drainage pipe for multi units. As viewed in the picture, set main drainage 100mm under each indoor unit draining mouth, and the main pipe should be more than VP-30 thick plastic pipe.



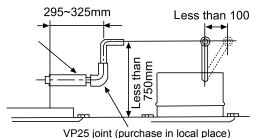
Take insulation measures to the following two parts of drainage pipe to avoid leakage. Drain pipe fitting location:

After drainage test, install small tube shield onto drain pipe fitting and then use bigger tube shield to cover smaller one and part of drainage pipe. And then use bandage to tie them. Rigid polyvinyl chloride pipe of indoor unit.

- Do not set air vent in the drain pipe.
- Exit height of drain pipe should be 750mm higher than ceiling, so if facing any barrier while laying drain pipe, you can use bending pipe or other attachments to avoid, and on this condition, if the drain pipe from unit to pipe is too long, the water flow will increase when air conditioner is off.



The following picture refers to particular location of match-fixing head of drain pipe.

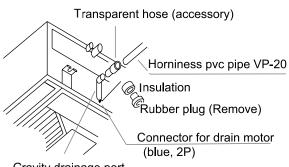


Other installation is the same as normal drain pipe working.

- Do not lay drain pipe at the place that can cause peculiar smell gas.
- Do not put drain pipe directly into sewer that can cause harmful gas.

In case of gravity drainage

- Remove the rubber plug and insulation from the gravity drainage port.
- Connect the drain hose (VP-20) using the gravity drainage connecting tube (option) and secure firmly with a clamp.
 (If the drain tube is directly connected with the gravity drainage port, the drain pan could not be removed.)
- Cut off drainage motor (blue 2P) (If the unit is used with this connector being connected, the drainage will go out through the standard drain connecting port, causing leaks.)



Gravity drainage port

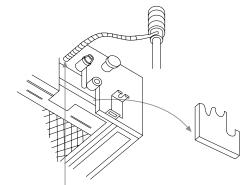


- After installation of drain pipe, make sure that drain system work in good condition and no water leakage from joint and drain pan.
- Do drain test even if installation of heating season.
- For new building cases, make sure to complete the test before hanging the ceiling.
- 1. Pour water of about 1000cc into the drain pan in the indoor unit by pump so as not to get the electrical component wet.
- 2. At the drain socket (transparent), it is possible to check if the water is drained out properly. Confirm that the water is properly drained out while the drain motor is operating.
- 3. Unplug the drain plug on the indoor unit to remove remaining water after the test, and re-plug it.

Attention: Do not make water splash.



Transparent pipe sleeve for observing drainage



Insert the head of water supply pump into the hole beside the pump for about 50mm

Drain pump forceful running method

Turn on indoor unit, drain pump will continuously run.

Turn off after test is over. (If electrical work has not done, connect T style Y-shaped connector to form inlet, and then check if it leaks.)

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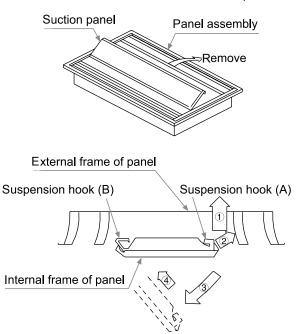


Installation of pane Bolt used should be close to panel

Air supply outlet is easy to be damaged, please pay attention to it when working.

1. Use drawing block to confirm the height of unit and size of ceiling. Remove it before installing panel, as well as air return panel.

Method to dismantle the air return panel



- Use drawing block to confirm the height of unit and size of ceiling. Remove it before installing panel, as well as air return panel.
- Screw 4 installation panels 5mm in unit panel.
- Fix the panel.
- Tighten the screws.
- Link the joint of louver motor (white, 3P) and limit switch (white, 2P) (unit without louver automatically running function does not need this step.)
- Use remote control to make sure the connection is OK, and then cut off the power for 10 seconds, restart.

Tubing Permissible Length & Height Difference

Please refer to the attached manual of outdoor units.

Tubing Materials & Specifications

Model		AB07/092MBERA	AB12/16/182MBERA		
Tubing Size (mm)	Gas pipe Φ9.52		Ф12.7		
	Liquid pipe	Ф6.35	Ф6.35		
Tubing Material	Phosphor deoxy bronze seamless pipe (TP2) for air conditioner				

Refrigerant Filling Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount while compressor failure can be caused by filling too much or little refrigerant.



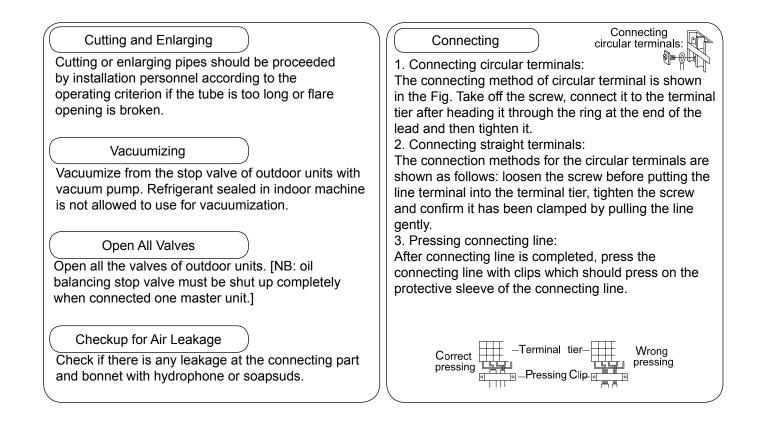
Connecting Procedures of Refrigerant Tubing

Proceed the flare tube connecting operation to connect all the refrigerant tubes.

- Dual wrenches must be used in the
- connection of indoor unit tubing.
- Mounting torque refers to the right table



Outer diameter of tubing (mm)	Mounting torque (N.m)	Increase mounting torque (N.m)
Ф6.35	11.8 (1.2kgf.m)	13.7 (1.4kgf.m)
Ф9.52	24.5 (2.5kgf.m)	29.4 (3.0kgf.m)
Φ12.7	49.0 (5.0kgf.m)	53.9 (5.5kgf.m)
Φ15.88	78.4 (8.0kgf.m)	98.0 (10.0kgf.m)



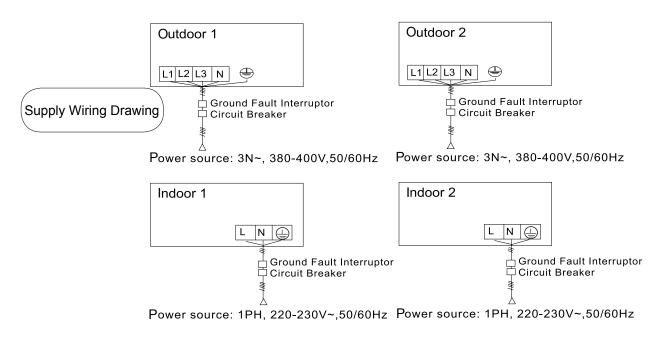
5.9.2 Electrical wiring

- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

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- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below: 3×1.0-1.5) mm²; parameters for signal line: 2×0.75-1.25)mm²(shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.

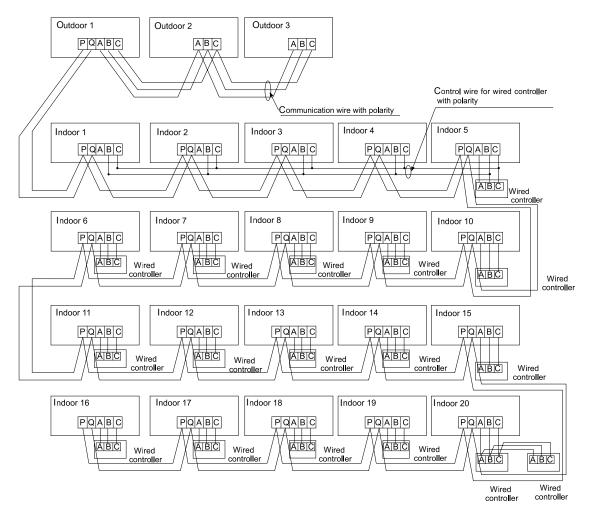


Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.

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Signal Wiring Drawing



Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure (1-5 indoor units). The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)
- B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired control are connected via three lines with polarity.
- C. Two wired controllers control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controls can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.



The combination of multiple indoor units can be controlled by wired controller or remote controller.

% Switching mode of Wired control master unit/ Wired control slave unit/ remote control types can be used for switching over %

Setting mode Socket/dip switch	Wired control master unit	Wired control slave unit	Remote control
SW01-[2][3][4]	All OFF	[0][0][1]	All OFF
CN21 socket	Null	Null	Connect to remote receiver
Terminal block (control)	A,B,C connect with wired controller	B,C connect with wired controller	A,B,C null

Note:

The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Items Cross Total section		Length	Rated current of	Rated current of residual circuit breaker (A)	Cross s area of si	
Total current of indoor units (A)	section (mm²)	(m)	overflow breaker (A)	Ground fault Interrupter (mA)	Outdoor -indoor (mm ²)	Indoor -indoor (mm²)
<10	2	20	20	20 A, 30 mA, 0.1S or below		
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below	2 cores×(
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below	mm ² shie	lded line
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below		

% The electrical power line and signal lines must be fastened tightly.

% Every indoor unit must have the ground connection.

% The power line should be enlarged if it exceeds the permissible length.

% Shielded lays of all the indoor and outdoor units should be connected together, with the shielded

lay at the side of signal lines of outdoor units grounded at one point.

% It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm ² ×3 core shielded line

% The shielding lay of the signal line must be grounded at one end.

X The total length of the signal line shall not be more than 250m.



5.9.3 Test run

Before Test Run

- Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above 1MΩ. It can't be operated if it is below 1MΩ.
- Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.
- Check if the arrangements of the drainpipe and connection line are correct.
- The drainpipe shall be placed at the lower part while the connection line placed at the upper part.
- Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials.
- The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.
- Checkup of Installation.

 \Box Check if the mains voltage is matching

- □ Check if there is air leakage at the piping joints
- \Box Check if the connections of mains power and indoor
- \Box & outdoor units are correct
- Check if the serial numbers of terminals are matching $\hfill\square$
- Check if the installation place meets the requirement
- \Box Check if there is too much noise
- □ Check if the connecting line is fastened
- $\hfill\square$ Check if the connectors for tubing are heat insulated
- \Box Check if the water is drained to the outside
- \Box Check if the indoor units are positioned

Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

Set the wired controller to cooling/heating mode, press "ON/ OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/ OFF" button to quit the compulsive running and stop the operation of the air conditioner.



6. One Way Cassette Type Indoor Unit

6.1 Features



- DC fan motor, higher efficiency
- Only 185mm thickness, allowing more flexible design
- Low sound level, high comfort
- Built-in high lift drain pump.
- No need of maintenance port, convenient and artistic



6.2 Specification

MODEL			AB052MAERA	AB072MAERA		
Power supply	1	Ph-V-Hz	1/220-230/50/60	1/220-230/50/60		
	Capacity	kBtu/h	5.1	7.5		
Cooling	Capacity	kW	1.5	2.2		
	Power input	W	21	21		
	Current	A	0.1	0.1		
	Capacity	kBtu/h	5.8	8.5		
	Capacity	kW	1.7	2.5		
Heating	Power input	W	21	21		
	Current	A	0.1	0.1		
	Heating capacity at low temp.	kW	1.6	2		
Operating cu	rrent	A	0.1	0.1		
	Brand		Broad Ocean	Broad Ocean		
	Model		ZWK465B500015	ZWK465B500015		
	Туре		DC	DC		
	Insulation class		E	E		
Indoor motor	IP class		IP20	IP20		
	Power input	W	88	88		
	Power output	W	70	70		
	Capacitor	μF	1	1		
	Speed (High/Middle/Low)	rpm	700/600/550	700/600/550		
	Brand		Shunwei	Shunwei		
Indoor fan	Туре		Cross-flow	Cross-flow		
	Quantity		1	1		
	a. Number of rows		2	2		
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3		
	c. Fin spacing	mm	1.4	1.4		
Indoor coil	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum		
	e. Tube outside dia. and type	mm	Φ7	Φ7		
	f. Coil length×height×width	mm	675*168*13.3&675*84*13.3	675*168*13.3&675*84*13.3		
	g. Number of circuits		3	3		



	MODEL		AB052MAERA	AB072MAERA
	Cabinet coating type		Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	100	100
	Control box IP class		IP40	IP40
	Sheet metal thickness		3	3
	Drain pan material		ABS	ABS
Construction	Drain pan insulation		UL-V0	UL-V0
	Drain pump option		Standard 1200mm	Standard 1200mm
	Branch outlet option		no	no
	Material		ABS	ABS
Indoor wall	Thickness	mm	3	3
	Double or single skin		Single	Single
	Material		ABS	ABS
Air filter	Mesh		100	100
	Pressure drop	Pa	5	5
	Liquid pipe	mm	6.35	6.35
Piping dimension	Gas pipe	mm	9.52	9.52
	Drain hose	mm	Ф32	Ф32
	Model		P1B-1050IB	P1B-1050IB
	Dimension	mm	1050/560/122	1050/560/122
Panel	Packing	mm	1133/623/197	1133/623/197
	Net weight	kg	5.3	5.3
	Gross weight	kg	8.3	8.3
Fresh air dimensio	n	mm	1	1
Sound pressure le	evel (H/M/L)	dB (A)	32/29/24	32/29/24
Sound power leve	I (H/M/L)	dB (A)	46/43/38	46/43/38
Standard static pro	essure	Pa	0	0
Indoor air flow (H/	M/L)	m³/h	530/490/450	530/490/450
Dimension (W*H*I	D)	mm	875/505/185	875/505/185
Packing (W*H*D)		mm	1028/581/270	1028/581/270
Net weight		kg	15.3	15.3
Gross weight		kg	17.9	17.9

The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



MODEL			AB092MAERA	AB122MAERA		
Power supply	1	Ph-V-Hz	1/220-230/50/60	1/220-230/50/60		
	Capacity	kBtu/h	9.6	12.3		
Cooling	Capacity	kW	2.8	3.6		
	Power input	W	21	23		
	Current	A	0.1	0.11		
	Capacity	kBtu/h	10.9	13.6		
	Capacity	kW	3.2	4		
Heating	Power input	W	21	23		
	Current	A	0.1	0.11		
	Heating capacity at low temp.	kW	2.5	3.2		
Operating cu	rrent	A	0.1	0.11		
	Brand		Broad Ocean	Broad Ocean		
	Model		ZWK465B500015	ZWK465B500015		
	Туре		DC	DC		
	Insulation class		E	E		
Indoor motor	IP class		IP20	IP20		
	Power input	W	88	88		
	Power output	W	70	70		
	Capacitor	μF	1	1		
	Speed (High/Middle/Low)	rpm	700/600/550	800/700/600		
	Brand		Shunwei	Shunwei		
Indoor fan	Туре		Cross-flow	Cross-flow		
	Quantity		1	1		
	a. Number of rows		2	2		
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3		
	c. Fin spacing	mm	1.4	1.4		
La da an 11	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum		
Indoor coil	e. Tube outside dia. and type	mm	Φ7	Φ7		
	f. Coil length×height×width	mm	675*168*13.3&675*84*13.3	675*168*13.3&675*84*13.3		
	g. Number of circuits		3	3		

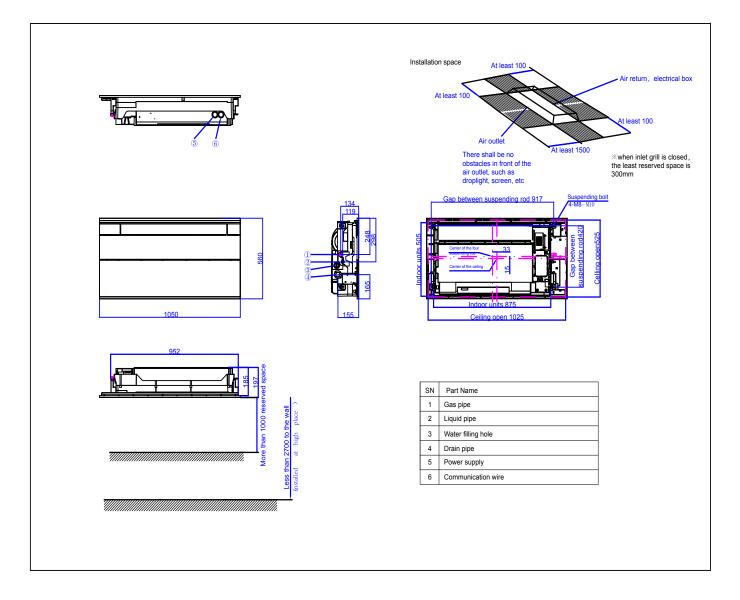


	MODEL		AB092MAERA	AB122MAERA
	Cabinet coating type		Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	100	100
	Control box IP class		IP40	IP40
	Sheet metal thickness		3	3
	Drain pan material		ABS	ABS
Construction	Drain pan insulation		UL-V0	UL-V0
	Drain pump option		Standard 1200mm	Standard 1200mm
	Branch outlet option		no	no
	Material		ABS	ABS
Indoor wall	Thickness	mm	3	3
	Double or single skin		Single	Single
	Material		ABS	ABS
Air filter	Mesh		100	100
	Pressure drop	Pa	5	5
	Liquid pipe	mm	6.35	6.35
Piping dimension	Gas pipe	mm	9.52	12.7
	Drain hose	mm	Ф32	Ф32
	Model		P1B-1050IB	P1B-1050IB
	Dimension	mm	1050/560/122	1050/560/122
Panel	Packing	mm	1133/623/197	1133/623/197
	Net weight	kg	5.3	5.3
	Gross weight	kg	8.3	8.3
Fresh air dimensio	on	mm	1	1
Sound pressure le	evel (H/M/L)	dB (A)	32/29/24	34/30/25
Sound power leve	!I (H/M/L)	dB (A)	46/43/38	48/44/39
Standard static pr	essure	Pa	0	0
Indoor air flow (H/	M/L)	m³/h	530/490/450	550/530/490
Dimension (W*H*	D)	mm	875/505/185	875/505/185
Packing (W*H*D)		mm	1028/581/270	1028/581/270
Net weight		kg	15.3	15.3
		kg	17.9	17.9

The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



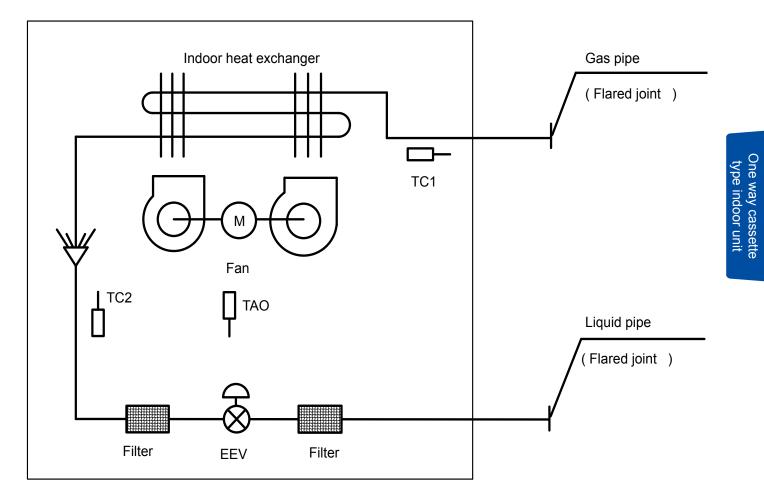
6.3 Dimension



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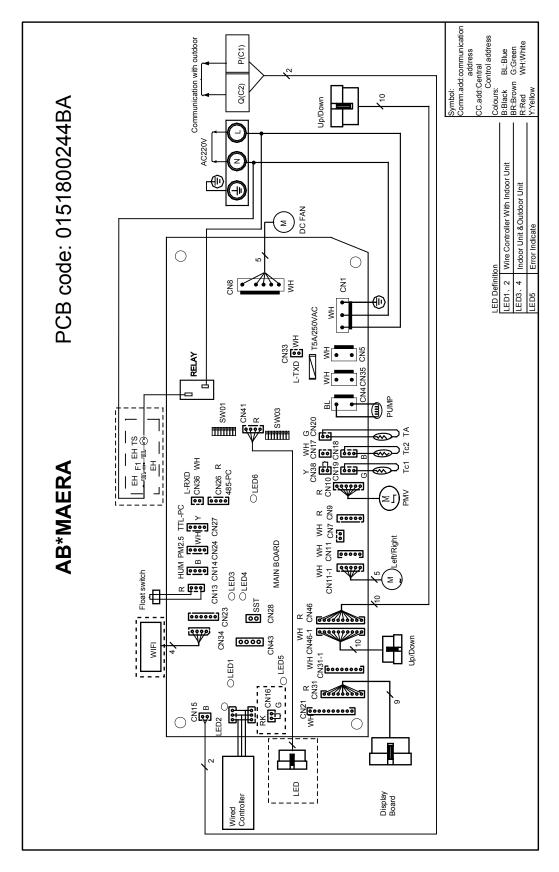


6.4 Piping diagram





6.5 Wiring diagram



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6.6 Electric characteristics

Units					Power supply		Indoor fan motor		Power input (w)	
Model	Phase	FQY	Voltage	Volt. range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AB052MAERA	1	50/60	220	198~242	0.088	0.28	70	0.07	21	21
AB072MAERA	1	50/60	220	198~242	0.088	0.28	70	0.07	21	21
AB092MAERA	1	50/60	220	198~242	0.088	0.28	70	0.07	21	21
AB122MAERA	1	50/60	220	198~242	0.088	0.28	70	0.07	23	23

Symbols:

MCA: Min. circuit amps (A) MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

Note:

1. Voltage range

The units are applicable for the electrical systems where voltage supplied to unit is in the range.

2. Maximum allowable voltage unbalance between phases is 2%.

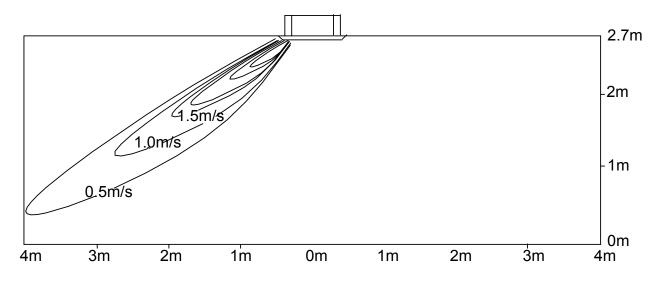
3. MCA=1.25*FLA MFA≤4*FLA

4. Power supply uses the circuit breaker.

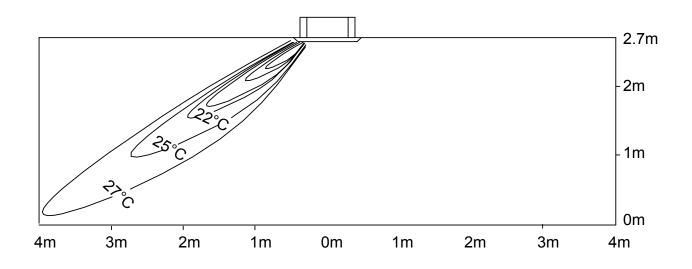


6.7 Air velocity and temperature distribution

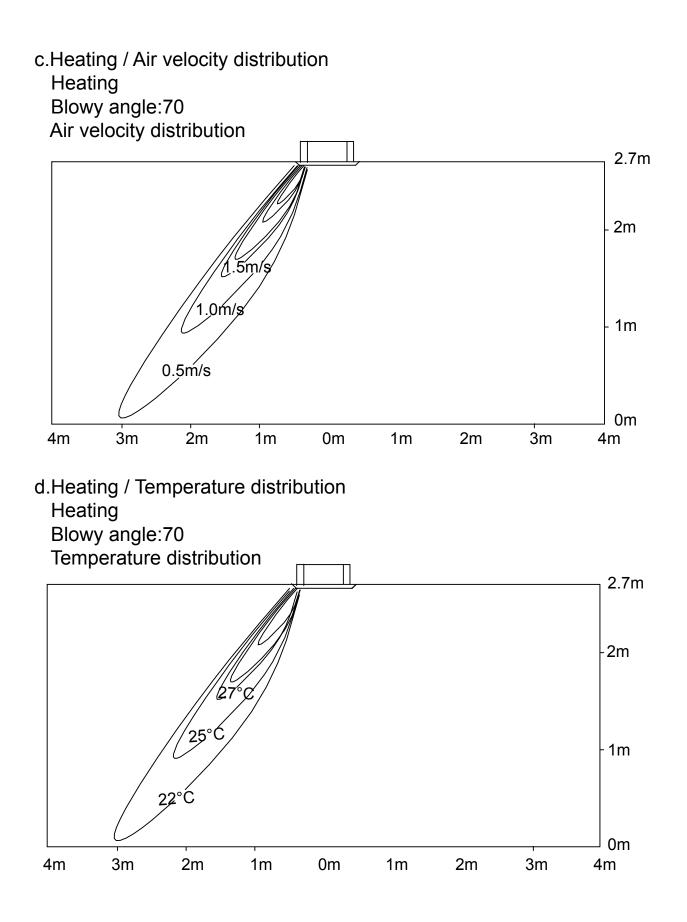
a.Cooling / Air velocity distribution Cooling Blowy angle:40 Air velocity distribution



b.Cooling / Temperature distribution
 Cooling
 Blowy angle:40
 Temperature distribution







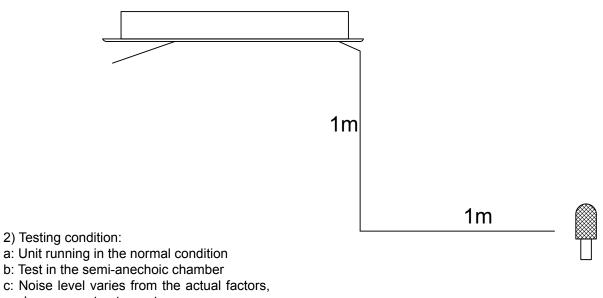
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One way cassette type indoor unit

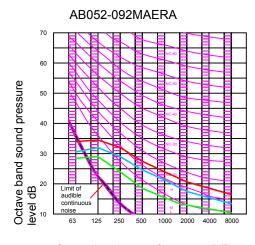


6.8 Sound pressure level

1) Testing illustrate:



such as room structure, etc.



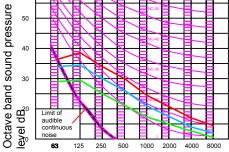
Octave band center frequency (HZ)

AB122MAERA

70

60

50



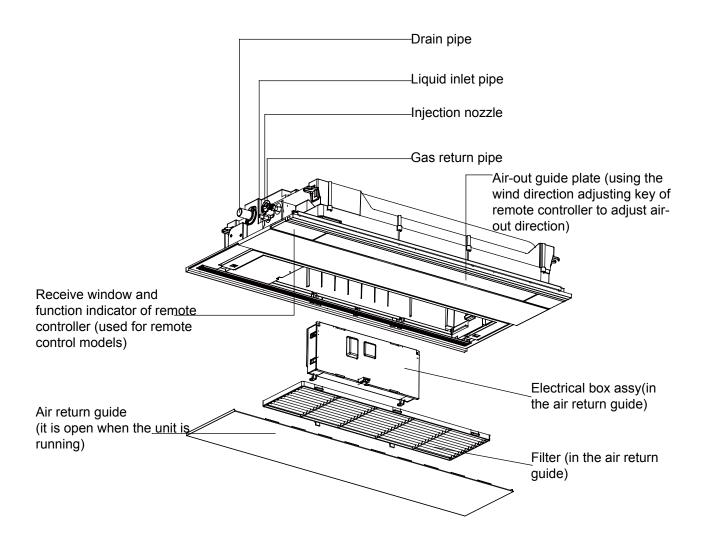
Octave band center frequency (HZ)



6.9 Installation

6.9.1 Parts and functions

Indoor unit





6.9.2 Safety

- If the air conditioner is transferred to a new user, this manual shall be transferred to the user, together with the conditioner.
- Before installation, be sure to read Safety Considerations in this manual for proper installation.
- The safety considerations stated below is divided into "▲Warning" and "▲ Attention". The matters on severe accidents caused from wrong installation, which is likely to lead to death or serious injury, are listed in "▲ Warning". However, the matters listed in "▲ Attention" are also likely cause the severe accidents. In general, both of them are the important items related to the security, which should be strictly abided by.
- After the installation, perform test run to make sure everything is in normal conditions, and then operate and maintain the air conditioner in accordance with the User Manual. The User Manual should be delivered to the user for proper keeping.
- Haier is not responsible for any personnel damage or equipment damage caused by improper installation, improper commissioning, unnecessary maintenance and the wrong operation which violates the instructions in this manual or industry specifications and standards.

∆WARNING

- Please ask the special maintenance station for installation and repair. Water leakage, electric shocks or fire accidents might be caused from improper installation if you conduct the installation by your own.
- The installation should be conducted properly according to this manual. Water leakage, electric shocks or fire accidents might be caused from improper installation.
- Please make sure to install the air conditioner on the place where can bear the weight of the air conditioner. The air conditioner can't be installed on the grids such as the non-special metal burglar-proof net. The place with insufficient support strength might cause the dropdown of the machine, which may lead to personal injuries.
- The installation should be ensured against typhoons and earthquakes, etc. The installation unconformable to the requirements will lead to accidents due to the turnover of the machine.
- Specific cables should be used for reliable connections of the wirings. Please fix the terminal connections reliably to avoid the outside force applied on the cables from being impressed on the cables. Improper connections and fixings might lead to such accidents as heating or fire accidents.
- Correct shapes of wirings should be kept while the embossed shape is not allowed. The wirings should be reliably connected to avoid the cover and the plate of the electrical cabinet lipping the wiring. Improper installation might cause such accidents as heating or fire accidents.
- While placing or reinstalling the air conditioner, except the specific refrigerant (R410A), don't let the air go into the refrigeration cycle system. The air in the refrigeration cycle system might lead to the cracking or personal injuries due to abnormal high pressure of the refrigeration cycle system.
- During installation, please use the accompanied spare parts or specific parts. If not, water leakage, electric shocks, fire accidents or refrigerant leakage might be caused.
- Don't drain the water from the drainpipe to the waterspout where may exist harmful gases such as sulfureted gas to avoid the harmful gases entering into the room.
- During installation, if refrigerant leakage occurs, ventilation measures should be taken, for the refrigerant gas might generate harmful gases upon contacting the flame.
- After installation, check if any refrigerant leakage exists. If the refrigerant gas leaks in the room, such things as air blowing heaters and stoves, etc. may generate harmful gases.
- Don't install the air conditioner at the places where the flammable gases may leak. In case the gas leakage occurs around the machine, such accidents as fire disasters may be caused.
- When installed in a smaller room, the appropriate measures must be taken to prevent the refrigerant concentration from exceeding the limit. Please contact the sales agent to contact the corresponding measures.
- Be sure to use a separate circuit to supply power. All the electrical work must be executed by the professional electrician, meanwhile met local laws and regulations and the instructions.
- The current-carrying conductor should be tightened before grounding the wire.
- Please turn off the power before touching the electronic parts.
- Do not touch the switch with wet hands to prevent electric shock.
- Please connect the remote control cable and the connection cable to no noise.

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≜CAUTION

- The drainpipe should be properly mounted according to this manual as to ensure the smooth drainage. In addition, heat preservation should be taken to avoid condensation. Improper drainpipe mounting might cause water leakage, which will get the articles at home wet.
- The refrigerant gas pipe and liquid pipe should be heat insulated to preserve heat. For inappropriate heat insulation, the water caused from the condensation will drop to get the article at home wet.
- The air conditioner should be effectively grounded. Electric shocks may occur if the air conditioner is ungrounded or inappropriately grounded. The wire for earthing shouldn't be connected to the connections on the gas pipe, water pipe, lightning rod or telephone.
- The breaker for electricity leakage should be mounted. If not, accidents such as electric shocks may happen.
- The installed air conditioner should be checked for electricity leakage by being powered.
- When install the remote controller, if the room has a fluorescent lamp (inverter controller or quick start mode), the signal transmission distance of the remote controller will be shortened. Please try to install the indoor unit away from the fluorescent lamp.
- If the ambient humidity bigger than 80%, when the water discharge hole be blocked or the filter becomes dirty, or airflow speed change, there maybe leads to condensing water drop down, and at the same time there maybe some drops of water spit out.

Notices during Operation

- If abnormal phenomena (such as the smell of fire), please cut off the power immediately and contact after-sales service personnel. In this case if you continue to use the air conditioning, it will be damaged and also may cause electric shock or fire accident.
- When remove, transfer or repair air conditioning, please contact with the after-sales service personnel. Improper maintenance may cause leakage, electric shock and fire hazard.
- Be sure to install a leakage circuit breaker and ground connection must be effective. The grounding wire can not be connected to the gas pipeline, water pipe, lightning rod or telephone ground line. Poor ground wire may cause electric shock.
- It cannot be used for the preservation of food, living creature, precise instrument and artworks, etc, otherwise damage may occur.
- It is not allowed to put any heating apparatus under the indoor units, for the heat may cause distortion of the units.

Flammable apparatus should not be placed in the place where the air conditioner wind could reach directly, or incomplete burning of the apparatus may be caused.

Do not touch the switch with the wet hand to avoid power shock.

Cleaning the unit with water may cause electric shock.

Do not use water heater or like next to the indoor unit and the wired controller. Water/power leakage or short circuit may happen if the steam generating apparatus is working next to machine.

Stop running and switch off the manual power switch when cleaning the unit.

- Check the mount table of the air conditioner for damage for a long period of operation. If placed on the damaged table, the unit may drop down causing damage.
- After the electrical installation, should be energized for leakage detection. When thunder, please power off and unplug the power plug. Lightning shock may cause malfunction.
- Do not install the air conditioner in where the flammable gas may leak, to avoid fire hazard caused by gas leakage.



Notices during Operation

Do not put flammable spray close to the air conditioner. Don't inject flammable spray towards the air conditioner, which may cause fire.
Close the window to avoid outdoor air getting in. Curtains or window shutters can beput down to avoid the sunshine.
Avoid the cold air blowing the body straightly for long time; Avoid setting the indoor temperature too low. Otherwise it may cause uncomfortable feel and be harmful to health.
Do not run air conditioning when using smoked insecticide in the room. Otherwise the chemical substance may remain on the product which might endanger the health of highly allergic people.
Cleaning of the air filter regularly, if the filter is blocked, it will cause the cooling and heating effect poor, power consumption increased, unit malfunction and cooling operation will drip.
Power should be cut off when the air conditioner is left unused for a long period. Power will be consumed if the air conditioner is not powered off. The power switch of the outdoor unit switch should be powered on 12 hours in advance before operation to protect the unit after a long period of storage.
The room should be ventilated regularly. After the use of air conditioning in the room for a long time, be sure to ventilate, to prevent air circulation does not cause physical discomfort.
During the operation of the control unit, don't switch off the manual power switch and the controller can be used. Please do not press the liquid crystal zone of controller to prevent damage.
Valuables and goods that must be kept dry can not be placed under the indoor unit. When the humidity exceeds 80% or the drain outlet is blocked, the indoor unit may drip and damage the goods.
Plants and animals should not be put to the placew here wind of the air conditioner blows directly, otherwise damage to them may be caused.
It cannot be used for the preservation of food, living creature, precise instrument and artworks, etc, otherwise damage may occur.
The distance between TV, radio, audio and other equipment sand indoor unit should be more than 1m. Otherwise it will interfere the image and cause noise.
 3-5minute protection To protect the unit, compressor can be actuated with at least 3-5minute delay after stopping.
 Defrosting during heating To improve the heating effect, the outdoor unit will perform defrosting automatically when frost appearson the outdoor unit during heating (approximately 2-10min). During defrosting, the fan of the indoor unit runs at a low speed or stops while that of the outdoor unitstops running.
Stopping fan rotation

The unit which stops operating will actuate the fan for a 2-8 min swing every 30-60 minutes for protecting the unit while other indoor unit are in the operating state.



6.9.3 Maintenance

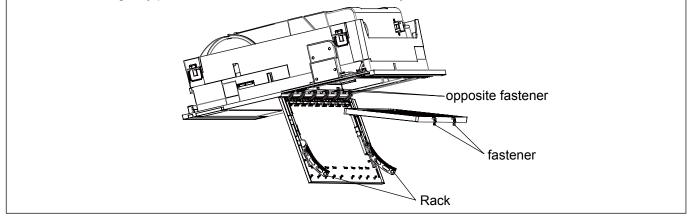
▲ Attention

- Repair can only be performed by professional personnel.
- Before touching the connection line, all power supplies should be switched off. Only after switching off the power supply can the operator clean the air conditioner as to avoid electric shock or injury.
- When cleaning the air cleaner, make sure to use a stable platform; don't flush the air conditioner with water, or the electric shock might be caused.

Daily Maintenance:

- Clean the air cleaner &Inlet guide plate
- Don't dismantle the air cleaner if not cleaning, or faults might be caused.
- When the air conditioner operates in the environment with too much dust, clean the air conditioner more times (generally once every two weeks).

As shown in the drawing, draw the wind guide on both sides of the rack, with the thumb to hold down the screen two buttons down gently pull the other side of the filter from the bayonet can be removed.



Clean the air cleaner

Cleaning

Clean the air cleaner with the dust collector or water to remove dusts.

For too much dust, use the fan or directly spray the special cookware detergent on the air inlet grid, and then clean it with water after 10 minutes.

(A) remove dust with dust collector.





(B) for too much dust, use soft-hair brush and mild detergent to clean.

(C) throw off water and then dry it at cool places.

▲ Attention

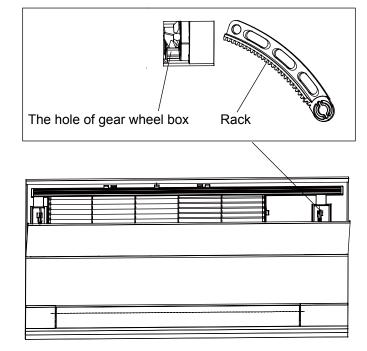
- Don't clean it with hot water of over 50°C to avoid fading or distortion.
- Don't dry it on the fire, or the cleaner might cause fire.



Install the air cleaner & Inlet guide plate

1.Install the air cleaner: The method is contrary to the method of removing the dust screen.

2.Install the Inlet guide plate: As shown below, the rack on the return air guide plate is inserted into the gear box.



Cleaning the air outlet port and the shell

▲ Attention

- Don't use gasoline, benzene, diluents, polishing powder or liquid insecticide to clean them.
- Do not clean them with hot water of above 50°C to avoid fading or distorting.
- Wipe them with soft dry cloth.
- Water or neutral dry cleanser is recommended if the dust cannot be removed.
- The Wind Deflector can be dismantled to clean.

▲ Attention

Do not wipe the wind deflector with water forcibly to avoid the floss falling off.

Maintenance before and after Operating Season

Before Operating Season:

- 1. Please make the following checkup:
 - There is no blockage in inlet port and outlet port of outdoor and indoor units.
 - The ground line and the wiring are in the proper state.

If abnormal condition occurs, consult the afterservice personnel.

- Clean the air cleaner and the shell.
 After cleaning, the air cleaner must be mounted.
- 3. Switch it on to the power.
 After cleaning, the air cleaner must be mounted.

After Operating Season:

1. In sunny days, blowing operation can be performed for half a day to make the inside of machine dry.

- 2. Switch it off.
 - Electrical power should be cut down to economize electricity, or the machine will still consume power.
- 3. Clean the air cleaner and the shell.
 - Air cleaner and shell must be mounted after cleaning. For cleaning details, refer to Maintenance.

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6.9.4 Fault checkup

Please check the following when consigning repair service:

	Symptoms	Reasons
	Water flow sound	Water flow sound can be heard when starting operation, during operation or immediately after stopping operation. When it starts to work for 2-3 minutes, the sound may become louder, which is the flowing sound of refrigerant or the draining sound of condensed water.
lems	Cracking sound	During operation, the air conditioner may make the cracking sound, which is caused from the temperature changes or the slight dilation of heat exchanger.
are not problems	Terrible smell in outlet air	The terrible smell, caused from walls, carpet, furniture, clothing, cigarette and cosmetics, attaches on the conditioner.
are no	Flashing operating indicator	When switching it on again after power failure, turn on the manual power switch and the operating indicator flashes.
All these	Awaiting indication	It displays the awaiting indication as it fails to perform refrigerating operation while other indoor units are in heating operation. When the operator set it to the refrigerating or heating mode and the operation is opposite to the setting, it displays the awaiting indication.
	Sound in shutdown indoor unit or white steam or cold air	To prevent oil and refrigerant from blocking the shutdown indoor units, refrigerant flows in the short time and make the sounds of refrigerant flowing. Otherwise, when other indoor units performs heating operation, white steam may occur; during refrigerating operation, cold air may appear.
	Clicking sound when switching the air condition on	When the conditioner is powered on, the sound is made due to the resetting of the expansion valve.
	Start or stop working automatically	Check if it is in the state of Timer-ON and Timer-OFF.
nother check.	Failure to work	Check if there is a power failure. Check if the manual power switch is turned off. Check if the supply fuse and breaker are disconnected. Check if the protective unit is working. Check if refrigerating and heating functions are selected simultaneously with the awaiting indication on line control.
Please make another check.	Bad cooling & heating effects	Check if air intake port and air outlet port of outdoor units are blocked. Check if the door and windows are open. Check if the filtering screen of air cleaner is blocked with sludge or dust. Check if the setting of wind quantity is at low wind. Check if the setting of operation is at the Fan Operation state. Check if the temperature setting is proper.

Under the following circumstances, immediately stop the operation, disconnect the manual supply switch and contact the after-service personnel.

- When buttons are inflexible actuated;
- When fuse and breaker have been burnt over and over;
- When there are foreign objects and water in the refrigerator;
- When it cannot still be operated after removing the operation of protective unit;
 When other abnormal conditions occur.

One way cassette type indoor unit



6.9.5 Installation procedures

Before installation

- Do not throw away the included parts before installation.
- · Determine the handling route from the unit to the installation location
- Before moving the unit to the installation position, do not remove the packaging, had to remove the packaging, with a soft material or protective plate with a rope to lift the unit, so as not to damage the unit or wipe scratches.
- After the unit is moved into the installation, please use the package to protect the unit from damage.

The standard attached accessories of the units of this series refer to the packing list; prepare other accessories according to the requirements of the local installation point of our company.

Indoor units should be installed in places with the environment of even circulation of cool and warm blows. The following places should be avoided.

- places with high salinity (beach), high sulfureted gas(such as the thermal spring regions where copper tubes and soft soldering are easy to be eroded), much oil(including mechanical oil) and steam; places where organic substance solvent is used; where special spray is frequently used;
- places where machines generate the high frequency electromagnetic wave (abnormal condition will appear in the control system);
- places where there is high humidity exists near the door or windows (dew is easily formed).

Warning:

protect the machine from gales or earthquake, make the installation according to the regulations. Improper installation will cause accidents due to the overturn of the air conditioner.

1. Select the following places to install indoor units.

- (1) where there is enough room for the machine above the ceiling;
- (2) where the drainpipes can be well arranged;
- (3) where the distance between the air outlet port of the machine and the floor is not more than 2.7m;
- (4) where air inlet & outlet of the indoor units are not blocked;
- (5) where it is hard enough to bear the weight of the unit;
- (6) where there are no television, piano and other valuables under the indoor units as to avoid condensate dropping down, causing damage.
- (7) Where it is over 1m away from the television and radio as to avoid the disturbance from television and radio.
- (8) Select the indoor unit around (such as the ceiling of the installation of indoor units sandwich) dry bulb temperature below 30°C and relative humidity below 80% of the place. If the unit is running in a high humidity environment above the above conditions, there may be water drops. Please add 10 ~ 20mm insulation material (foamed polyethylene or equivalent) to the unit as well as piping and drain. When the insulation material exceeds 10mm, please press fit into the ceiling opening.
- (9) The indoor unit is not affected by external invasions. Return air is not recommended at the door, window, if there is no choice to keep closed, off the window, while saving energy can effectively reduce the air conditioning operation exception.

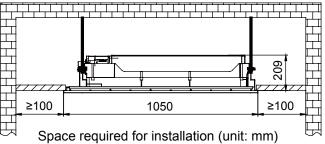
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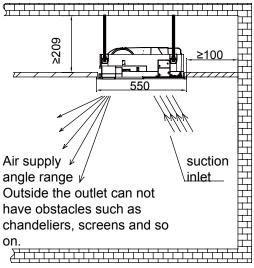
Installation Space

Ensure the required space for installation and maintenance (refer to the following drawings).

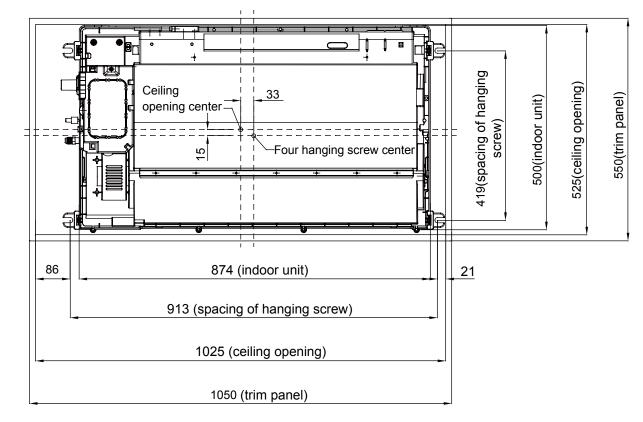
The installation height should be kept within 2.7m.

When the height of the ceiling exceeds 2.7m, the warm air is hard to blow to the ground.









2. Location Relationship among Ceiling Hole, Unit and Hoisting Studs

Note:

Before suspending the indoor unit, select the installation location according to the piping and wiring in the ceiling, and determine the lead direction of the piping. Prepare all pipes (refrigerator and drainage) and wiring (connection line for remote control and connection line of indoor units and outdoor units) connected to indoor units before suspending the indoor unit so as to make the connections right after the installation.

- In the situation with the ceiling, before suspending the unit, set refrigerant pipe, drainpipe, connection line in the room, lead wire of line control to the locations of piping and wiring.
- Confirm the size of the indoor unit and fix it according to the requirements in the manual.

3. Ceiling Hole & Reinforcement

(1) Cut and withdraw the foundation of ceiling according to the size of indoor unit.

(2) After cutting an appropriate hole, reinforce the cutting area on the foundation of indoor unit, and append the rim to the ceiling to secure its foundation. In order to prevent the ceiling from vibrating, it is vital to reinforce the ceiling foundation and ensure the original levelness of the ceiling.

4. Hoisting Stud Installation

- To support the weight of the unit, use barb bolts in the situation with the ceiling. In the situation with the new ceiling, use inlaid bolts, embedded bolts or other parts provided on site. Before proceeding the installation, adjust the gap between the bolts and the ceiling.
- Use four M10 hoisting studs (provided on site) (when the height of the hoisting stud exceeds 0.9m, M10 studs should be used.). The gaps should be kept according to the overall drawing of the air conditioner. Make the installation according to regulations for various building structures as to ensure the safety. Use the level meter to perform the parallel installation.

One way cassette type indoor unit



Ceiling Suspending

Situation with New Ceiling

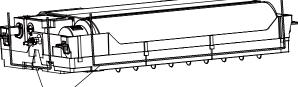
- Install the indoor unit temporarily: attach the hoisting foot to hoisting stud. Make sure that nuts and washers should be used at two ends of the foot to secure the foot.
- (2) For the size of the ceiling hole, please refer to the schematic drawing at the previous page. After finishing the installation of the ceiling>
- (3) Adjust the unit to the proper installation location.
- (4) Check if the unit is in the horizontal level:

The indoor unit is equipped with a built-in drainage pump and a floater switch. Check if the 4 angles of the unit are in the horizontal level with the water level or the polythene tube with water, as shown in the figure, taking only one indoor unit as an example. If the unit inclines opposite to the direction of condensate flow, the floater switch might have faults, causing water dropping. (When lifting can be tilted to the drain, the long side of the horizontal height difference 0 ~ 10mm.)

- (5) Tighten the nut on the washer.
- (6) Remove the mounting cardboard.



- Install the indoor unit temporarily: attach the hoisting foot to hoisting stud. Make sure that nuts and washers (provided on site) should be used at two ends of the foot to secure the foot.
- (2) Adjust the height and location of the unit.
- (3) Perform Step 4 and 5 in Situation with New Ceiling.



/water level OR polythene tube

nut (provided on site) washer hoisting foot washer

官合 (dual nuts) [secure hoisting foot] [secure washer foot]

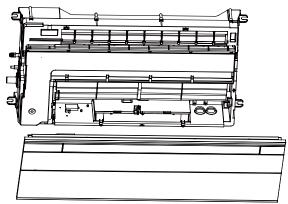
Preparation of Decorated Board

Don't put the decorated board downward to the floor. Putting it against the wall or on the extrusive objects is not allowed.

- Don't touch the wind deflector or apply force on it, or the wind deflector will have faults.
- (1) Check the level of the indoor unit with a flat or filled polyethylene pipe and check that the size of the ceiling hole is correct. Remove the horizontal gauges before installing the trim panels.
- (2) Fix the screws so that the height difference between the two sides of the indoor unit is less than 5mm.

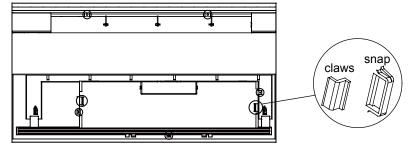
The installation of the decorative panel in the indoor unit body

- Install the panel before the need to remove the return air guide, the method at the same time hold down the two ends of the button, slowly even pull the guide plate, remove the appropriate place to prevent damage.
- Install the panel in the direction of the illustration to ensure that the panel inlet and outlet are corresponding to the inlet and outlet of the machine.





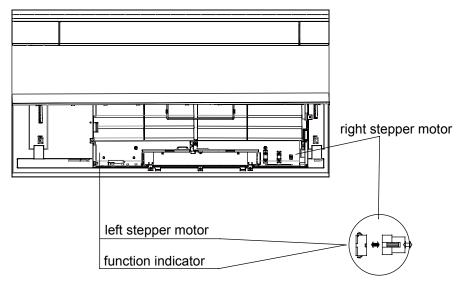
Install the two claws into the snap and secure with the screws. (Screw hole position as shown, hidden parts have been hidden).



Decorative panels of the line

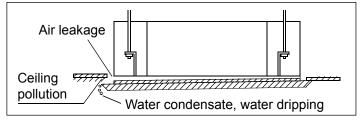
Connect the connector on the right side of the trim panel to the stepped motor wire (10-pin)

- Connect the connector on the left side of the trim panel to the stepped motor wire (5-pin)
- Connect the connector of the lamp panel mounted on the trim panel(9-pin)
- Connect the communication cable, the power cord, and use the controller to check whether the connection is correct, make sure the machine can be installed after the normal operation of the filter, the return air guide back.

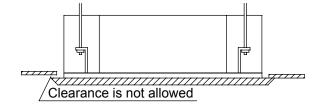


Caution:

Improper tightening of bolts would lead to the faults shown in the following figure.



After tightening the bolts, if there is a clearance between the ceiling and the trim panel, please readjust the height of the indoor unit.

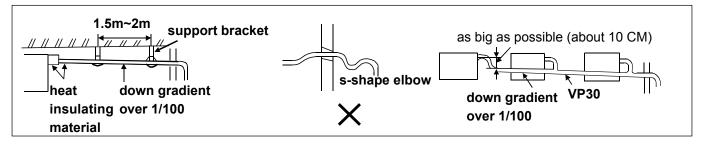




Drainpipes

Requirements:

- The drainpipe of the indoor unit should be heat-insulated.
- Heat insulation should be treated for the connection with the indoor unit. Improper heat insulation may cause condensing.
- The drainpipe with the down gradient of over 1/100 can't be in the S shape, or abnormal sound can be caused.
- The horizon length of the drainpipe should be kept with 20m. Under the condition of long pipes, supports can be provided every 1.5~2m as to avoid unevenness.
- The central piping should be connected according the following drawing.
- Take care not to apply external force on the connection of the drainpipes.



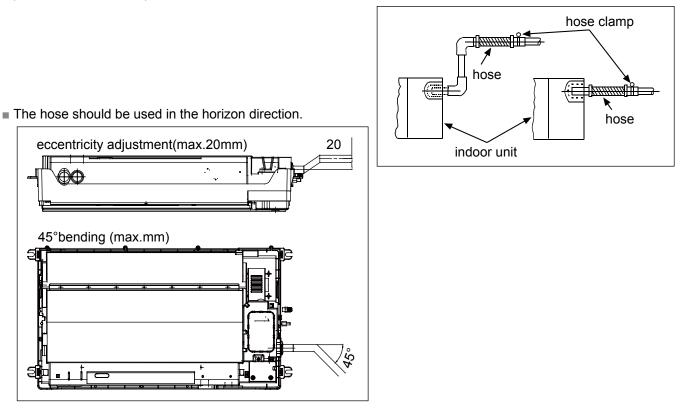
Piping Materials & Heat Insulating Materials

As to prevent condensation, heat insulating treatment should be performed. The heat insulating treatment for piping should be done respectively.

Piping Material	Hard PVC tube VP31.5mm (inner bore)
Heat Insulating Material	Vesicant polythene thickness: over 7mm

Hose

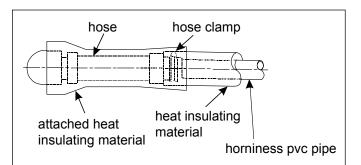
- The attached hoses can be used to adjust the eccentricity and angle of the hard PVC tube.
- Stretch the hose directly to make connections as to avoid distortion. The soft end of the hose should be positioned with a clamp.





Heat Insulating Treatment:

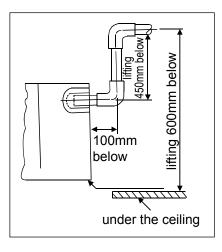
Wrap the connection between the clamp and the root segment of the indoor unit without any gap with heat insulating materials as shown in the drawing



Lifting Drainpipe

The drainpipe can be lifted 450mm.

When the down gradient of the drainpipe can't be ensured, after upright lifting, the drainpipe is in the down slope.

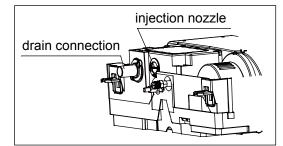


One way cassette

Confirming Drainage

The drainage should be confirmed during the test run to make sure that there is leakage at the connection. The confirmation of drainage should be also performed during the installation in the winter season.

After mounting the electrical system, do cooling operation and meanwhile add water and check. Fill 600cc water with a hose from the injection nozzle. Add the water slowly. Don't add water to the motor of the drainage pump.



Confirm the sound of the motor: Confirm the sound of the motor of the drainage pump and meanwhile check the drainage.

Tubing Permissible Length & Height Difference

Please refer to the attached manual of outdoor units.

Tubing Materials & Specifications

Please refer to the attached manual of outdoor units.

Model		AB052~092MAERA	AB122MAERA			
Tubing Size (mm)	Gas pipe	Ø9.52	Ø12.7			
	Liquid pipe	Ø6.35	Ø6.35			
Tubing Material	Phosphor deoxy bronze seamless pipe (TP2) for air conditioner					



Refrigerant Filling Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount while compressor failure can be caused by filling too much or little refrigerant.

Connecting Procedures of Refrigerant Tubing

- Proceed the flare tube connecting operation to connect all the refrigerant tubes.
- Dual wrenches must be used in the connection of indoor unit tubing.
- Mounting torque refers to the right table Out



bie	Outer Diameter of Tubing	Mounting Torque	Increase mounting Torque
	(mm)	(N-m)	(N-m)
	Ø6.35	11.8(1.2kgf-m)	13.7(1.4kgf-m)
	Ø9.52	24.5(2.5kgf-m)	29.4(3.0kgf-m)
	Ø12.7	49.0(5.0kgf-m)	53.9(5.5kgf-m)
	Ø15.88	78.4(8.0kgf-m)	98.0(10.0kgf-m)

Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

(Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one main unit.]

Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.



6.9.6 Electrical wiring

AWARNING

- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

▲ Attention

- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. Signal line and power line spacing greater than 100mm.
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.
- The power cord must go through the wire hole from the outside into the machine, the wire holes need to be sealed with rubber ring to prevent the wear of the power line insulation sheath; the use of the process should pay attention to the protection of the power cord. Prevent sharp objects from damaging the insulation of the power cord. Damage to the power cord may cause fever, fire and other accidents.

Connecting

1. Connecting circular terminals:

The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it.

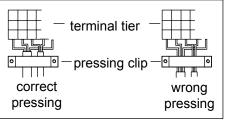
Connecting circular terminals:

2.Connecting straight terminals:

The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier, tighten the screw and confirm it has been clamped by pulling the line gently.

3.Pressing connecting line

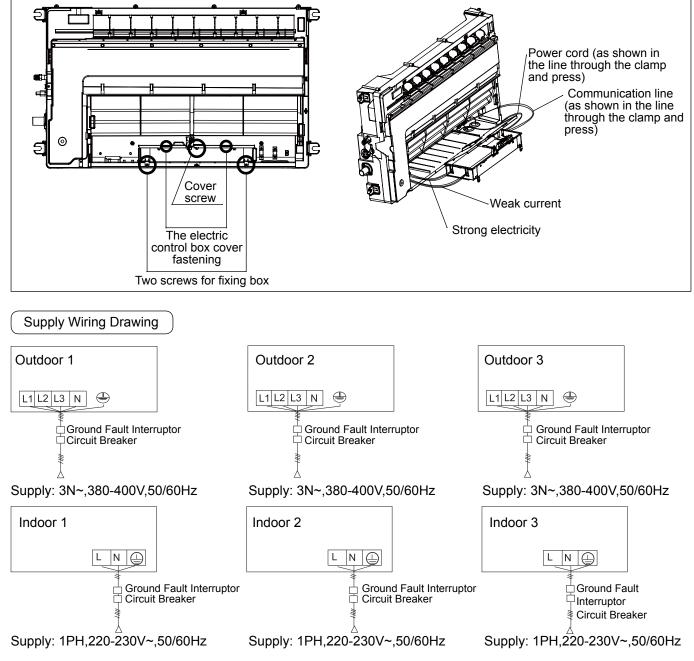
After connecting line is completed, press the connecting line with clips which should press on the protective sleeve of the connecting line.





4. Electronic control box connection operation method

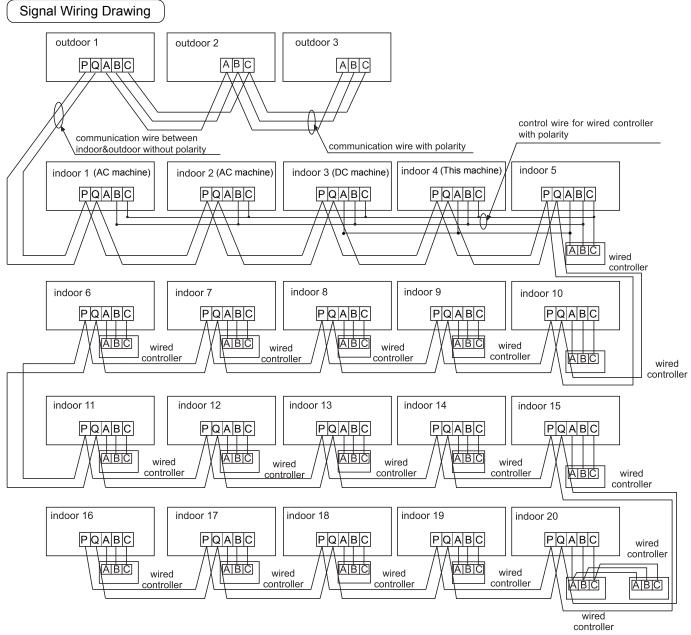
First, remove the screw of the fixed electric control box, pull out the electric control box, and then remove the electric control box cover fixing screw, take off the electric control box cover (both hands press and hold the button at the same time). Signal line through the machine through the hole, and then through the electronic control box hole into the box body, pay attention to the separation of strength. Connect the electric control box cover and push the electric control box back to the machine. Use screws to fix.



Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.

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Outdoor units are of parallel connection via three lines with polarity. The main unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between line control and indoor units:

A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure, (1-5 indoor units). The indoor unit 5 is the wired control master unit (directly connected to the indoor unit of wired controller) and others are the wired control slave units. Among them, the 4 indoor unit is this unit, the 3 indoor unit is the other DC models, 1 indoor unit and 2 indoor unit are the AC models. The wired controller is connected with the master unit and DC models through three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the main unit is set to 0 while SW01 on other slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)

B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired controller are connected via three lines with polarity.

C. Two wired controllers control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controllers can be set to be the master wired control while the other is set to be the slave wired controller. The master wired controller, slave wired controller and indoor units are connected via three lines with polarity.



The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Items	Cross	Length	Rated Current of	Rated current of residual Circuit Breaker(A)	Cross S Area of S	
Total Current of Indoor Units(A)	Section (mm ²)	(m)	Overflow Breaker(A)	Ground Fault Interruptor(mA) Response time(S)	Outdoor -indoor (mm²)	Indoor -indoor (mm²)
<10	2	20	20	20 A,30 mA,0.1S or below		
≥10 and <15	3.5	25	30	30 A,30 mA,0.1S or below	2 cores×0.	75-2.0mm ²
≥15 and <22	5.5	30	40	40 A,30 mA,0.1S or below	shielde	ed line
≥22 and <27	10	40	50	50 A,30 mA,0.1S or below		

The electrical power line and signal lines must be fastened tightly.

Every indoor unit must have the ground connection.

The power line should be enlarged if it exceeds the permissible length.

- Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.
- It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm ² ×3 core shielded line

% The shielding lay of the signal line must be grounded at one end.

% The total length of the signal line shall not be more than 250m.

6.9.7 Test Run & Fault Code

Before Test Run

- Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above 1MΩ. It can't be operated if it is below 1MΩ.
- Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.

Check if the arrangements of the drainpipe and connection line are correct.

The drainpipe shall be placed at the lower part while the connection line placed at the upper part. Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials. The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.

Checkup of Installation

- □ check if the mains voltage is matching
- $\hfill\square$ check if there is air leakage at the piping joints
- check if the connections of mains power and indoor & outdoor units are correct
- $\hfill\square$ check if the serial numbers of terminals are matching
- \Box check if the installation place meets the requirement \Box check if there is too much noise
- \Box check if the connecting line is fastened
- $\hfill\square$ check if the connectors for tubing are heat insulated
- $\hfill\square$ check if the water is drained to the outside
- \Box check if the indoor units are positioned

Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

Set the wired controller to cooling/heating mode, press "ON/OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/OFF" button to quit the compulsive running and stop the operation of the air conditioner.

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7. Convertible Type Indoor Unit

7.1 Features



AC092MCERA AC122MCERA AC162MCERA AC182MCERA AC242MCERA



Ultra thin unit, only thick 199mm

The convertible unit adopts a double drain pan design. The unit body of AV09-24 is only thick 199mm. Slim, elegant and beautiful, supply more decoration to indoor.

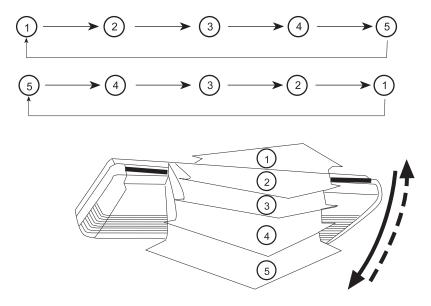
The convertible indoor unit can be used in the commercial building, the hotel, the hospital, or the house.

Wide angle airflow

100° wide angle louvers and 70° wide angle blades design to make a precise control of the airflow. It averagely distributes the comfortable air to every corner of the room.

Multiple air distribution direction

Every time press the SWING button, the flap will be at the following different position:



Long life and high efficiency air filter

Behind the front grille, you can find the Standard air filter in the unit. It is long life and high efficiency, which will absorb the dust in the air and make the unit supply much purer air.

7.2 Specification

	MODEL		AC092MCERA	AC122MCERA	AC162MCERA
Power supply	1	Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	9.6	12.3	15.4
Quality	Capacity	kW	2.8	3.6	4.5
Cooling	Power input	W	100	100	100
	Current	Α	0.3	0.3	0.3
	Capacity	kBtu/h	10.9	13.6	17.1
	Capacity	kW	3.2	4	5
Heating	Power input	W	100	100	100
	Current	Α	0.3	0.3	0.3
	Heating capacity at low temp.	kW	2.5	3.2	4
Operating cu	rrent	Α	0.3	0.3	0.3
Power consu	mption	kW	0.1	0.1	0.1
	Brand		Broad ocean	Broad ocean	Broad ocean
	Model		Y6S420A84	Y6S420A84	Y6S420A84
	Туре		AC	AC	AC
	Insulation class		В	В	В
Indoor motor	IP class		IP20	IP20	IP20
	Power input	W	94	94	94
	Power output	W	28	28	28
	Capacitor	μF	2µF /450v	2µF /450v	2µF /450v
	Speed (High/Middle/Low)	rpm	1110/1005/745	1110/1005/745	1110/1005/745
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		2	2	2
	a. Number of rows		2	3	3
	b. Tube pitch (a)×row pitch (b)	mm	21×13.3	25×21.65	25×21.65
	c. Fin spacing	mm	1.3	1.75	1.75
Indoor coil	d. Fin type (code)		Hy	drophilic aluminum	
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube	Ф9.52 Inner g	groove tube
	f. Coil length×height×width	mm	797×252×6.6	747×250×66	747×250×66
	g. Number of circuits		3	3	3



	MODEL		AC092MCERA	AC122MCERA	AC162MCERA
	Cabinet coating type		Plastic	Plastic	Plastic
Cabinet	Cabinet salt spray test duration	Hour	1	1	1
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		/	1	/
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		No	No	No
	Branch outlet option		No	No	No
	Material		Plastic	Plastic	Plastic
Indoor wall	Thickness	mm	1	1	/
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
	Liquid pipe	mm	6.35	6.35	6.35
Piping dimension	Gas pipe	mm	9.52	12.7	12.7
	Drain hose	mm	20	20	20
Fresh air dimensi	on	mm	1	1	/
Sound pressure l	evel (H/M/L)	dB (A)	38/35/33	38/35/33	40/37/35
Sound power leve	el (H/M/L)	dB (A)	51/48/46	51/48/46	53/50/48
Standard static p	ressure	Pa	1	1	/
Indoor air flow (H/M/L)		m³/h	800/710/580	800/710/580	800/710/580
Dimension (W*H*D)		mm	990*199*655	990*199*655	990*199*655
Packing (W*H*D)		mm	1160*290*743	1160*290*743	1160*290*743
Net weight		kg	28.3	28.3	28.3
Gross weight		kg	34.4	36.4	36.4

The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



	MODEL		AC182MCERA	AC242MCERA	AC282MFERA
Power supp	ly	Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	19.1	24.2	27.3
Cooling	Capacity	kW	5.6	7.1	8
	Power input	W	100	100	200
	Current	A	0.3	0.3	1.00
	Capacity	kBtu/h	21.5	27.3	30.7
	Capacity	kW	6.3	8	9
Heating	Power input	W	100	100	200
	Current	A	0.3	0.3	1.00
	Heating capacity at low temp.	kW	5	6.3	7.1
Operating c	urrent	A	0.3	0.3	1.8
Power cons	umption	kW	0.1	0.1	0.4
	Brand		Broad ocean	Broad ocean	Broad ocean
	Model		Y6S420A84	Y6S420A84	Y6S419C09L
	Туре		AC	AC	AC
	Insulation class		В	В	В
Indoor motor	IP class		IP20	IP20	IP20
motor	Power input	W	94	94	188
	Power output	W	28	28	105
	Capacitor	μF	2µF /450v	2µF /450v	5µF /450v
	Speed (High/Middle/Low)	rpm	1110/1005/745	1110/1005/745	1120/1040/900/820
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		2	2	4
	a. Number of rows		3	3	3
	b. Tube pitch (a)×row pitch (b)	mm	25×21.65	25×21.65	21×13.3
	c. Fin spacing	mm	1.75	1.75	1.3
Indoor coil	d. Fin type (code)			Hydrophilic aluminu	Im
	e. Tube outside dia. and type	mm	Φ9.52 Inner	groove tube	Φ7 Inner groove tube
	f. Coil length×height×width	mm	747×250×66	747×250×66	1070×252×40
	g. Number of circuits		3	3	3



	MODEL		AC182MCERA	AC242MCERA	AC282MFERA
	Cabinet coating type		Plastic	Plastic	Plastic
Cabinet	Cabinet salt spray test duration	Hour	1	1	/
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		/	1	1
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		No	No	No
	Branch outlet option		No	No	No
	Material		Plastic	Plastic	Plastic
Indoor wall	Thickness	mm	1	1	1
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
	Liquid pipe	mm	6.35	9.52	9.52
Piping dimension	Gas pipe	mm	12.7	15.88	15.88
	Drain hose	mm	20	20	25
Fresh air dimensi	on	mm	/	1	Ф200
Sound pressure le	evel (H/M/L)	dB (A)	40/37/35	40/37/35	43/40/38
Sound power leve	el (H/M/L)	dB (A)	53/50/48	53/50/48	56/53/51
Standard static pr	essure	Pa	/	1	1
Indoor air flow (H/	/M/L)	m³/h	800/710/580	800/710/580	2040/1820/1610
Dimension (W*H*D)		mm	990*199*655	990*199*655	1580*240*700
Packing (W*H*D)		mm	1160*290*743	1160*290*743	1713*335*793
Net weight		kg	28.3	28.3	50
Gross weight		kg	36.4	36.4	57
Outdoor temperat	: indoor temperature (cool ure (cooling): 35DB (°C)/2 <i>i</i> ll be measured in the thi	4WB (°C), outdoor temperatu	re (heating): 7DB (°C	c)/6WB (°C)

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sound intensity meter. It is a sound pressure noise level.



	MODEL		AC302MFERA	AC382MFERA	AC482MFERA
Power supp	ly	Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	30.7	38.2	47.8
Cooling	Capacity	kW	9	11.2	14
	Power input	W	200	400	400
	Current	Α	1.00	1.8	1.8
	Capacity	kBtu/h	34.1	42.7	54.6
	Capacity	kW	10	12.5	16
Heating	Power input	W	200	400	400
	Current	Α	1.00	1.8	1.8
	Heating capacity at low temp.	kW	8	10	12.5
Operating c	urrent	Α	1.8	1.8	1.8
Power cons	umption	kW	0.4	0.4	0.4
	Brand		Broad ocean	Broad ocean	Broad ocean
	Model		Y6S419C09L	YDK-150S42023-01	YDK-150S42023-01
	Туре		AC	AC	AC
	Insulation class		В	В	В
Indoor motor	IP class		IP20	IP20	IP20
	Power input	W	188	263	263
	Power output	W	105	105	105
	Capacitor	μF	5µF /450v	5µF /450v	5µF /450v
	Speed (High/Middle/Low)	rpm	1120/1040/900/820	1395/1245/1090/980	1395/1245/1090/980
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		4	4	4
	a. Number of rows		3	3	3
	b. Tube pitch (a)×row pitch (b)	mm	21×13.3	21×13.3	21×13.3
	c. Fin spacing	mm	1.3	1.3	1.3
Indoor coil	d. Fin type (code)			Hydrophilic aluminum	า
	e. Tube outside dia. and type	mm		Φ7.0 Inner groove tub	e
	f. Coil length×height×width	mm	1070×252×40	1350×250×40	1350×250×40
	g. Number of circuits		3	6	6



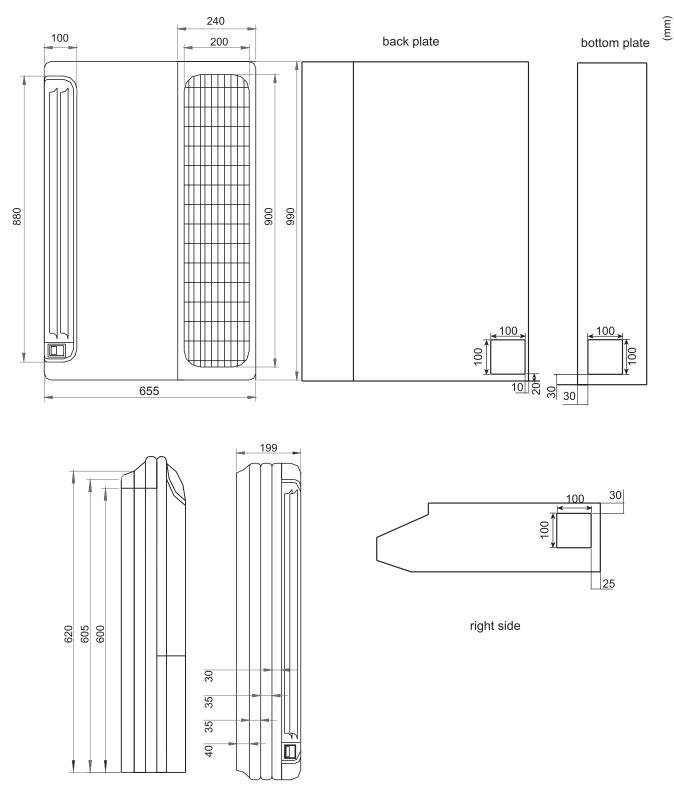
	MODEL		AC302MFERA	AC382MFERA	AC482MFERA
	Cabinet coating type		Plastic	Plastic	Plastic
Cabinet	Cabinet salt spray test duration	Hour	/	1	/
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		/	1	/
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		No	No	No
	Branch outlet option		No	No	No
	Material		Plastic	Plastic	Plastic
Indoor wall	Thickness	mm	/	1	/
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
	Liquid pipe	mm	9.52	9.52	9.52
Piping dimension	Gas pipe	mm	15.88	15.88	15.88
umenoion	Drain hose	mm	25	25	25
Fresh air dimen	sion	mm	Ф200	Ф200	Ф200
Sound pressure	e level (H/M/L)	dB (A)	43/40/38	46/42/38	46/42/38
Sound power le	vel (H/M/L)	dB (A)	56/53/51	59/55/51	59/55/51
Standard static	pressure	Pa	/	1	/
Indoor air flow (H/M/L)	m³/h	2040/1820/1610	2040/1820/1610	2040/1820/1610
Dimension (W*H*D)		mm	1580*240*700	1580*240*700	1580*240*700
Packing (W*H*D)		mm	1713*335*793	1713*335*793	1713*335*793
Net weight		kg	50	54	54
Gross weight		kg	57	61	61
Outdoor temper	on: indoor temperature (coo ature (cooling): 35DB (°C)/2 will be measured in the th	4WB (°C), outdoor temperatu	re (heating): 7DB (°C	c)/6WB (°C)

sound intensity meter. It is a sound pressure noise level.

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7.3 Dimension

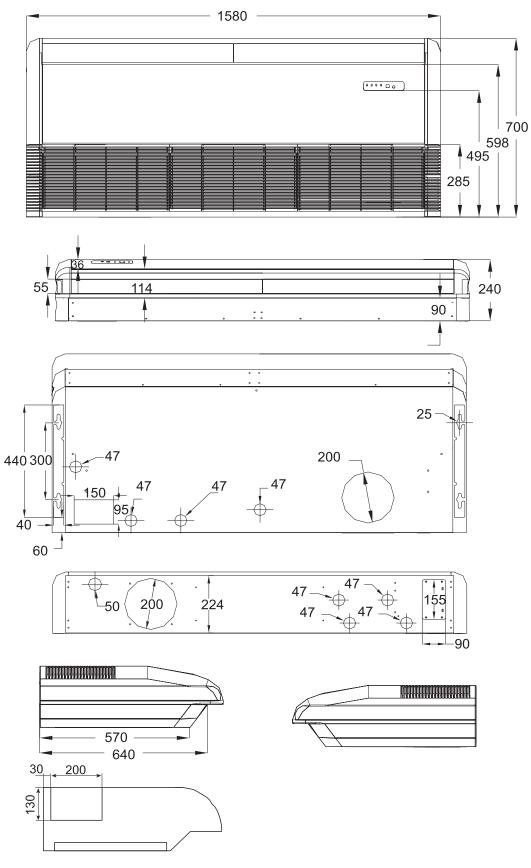
AC092-242MCERA



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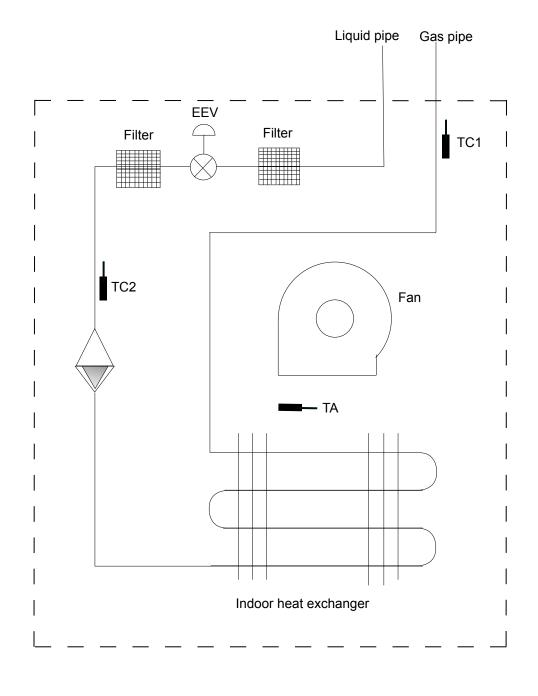


AC282-482MFERA



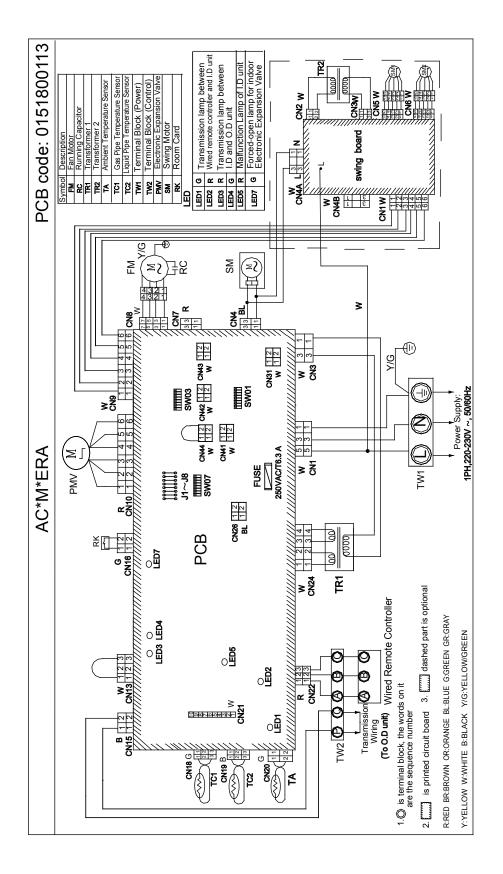


7.4 Piping diagram





7.5 Wiring diagram



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7.6 Electric characteristics

Units				Power supply		Indoor fan motor		Power input (W)		
Model	Phase	FQY	Voltage	Volt. range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AC092MCERA	1	50/60	220	198~242	0.64	2.04	28	0.51	100	100
AC122MCERA	1	50/60	220	198~242	0.64	2.04	28	0.51	100	100
AC162MCERA	1	50/60	220	198~242	0.64	2.04	28	0.51	100	100
AC182MCERA	1	50/60	220	198~242	0.64	2.04	28	0.51	100	100
AC242MCERA	1	50/60	220	198~242	0.64	2.04	28	0.51	100	100
AC282MFERA	1	50/60	220	198~242	2.51	8.04	105	2.01	200	200
AC302MFERA	1	50/60	220	198~242	2.51	8.04	105	2.01	200	200
AC382MFERA	1	50/60	220	198~242	2.51	8.04	105	2.01	400	400
AC482MFERA	1	50/60	220	198~242	2.51	8.04	105	2.01	400	400

Symbols:

MCA: Min. circuit amps (A) MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

Notes:

1. Voltage range

The units are applicable for the electrical systems where voltage supplied to unit is in the range.

2. Maximum allowable voltage unbalance between phases is 2%.

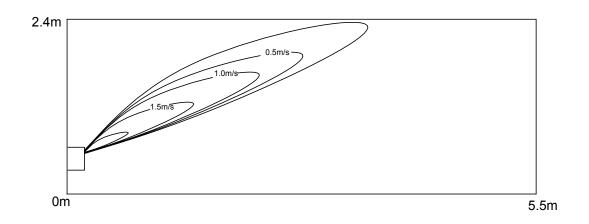
3. MCA=1.25*FLA MFA≤4*FLA.

4. Power supply uses the circuit breaker.



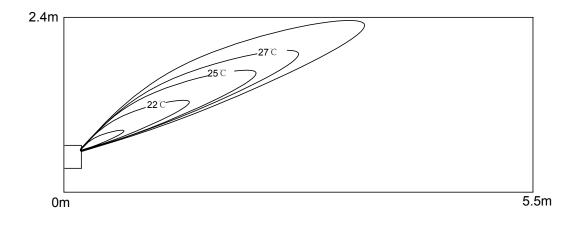
7.7 Air velocity and temperature distribution

- A) On the floor
- a. Cooling / Air velocity distribution
 Cooling
 Blowy angle: 25
 Air velocity distribution



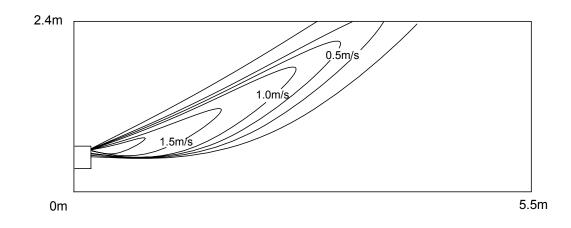
b. Cooling / Temperature distribution

Cooling Blowy angle: 25 Temperature distribution



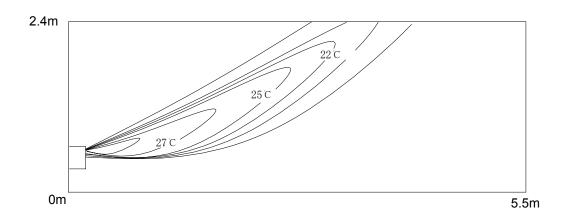


c. Heating / Air velocity distribution
Heating
Blowy angle: 5
Air velocity distribution



d. Heating / Temperature distribution

Heating Blowy angle: 5 Temperature distribution



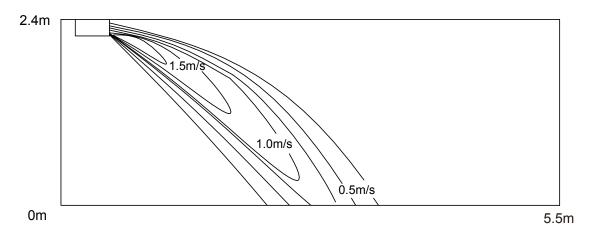
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B) Ceiling

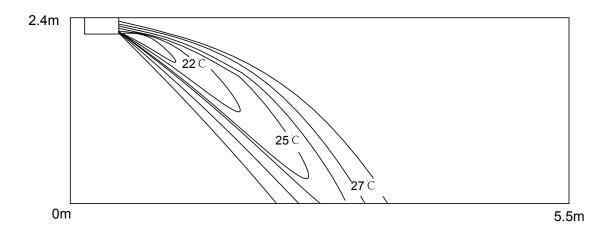
a. Cooling / Air velocity distribution

Cooling Blowy angle: 25 Air velocity distribution



b. Cooling / Temperature distribution

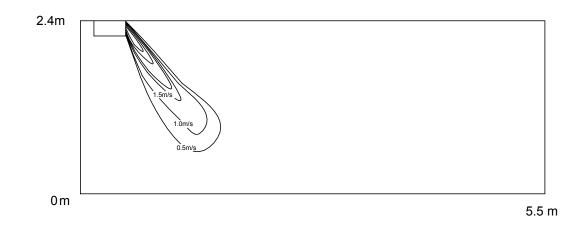
Cooling Blowy angle: 25 Temperature distribution





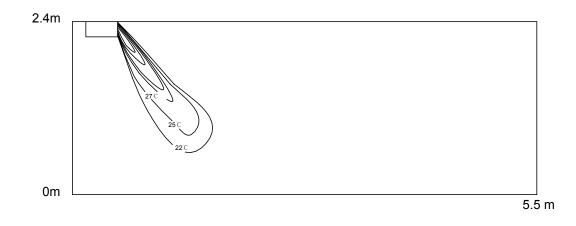
c. Heating / Air velocity distribution

Heating Blowy angle: 65 Air velocity distribution



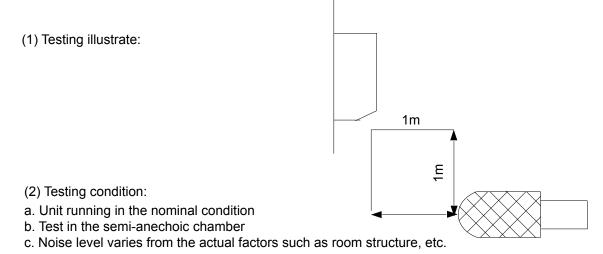
d. Heating / Temperature distribution

Heating Blowy angle: 65 Temperature distribution

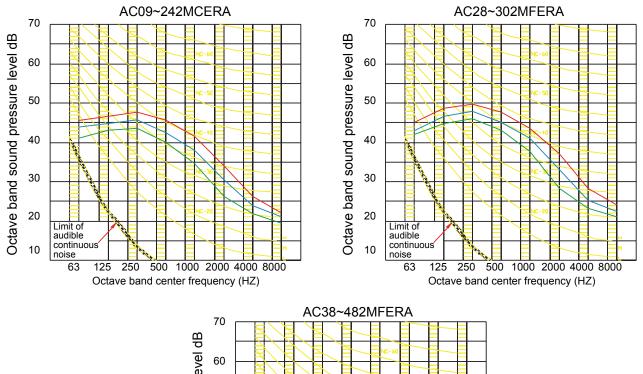


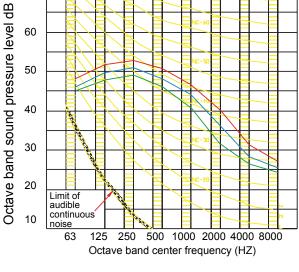


7.8 Sound pressure level



(3) Octave band level:





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7.9 Installation

7.9.1 Installation procedures

Please contact Haier local center if any problem or request.

Standard installation tools are recommended according to installation requirements.

For information about standard model series accessories, see packing list; other necessary parts to be installed shall be prepared by users as required by installation service network stations.

Decide places to install the indoor unit; places where even circulation of cool and warm air can be delivered shall be selected; and places below shall be avoided:

** Places (in coastal areas) where salinity is high; where sulfurized gases are usual (areas where springs flourish and copper tube and braze easily get corroded); where oils (machinery oils) and steam are usual; where organic solvents are put to use; where machines radiating high frequency electromagnetic waves exist (which cause control system malfunctions); where contact with humid air near windows and doors is pervasive (making for easy condensation) and; where special sprayers are put to frequent use.

Installing Indoor Unit

- 1. The distance from air outlet to floor surface shall not exceed 2.7m.
- 2. Make sure that outlet airflow covers the whole room area; and arrange connecting tubes, wires and drain pipes to proper outdoor positions.
- 3. Make sure that ceiling structures are capable of bearing unit weight.
- 4. Connecting tubes, drain pipes and connecting wires can be put across walls to connect indoor unit and outdoor unit.
- 5. Connecting tubes and drain pipes between indoor and outdoor units shall be shorter for better.
- 6. Please refer to outdoor installation manual when refrigerant charging volume adjusting is necessary.
- 7. Joint flanges shall be prepared by users.
- 8. Valuables (e.g., TV sets, instruments, equipments, artworks, pianos, wireless devices) shall not be placed below the indoor unit lest condensed water drips upon the same.

Installing and Fixing

1. Drilling Wall Holes

Drill a wall hole (dia.70mm, see figure 1), slightly tilted downwards on the outside; fix guard ring to finalize before sealing the wall hole with gesso or putty.

2. Preparation before Installing Indoor Unit

Open inlet grille according to figure 2 and figure 3.

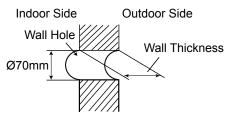


Figure 1 (Wall Hole in Section)



Figure 2 Model AC092-242MCERA

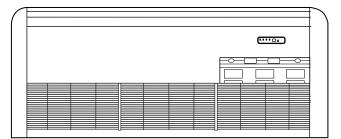


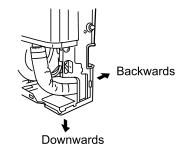
Figure 3 Model AC282-482MFERA

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3. Floor Type Installation

- (1) Fix four rubber feet to the bottom of the unit with *4×16 bolts and Φ 12 spacers (applicable to floor type units only).
- 2 According to figure on the right, choose a certain direction to lead out drain pipe; drain holes are available on both right and left sides; practical conditions shall be considered. After deciding upon the directions to lead out pipelines, wires and drain pipes, drill wall holes according to required drilling processes.



Convertable Type Indoor Unit

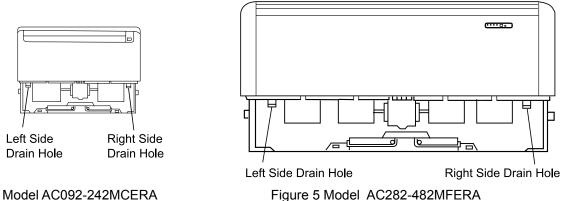
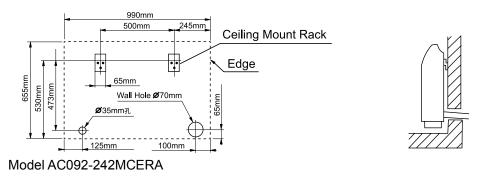


Figure 4 Model AC092-242MCERA

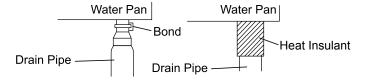
③ Install wall mount rack according to figure below.



④ Installing Drain Pipe

In case of model 22-140, fix drain pipes to drain holes on left and right sides (as shown in figure 4 and figure 5). Install as follows (see figure below):

Plug drain pipe in water pan in the first place, as shown by figure, then, bind the two tight together and tie up junction area with heat insulant.



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CAUTION: Drain pipe leading-out direction shown with figure below.

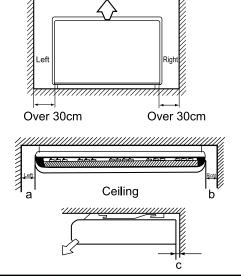


Drain pipe shall be positioned high on the inside and low on the outside. Correct

Drain Pipe



Attention to distance from the unit to the obstacles (as shown with figure).

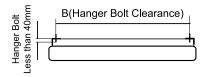


4. Ceiling Installation

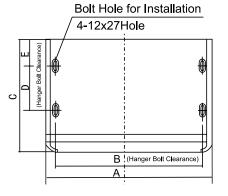
Model	а	b	С
AC092-242MCERA	Over 30cm	Over 30cm	Over 2cm
AC282-482MFERA	Over 80cm	Over 150cm	Over 10cm

Ceiling Installation

(1) Use Φ 10 hanger bolts, prepared on the site. Please refer to figure on the right when installing.



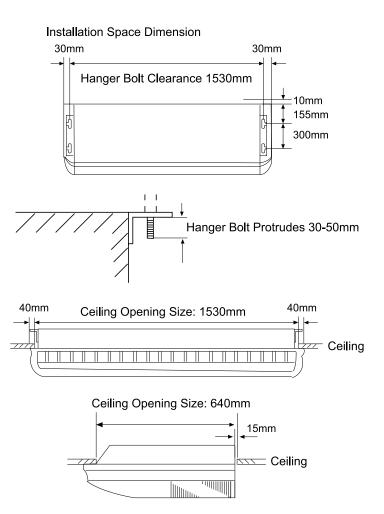
Hanger Bolt Mounting Position



Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
AC092-242MCERA	990	900	655	200	175

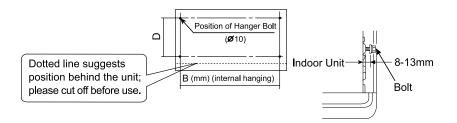


Model AC282-482MFERA



2 Installing Hang Bolt

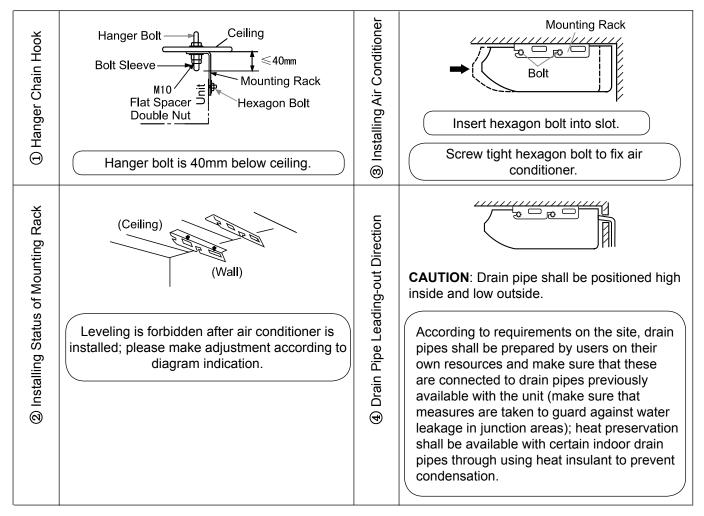
Use M10 hanger bolt (prepared on the site) featuring 60mm hole depth, clearance fixed according to size proposed in the air conditioner external view; install according to different building structure specifications to guard against safety faults; and leveling instruments shall be available to ensure balanced installation.



③ Please use hexagon bolts when installing



4 Air Conditioner Installation Diagram



(5) Installing Deco Plate and Inlet Grille (after pipeline laying and electric wiring are done).

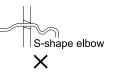


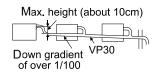
For normal drainage, the water drainage piping should be connected according to the installation manual. Heat insulation should be performed to avoid condensation. Improper pipe connection may cause water going into the machine.

Requirements:

- Heat insulating treatment should be made for the water drainpipes of the indoor units.
- Heat preservation should be made for the connection with the indoor units. Improper heat preservation may cause condensing.
- The drainpipe should be designed with a down gradient of 1/100. The midway of the elbow shouldn't be made in S shape. Or abnormal noise may be caused.
- The lateral length of the drainpipe should be kept within 20m. Under the condition of long pipe, a support should be provided every 1.52~2m to avoid unevenness.
- The central piping can be connected according the following figure.
- Don't apply external force to the connection of drainpipes.

1.5m~2m Support Heat Down gradient of over 1/100 insulating material





Piping Materials & Heat Insulating Materials

As to prevent condensation, heat insulating treatment should be performed. The heat insulating treatment for piping should be done respectively.

Piping Material	Hard PVC tube VP31.5mm (inner bore)	
Heat Insulating	Vesicant polythene thickness:	
Material	over 7mm	

Hose

The drainage hose is made of Φ 19.05mm (3/4) PVC tube, which can adjust the eccentricity and the angle of the hard PVC tube.

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- Stretch the hose directly to make connections as to avoid distortion. The soft end of the hose should be positioned with a clamp.
- The hose should be used in the horizon direction.
- Heat Insulation Treatment:
- Wrap the connection between the clamp and the root segment of the indoor unit without any gap with heat insulating materials as shown in the drawing. Don't apply external force to the connection of drainpipes.

Confirm drainage

During the test run, check the condition of water drainage and make sure that there is no leakage on the connection of piping, which should also be performed during the winter.

Hose Hose clamp Heat insulating Attached heat insulating material material Horniness pvc pipe



Pipe Length & Height Difference

Please refer to the attached manual of outdoor units.

Model		AC092MCERA	AC122-182MCERA	AC242MCERA AC28~482MFERA		
Pipe Size	Gas pipe	Ф9.52	Ф12.7	Ф15.88		
(mm)	Liquid pipe	Ф6.35	Ф6.35	Ф9.52		
Pipe Material	Phosphor deoxy bronze seamless pipe (TP2) for air conditioner					

Refrigerant Recharge Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount while compressor failure can be caused by too much or less refrigerant.

Connecting Procedures of Refrigerant Tubing

Proceed the flare tube connecting operation to connect all the refrigerant tubes.

- Dual wrenches must be used in the connection of indoor unit tubing.
- Mounting torque refers to the right table



Outer diameter of tubing (mm)	Mounting torque (N.m)	Increase mounting torque (N.m)	
Ф6.35	11.8 (1.2kgf.m)	13.7 (1.4kgf.m)	
Φ9.52	24.5 (2.5kgf.m)	29.4 (3.0kgf.m)	
Φ12.7	49.0 (5.0kgf.m)	53.9 (5.5kgf.m)	
Ф15.88	78.4 (8.0kgf.m)	98.0 (10.0kgf.m)	

Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

Vacuumizing

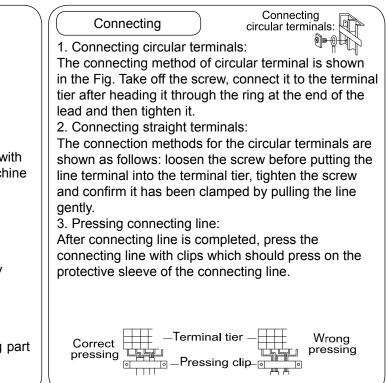
Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one master unit.]

Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.



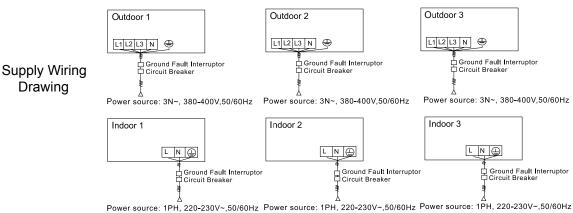
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7.9.2 Electrical wiring

- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

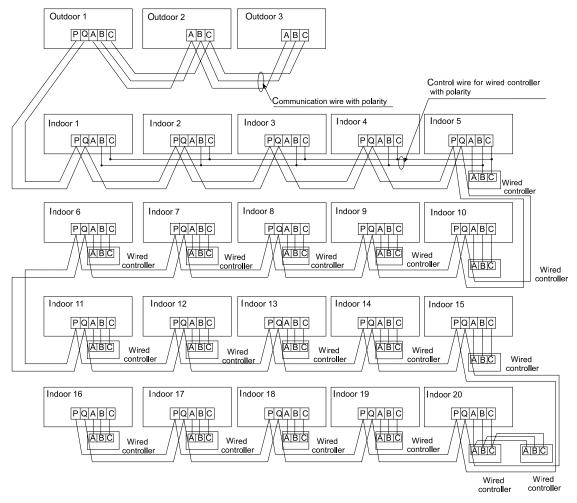
- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below: 3×1.0-1.5) mm²; parameters for signal line: 2×0.75-1.25)mm²(shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.



Signal Wiring Drawing



Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure (1-5 indoor units). The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)
- B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired control are connected via three lines with polarity.
- C. Two wired controllers control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controls can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.



The combination of multiple indoor units can be controlled by wired controller or remote controller.

* Switching mode of Wired control master unit/ Wired control slave unit/ remote control types can be used for switching over *

Setting mode Socket/dip switch	Wired control master unit	Wired control slave unit	Remote control
SW01-[1][2][3][4]	All OFF	[0][0][0][1]	All OFF
CN21 socket	Null	Null	Connect to remote receiver
Terminal block (control)	A, B, C connect with wired controller	B, C connect with wired controller	A, B, C Null

Note:

The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Items Total current of Indoor units(A)	Cross section (mm ²)	Length (m)	Rated current of overflow breaker (A)	Rated current of residual circuit breaker (A) Ground fault interrupter (mA) Response time (S)	Cross se area of si Outdoor -indoor (mm²)	gnal line Indoor
<10	2	20	20	20 A, 30 mA, 0.1S or below		
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below	2 cores×(
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below	mm ² shie	lded line
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below		

% The electrical power line and signal lines must be fastened tightly.

* Every indoor unit must have the ground connection.

* The power line should be enlarged if it exceeds the permissible length.

- * Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.
- * It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm ² ×3 core shielded line

% The shielding lay of the signal line must be grounded at one end.

% The total length of the signal line shall not be more than 250m.



7.9.3 Test run

Before Test Run

- Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above 1MΩ. It can't be operated if it is below 1MΩ.
- Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.

Check if the arrangements of the drainpipe and connection line are correct.

The drainpipe shall be placed at the lower part while the connection line placed at the upper part. Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials. The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.

Checkup of installation

- □ Check if the mains voltage is matching
- □ Check if there is air leakage at the piping joints
- \square Check if the connections of mains power and indoor & outdoor units are correct
- $\overset{\square}{}$ Check if the serial numbers of terminals are matching
- □ Check if the installation place meets the requirement
- \Box Check if there is too much noise
- □ Check if the connecting line is fastened
- Check if the connectors for tubing are heat insulated
- \square Check if the water is drained to the outside
- \square Check if the indoor units are positioned

Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

Set the wired controller to cooling/heating mode, press "ON/ OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/ OFF" button to quit the compulsive running and stop the operation of the air conditioner.



8. Slim Duct Type Indoor Unit

8.1 Features



AD052MSERA AD072MSERA AD092MSERA AD122MSERA AD162MSERA



AD182MSERA AD242MSERA

- 1.185mm height ultra thin design and 420mm depth
- 2. Built in drain pump
- 3. Ultra low noise: realize 21dB (A) operation noise
- 4. Rear air return
- 5. Static pressure 0-30Pa
- 6. 7 models ranging from 1.5kW to 7.1KW



8.2 Specification

MODEL			AD052MSERA	AD072MSERA
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	5.1	7.5
	Capacity	kW	1.5	2.2
Cooling	Power input	W	56	56
	Current	A	0.26	0.26
	Capacity	kBtu/h	5.8	8.5
	Capacity	kW	1.7	2.5
Heating	Power input	W	56	56
	Current	A	0.26	0.26
	Heating capacity at low temp.	kW	1.4	2.0
Operating curr	ent	A	0.26	0.26
Power consum	ption	kW	0.056	0.056
	Brand		Broad Ocean/Welling	Broad Ocean/Welling
	Model		Y5S413C836/YSK14-4I	Y5S413B5116/YSK20-4I-2
	Туре	AC		AC
	Insulation class	В		В
Indoor motor	IP class		IP20	IP20
	Power Input	W	42	48
	Power output	W	15.5/14	25/23
	Capacitor	μF	1.5/1.2µF	1.5/3.0µF
	Speed (High/Middle/Low)	rpm	670/580/500	950/765/600
	Brand		Haier	Haier
Indoor fan	Туре		centrifugal	centrifugal
	Quantity		2	2
	a. Number of rows		1	2
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3
	c. Fin spacing	mm	1.4	1.4
Indoor coil	d. Fin type (code)		Hydrophi	ic aluminum
	e. Tube outside dia. and type	mm	Φ7 Inner	groove tube
	f. Coil length×height×width	mm	640*210*13.3	640*210*26.6
	g. Number of circuits		2	3

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	MODEL		AD052MSERA	AD072MSERA
	Cabinet coating type		Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	72	72
	Control box IP class		IP20	IP20
	Sheet metal thickness		0.8	0.8
	Drain pan material		PS	PS
Construction	Drain pan insulation		20	20
	Drain pump option		Standard 600mm	Standard 600mm
	Branch outlet option		No	No
	Material		Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	0.8	0.8
	Double or single skin		Single	Single
	Material		PP	PP
Air filter	Mesh		100	100
	Pressure drop	Pa	5	5
D	Liquid pipe	mm	6.35	6.35
Piping dimension	Gas pipe	mm	9.52	9.52
umension	Drain hose	mm	25	25
Fresh air dime	nsion	mm	Ф80	Ф80
Sound pressur	re level (H/M/L)	dB (A)	26/23/20	27/24/21
Sound power I	evel (H/M/L)	dB (A)	40/37/34	41/38/35
Standard station	c pressure	Pa	0	0
Max. static pre	essure	Pa	30	30
Indoor air flow	(H/M/L)	m³/h	430/370/310	480/420/360
Air outlet dime	nsions	mm	640*90	640*90
Air return dime	ensions	mm	760*152	760*152
Dimension (W	*H*D)	mm	850*185*420	850*185*420
Packing (W*H	*D)	mm	1045*270*540	1045*270*540
Net weight		kg	16.5	17.5
Gross weight		kg	21.5	22.5

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



MODEL			AD092MSERA	AD122MSERA	
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	
	Capacity	kBtu/h	9.6	12.3	
Ossilias	Capacity	kW	2.8	3.6	
Cooling	Power input	W	56	56	
	Current	A	0.26	0.26	
	Capacity	kBtu/h	10.9	13.6	
	Capacity	kW	3.2	4.0	
Heating	Power input	W	56	56	
	Current	А	0.26	0.26	
	Heating capacity at low temp.	kW	2.5	3.2	
Operating curr	ent	А	0.26	0.26	
Power consum	ption	kW	0.056	0.056	
	Brand		Broad Ocean/Welling	Broad Ocean/Welling	
	Model		Y5S413B5116/YSK20-4I-2	Y5S413B5116/YSK20-4I-2	
	Туре		AC	AC	
	Insulation class		В	В	
Indoor motor	IP class		IP20	IP20	
	Power Input	W	48	48	
	Power output	W	25/23	25/23	
	Capacitor	μF	1.5/3.0µF	1.5/3.0µF	
	Speed (High/Middle/Low)	rpm	950/765/600	950/765/600	
	Brand		Haier	Haier	
Indoor fan	Туре		centrifugal	Centrifugal	
	Quantity		2	2	
	a. Number of rows		2	2	
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	
	c. Fin spacing	mm	1.4	1.4	
Indoor coil	d. Fin type (code)		Hydrophilic	c aluminum	
	e. Tube outside dia. and type	mm	Φ7 Inner g	roove tube	
	f. Coil length×height×width	mm	640*210*26.6	640*210*26.6	
	g. Number of circuits		3	3	

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MODEL		AD092MSERA	AD122MSERA	
	Cabinet coating type		Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	72	72
	Control box IP class		IP20	IP20
	Sheet metal thickness		0.8	0.8
	Drain pan material		PS	PS
Construction	Drain pan insulation		20	20
	Drain pump option		Standard 600mm	Standard 600mm
	Branch outlet option		No	No
	Material		Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	0.8	0.8
	Double or single skin		Single	Single
	Material		PP	PP
Air filter	Mesh		100	100
	Pressure drop	Pa	5	5
_	Liquid pipe	mm	6.35	6.35
Piping dimension	Gas pipe	mm	9.52	12.7
umension	Drain hose	mm	25	25
Fresh air dime	nsion	mm	Ф80	Ф80
Sound pressur	e level (H/M/L)	dB (A)	27/24/21	30/28/25
Sound power I	evel (H/M/L)	dB (A)	41/38/35	44/42/39
Standard station	pressure	Pa	0	0
Max. static pre	ssure	Pa	30	30
Indoor air flow	(H/M/L)	m³/h	480/420/360	550/430/370
Air outlet dime	nsions	mm	640*90	640*90
Air return dime	ensions	mm	760*152	760*152
Dimension (W	*H*D)	mm	850*185*420	850*185*420
Packing (W*H'	*D)	mm	1045*270*540	1045*270*540
Net weight		kg	17.5	17.5
Gross weight		kg	22.5	22.5

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



	MODEL		AD162MSERA	AD182MSERA	AD242MSERA
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	15.4	19.1	24.2
Cooling	Capacity	kW	4.5	5.6	7.1
Cooling	Power input	W	65	80	117
	Current	А	0.3	0.37	0.54
	Capacity	kBtu/h	17.1	21.5	27.3
	Capacity	kW	5.0	6.3	8.0
Heating	Power input	W	65	80	117
	Current	А	0.3	0.37	0.54
	Heating capacity at low temp.	kW	4.0	5.0	6.3
Operating curre	ent	А	0.3	0.37	0.54
Power consum	ption	kW	0.065	0.08	0.117
	Brand		Broad ocean	Broad ocean	Huate
	Model		Y5S413B8100	Y5S413B899	YSK55-4I
	Туре		AC	AC	AC
	Insulation class		В	В	В
Indoor motor	IP class		IP20	IP20	IP20
	Power input	W	57	72	109
	Power output	W	51	44	55
	Capacitor	μF	3.5µF	3.5µF	4.0µF
	Speed (High/Middle/Low)	rpm	1220/1060/950	1030/880/780	1210/1065/955
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		2	3	3
	a. Number of rows		3	2	3
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	21*13.3
	c. Fin spacing	mm	1.4	1.4	1.4
Indoor coil	d. Fin type (code)		F	lydrophilic aluminur	n
	e. Tube outside dia. and type	mm	d	7 Inner groove tub	e
	f. Coil length×height×width	mm	640*210*39.9	960*210*26.6	960*210*39.9
	g. Number of circuits		4	4	5

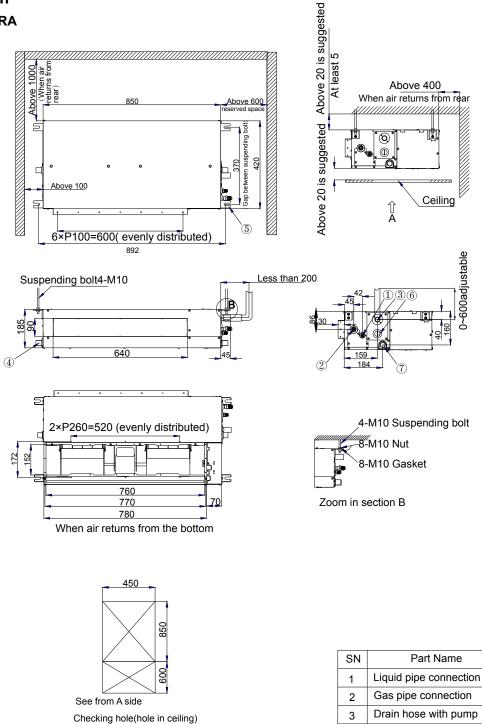
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	MODEL		AD162MSERA	AD182MSERA	AD242MSERA
	Cabinet coating type		Galvanized	Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	72	72	72
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		0.8	0.8	0.8
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		Standard 600mm	Standard 600mm	Standard 600mm
	Branch outlet option		No	No	No
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	0.8	0.8	0.8
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
	Liquid pipe	mm	6.35	6.35	9.52
Piping dimension	Gas pipe	mm	12.7	12.7	15.88
	Drain hose	mm	25	25	25
Fresh air dimen	sion	mm	Ф80	Ф80	Ф80
Sound pressure	level (H/M/L)	dB (A)	33/30/27	33/30/28	36/33/31
Sound power le	vel (H/M/L)	dB (A)	47/44/41	47/44/42	50/47/44
Standard static	pressure	Pa	0	0	0
Max. static pres	sure	Pa	30	30	30
Indoor air flow (H/M/L)	m³/h	600/540/460	800/690/580	930/850/750
Air outlet dimen	sions	mm	640*90	960*90	960*90
Air return dimen	sions	mm	760*152	1080*152	1080*152
Dimension (W*H	H*D)	mm	850*185*420	1170*185*420	1170*185*420
Packing (W*H*D))	mm	1045*270*540	1365*270*540	1365*270*540
Net weight		kg	18.5	22.2	24
Gross weight		kg	23.5	28.2	30
Nominal condition	on: indoor temperature (cool	ing): 27DB	(°C)/19WB (°C), inc	loor temperature (h	eating): 20DB (°C)

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



8.3 Dimension AD052-162MSERA



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Drain hose(accessory)

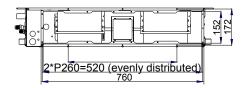
Suspending point

Checking hole Water drainage outlet

4

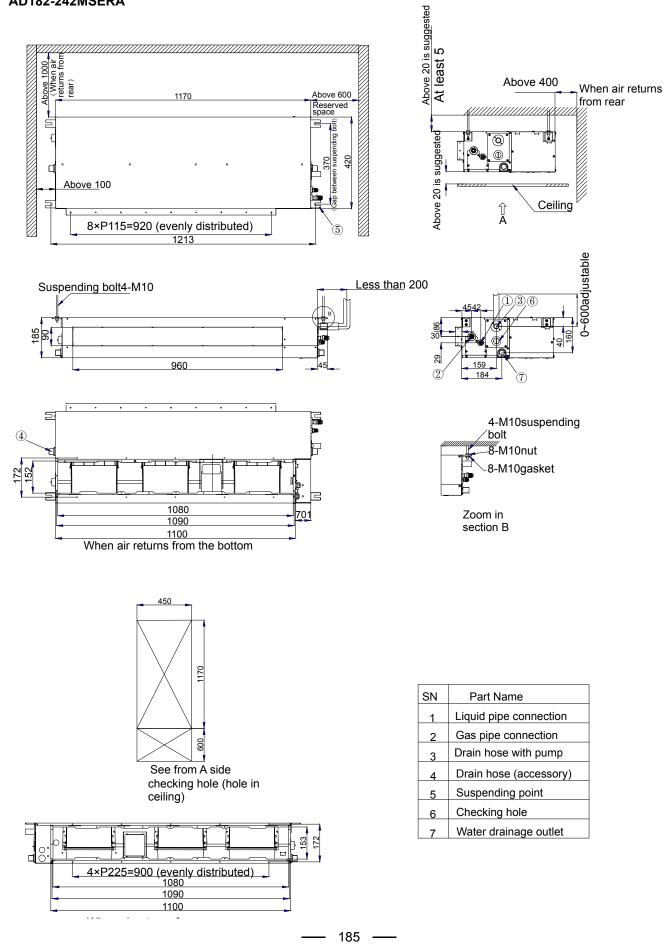
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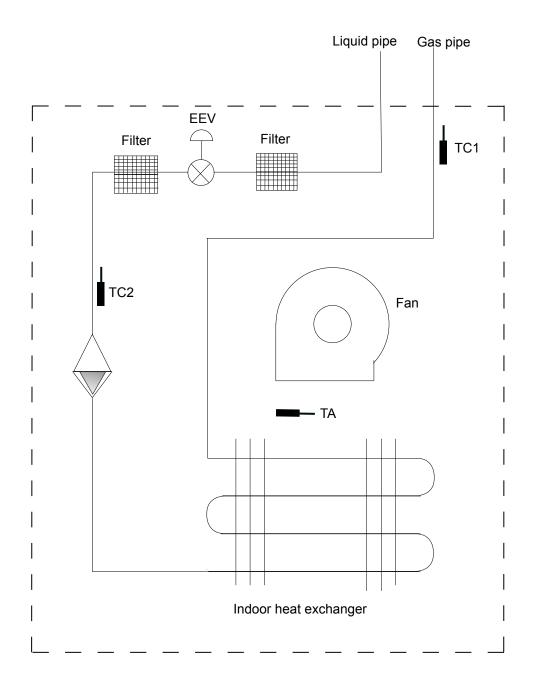


AD182-242MSERA





8.4 Piping diagram

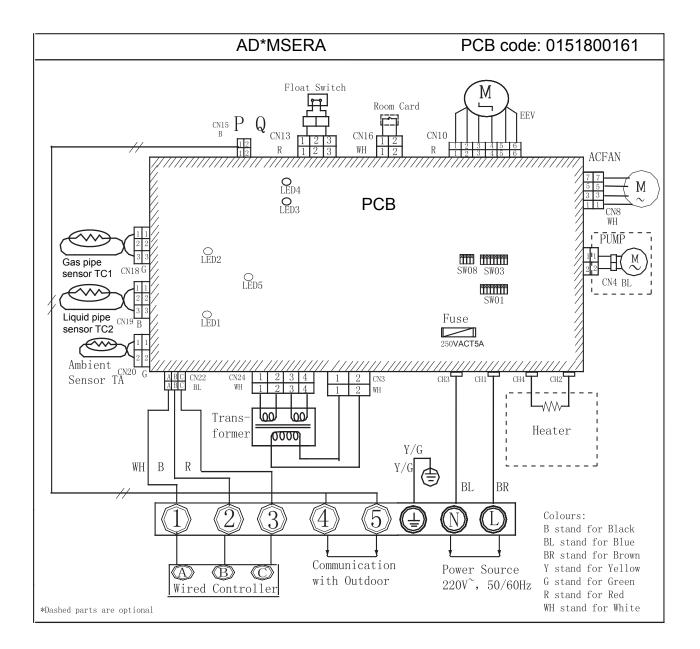


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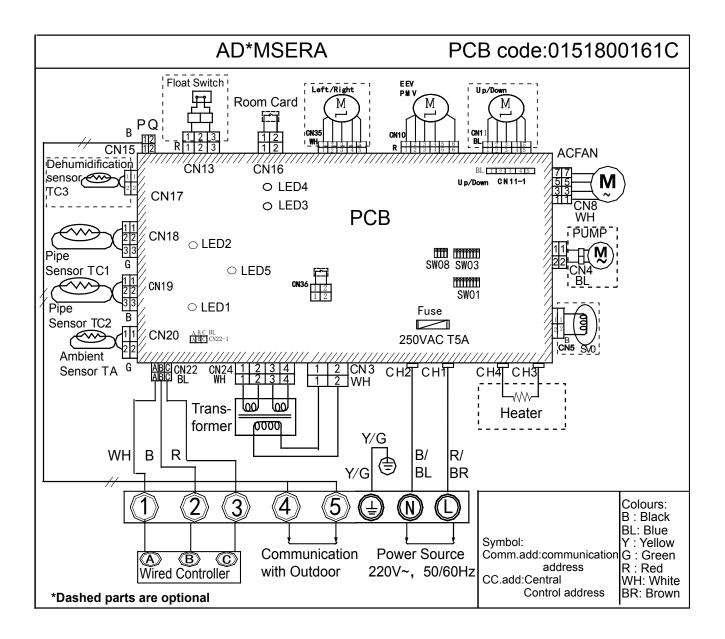
8.5 Wiring diagram

Old





New





8.6 Electric characteristics

Units				Power supply		Indoor fan motor		Power input (w)		
Model	Phase	FQY	Voltage	Volt range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AD052MSERA	1	50/60	220	198-242	0.24	0.76	23	0.19	56	56
AD072MSERA	1	50/60	220	198-242	0.24	0.76	23	0.19	56	56
AD092MSERA	1	50/60	220	198-242	0.24	0.76	23	0.19	56	56
AD122MSERA	1	50/60	220	198-242	0.38	1.2	23	0.3	56	56
AD162MSERA	1	50/60	220	198-242	0.59	1.88	51	0.47	65	65
AD182MSERA	1	50/60	220	198-242	0.38	1.2	44	0.3	80	80
AD242MSERA	1	50/60	220	198-242	0.59	2.12	55	0.53	117	117

Symbols:

MCA: Min. circuit amps (A)

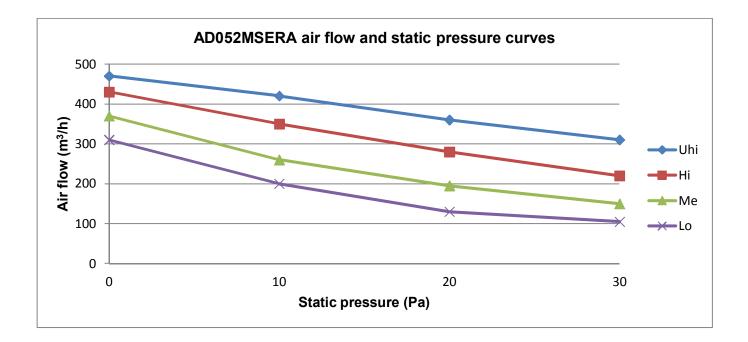
MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

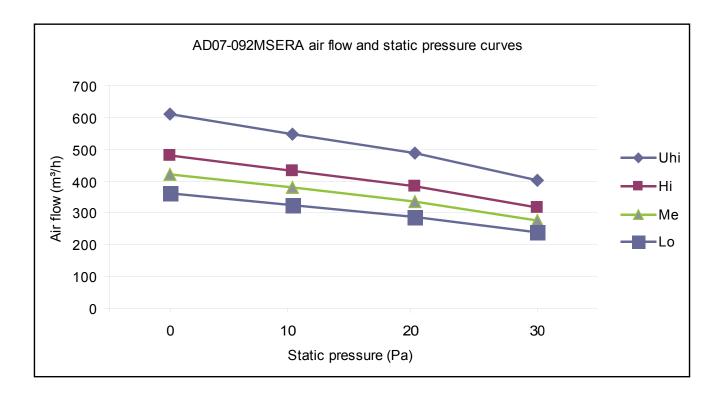
Note:

- 1. Voltage range
- The units are applicable for the electrical systems where voltage supplied to unit is in the range.
- 2. Maximum allowable voltage unbalance between phases is 2%.
- 3. MCA=1.25*FLA MFA≤4*FLA
- 4. Power supply uses the circuit breaker.



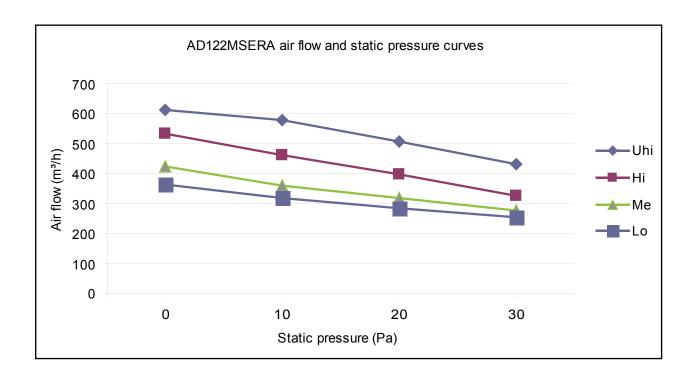
8.7 Air flow and static pressure curves

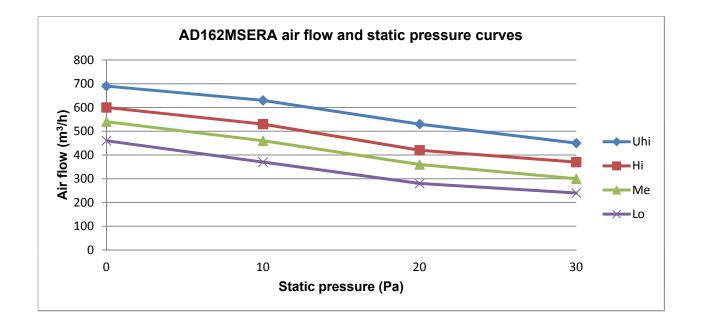




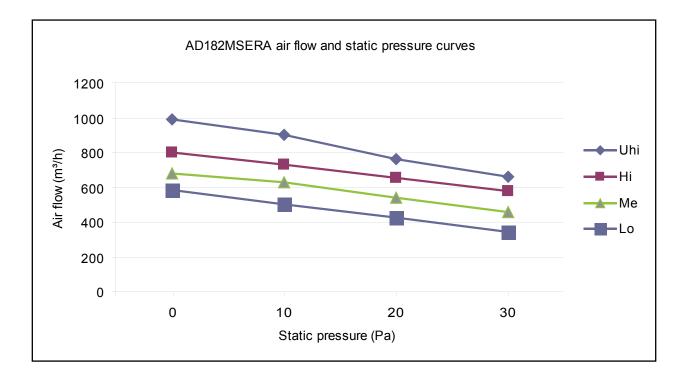
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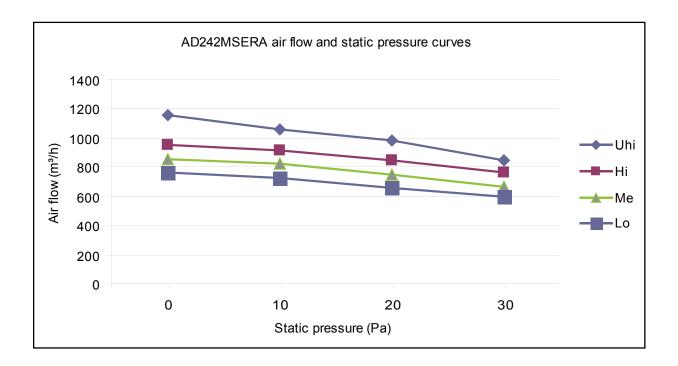










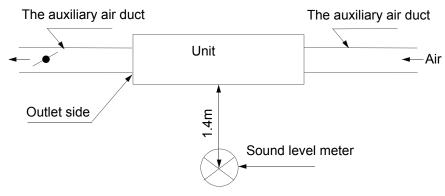


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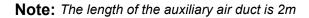


8.8 Sound pressure level

Slim duct type running noise (1) Testing illustrate:



Testing position just below the central of the unit



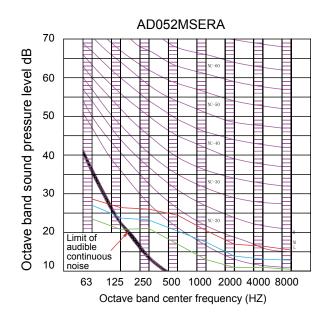
(2) Testing condition:

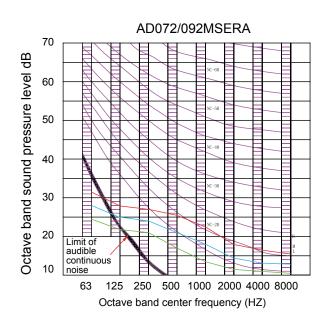
a. Unit running in the standard condition

b. Test in the semi-anechoic chamber

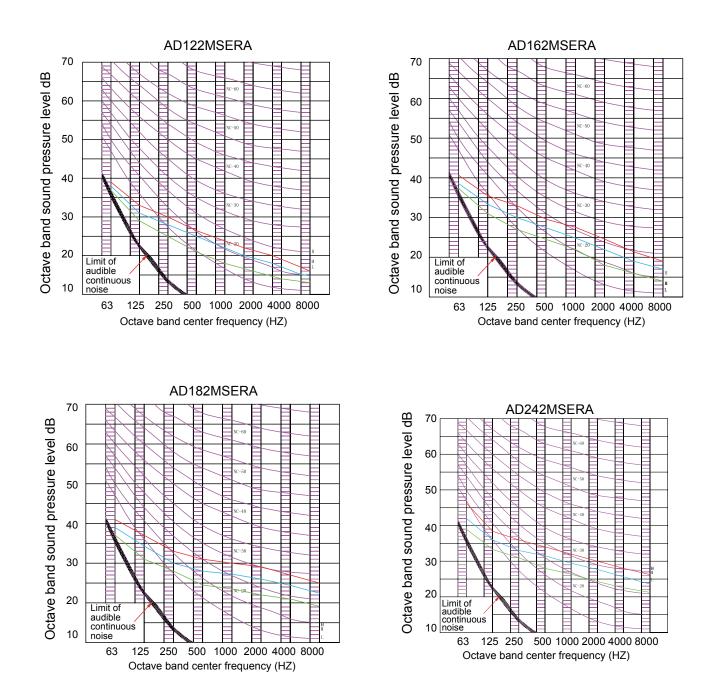
c. Noise level varies from the actual factors such as room structure, etc.

(3) Octave band level:











8.9 Installation

8.9.1 Installation Procedures

If you have any problem on product, contact the local Haier distribution center.

Please use the standard tools according to the installation requirements.

The standard attached accessories of the units of this series refer to the packing list; prepare other accessories according to the requirements of the local installation point of our company.

1. Choose the suitable installation location. Indoor units should be installed in places with the environment of even circulation of cool and warm blows. The following places should be avoided.

Places with high salinity (beach), high sulfureted gas (such as the thermal spring regions where copper tubes and soft soldering are easy to be eroded), much oil (including mechanical oil) and steam; places where organic substance solvent is frequently used; places where machines generate the high frequency electromagnetic wave (abnormal condition will appear in the control system); places where there is high humidity exists near the door or windows (dew is easily formed); and places where the special sprayer is frequently used.

Indoor Units

(1) The distance between wind outlet port and the ground should not be more than 2.7m.

(2) Select appropriate places for installation where the outlet air can be spread to places all over the house and arrange proper locations for connecting pipes and lines as well as the drainpipe to the outdoor.

(3) Ceiling construction must be hard enough to hold the weight of the unit.

(4) Make sure that the connecting pipe, the drainpipe and connecting guide line can be put into walls to connect the outdoor units.

(5) It is recommended to make the connecting pipe between the outdoor and indoor units and the drainpipe are as short as possible.

(6) Please read the attached installation instruction of outdoor units for regulation of filling amount of refrigerant if necessary.

(7) The connecting flange should be checked by users.

(8) Those electrical appliances such as television, instruments, devices, artwork, piano, wireless equipment and other valuables should not be placed under the indoor unit as to prevent condensate from dropping into them and causing damage.

2. The following steps can be taken after selecting the installation place:

(1) Cut a hole in the wall and insert connection pipe and connecting wires

through a locally purchased PVC pipe. The hole should be inclined slightly

downward with an inclination of at least 1/100 (see Figure 1).

(2) Before cutting the hole, ensure no pipe or rebar is placed behind the cutting

position. Avoid cutting a hole at the place of wires or connection pipes.

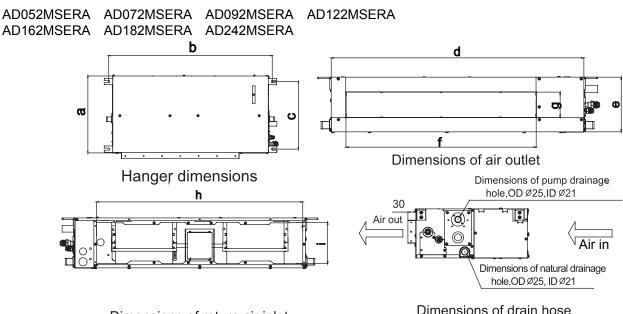
(3) Hang the unit on a horizontal and firm roof. If the unit base is not stable, it may cause noise, vibration a leakage.

(4) Support the unit firmly and change the shapes of connection pipe, connecting wires and drain pipe to make them easily get through the hole.

3. Dimension (unit: mm).

Model	а	b	С	d	е	f	g	h	i
AD052MSERA AD072MSERA AD092MSERA AD122MSERA AD162MSERA	420	892	370	850	185	640	90	760	152
AD182MSERA AD242MSERA	420	1212	370	1170	185	960	90	1080	152





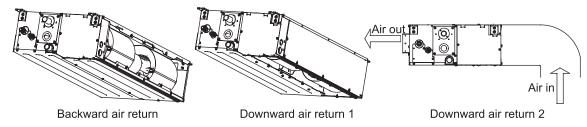
Dimensions of return air inlet

Dimensions of drain hose

Installation modes of Indoor unit

This series of air conditioners can be arranged in two air return modes:

- 1. Backward air return (factory default);
- 2. Downward air return (can be adjusted on site. See the following figures.)



Note:

The downward air return mode would cause much more noise. It is recommended to install the air conditioner in downward return air mode 2 if enough space is available.

Installation space and method

Body installation

1. Use M10 lifting bolts.

2. Ceiling removal: For different building structures, please consult with indoor decoration personnel about actual conditions.

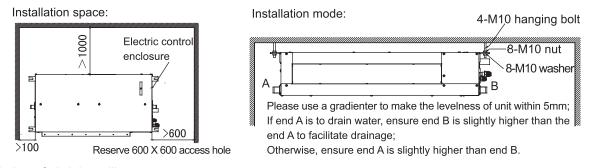
a. Ceiling reinforcement: To ensure the ceiling is horizontal and will not shake, the ceiling base frame must be reinforced.

b. Cut off and remove the ceiling base frame.

c. Reinforce the end faces left when the ceiling is removed and further reinforce the base frame that fix both ends of the ceiling.

d. After the body installation is complete, it is time to install pipes and wires. Before installation, choose a suitable installation position and determine the outgoing direction of pipes. Especially in case that a ceiling exists, please pull refrigerant tubing, drain hose, indoor and outdoor connecting wires, control wires to their connection positions prior to hanging the machine.





Installation of air-inlet grille

The angle of air-inlet grille should be parallel with that of air inlet direction, otherwise it will cause more noise. As shown in the figure on the right.

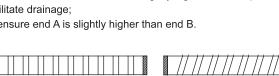
Installation of Duct Pipe of Indoor Units:

1. Installation of the air blowing pipe:

With a square blast pipe, the bore shouldn't be less than the sizes of air outlet pipe.

2. Installation of the air return pipe: Connect one side of the air return pipes to the air return port of the indoor units with rivets, with the other side connected to air return shutter, as shown in Fig.1.

3. Heat Preservation of Blast Pipes: Heat preservation lays should be provided for air blowing & return pipes. Paste glue nails on the blast pipes and attach thermo wool, which covered by a layer of silver paper, fix it with glue nail cover, and then seal the joint with silver paper.





Air return shutter Air return pipe





Selection of fan outlet (when a high-performance filter is used)

The fan has red and white terminals. Its air outlet is set to the standard before delivery. If a high-performance filter or other optional devices is used to increase static pressure, it is required to change the connection of connector on the side of control enclosure as shown in the following.

Galvanizing plate

	Standard	d Sty	le(giv	/en in Fac	ctory)		High	Winc	l Spe	ed Style		
	Yellow			Yellow	End		Yellow			Yellow	End	
Box	Black	a	۵	Orange	ead I	Box	Black	a		Black	ead I	
Control	Blue	white	white	Black	-uw	ntrol	Blue	white	red	Blue	-uv	
-	Red			Blue	пDо	ပိ	Red			Red	n Do	
Statio	press	ure	rang	e Unit:	Ra						Fai	

Standard static pressure	Maximal static pressure
0	30



Installation of drain hose

Connection of indoor drain hose

1. Please use accessory drain hose to connect indoor unit's water outlet and PVC pipe and use snap rings to tighten them, as shown in the following figure:

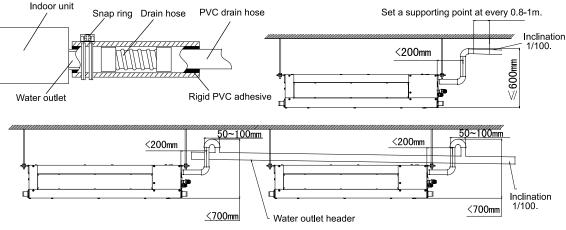
2. Please use rigid PVC adhesive for connection of other pipes and ensure there is no leakage.

3. Drain hose must be wrapped up with insulation sleeve and tightened with strap to prevent air leaked in producing condensate.

4. To prevent water flowing back into air conditioner when it stops running, drain hose shall decline to the drainage side with a declination of above 1/100. Drain hose expansion or water accumulation shall be prevented, or else it will cause abnormal noise.

5. When connecting the drain hose, do not pull on it so as to avoid the pipe connections getting loose or off. Drain hose should not be pulled out laterally for more than 20cm and should be supported every 0.8-1.0m to avoid bending.

6. The end of drain hose should be more than 50mm away from the ground or the bottom of drainage tank. It should not be put in water. To directly drain condensate into drainage ditch, the drain hose must be U-shaped to avoid stink spreading through the hose into room.



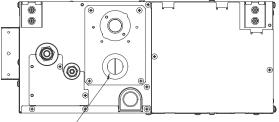
Multiple units use water outlet header to drain water into drainage ditch.

Drainage test

Before test, firstly ensure the drain hose is unblocked and all connections are tightly sealed and then perform the drainage test as follows:

1. Inject about 500ml water into the water pan through water injection hole;

2. Switch on the power and make air conditioner operate in ¹ refrigerating mode. Check whether the water outlet drains water normally and there are no leakages on connections. After the drainage test is complete, replace the water injection hole plug. For the position of water injection hole, see the figure on the right:



Open or close the water injection hole by rotating the hole plug



Pipe Length & Height Difference

Please refer to the attached manual of outdoor units.

Tubing Materials & Specifications

Special tools for R410A should be used for cutting and enlarging pipes.

Refrigerant Recharge Amount

AD072-AD122-AD242 Model 092MSERA 182MSERA **MSERA** Tubing Gas pipe Ø9.52 Ø12.7 Ø15.88 Size Liquid pipe Ø6.35 Ø6.35 Ø9.52 (mm) Tubing Phosphor deoxy bronze seamless pipe (TP2) for air Material conditioner

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount while compressor failure can be caused by filling too much or little refrigerant.

Connecting Procedures of Refrigerant Tubing

With the soft solder, the nitrogen-filling protection should be used.

Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Vacuum pump with check valve should be used for vacuumizing to prevent pump oil flowing into the machine.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when only connected one master unit.]

Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.

Connecting

1. Connecting circular terminals:

PPH The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it.

Connecting

circular terminals:

2. Connecting straight terminals:

The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier, tighten the screw and confirm it has been clamped by pulling the line gently.

3. Pressing connecting line

After connecting line is completed, press the

connecting line with clips which should press on the protective sleeve of the connecting line.

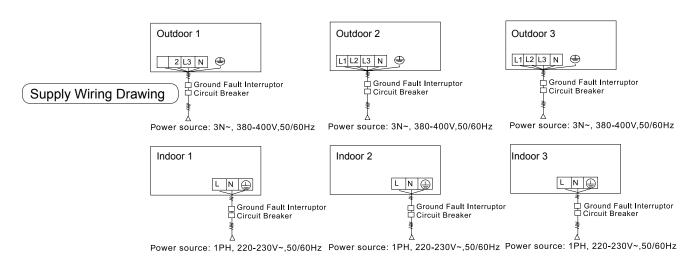
Terminal tier Correct Wrong pressing pressing Pressing clip



8.9.2 Electrical Wiring

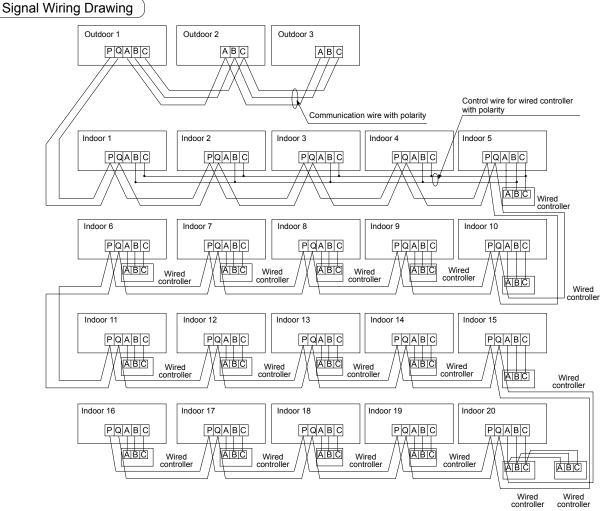
- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while ⊕ should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below: 3×1.0-1.5) mm²; parameters for signal line: 2×0.75-1.25)mm²(shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.





Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure (1-5 indoor units). The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)
- B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired control are connected via three lines with polarity.
- C. Two wired controllers control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controls can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.

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The combination of multiple indoor units can be controlled by wired controller or remote controller.

* Switching mode of Wired control master unit/ Wired control slave unit/ remote control types can be used for switching over *

Setting mode Socket/dip switch	Wired control master unit	Wired control slave unit	Remote control
SW01-[2][3][4]	All OFF	[0][0][1]	All OFF
CN21 socket	Null	Null	Connect to remote receiver
Terminal block (control)	A, B, C connect with wired controller	B, C connect with wired controller	A, B, C Null

Indoor power supply wiring & signal wiring between indoor and outdoor & signal wiring between indoors.

Items	Items Cross Section Length Current of Cross Length Current of Cross Cross Cross Cross Cross Current of residual		rose			ectional ignal line
Total current of indoor units (A)	section (mm ²)	(m)	overflow breaker (A)	Ground fault interrupter (MA) Response time (S)	Outdoor-indoor (mm²)	Indoor-indoor (mm²)
<10	2	20	20	20 A, 30 mA, 0.1S or below		
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below	2 cores×(0.75-2	.0) mm² shielded
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below	lii	ne
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below		

The electrical power line and signal lines must be fastened tightly.

Every indoor unit must have the ground connection.

The power line should be enlarged if it exceeds the permissible length.

- Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.
- It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm ² ×3 core shielded line

% The shielding lay of the signal line must be grounded at one end.

% The total length of the signal line shall not be more than 250m.



8.9.3 Test run

(Before Test Run

Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above $1M\Omega$. It can't be operated if it is below $1M\Omega$.

Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.

Check if the arrangements of the drainpipe and connection line are correct.

The drainpipe shall be placed at the lower part while the connection line placed at the upper part. Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials. The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.

Checkup of Installation

- Check if the mains voltage is matching
- Check if there is air leakage at the piping joints
- □ Check if the connections of mains power and indoor & outdoor units are correct
- $\hfill\square$ Check if the serial numbers of terminals are matching
- $\hfill\square$ Check if the installation place meets the requirement
- $\hfill\square$ Check if there is too much noise
- \square Check if the connecting line is fastened
- $\hfill\square$ Check if the connectors for tubing are heat insulated
- \square Check if the water is drained to the outside \square Check if the indoor units are positioned

Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

Set the wired controller to cooling/heating mode, press "ON/OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/OFF" button to quit the compulsive running and stop the operation of the air conditioner.



9. DC Slim Duct Type Indoor Unit

9.1 Features



AD052MSERA(D) AD072MSERA(D) AD092MSERA(D) AD122MSERA(D) AD162MSERA(D)



AD182MSERA(D) AD242MSERA(D)

- 1.185mm height ultra thin design and 420mm depth
- 2. Built in drain pump
- 3. Ultra low noise: realize 21dB (A) operation noise
- 4. Rear air return
- 5. Static pressure 0-30Pa
- 6. 7 models ranging from 1.5kW to 7.1KW



9.2 Specification

	MODEL		AD052MSERA(D)	AD072MSERA(D)
Power supply		Ph-V-Hz	1/220~230/50/60	1/220~230/50/60
	Capacity	kBtu/h	5.1	7.5
Cooling	Capacity	kW	1.5	2.2
	Power input	W	31	31
	Current	A	0.29	0.29
	Capacity	kBtu/h	5.8	8.5
	Capacity	kW	1.7	2.5
Heating	Power input	W	31	31
	Current	A	0.29	0.29
	Heating capacity at low temp.	kW	1.4	2.0
Operating curr	ent	A	0.29	0.29
Power consum	ption	kW	0.031	0.031
	Brand		Broad-ocean	Broad-ocean
	Model		ZWK511B50502	ZWK511B50502
	Туре		DC	DC
	Insulation class		E	E
Indoor motor	IP class		IP40	IP40
	Power Input	W	18	18
	Power output	W	50	50
	Capacitor	μF	1	1
	Speed (High/Middle/Low)	rpm	1250	1250
	Brand		Haier	Haier
Indoor fan	Туре		centrifugal	centrifugal
	Quantity		2	2
	a. Number of rows		1	2
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3
	c. Fin spacing	mm	1.4	1.4
Indoor coil	d. Fin type (code)		Hydrophilio	c aluminum
	e. Tube outside dia. and type	mm	Φ7 Inner g	roove tube
	f. Coil length×height×width	mm	640*210*13.3	640*210*26.6
	g. Number of circuits		2	3

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	MODEL		AD052MSERA(D)	AD072MSERA(D)	
	Cabinet coating type		Galvanized	Galvanized	
Cabinet	Cabinet salt spray test duration	Hour	72	72	
	Control box IP class		IP20	IP20	
	Sheet metal thickness		0.8	0.8	
	Drain pan material		PS	PS	
Construction	Drain pan insulation		20	20	
	Drain pump option		Standard 600mm	Standard 600mm	
	Branch outlet option		No	No	
	Material		Hot zinc plate	Hot zinc plate	
Indoor wall	Thickness	mm	0.8	0.8	
	Double or single skin		Single	Single	
	Material		PP	PP	
Air filter	Mesh		100	100	
	Pressure drop	Pa	5	5	
	Liquid pipe	mm	6.35	6.35	
Piping dimension	Gas pipe	mm	9.52	9.52	
	Drain hose	mm	25	25	
Fresh air dimei	nsion	mm	Ф80	Ф80	
Sound pressur	e level (H/M/L)	dB (A)	26/22/19	27/23/20	
Sound power le	evel (H/M/L)	dB (A)	40/36/33	41/37/34	
Static pressure		Pa	0/15/30	0/15/30	
Indoor air flow	(H/M/L)	m³/h	430/370/310	480/420/360	
Air outlet dime	nsions	mm	640*90	640*90	
Air return dime	nsions	mm	760*152	760*152	
Dimension (W*	H*D)	mm	850/420/185	850/420/185	
Packing (W*H*	D)	mm	1045/540/270	1045/540/270	
Net weight		kg	16.5	17.5	
Gross weight		kg	21.5	22.5	

The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

	ier

	MODEL		AD092MSERA(D)	AD122MSERA(D)	
Power supply		Ph-V-Hz	1/220~230/50/60	1/220~230/50/60	
	Capacity	kBtu/h	9.5	12.3	
Cooling Heating Operating curre Power consum	Capacity	kW	2.8	3.6	
	Power input	W	31	31	
	Current	A	0.29	0.29	
	Capacity	kBtu/h	10.9	13.6	
	Capacity	kW	3.2	4	
Heating	Power input	W	31	31	
	Current	A	0.29	0.29	
	Heating capacity at low temp.	kW	2.5	3.2	
Operating curr	ent	A	0.29	0.29	
Power consum	ption	kW	0.031	0.031	
	Brand		Broad-ocean	Broad-ocean	
	Model		ZWK511B50502	ZWK511B50502	
	Туре		DC	DC	
	Insulation class		E	E	
Indoor motor	IP class		IP40	IP40	
	Power Input	W	18	31	
	Power output	W	50	50	
	Capacitor	μF	/	/	
	Speed (High/Middle/Low)	rpm	1250	1250	
	Brand		Haier	Haier	
Indoor fan	Туре		centrifugal	Centrifugal	
	Quantity		2	2	
	a. Number of rows		2	2	
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	
	c. Fin spacing	mm	1.4	1.4	
Indoor coil	d. Fin type (code)		Hydrophili	ic aluminum	
	e. Tube outside dia. and type	mm	Φ7 Inner g	groove tube	
	f. Coil length×height×width	mm	640*210*26.6	640*210*26.6	
	g. Number of circuits		3	3	



	MODEL		AD092MSERA(D)	AD122MSERA(D)	
	Cabinet coating type		Galvanized	Galvanized	
Cabinet	Cabinet salt spray test duration	Hour	72	72	
	Control box IP class		IP20	IP20	
	Sheet metal thickness		0.8	0.8	
	Drain pan material		PS	PS	
Construction	Drain pan insulation		20	20	
	Drain pump option		Standard 600mm	Standard 600mm	
	Branch outlet option		No	No	
	Material		Hot zinc plate	Hot zinc plate	
Indoor wall	Thickness	mm	0.8	0.8	
	Double or single skin		Single	Single	
	Material		PP	PP	
Air filter	Mesh		100	100	
	Pressure drop	Pa	5	5	
	Liquid pipe	mm	6.35	6.35	
Piping dimension	Gas pipe	mm	9.52	12.7	
	Drain hose	mm	25	25	
Fresh air dime	nsion	mm	Ф80	Ф80	
Sound pressur	e level (H/M/L)	dB (A)	30/27/24	27/23/20	
Sound power I	evel (H/M/L)	dB (A)	44/41/38	41/37/34	
Static pressure	9	Pa	0/15/30	0/15/30	
Indoor air flow	(H/M/L)	m³/h	550/430/370	480/420/360	
Air outlet dime	nsions	mm	640*90	640*90	
Air return dime	ensions	mm	760*152	760*152	
Dimension (W ¹	*H*D)	mm	850/420/185	850/420/185	
Packing (W*H'	*D)	mm	1045/540/270	1045/540/270	
Net weight		kg	17.5	17.5	
Gross weight		kg	22.5	22.5	

The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



MODEL			AD162MSERA(D)	AD182MSERA(D)	AD242MSERA(D)
Power supply		Ph-V-Hz	1/220~230/50/60	1/220~230/50/60	1/220~230/50/60
	Capacity	kBtu/h	15.3	19.1	24.2
o "	Capacity	kW	4.5	5.6	7.1
Cooling	Power input	W	35	40	50
	Current	А	0.32	0.37	0.45
	Capacity	kBtu/h	17.1	21.5	27.3
	Capacity	kW	5	6.3	8
Heating	Power input	W	35	40	50
	Current	А	0.32	0.37	0.45
	Heating capacity at low temp.	kW	4.0	5.0	6.3
Operating curre	Operating current		0.32	0.37	0.45
Power consum	ption	kW	0.035	0.04	0.050
	Brand		Broad-ocean	Broad-ocean	Broad-ocean
	Model		ZWK511B50502	ZWK511B50703	ZWK511B50703
	Туре		DC	DC	DC
	Insulation class		E	E	E
Indoor motor	IP class		IP40	IP40	IP40
	Power Input	W	35	40	50
	Power output	W	50	45	45
	Capacitor	μF	/	1	/
	Speed (High/Middle/Low)	rpm	1250	1150	1150
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		2	3	3
	a. Number of rows		3	2	3
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	21*13.3
	c. Fin spacing	mm	1.4	1.4	1.4
Indoor coil	d. Fin type (code)		F	lydrophilic aluminur	n
	e. Tube outside dia. and type	mm	4	7 Inner groove tub	e
			0.4.0+0.4.0+0.0.0	000+010+00.0	000*210*20.0
	f. Coil length×height×width	mm	640*210*39.9	960*210*26.6	960*210*39.9

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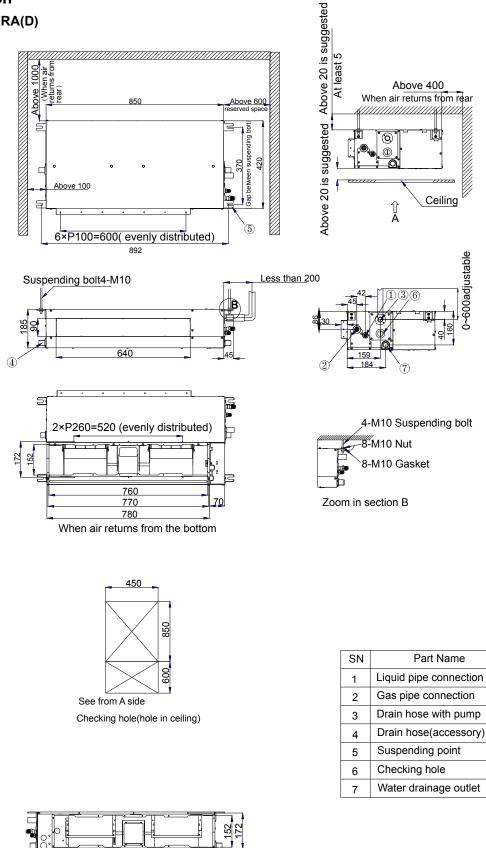


	MODEL		AD162MSERA(D)	AD182MSERA(D)	AD242MSERA(D)
	Cabinet coating type		Galvanized	Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	72	72	72
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		0.8	0.8	0.8
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		Standard 600mm	Standard 600mm	Standard 600mm
	Branch outlet option		No	No	No
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	0.8	0.8	0.8
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
	Liquid pipe	mm	6.35	6.35	9.52
Piping dimension	Gas pipe	mm	12.7	12.7	15.88
umension	Drain hose	mm	25	25	25
Fresh air dimer	nsion	mm	Ф80	Ф80	Ф80
Sound pressure	e level (H/M/L)	dB (A)	32/29/26	33/30/27	36/33/30
Sound power le	evel (H/M/L)	dB (A)	46/43/40	47/44/41	50/47/43
Static pressure		Pa	0/15/30	0/15/30	0/15/30
Indoor air flow	(H/M/L)	m³/h	600/540/460	800/690/580	930/850/750
Air outlet dimer	nsions	mm	640*90	960*90	960*90
Air return dime	nsions	mm	760*152	1080*152	1080*152
Dimension (W*	H*D)	mm	850/420/185	1170/420/185	1170/420/185
Packing (W*H*	D)	mm	1045/540/270	1365/540/270	1365/540/270
Net weight		kg	18.5	22.2	24
Gross weight		kg	23.5	28.2	30
Outdoor tempe	ion: indoor temperature (cool rature (cooling): 35DB (°C)/2 will be measured in the thi	4WB (°C), (outdoor temperature	e (heating): 7DB (°C	C)/6WB (°C)

The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



9.3 Dimension AD052-162MSERA(D)

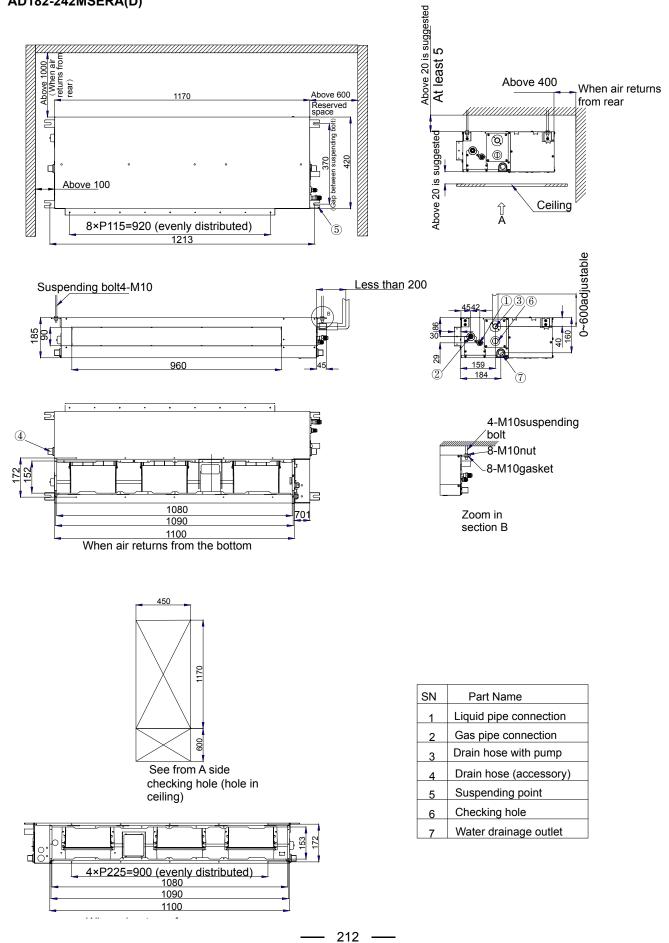


211 -

2*P260=520 (evenly distributed) 760 DC Slim Duct Type Indoor Unit

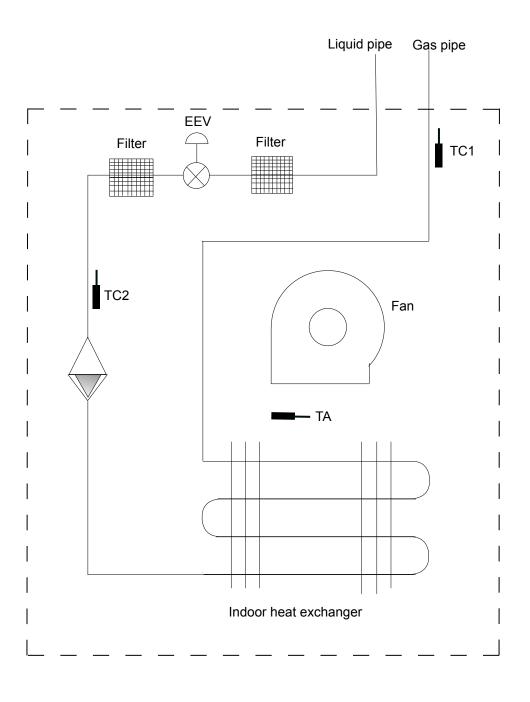


AD182-242MSERA(D)



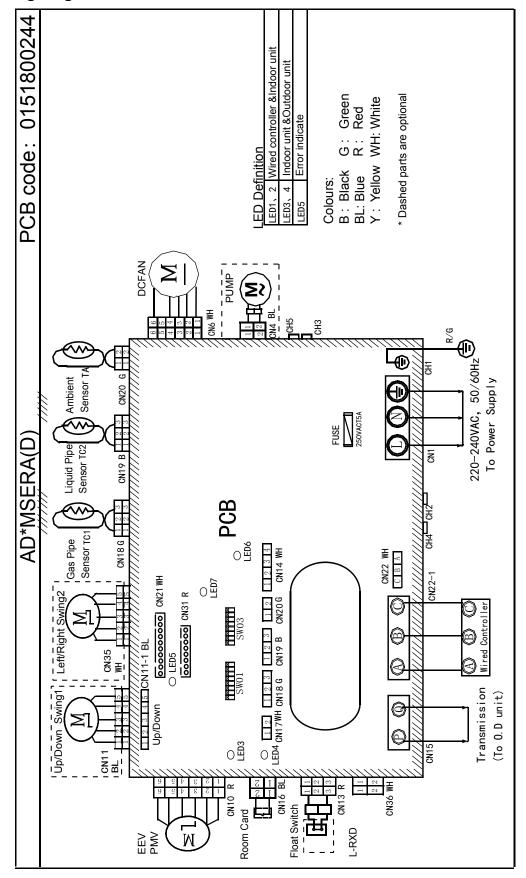


9.4 Piping diagram





9.5 Wiring diagram





9.6 Electric characteristics

	U	nits			Power	supply	Indoor fan	motor	Power i	nput (w)
Model	Phase	FQY	Voltage	Volt range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AD052MSERA(D)	1	50/60	220	198-242	0.24	0.76	50	0.19	31	31
AD072MSERA(D)	1	50/60	220	198-242	0.24	0.76	50	0.19	31	31
AD092MSERA(D)	1	50/60	220	198-242	0.24	0.76	50	0.19	31	31
AD122MSERA(D)	1	50/60	220	198-242	0.38	1.2	50	0.3	31	31
AD162MSERA(D)	1	50/60	220	198-242	0.59	1.88	50	0.47	35	35
AD182MSERA(D)	1	50/60	220	198-242	0.38	1.2	45	0.47	40	40
AD242MSERA(D)	1	50/60	220	198-242	0.59	2.12	45	0.53	50	50

Symbols:

MCA: Min. circuit amps (A)

MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

Note:

1. Voltage range

The units are applicable for the electrical systems where voltage supplied to unit is in the range.

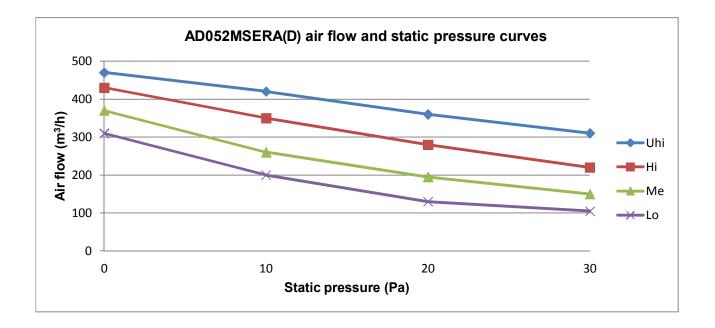
2. Maximum allowable voltage unbalance between phases is 2%.

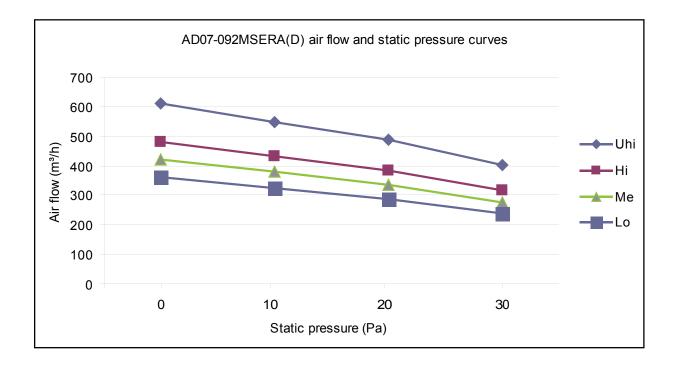
3. MCA=1.25*FLA MFA≤4*FLA

4. Power supply uses the circuit breaker.

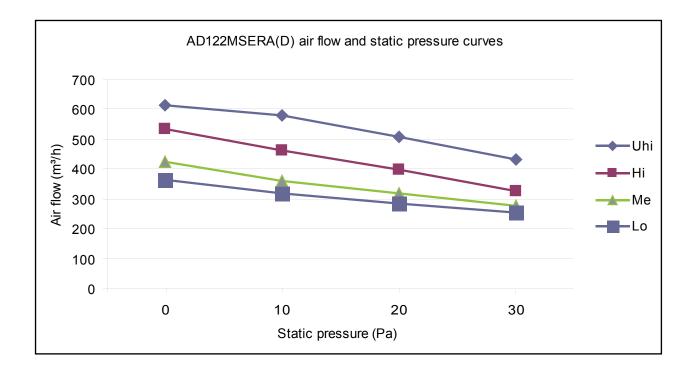


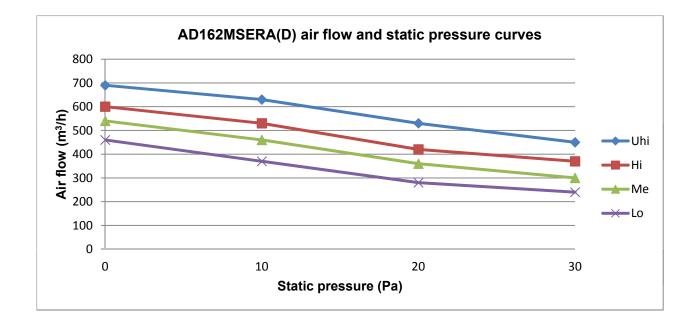
9.7 Air flow and static pressure curves



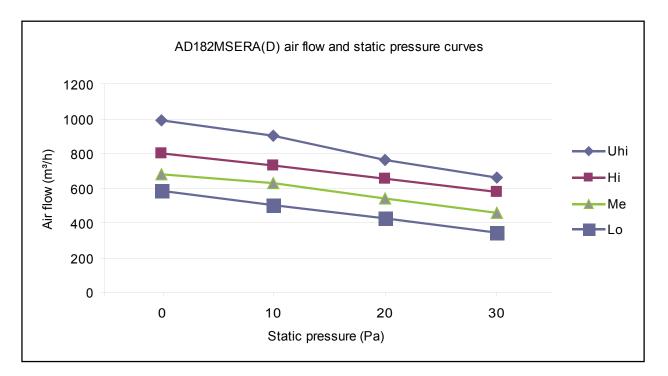


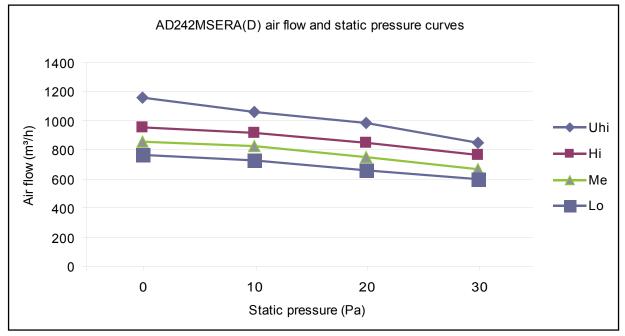








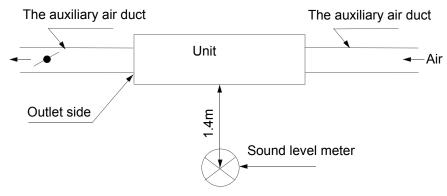




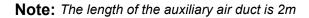


9.8 Sound pressure level

Slim duct type running noise (1) Testing illustrate:



Testing position just below the central of the unit



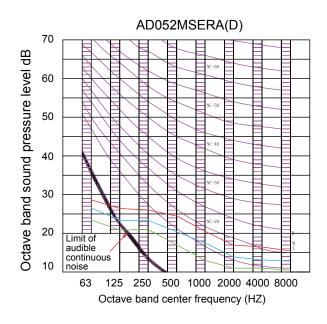
(2) Testing condition:

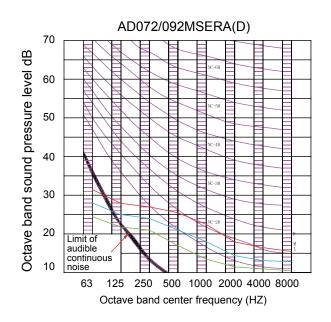
a. Unit running in the standard condition

b. Test in the semi-anechoic chamber

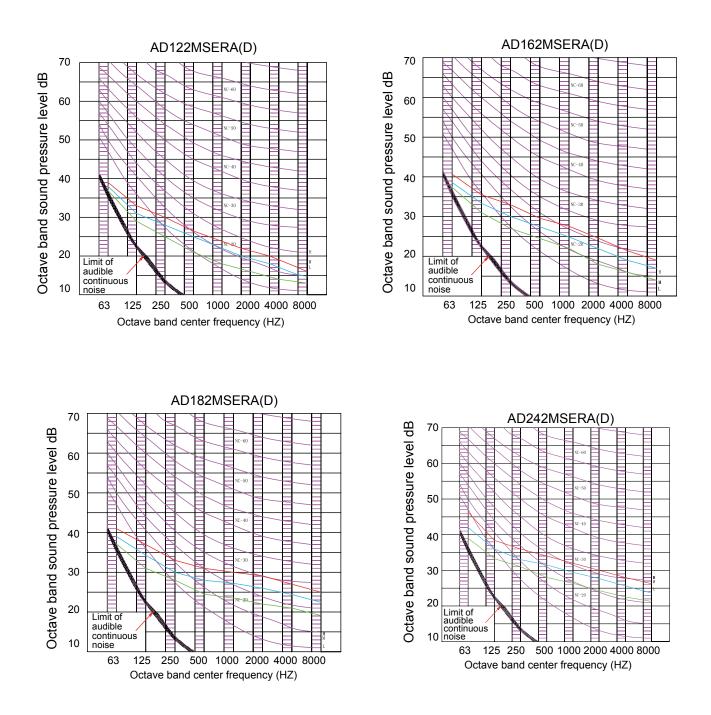
c. Noise level varies from the actual factors such as room structure, etc.

(3) Octave band level:











9.9 Installation

7.9.1 Safety

- This manual should always be accessible and close to this air condition equipment.
- There are two types of indications, "A WARNING" and "A CAUTION" The indication preventing from death or heavy injury is listed as "A WARNING". Even the indication listed as "A CAUTION" may also cause serious accident. Both of them are related to safety, and should be strictly followed.
- After installation and start-up commissioning, please handover the manual to the user. The manual should be well kept in safe place and close to the unit.

\Lambda Warning

- The installation or the maintenance should be performed by an authorized agency. The wrong operation of this air condition equipment may cause water leakage, electric shock or fire.
- Please install the unit on the top of a solid foundation or structure which is strong enough to support the unit.
- The installation of this condition equipment should follow local construction codes.
- Use the right cable size, secure the terminal firmly, organize the cables well and make sure no tension is added on cables. Cable insulation should not be damaged. The incorrect installation may lead to overheat or fire.
- When installing or moving the unit, the refrigerant system should be vacuumed and recharged with R-410A refrigerant. If any other gas enters the system, it may lead to abnormal high pressure which may cause damage or injury.
- Please use the proper manifolds or branches during the system installation. The wrong parts may cause refrigerant leakage.
- Keep the drain pipe away from toxic gas vents to prevent possible pollution of indoor environment.
- During or after the installation, please check whether there is refrigerant leakage. If any leakage, please take any measures for ventilation. The refrigerant may be toxic at some concentration levels.
- The unit is not explosion-proof. Please keep it away from flammable gases.
- The drain pipe should be installed per this manual to ensure proper drainage. The pipe should be well insulated to avoid condensation. Wrong installation may lead to water leakage.
- Both liquid pipe and the gas pipe should be also well insulated. Not enough insulation may lead to system performance deterioration or humidity formation.
- This air condition equipment is not intended to be operated by persons with lack of experience and training, unless they have supervision or instruction concerning use of this air condition equipment.
- Please keep children away from this air condition equipment.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- The appliances are not intended to be operated by means of an external timer or separate remote-control system.
- Keep the appliance and its cord out of reach of children less than 8 years.

Attention

- Grounding wire should be connected with the grounding bar. The grounding wire can not be connected to the gas pipe, water pipe, lightening rod or the telephone grounding wire. Improper grounding may cause electric shock.
- The Circuit Breaker should be installed. If not, it may cause electric shocks.
- After installation, the air condition equipment should be powered on and passed the electric leakage current lest.



]
	<u>∧</u> ∧	Attention
Notices during Operation	 Do not put any heating apparatus under the indoor units. The heat may cause distortion of the units. Pay attention to the ventilation to avoid anoxic injury. Do not put burning apparatus in the place which the unit blows directly. There is risk of fire or anoxic injury. Ensure the installation area does not deteriorate with age. If the base collapses, the unit may fall and cause damage, product failure, personal injury or death. Do not use the unit for special purposes such as preserving foods, works of art etc. It is an air conditioner for comfort cooling / heating, not a precision refrigeration system. Use the correctly rated breaker or fuse. Improper breaker or fuse. Improper breaker or fuse may lead to fire, electric shock, explosion, personal injury or death. Do not permit water or steam to enter the unit and the wired controller. There is risk of unit failure, fire, electric shock, personal injury or death. Turn on the power at least 6 hours before operation begins. Starting operation immediately after power on can result in severe damage to internal parts. Turn off the power to save energy if the unit will be not used for a long period. If the unit is not powered off, it will consume power. 	 3-minutes protection To protect the unit, compressor can be actuated with at least 3-minutes delay after stopping. Close the window to avoid outdoor air getting in. Curtains or window shutters can be put down to avoid the sunshine. Do not touch the power switch with the wet hand to avoid power shock. Stop running and switch off the manual power switch when cleaning the unit. During the unit operation, don't switch off the manual power switch. Do not press the liquid crystal zone of controller to prevent damage. Do not clean the unit with water spray. There is risk of unit failure, fire, electric shock, personal injury or death. Keep flammable gas or combustibles away from the unit. There is risk of product failure, fire, personal injury or death. The unit is not intended to be operated by persons with lack of experience and training, unless they have supervision or instruction concerning use of this air condition equipment. Please keep children away from this air condition equipment.
	•	



7.9.2 Maintenance

Clean the air cleaner & air inlet grid.

- Don't dismantle the air cleaner if not cleaning, or faults might be caused.
- When the air conditioner operates in the environment with too much dust, clean the air conditioner more times (generally once every two weeks).

Cleaning the air outlet port and the sh		
	Attention	
Don't use gasoline, benzene, diluents, polishing Do not clean them with hot water of above 50° C		
 Wipe them with soft dry cloth. Water or neutral dry cleanser is recommended in the Wind Deflector can be dismantled to clean 		
Cleaning Wind Deflector:		
Do not wipe the wind deflector with water forcib	ly to avoid falling off.	
Cleaning Air Cleaner:		
<u>^</u>	Attention	
 Don't rinse the air cleaner with hot water of about the air cleaner on the fire to dry to average and the second second		
 Wipe dust with water or dust collector. (A) Wipe dust with dust collector. 	(B) Clean it with soft bush in mild detergent there is too much dust on it	if 强_
	(C)Throw off the water and airing it in the cool dry condition.	
Maintenance before and after Operating Se	eason	

- There is no blockage in inlet port and outlet port of outdoor and indoor units.
- The ground line and the wiring are in the proper state
- 2. After cleaning, the air cleaner must be mounted.
- 3. Switch on to the power.

After Operating Season:

- 1. In sunny days, blowing operation can be performed for half a day to make the inside of machine dry.
- 2. Electrical power should be cut down to economize electricity, or the machine will still consume power. Air cleaner and shell must be mounted after cleaning.

DC Slim Duct Type Indoor Unit



7.9.3 Fault Checkup

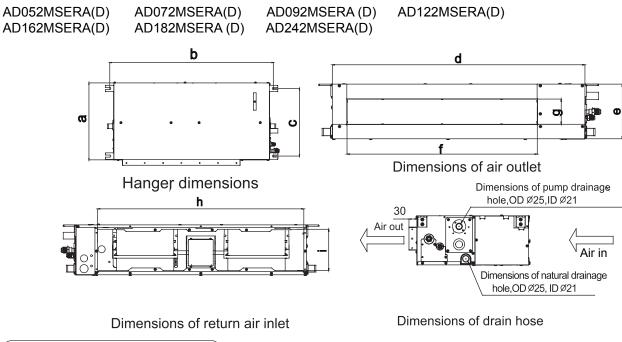
Please check the following when consigning repair service:

	Symptoms	Reasons
	Water flow sound	Water flow sound can be heard when starting operation, during operation or immediately after stopping operation. When it starts to work for 2-3 minutes, the sound may become louder, which is the flowing sound of refrigerant or the draining sound of condensed water.
્ર	Cracking sound	During operation, the air conditioner may make the cracking sound, which is caused from the temperature changes or the slight dilation of heat exchanger.
are not problems	Terrible smell in outlet air	During operation, the air conditioner may make the cracking sound, which is caused from the temperature changes or the slight dilation of heat exchanger.
re not	Flashing operating indicator	When switching it on again after power failure, turn on the manual power switch and the operating indicator flashes.
All these a	Awaiting indication	It displays the awaiting indication as it fails to perform refrigerating operation while other indoor units are in heating operation. When the operator set it to the refrigerating or heating mode and the operation is opposite to the setting, it displays the awaiting indication.
	 Sound in shutdown indoor unit or white steam or cold air 	To prevent oil and refrigerant from blocking the shutdown indoor units, refrigerant flows in the short time and make the sounds of refrigerant flowing. Otherwise, when other indoor units perform heating operation, white steam may occur; during refrigerating operation, cold air may appear.
	Clicking sound when switching the air condition on	When the conditioner is powered on, the sound is made due to the resetting of the expansion valve.
	Start or stop working automatically	Check if it is in the state of Timer-ON and Timer-OFF.
Please make another check.	・ Failure to work	Check if there is a power failure. Check if the manual power switch is turned off. Check if the supply fuse and breaker are disconnected. Check if the protective unit is working. Check if refrigerating and heating functions are selected simultaneously with the awaiting indication on line control.
Please make ;	 Bad cooling & heating effects 	Check if air intake port and air outlet port of outdoor units are blocked. Check if the door and windows are open. Check if the filtering screen of air cleaner is blocked with sludge or dust. Check if the setting of wind quantity is at low wind. Check if the setting of operation is at the Fan Operation state. Check if the temperature setting is proper.

Under the following circumstances, immediately stop the operation, disconnect the manual supply switch and contact the after-service personnel.

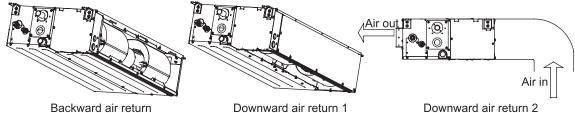
- When buttons are inflexible actuated;
- When there are foreign objects and water in the refrigerator;
 When it cannot still be operated after removing the operation of protective unit;
- When other abnormal conditions occur.





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Installation modes of Indoor unit
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This series of air conditioners can be arranged in two air return modes: 1. backward air return (factory default); 2. downward air return (can be adjusted on site. See the following figures.)



Note: the downward air return mode would increase noise 3-5dB(A). It is recommended to install the air conditioner in downward return air mode 2 if enough space is available.

Installation space and method

Body installation

1.Use M10 lifting bolts.

2.Ceiling removal: For different building structures, please consult with indoor decoration personnel about actual conditions.

a.Ceiling reinforcement: To ensure the ceiling is horizontal and will not shake, the ceiling base frame must be reinforced.

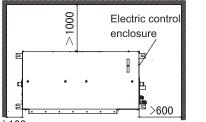
b.Cut off and remove the ceiling base frame.

c.Reinforce the end faces left when the ceiling is removed and further reinforce the base frame that fix both ends of the ceiling.

d.After the body installation is complete, it is time to install pipes and wires. Before installation, choose a suitable installation position and determine the outgoing direction of pipes. Especially in case that a ceiling exists, please pull refrigerant tubing, drain hose, indoor and outdoor connecting wires, control wires to their connection positions prior to hanging the machine.



Installation space:



>100 Reserve 600 X 600 access hole

Installation of air-inlet grille

The angle of air-inlet grille should be parallel with that of air inlet direction, otherwise it will cause more noise. As shown in the figure on the right.

Installation of Duct Pipe of Indoor Units:

1.Installation of the air blowing pipe:

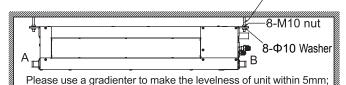
With a square blast pipe, the bore shouldn't be less than the sizes of air outlet pipe.

2.Installation of the air return pipe: Connect one side of the air return pipes to the air return port of the indoor units with rivets, with the other side connected to air return shutter, as shown in Fig. 1.

3. Heat Preservation of Blast Pipes: Heat preservation lays should be provided for air blowing & return pipes. Paste glue nails on the blast pipes and attach thermo wool, which covered by a layer of silver paper, fix it with glue nail cover, and then

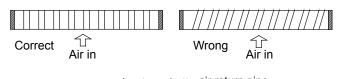


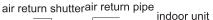
4-M10 hanging bolt

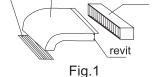


If end A is to drain water, ensure end B is slightly higher than the end A to facilitate drainage;

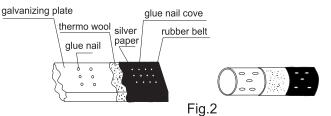
Otherwise, ensure end A is slightly higher than end B.







connection of oil return pipe



Selection of fan outlet

seal the joint with silver paper.

This machine uses a DC motor, by which multi-range ESP adjustment is available. The factory default is standard ESP. The ESP & Silent mode can be set according to the pipe resistance and the silence requirement. Setting ranges are as follows:

Model	Ultra-silent	Silent	Standard ESP default	High ESP	Super high ESP
Grade	1	2	3	4	5

Operation:

When the YR-E17 wired controller is on and the screensaver is off, press the wind speed key & function key together for 5 seconds to get into the ESP adjustment mode. When the grade number is flashing, press "up" and "down" to change, then press the function key to set.

Remote controller: Set temperature of 16°C and press "light" button on remote controller 8 times in 10 seconds, and you hear 2 times beep, then adjusting the temperature to 17 °C, press the button off, then you can hear 1 times beepit means grade 1(Ultra-silent) is set successfully and so on, no action within two minutes, it will automatically exit the function setting.

Note:

This series are low ESP duct, all the sets above must be handled by YR-E17 or remote controller after asking our after-sales staff according to the installation condition at site. For more details, please see the YR-E17(upgraded) installation instructions.



Installation of drain hose

Connection of indoor drain hose

1.Please use accessory drain hose to connect indoor unit's water outlet and PVC pipe and use snap rings to tighten them, as shown in the following figure:

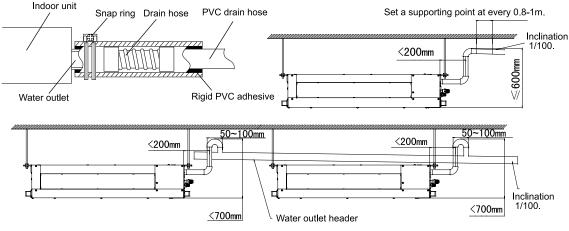
2.Please use rigid PVC adhesive for connection of other pipes and ensure there is no leakage.

3.Drain hose must be wrapped up with insulation sleeve and tightened with strap to prevent air leaked in producing condensate.

4.To prevent water flowing back into air conditioner when the it stops running, drain hose shall decline to the drainage side with a declination of above 1/100. Drain hose expansion or water accumulation shall be prevented, or else it will cause abnormal noise.

5. When connecting the drain hose, do not pull on it so as to avoid the pipe connections getting loose or off. Drain hose should not be pulled out laterally for more than 20cm and should be supported every 0.8-1.0m to avoid bending.

6. The end of drain hose should be more than 50mm away from the ground or the bottom of drainage tank. It should not be put in water. To directly drain condensate into drainage ditch, the drain hose must be U-shaped to avoid stink spreading through the hose into room.

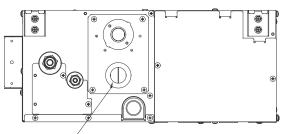


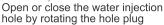
Multiple units use water outlet header to drain water into drainage ditch.

Drainage test

Before test, firstly ensure the drain hose is unblocked and all connections are tightly sealed and then perform the drainage test as follows:

- 1. Inject about 500ml water into the water pan through water injection hole;
- 2. Switch on the power and make air conditioner operate in refrigerating mode. Check whether the water outlet drains water normally and there are no leakages on connections. After the drainage test is complete, replace the water injection hole plug. For the position of water injection hole, see the figure on the right:







7.9.4 Installation Procedures

This manual cannot completely illustrate all the properties of the products you bought. Please contact the local Haier distribution center if you have any question or request.

Please use the standard tools according to the installation requirements.

The standard attached accessories of the units of this series refer to the packing list; prepare other accessories according to the requirements of the local installation point of our company.

1. Choose the suitable installation location. Indoor units should be installed in places with the environment of even circulation of cool and warm blows. The following places should be avoided.

Places with high salinity (beach), high sulfureted gas(such as the thermal spring regions where copper tubes and soft soldering are easy to be eroded), much oil(including mechanical oil) and steam; places where organic substance solvent is frequently used; places where machines generate the high frequency electromagnetic wave (abnormal condition will appear in the control system); places where there is high humidity exists near the door or windows (dew is easily formed); and places where the special sprayer is frequently used.

Indoor Units

1. The distance between wind outlet port and the ground should not be more than 2.7m.

2. Select appropriate places for installation where the outlet air can be spread to places all over the house and arrange proper locations for connecting pipes and lines as well as the drainpipe to the outdoor.

3. Ceiling construction must be hard enough to hold the weight of the unit.

4. Make sure that the connecting pipe, the drainpipe and connecting guide line can be put into walls to connect the outdoor units.

5. It is recommended to make the connecting pipe between the outdoor and indoor units and the drainpipe are as short as possible.

6. Please read the attached installation instruction of outdoor units for regulation of filling amount of refrigerant if necessary.

7. The connecting flange should be checked by users.

8. Those electrical appliances such as television, instruments, devices, artwork, piano, wireless equipment and other valuables should not be placed under the indoor unit as to prevent condensate from dropping into them and causing damage.

2. The following steps can be taken after selecting the installation place:

(1) Cut a hole in the wall and insert connection pipe and connecting wires through a locally purchased PVC pipe. The hole should be inclined slightly downward with an inclination of at least 1/100 (see Figure 1).



(2) Before cutting the hole, ensure no pipe or rebar is placed behind the cutting

position. Avoid cutting a hole at the place of wires or connection pipes.

(3) Hang the unit on a horizontal and firm roof. If the unit base is not stable, it may cause noise, vibration or leakage.

(4) Support the unit firmly and change the shapes of connection pipe, connecting wires and drain pipe to make them easily get through the hole.

3.Dimension (unit: mm).

Model	а	b	С	d	е	f	g	h	i
AD052MSERA(D) AD072MSERA(D) AD092MSERA(D) AD122MSERA(D) AD162MSERA(D)	420	892	370	850	185	640	90	760	152
AD182MSERA(D)AD242MSERA(D)	420	1212	370	1170	185	960	90	1080	152



Pipe Length & Height Difference

Please refer to the attached manual of outdoor units.

Tubing Materials & Specifications

Special tools for R410A should be used for cutting and enlarging pipes.

Мо	del	AD072~092 MSERA(D)	AD122~182 MSERA(D)		
Tubing	Gas pipe	Ø9.52	Ø12.7	Ø15.88	
Size(mm)		Ø6.35	Ø6.35	Ø9.52	
Tubing	Phosphor deoxy bronze seamless pipe (TP ₂)				
Material	for air conditioner				

Refrigerant Recharge Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount while compressor failure can be caused by filling too much or little refrigerant.

Connecting Procedures of Refrigerant Tubing

With the soft solder, the nitrogen-filling protection should be used.

Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Vacuum pump with check valve should be used for vacuumizing to prevent pump oil flowing into the machine.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when only connected one main unit.]

Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.

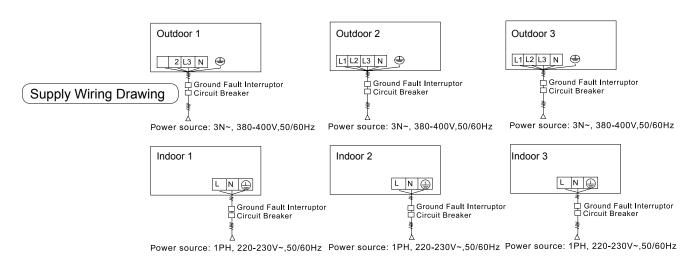
Connecting	Connecting circular terminals:
1. Connecting circular terminals:	
The connecting method of circular terminal is shown in the	e Fig. Take off the screw, connect it to the terminal tier
after heading it through the ring at the end of the lead and	I then tighten it.
2.Connecting straight terminals:	
The connection methods for the circular terminals are show	
terminal into the terminal tier, tighten the screw and confirm	m it has been clamped by pulling the line gently.
3.Pressing connecting line	
After connecting line is completed, press the	terminal tier
connecting line with clips which should press	correct wrong
on the protective sleeve of the connecting line.	pressing pressing clip – • •



7.9.5 Electrical wiring

- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

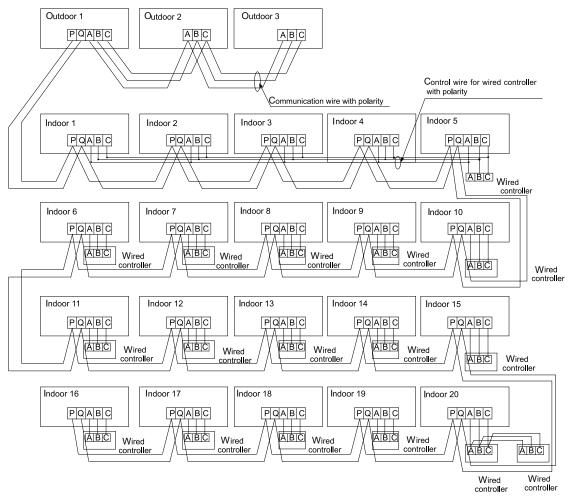
- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while ⊕ should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below: 3×(1.0-1.5) mm²; parameters for signal line: 2×(0.75-1.25)mm²(shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.



Signal Wiring Drawing



Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure, (1-5 indoor units). The indoor unit 5 is the wired control master unit and others are the wired control slave units. The remote control and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via three lines with polarity. SW01 on the master unit of wired control is set to 0 while SW01 on other salve units of wired control are set to 1, 2, 3 and so on in turn. (Please refer to the code setting A at page 28)
- B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired controller are connected via three lines with polarity.
- C. Two wired controller control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controller can be set to be the master wired controller while the other is set to be the auxiliary wired controller. The master wired controller and indoor units, and the master and auxiliary wired controller are connected via three lines with polarity. Note: For DC motor slim low ESP duct, the PCB comes with the terminal blocks. Please be sure to pay attention

to do the wiring according to the identification. The power lines and signal lines go through the metal wire hole separately with the protective sleeve of the connecting line



Indoor power supply wiring & signal wiring between indoor and outdoor & signal wiring between indoors.

Items	Cross	Length	Rated Current of	Rated current of residual Circuit Breaker(A)	Cross Sectional Area of Signal Line	
Total Current of Indoor Units(A)	Section (mm²)	(m)	Overflow Breaker(A)	Ground Fault Interruptor(mA) Response time(S)	Outdoor Indoor -indoor -indoor (mm ²) (mm ²)	
<7	2.5	20	10	10 A,30 mA,0.1S or below		
≥7 and <11	4	20	16	16 A,30 mA,0.1S or below		
≥11and <16	6	25	20	20 A,30 mA,0.1S or below	2 cores×(0.75-2.0)	
≥16 and <22	8	30	32	32 A,30 mA,0.1S or below	mm ² shielded line	
≥22 and <27	10	40	32	32 A,30 mA,0.1S or below		

- The electrical power line and signal lines must be fastened tightly.
- Every indoor unit must have the ground connection.
- The power line should be enlarged if it exceeds the permissible length.
- Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.
- It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm ² ×3 core shielded line

% The shielding lay of the signal line must be grounded at one end.

* The total length of the signal line shall not be more than 250m.



7.9.6 Test run

Before Test Run

- Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above 1MΩ. It can't be operated if it is below 1MΩ.
- Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the
 compressor at startup, power it on 12 hours prior to the operation.

Check if the arrangements of the drainpipe and connection line are correct.

The drainpipe shall be placed at the lower part while the connection line placed at the upper part. Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials. The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.

Checkup of Installation

- □ check if the mains voltage is matching
- □ check if there is air leakage at the piping joints
- □ check if the connections of mains power and indoor & outdoor units are correct
- □ check if the serial numbers of terminals are matching
- check if the installation place meets the requirement
- check if there is too much noise
- \Box check if the connecting line is fastened
- □ check if the connectors for tubing are heat insulated
- \Box check if the water is drained to the outside \Box check if the indoor units are positioned

Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly. When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

• Set the YR-E17wired controller to cooling/heating mode, press "ON/OFF" button for 10 seconds to enter into the compulsive cooling/heating mode. Repress "ON/OFF" button to quit the compulsive running and stop the operation of the air conditioner.



10. Low ESP Duct Type Indoor Unit

10.1 Features



AD072MLERA AD092MLERA AD122MLERA

AD162MLERA AD182MLERA AD242MLERA

Super slim design, silent and static pressure switchover

The compact appearance is perfect for the commercial space and the large building. Also it can be applicable for the house, which will be harmonious with indoor decor.





AD072-122MLERA

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High efficiency filter is equipped at the air return side of the unit. Much purer air will be supplied to indoor.



External Static Pressure can be switched by the terminal in the electric control box. Select between 0Pa and 20Pa.

Low noise level:

	AD072MLERA	AD092MLERA	AD122MLERA	AD162MLERA	AD182MLERA	AD242MLERA
Noise level (dB(A)) H/M/L	35/32/30	35/32/30	35/32/30	35/32/30	39/37/35	39/37/35

Note:

The noise level will be measured in the third octave band limited values in the semi-anechoic chamber, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



10.2 Specification

	MODEL		AD072MLERA	AD122MLERA		
Power suppl	у	Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60	
	Capacity	kBtu/h	7.5	9.6	12.3	
Quality	Capacity	kW	2.2	2.8	3.6	
Cooling	Power input	W	30	30	45	
	Current	А	0.15	0.15	0.25	
	Capacity	kBtu/h	8.5	10.9	13.6	
	Capacity	kW	2.5	3.2	4.0	
Heating	Power input	W	30	30	45	
	Current	А	0.15	0.15	0.25	
	Heating capacity at low temp.	kW	2.0	2.5	3.2	
Operating cu	urrent	А	0.15	0.15	0.25	
Power consu	umption	kW	0.03	0.03	0.045	
	Brand		Broad ocean	Broad ocean	Broad ocean	
	Model		Y5S413A536	Y5S413A536	Y5S413A84	
	Туре		AC	AC	AC	
	Insulation class		В	В	В	
Indoor motor	IP class		IP20	IP20	IP20	
	Power input	W	57	57	57	
	Power output	W	12	12	12	
	Capacitor	μF	1.5µF /450v	1.5µF /450∨	1.5µF /450v	
	Speed (High/Middle/Low)	rpm	1110/970/865/780	1110/970/865/780	1050/950/850/750	
	Brand		Haier	Haier	Haier	
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal	
	Quantity		1	1	1	
	a. Number of rows		2	2	3	
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	21*13.3	
	c. Fin spacing	mm	1.4	1.4	1.4	
Indoor coil	d. Fin type (code)		F	Hydrophilic aluminum		
	e. Tube outside dia. and type	mm	4	Φ7 Inner groove tube		
	f. Coil length×height×width	mm	434*252*26.6	434*252*26.6	434*252*39.9	
	g. Number of circuits		2	2	3	



	MODEL		AD072MLERA	AD092MLERA	AD122MLERA	
	Cabinet coating type		Galvanized	Galvanized	Galvanized	
Cabinet	Cabinet salt spray test duration	Hour	72	72	72	
	Control box IP class		IP20	IP20	IP20	
	Sheet metal thickness		0.6	0.6	0.6	
	Drain pan material		Hot zinc plate+cushion	Hot zinc plate+cushion	Hot zinc plate+cushion	
Construction	Drain pan insulation		10	10	10	
	Drain pump option		Optional KT-NP01	Optional KT-NP01	Optional KT-NP01	
	Branch outlet option		No	No	No	
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate	
Indoor wall	Thickness	mm	0.6	0.6	0.6	
	Double or single skin		Single	Single	Single	
	Material		PP	PP	PP	
Air filter	Mesh		100	100	100	
	Pressure drop	Ра	5	5	5	
	Liquid pipe	mm	6.35	6.35	6.35	
Piping dimension	Gas pipe	mm	9.52	9.52	12.7	
	Drain hose	mm	20	20	20	
Fresh air dimer	nsion	mm	/	1	/	
Sound pressure	e level (H/M/L)	dB (A)	35/32/30	35/32/30	35/32/30	
Sound power le	evel (H/M/L)	dB (A)	49/46/44	49/46/44	49/46/44	
Standard static	pressure	Pa	0	0	0	
Max. static pres	ssure	Pa	20	20	20	
Indoor air flow	(H/M/L)	m³/h	400/364/324	400/364/324	500/450/420	
Air outlet dimer	nsions	mm	418*131	418*131	418*131	
Air return dime	nsions	mm	480*218	480*218	480*218	
Dimension (W*	H*D)	mm	610*220*500	610*220*500	610*220*500	
Packing (W*H*	D)	mm	708*280*549	708*280*549	708*280*549	
Net weight		kg	15	15	16	
Gross weight		kg	17	17	18	
Nominal condition	ion: indoor temperature (cool	ing): 27DB (°C)/19WB (°C), indo	or temperature (he	ating): 20DB (°C)	

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



	MODEL	•	AD162MLERA	AD182MLERA	AD242MLERA	
Power supply	1	Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60	
	Capacity	kBtu/h	15.4	19.1	24.2	
Casling	Capacity	kW	4.5	5.6	7.1	
Cooling	Power input	W	50	110	110	
	Current	A	0.27	0.55	0.55	
	Capacity	kBtu/h	17.1	21.5	27.3	
	Capacity	kW	5.0	6.3	8.0	
Heating	Power Input	W	50	110	110	
	Current	A	0.27	0.55	0.55	
	Heating capacity at low temp.	kW	4.0	5.0	6.3	
Operating cu	rrent	A	0.27	0.55	0.55	
Power consu	Power consumption		0.05	0.11	0.11	
	Brand		Broad ocean	Broad ocean	Broad ocean	
	Model		Y5S413B298	Y5S413B5118	Y5S413B5118	
	Туре		AC	AC	AC	
	Insulation class		В	В	В	
Indoor motor	IP class		IP20	IP20	IP20	
	Power input	W	78.5	115	115	
	Power output	W	14	33	37	
	Capacitor	μF	1.5µF /450v	3.5µF /450∨	3.5µF /450v	
	Speed (High/Middle/Low)	rpm	860/790/620/520	1080/920/680/530	1080/920/680/530	
	Brand		Haier	Haier	Haier	
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal	
	Quantity		2	2	2	
	a. Number of rows		2	3	3	
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	21*13.3	
	c. Fin spacing	mm	1.4	1.4	1.4	
Indoor coil	d. Fin type (code)		F	Hydrophilic aluminum		
	e. Tube outside dia. and type	mm	٩	Φ7 Inner groove tube		
	f. Coil length×height×width	mm	895*252*26.6	895*252*39.9	895*252*39.9	
	g. Number of circuits		4	6	6	



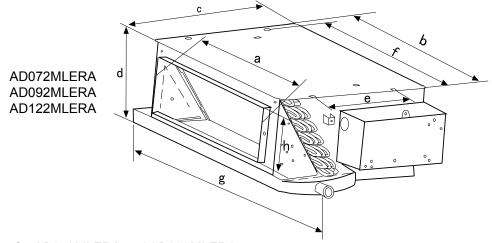
MODEL		AD162MLERA	AD182MLERA	AD242MLERA	
Cabinet coating type		Galvanized	Galvanized	Galvanized	
Cabinet salt spray test duration	Hour	72	72	72	
Control box IP class		IP20	IP20	IP20	
Sheet metal thickness		0.6	0.6	0.6	
Drain pan material		Hot zinc plate+cushion	Hot zinc plate+cushion	Hot zinc plate+cushion	
Drain pan insulation		10	10	10	
Drain pump option		Optional KT-NP01	Optional KT-NP01	Optional KT-NP0 ²	
Branch outlet option		No	No	No	
Material		Hot zinc plate	Hot zinc plate	Hot zinc plate	
Thickness	mm	0.6	0.6	0.6	
Double or single skin		Single	Single	Single	
Material		PP	PP	PP	
Mesh		100	100	100	
Pressure drop	Pa	5	5	5	
Liquid pipe	mm	6.35	6.35	9.52	
Gas pipe	mm	12.7	12.7	15.88	
Drain hose	mm	20	20	20	
on	mm	/	1	/	
evel (H/M/L)	dB (A)	35/32/30	39/37/35	39/37/35	
el (H/M/L)	dB (A)	49/46/44	53/51/49	53/51/49	
ressure	Pa	0	0	0	
ıre	Pa	20	20	20	
/M/L)	m³/h	850/780/700	1250/1122/988	1250/1122/988	
ons	mm	880*131	880*131	880*131	
ions	mm	1064*218	1064*218	1064*218	
D)	mm	1105*220*500	1105*220*500	1105*220*500	
	mm	1174*294*549	1174*294*549	1174*294*549	
	kg	25	28	28	
	kg	27	30	30	
	Cabinet salt spray test duration Control box IP class Sheet metal thickness Drain pan material Drain pan insulation Drain pump option Branch outlet option Material Thickness Double or single skin Material Mesh Pressure drop Liquid pipe Gas pipe	Cabinet salt spray test durationHourControl box IP classSSheet metal thicknessImage: Control box IP classDrain pan materialImage: Control box IP classDrain pan insulationImage: Control box IP classDrain pan insulationImage: Control box IP classDrain pan insulationImage: Control box IP classMaterialImage: Control box IP classMaterialImage: Control box IP classMaterialImage: Control box IP classMeshImage: Control box IP classPressure dropPaLiquid pipeImage: Control box IP classOnImage: Control box IP classOn	Cabinet salt spray test durationHour72Control box IP classIP20Sheet metal thickness0.6Drain pan materialHot zinc plate+cushionDrain pan insulation10Drain pan insulation0ptional KT-NP01Branch outlet optionNoMaterialHot zinc plateThicknessmmDouble or single skinSingleMaterialPPMesh100Pressure dropPaLiquid pipemmOnmmonmm/evel (H/M/L)dB (A)a50/780/700onsmmMuth)m3/h850/780/700onsmm1105*220*500mm1174*294*549kg25	Cabinet salt spray test durationHour7272Control box IP classIP20IP20Sheet metal thickness0.60.6Drain pan materialHot zinc plate+cushionHot zinc plate+cushionDrain pan insulation1010Drain pan insulationOptional KT-NP01Optional KT-NP01Branch outlet optionNoNoMaterialHot zinc plateHot zinc plateThicknessmm0.60.6Double or single skinSingleSingleMaterialPPPPMesh100100Pressure dropPa5Liquid pipemm6.35Gas pipemm12.7Drain hosemm20conmm//<	

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

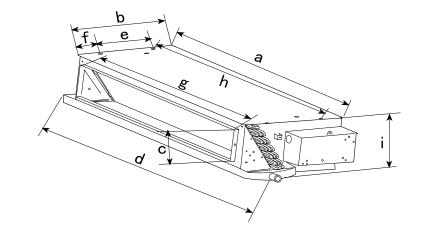


10.3 Dimension

Model	а	b	С	d	е	f	g	h	i
AD072MLERA AD092MLERA AD122MLERA	418	538	500	220	255	508	610	136	-
AD162MLERA AD182MLERA AD242MLERA	1002	483	136	1105	255	105	880	970	220



Note: 2-row evaporator for AD072MLERA and AD092MLERA 3-row evaporator for AD0122MLERA

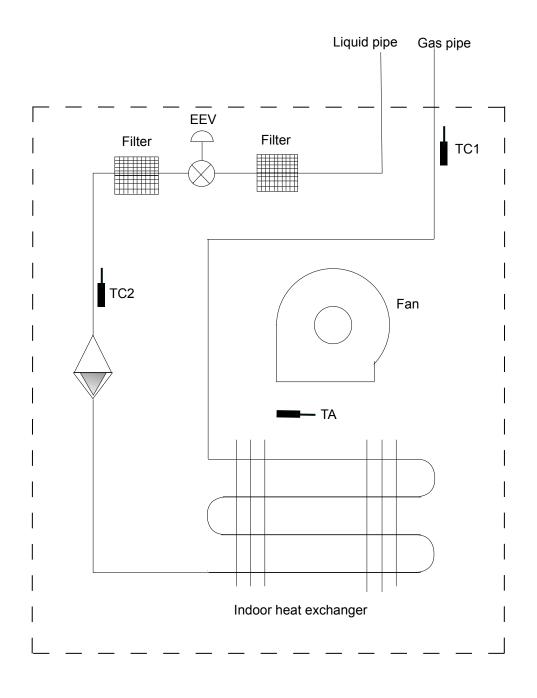


AD162MLERA AD182MLERA AD242MLERA

Note: 2-row evaporator for AD162MLERA 3-row evaporator for AD0182MLERA and AD242MLERA

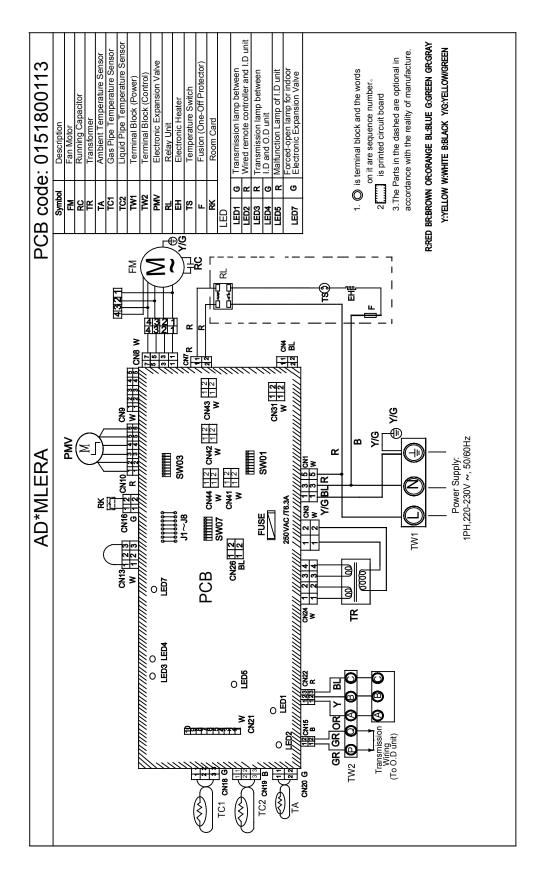


10.4 Piping diagram





10.5 Wiring diagram





10.6 Electric characteristics

Units					Power supply		Indoor fan motor		Power input (w)	
Model	Phase	FQY	Voltage	Volt. range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AD072MLERA	1	50/60	220	198-242	0.31	1	12	0.25	30	30
AD092MLERA	1	50/60	220	198-242	0.31	1	12	0.25	30	30
AD122MLERA	1	50/60	220	198-242	0.44	1.2	12	0.35	45	45
AD162MLERA	1	50/60	220	198-242	0.4	1.28	14	0.32	50	50
AD182MLERA	1	50/60	220	198-242	1.25	4	33	1	110	110
AD242MLERA	1	50/60	220	198-242	1.25	4	37	1	110	110

Symbols:

MCA: Min. circuit amps (A)

MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

Note:

1. Voltage range

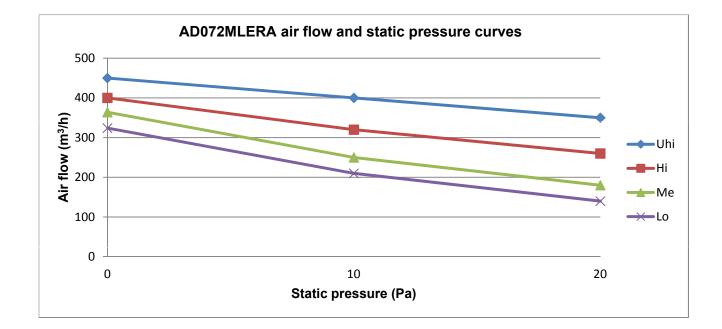
The units are applicable for the electrical systems where voltage supplied to unit is in the range.

2. Maximum allowable voltage unbalance between phases is 2%.

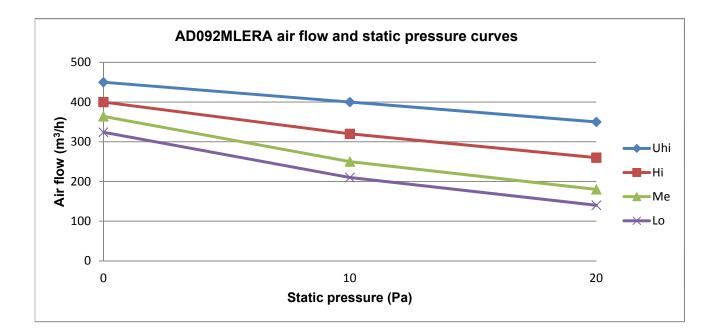
3. MCA=1.25*FLA MFA≤4*FLA

4. Power supply uses the circuit breaker.



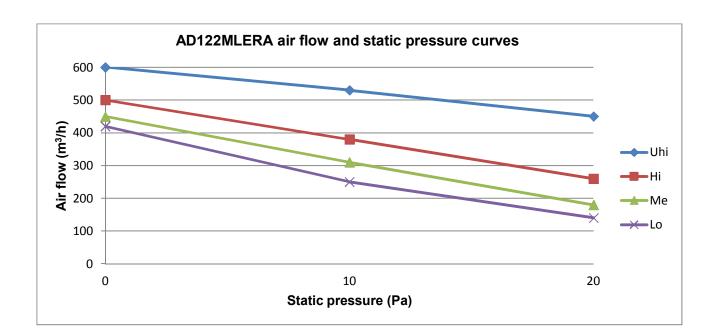


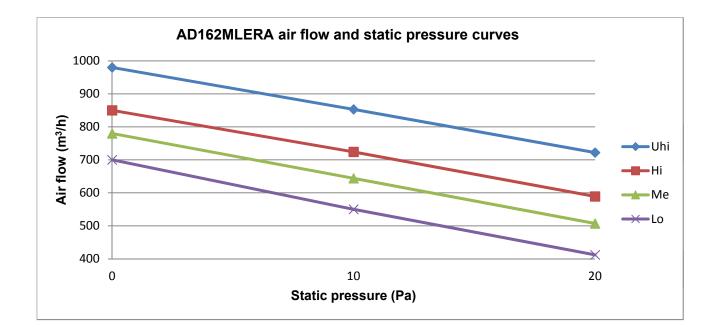
10.7 Air flow and static pressure curves



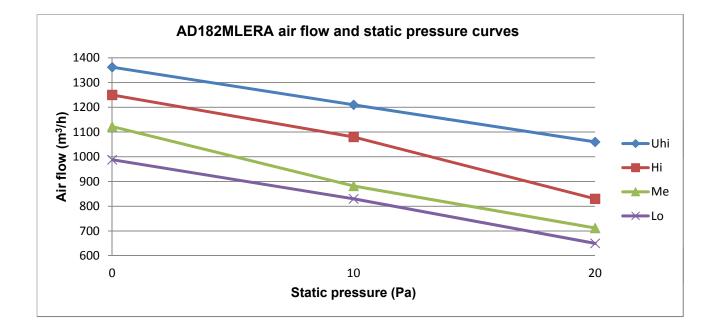
— 244 —

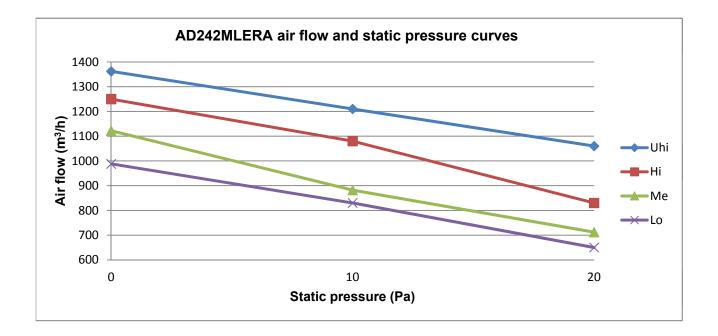










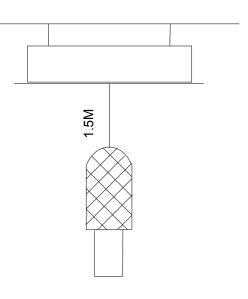


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10.8 Sound pressure level

(1) Testing illustrate:

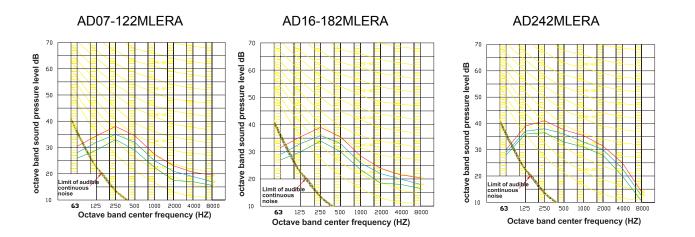


(2) Testing condition:

- a: Unit running in the normal condition
- b: Test in the semi-anechoic chamber

c: Noise level varies from the actual factors such as room structure, etc.

(3) Octave band level:





10.9 Installation

10.9.1 Installation Procedures

If you have any problem on product, contact the local Haier distribution center.

Please use the standard tools according to the installation requirements.

The standard attached accessories of the units of this series refer to the packing list; prepare other accessories according to the requirements of the local installation point of our company.

1. Choose the suitable installation location. Indoor units should be installed in places with the environment of even circulation of cool and warm blows. The following places should be avoided.

Places with high salinity (beach), high sulfureted gas (such as the thermal spring regions where copper tubes and soft soldering are easy to be eroded), much oil (including mechanical oil) and steam; places where organic substance solvent is frequently used; places where machines generate the high frequency electromagnetic wave (abnormal condition will appear in the control system); places where there is high humidity exists near the door or windows (dew is easily formed); and places where the special sprayer is frequently used.

Indoor Units

(1) The distance between wind outlet port and the ground should not be more than 2.7m.

(2) Select appropriate places for installation where the outlet air can be spread to places all over the house and arrange proper locations for connecting pipes and lines as well as the drainpipe to the outdoor.

(3) Ceiling construction must be hard enough to hold the weight of the unit.

(4) Make sure that the connecting pipe, the drainpipe and connecting guide line can be put into walls to connect the outdoor units.

(5) It is recommended to make the connecting pipe between the outdoor and indoor units and the drainpipe are as short as possible.

(6) Please read the attached installation instruction of outdoor units for regulation of filling amount of refrigerant if necessary.

(7) The connecting flange should be checked by users.

(8) Those electrical appliances such as television, instruments, devices, artwork, piano, wireless equipment and other valuables should not be placed under the indoor unit as to prevent condensate from dropping into them and causing damage.

2. The following steps can be taken after selecting the installation place:

(1) Cut a hole on the wall and put the connecting pipe and connecting thread into the PVC, which is purchased at the local shop. With a slight downwards tilt towards the exterior, the gradient should be kept at least 1/100, as shown in Fig.1.



at the rear of the hole. Making the hole in the place where wires or pipes should be avoided.

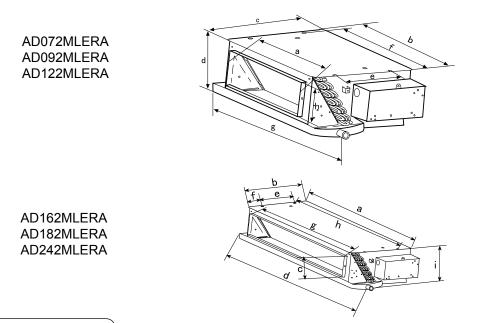
(3) Hang the unit on a fixed and flat roof. Unstable base will cause noise, vibration or leakage.

(4) Fix the unit support and change the connection pipes, connecting the shapes of wires and drainpipes so as to let them go through the wall hole.

3. Dimension (unit: mm).

Model	а	b	С	d	е	f	g	h	i
AD072MLERA AD092MLERA AD122MLERA	418	538	500	220	255	508	610	136	
AD162MLERA AD182MLERA AD242MLERA	1002	483	136	1105	255	105	880	970	220





Cautions for Installation

1. The indoor units of this series are low static pressure air conditioners.

2. The indoor units should be installed with an inspection hole for maintenance.

Selection of fan rotated speed

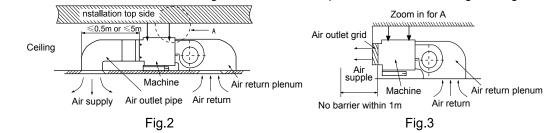
The fan is mounted with red down-lead end and red down-lead end. The standard model was set when the machine was made in the factory. The red down-lead end with high speed can be used when the filter with high performance is used to make static pressure ascend. The connected style is shown in Fig.3.

Standard Style (given in Factory)					High Wind Speed Style						
	White			White	End		White			Black	End
Box	Blue	White	White	Blue	ead E	Box	Blue	ite	ð	White	-lead E
Control	Yellow	N N	N ۲	Yellow	- own-le	Control	Yellow	White	Re	Blue	Down-le
Ŭ	Red			Red	an Do	ပိ	Red			Red	an Do
]	Ц						Ш

Static pressure range Unit: Pa

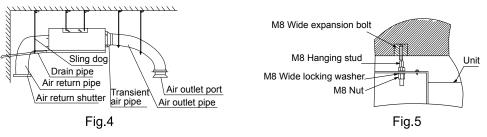
Standard static pressure	Maximal static pressure			
0	20			





Concealed indoor units should be designed with air return plenum, as shown in Fig.2 & Fig.3.

- The air blowing and return pipes should be equipped with an iron support fixed on the roof precoated plate. The joints at air pipes should be sealed with glue. It is recommended to keep the distance from the edge of air return plenum to the wall to be over 150mm.
- The gap between the air outlet port on the flue and the air outlet port on the air conditioner depends on the actual installation sizes of flues and the operating static pressure terminals. The schematic diagram of the long and short flues is shown in the following figure. When connecting the short flues, use the low static pressure terminal in white and keep the distance between the air outlet port of the flue and the air outlet port of the air conditioner to be less than 0.5m. When connecting the long flues, use the high static pressure terminal in red and keep the distance between the flue and the air outlet port of the air conditioner to be within 5m.



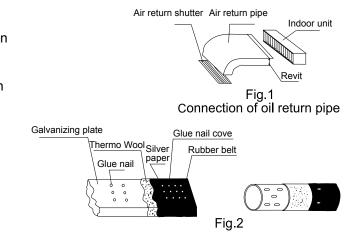
- The drainpipe for condensed water should keep a gradient of 1%. The drain pipe should be insulated.
- Hang the unit as shown in Fig.5.

Install the suspender:

- Based on the normative installation for different building structure, install the machine with 4 M8 or M10 suspenders according to the outline drawing. When the height of the hoisting stud exceeds 0.9m, M10 studs should be used. The level meter can be used for the horizontal installation.
- Use the level meter to set the levelness of the machine to be within 5mm.

Installation of Duct Pipe of Indoor Units:

- Installation of the air blowing pipe: With a square blast pipe, the bore shouldn't be less than the sizes of air outlet pipe.
- Installation of the air return pipe: Connect one side of the air return pipes to the air return port of the indoor units with rivets, with the other side connected to air return shutter, as shown in Fig.1.
- 3. Heat Preservation of Blast Pipes: Heat preservation lays should be provided for air blowing & return pipes. Paste glue nails on the blast pipes and attach thermo wool, which covered by a layer of silver paper, fix it with glue nail cover, and then seal the joint with silver paper.

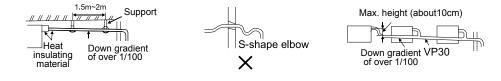




For normal drainage, the water drainage piping should be connected according to the installation manual. Heat insulation should be performed to avoid condensation. Improper pipe connection may cause water going into the machine.

Requirements:

- Heat insulating treatment should be made for the water drainpipes of the indoor units.
- Heat preservation should be made for the connection with the indoor units. Improper heat preservation may cause condensing.
- The drainpipe should be designed with a down gradient of 1/100. The midway of the elbow shouldn't be made in S shape. Or abnormal noise may be caused.
- The lateral length of the drainpipe should be kept within 20m. Under the condition of long pipe, a support should be provided every 1.52~2m to avoid unevenness.
- The central piping can be connected according the following figure.
- Don't apply external force to the connection of drainpipes.



Piping Materials & Heat Insulating Materials

As to prevent condensation, heat insulating treatment should be performed. The heat insulating treatment for piping should be done respectively.

Piping Material	Hard PVC tube VP31.5mm (inner bore)
Heat Insulating Material	Vesicant polythene thickness: over 7mm

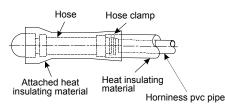
Hose

The drainage hose is made of Φ 19.05mm (3/4) PVC tube, which can adjust the eccentricity and the angle of the hard PVC tube.

- Heat insulating treatment should be made for the water drainpipes of the indoor units.
- Heat preservation should be made for the connection with the indoor units. Improper heat preservation may cause condensing.
- The drainpipe should be designed with a down gradient of 1/100. The midway of the elbow shouldn't be made in S shape. Or abnormal noise may be caused.
- The lateral length of the drainpipe should be kept within 20m. Under the condition of long pipe, a support should be provided every 1.52~2m to avoid unevenness.
- The central piping can be connected according the following figure.
- Don't apply external force to the connection of drainpipes.

Confirm drainage

During the test run, check the condition of water drainage and make sure that there is no leakage on the connection of piping, which should also be performed during the winter.





Pipe Length & Height Difference

Please refer to the attached manual of outdoor units.

Tubing Materials & Specifications

Special tools for R410A should be used for cutting and enlarging pipes.

Model		AD072- 092MLERA	AD122- 182MLERA	AD242 MLERA
Tubing Size	Gas pipe	Ф9.52	Φ12.7	Ф15.88
(mm)	Liquid pipe	Ф6.35	Ф6.35	Ф9.52
Tubing Material	Phosphor of	leoxy bronze seam	less pipe (TP2) for a	air conditioner

Refrigerant Recharge Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount while compressor failure can be caused by filling too much or little refrigerant.

Connecting Procedures of Refrigerant Tubing

With the soft solder, the nitrogen-filling protection should be used.

Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Vacuum pump with check valve should be used for vacuumizing to prevent pump oil flowing into the machine.

Open All Valves

Open all the valves of outdoor units.

[NB: oil balancing stop valve must be shut up completely when only connected one master unit.]

Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.

Connecting

1. Connecting circular terminals:

The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it.

2. Connecting straight terminals:

The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier, tighten the screw and confirm it has been clamped by pulling the line gently. 3. Pressing connecting line

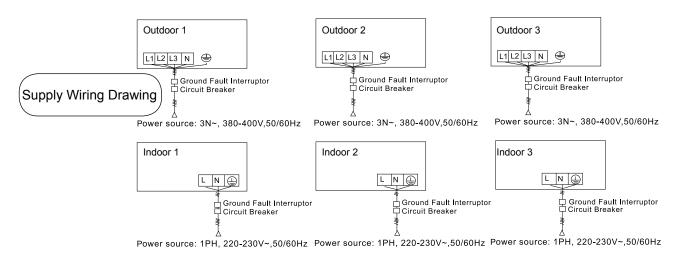
After connecting line is completed, press the connecting line with clips which should press on the protective sleeve of the connecting line.



10.9.2 Electrical Wiring

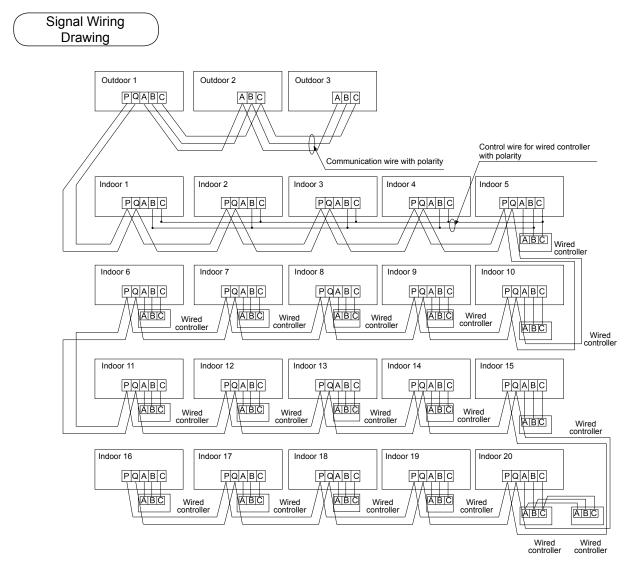
- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while legislouid be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below: 3×1.0-1.5) mm²; parameters for signal line: 2×0.75-1.25)mm²(shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.





Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure (1-5 indoor units). The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)
- B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired control are connected via three lines with polarity.
- C. Two wired controllers control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controls can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.

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The combination of multiple indoor units can be controlled by wired controller or remote controller.

* Switching mode of Wired control master unit/ Wired control slave unit/ remote control types can be used for switching over *

Setting mode Socket/dip switch	Wired control master unit	Wired control slave unit	Remote control
SW01-[1][2][3][4]	All OFF	[0][0][1]	All OFF
CN21 socket	Null	Null	Connect to remote receiver
Terminal block (control)	A, B, C connect with wired controller	B, C connect with wired controller	A, B, C Null

Note:

The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Items	Cross	Length	Rated current of	Rated current of residual circuit breaker (A)	Cross sectional area of signal line	
Total current of indoor units (A)	section (mm²)	(m)	overflow breaker (A)	Ground fault interrupter (mA) Response time (S)	Outdoor -indoor (mm ²)	Indoor -indoor (mm²)
<10	2	20	20	20 A, 30 mA, 0.1S or below		
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below	2 cores×(0.75-2.0) mm ² shielded line	
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below		
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below		

% The electrical power line and signal lines must be fastened tightly.

* Every indoor unit must have the ground connection.

* The power line should be enlarged if it exceeds the permissible length.

* Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.

※ It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm ² ×3 core shielded line

% The shielding lay of the signal line must be grounded at one end.

% The total length of the signal line shall not be more than 250m.



10.9.3 Test Run

Before Test Run

- Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above 1MΩ. It can't be operated if it is below 1MΩ.
- Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.
- Check if the arrangements of the drainpipe and connection line are correct.
- The drainpipe shall be placed at the lower part while the connection line placed at the upper part.
- Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials.
- The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.
- Checkup of Installation

 \Box Check if the mains voltage is matching

- \square Check if there is air leakage at the piping joints
- Check if the connections of mains power and indoor & outdoor units are correct
- Check if the serial numbers of terminals are matching
- $\hfill\square$ Check if the installation place meets the requirement
- \Box Check if there is too much noise
- $_{\Box}$ Check if the connecting line is fastened
- Check if the connectors for tubing are heat insulated
- \Box Check if the water is drained to the outside
- \Box Check if the indoor units are positioned

Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

Set the wired controller to cooling/heating mode, press "ON/ OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/ OFF" button to quit the compulsive running and stop the operation of the air conditioner.



11. Medium ESP Duct Type Indoor Unit (AD*MMERA)

11.1 Features



AD182MMERA AD242MMERA AD282MMERA

AD302MMERA AD382MMERA AD482MMERA

Optional external static pressure

The duct unit has two kinds of static pressure: Standard static pressure 0~50Pa and optional static pressure 50~96Pa. Flexible air supply mode, much freer installation and meet the personal requests.

Multi rooms sharing one indoor unit

The duct unit can be applicable for multi rooms, because the duct can be set as multiple air outlets according to the load.

The unit is built in the ceiling, space saving

The duct unit is installed above the ceiling, just leaving the air outlet in the ceiling, which will not affect the indoor decor and supply less space of indoor.

Large head of water pump

The duct unit is equipped with water pump to drain the condensate water. The head of water pump can be up to 1.2m, which improves the water drainage quality greatly and can meet many installation conditions.

11.2 Specification

MODEL			AD182MMERA	AD242MMERA	AD282MMERA
Power supply			1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	19.1	24.2	27.3
Cooling	Capacity	kW	5.6	7.1	8.0
Cooling	Power input	W	100	100	100
	Current	A	0.51	0.51	0.51
	Capacity	kBtu/h	21.5	27.3	30.7
	Capacity	kW	6.3	8.0	9.0
Heating	Power input	W	100	100	100
	Current	A	0.51	0.51	0.51
	Heating capacity at low temp.	kW	5.0	6.3	7.1
Operating cu	rrent	Α	0.51	0.51	0.51
Power consu	mption	kW	100	100	100
	Brand		ZHONGSHAN	ZHONGSHAN	ZHONGSHAN
			BROAD-OC	BROAD-OC	BROAD-OC
	Model		Y6S443C84	Y6S443C84	Y6S443C84
	Туре		AC	AC	AC
	Insulation class		В	В	В
Indoor motor	IP class		IP20	IP20	IP20
	Power input	W	88	88	88
	Power output	W	66	66	66
	Capacitor	μF	8 μF /450v	8 μF /450v	8 μF /450v
	Speed (SH/H/M/L)	rpm	1000/940/880/840	1000/940/880/840	1000/940/880/840
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		3	3	3
	a. Number of rows		3	3	3
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	21*13.3
	c. Fin spacing	mm	1.5	1.5	1.5
Indoor coil	d. Fin type (code)		ŀ	lydrophilic aluminum	1
	e. Tube outside dia. and type	mm	d	Þ7 Inner groove tube	9
	f. Coil length×height×width	mm	813×252×39.9	813×252×39.9	813×252×39.9
	g. Number of circuits		3	3	3



	MODEL		AD182MMERA	AD242MMERA	AD282MMERA
	Cabinet coating type		Galvanized	Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	72	72	72
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		0.8	0.8	0.8
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		Standard 700mm	Standard 700mm	Standard 700mm
	Branch outlet option		No	No	No
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	0.8	0.8	0.8
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Ра	5	5	5
	Liquid pipe	mm	6.35	9.52	9.52
Piping dimension	Gas pipe	mm	12.7	15.88	15.88
	Drain hose	mm	32	32	32
Fresh air dimensio	on	mm	Ф150	Ф150	Ф150
Sound pressure le	evel (H/M/L)	dB (A)	36/34/31	36/34/31	39/37/35
Sound power leve	I (H/M/L)	dB (A)	49/47/44	49/47/44	52/50/48
Standard static pro	essure	Ра	50	50	50
Max. static pressu	ire	Pa	96	96	96
Indoor air flow (H/	M/L)	m³/h	1200/1123/1072	1200/1123/1072	1200/1123/1072
Air outlet dimensio	ons	mm	200*3	200*3	200*3
Air return dimensions		mm	865*200	865*200	865*200
Dimension (W*H*I	D)	mm	990*300*655	990*300*655	990*300*655
Packing (W*H*D)		mm	1165*340*733	1165*340*733	1165*340*733
Net weight		kg	39	39	39
Gross weight		kg	45	45	45
-	: indoor temperature (cool	-	3 (°C)/19WB (°C), inc	loor temperature (he	ating): 20DB (°C)

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



	MODEL		AD302MMERA	AD382MMERA	AD482MMERA
Power supply	1	Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	30.7	38.2	47.8
Cooling	Capacity	kW	9.0	11.2	14.0
	Power input	W	200	200	200
	Current	A	1	1	1
	Capacity	kBtu/h	34.1	42.7	54.6
	Capacity	kW	10.0	12.5	16.0
Heating	Power input	W	200	200	200
	Current	A	1	1	1
	Heating capacity at low temp.	kW	8.0	10.0	12.5
Operating cu	rrent	A	1	1	1
Power consu	mption	kW	200	200	200
	Brand		ZHONGSHAN BROAD-OC	ZHONGSHAN BROAD-OC	ZHONGSHAN BROAD-OC
	Model		Y6S443B85 / Y6S443C82	Y6S443B85 / Y6S443C82	Y6S443B85 / Y6S443C82
	Туре		AC	AC	AC
	Insulation class		В	В	В
Indoor motor	IP class		IP20	IP20	IP20
	Power input	W	50/90	50/90	50/90
	Power output	W	45/60	45/60	45/60
	Capacitor	μF		3.5μF/450v 8 μF/450v	
	Speed (SH/H/M/L)	rpm		1060/1000/930/880 925/850/780/730	
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		3	3	3
	a. Number of rows		2	2	3
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	21*13.3
	c. Fin spacing	mm	1.4	1.4	1.4
Indoor coil	d. Fin type (code)		ŀ	lydrophilic aluminum	1
	e. Tube outside dia. and type	mm		7 Inner groove tube	;
	f. Coil length×height×width	mm	1236×294×26.6	1236×294×26.6	1236×294×39.9
	g. Number of circuits		7	7	7



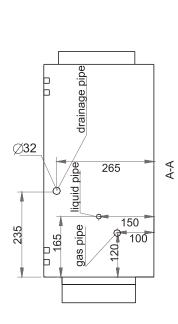
	MODEL		AD302MMERA	AD382MMERA	AD482MMERA
	Cabinet coating type		Galvanized	Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	72	72	72
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		0.8	0.8	0.8
	Drain pan material		EPS	EPS	EPS
Construction	Drain pan insulation		20	20	20
	Drain pump option		Standard 700mm	Standard 700mm	Standard 700mm
	Branch outlet option		No	No	No
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	0.8	0.8	0.8
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
	Liquid pipe	mm	9.52	9.52	9.52
Piping dimension	Gas pipe	mm	15.88	15.88	15.88
	Drain hose	mm	32	32	32
Fresh air dimensio	ิท	mm	Φ150	Ф150	Ф150
Sound pressure le	evel (H/M/L)	dB(A)	39/37/35	41/40/39	41/40/39
Sound power leve	I (H/M/L)	dB(A)	52/50/48	54/53/52	54/53/52
Standard static pre	essure	Pa	50	50	50
Max. static pressu	re	Pa	96	96	96
Indoor air flow (H/	M/L)	m³/h	1900/1726/1538	1900/1726/1538	2100/1908/1700
Air outlet dimensions		mm	200*4	200*4	200*4
Air return dimensions		mm	1285*245	1285*245	1285*245
Dimension (W*H*D)		mm	1418*350*655	1418*350*655	1418*350*655
Packing (W*H*D)		mm	1570*383*813	1570*383*813	1570*383*813
Net weight		kg	59	59	59
Gross weight		kg	66.7	66.7	66.7

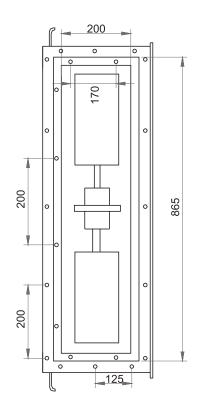
Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

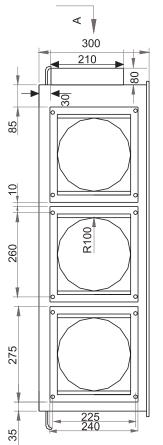


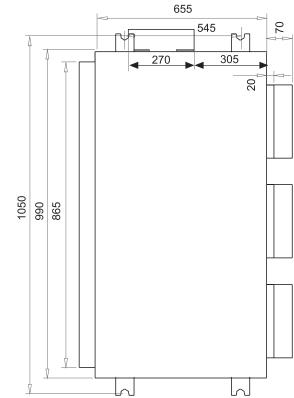
11.3 Dimension

AD182MMERA AD242MMERA AD282MMERA







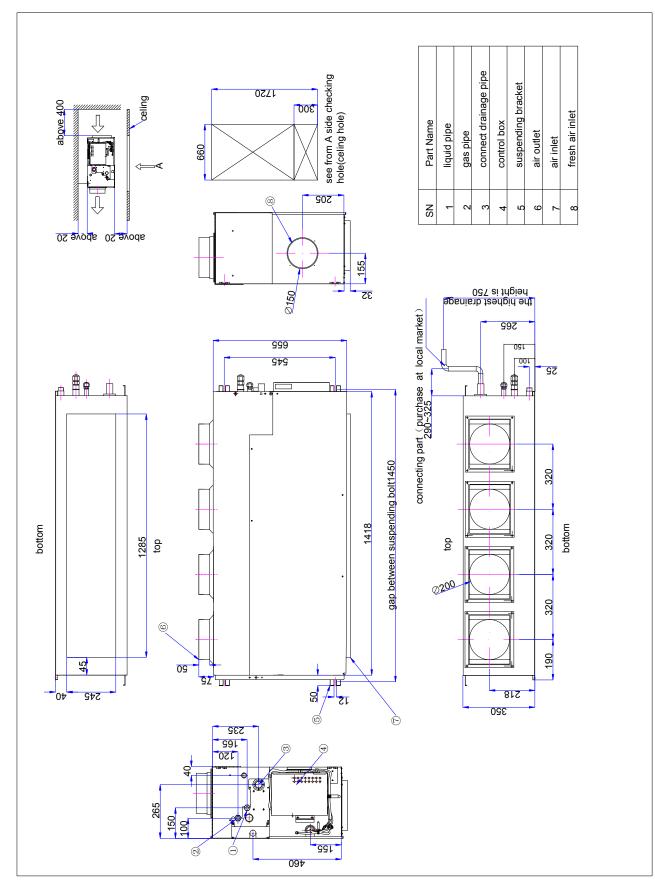


(mm)

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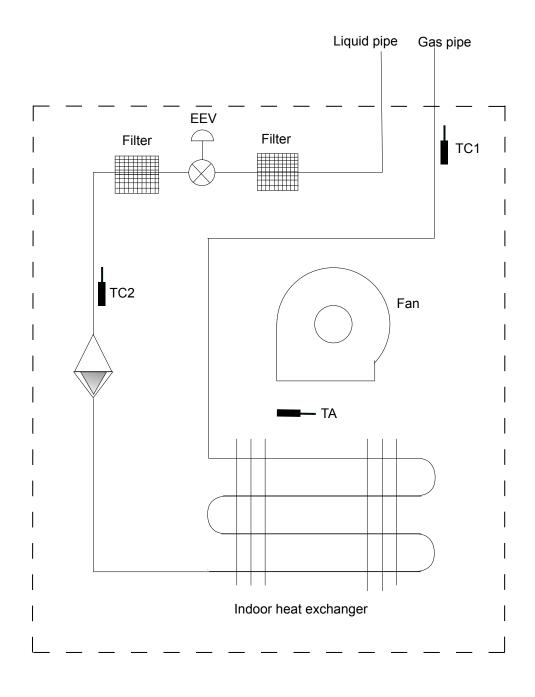


AD302MMERA AD382MMERA AD482MMERA





11.4 Piping diagram

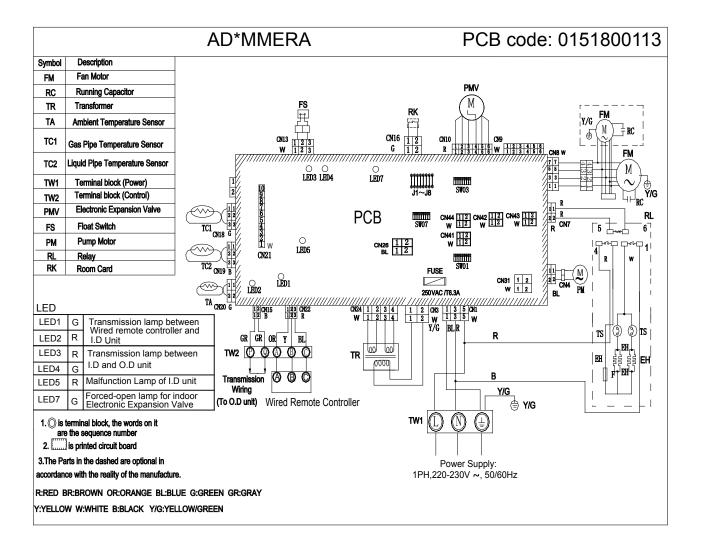


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11.5 Wiring diagram





11.6 Electric characteristics

Units					Power supply		Indoor fan motor		Power input (w)	
Model	Phase	FQY	Voltage	Volt. range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AD182MMERA	1	50/60	220	198-242	1.19	3.8	150	0.95	100	100
AD242MMERA	1	50/60	220	198-242	1.19	3.8	150	0.95	100	100
AD282MMERA	1	50/60	220	198-242	1.19	3.8	150	0.95	100	100
AD302MMERA	1	50/60	220	198-242	1.81	5.8	60/45	1.45	200	200
AD382MMERA	1	50/60	220	198-242	1.81	5.8	60/45	1.45	200	200
AD482MMERA	1	50/60	220	198-242	1.81	5.8	60/45	1.45	200	200

Symbols:

MCA: Min. circuit amps (A) MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

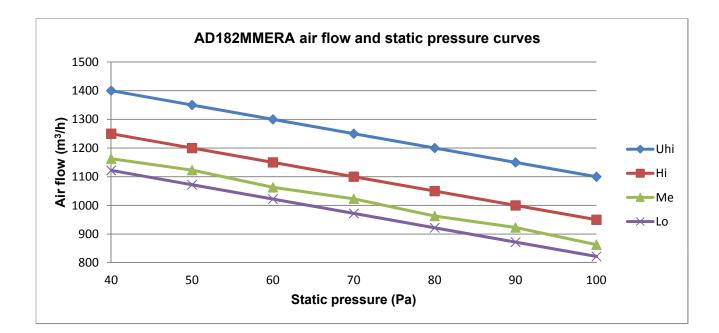
Note:

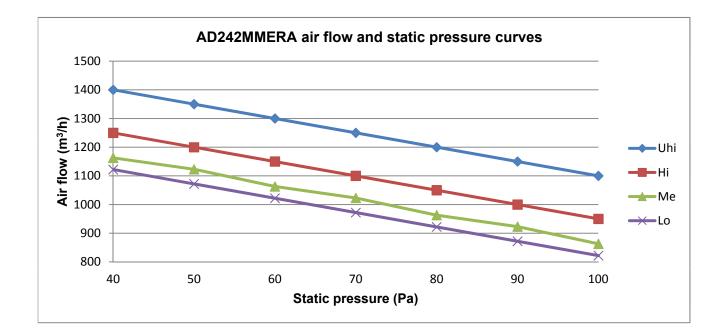
- 1. Voltage range
- The units are applicable for the electrical systems where voltage supplied to unit is in the range.
- 2. Maximum allowable voltage unbalance between phases is 2%.
- 3. MCA=1.25*FLA MFA≤4*FLA
- 4. Power supply uses the circuit breaker.

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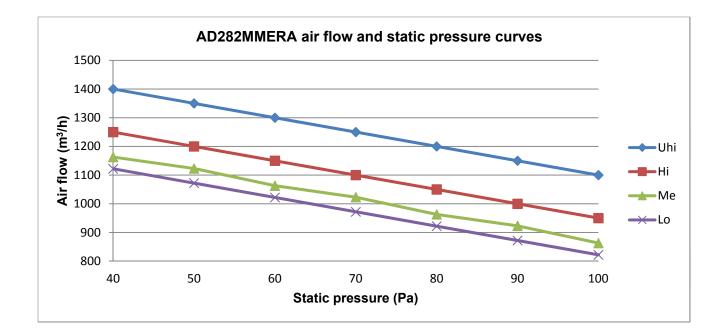


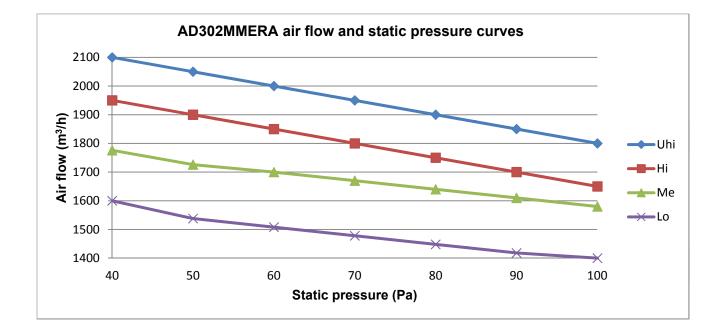






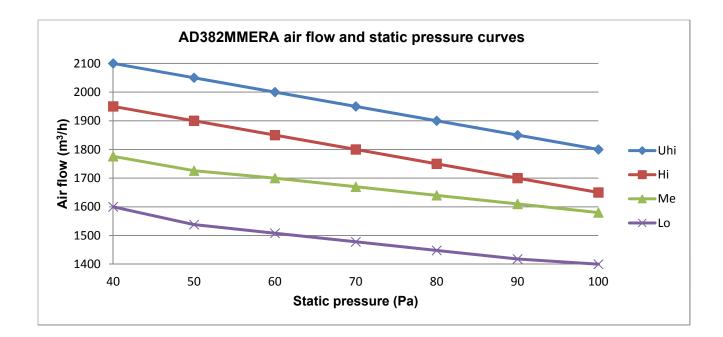


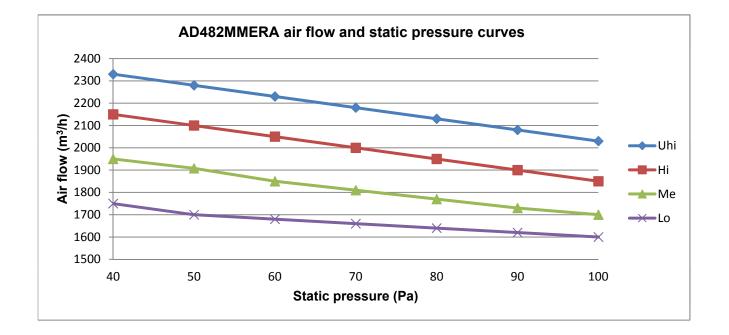




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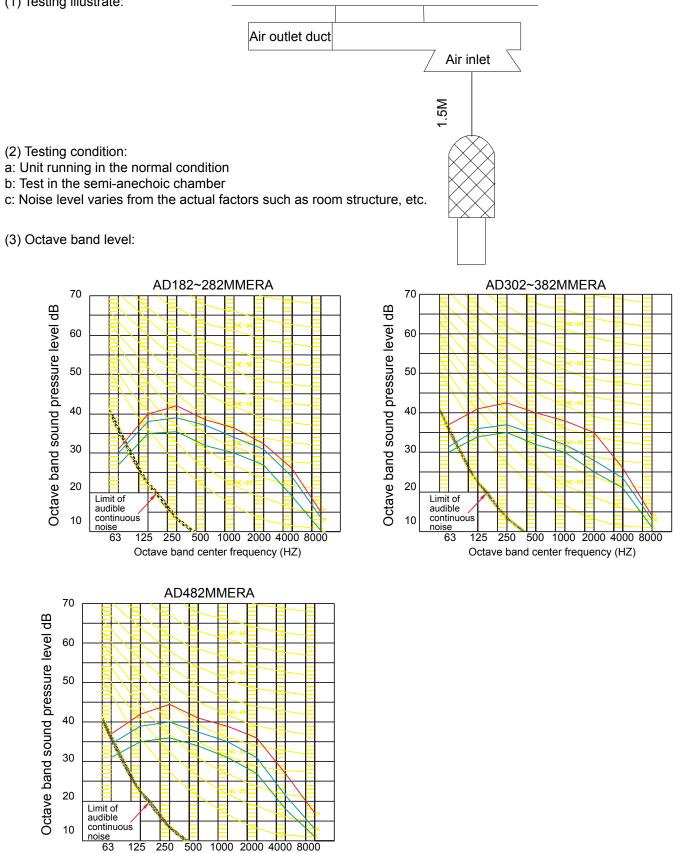






11.8 Sound pressure level

(1) Testing illustrate:



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Octave band center frequency (HZ)



11.9 Installation

11.9.1 Installation Procedures

The standard attached accessories of the units of this series refer to the packing; prepare other accessories according to the requirements of the local installation point of our company.

1. Before installation [before finishing the installation, don't throw away the attached parts required for the installation]

- Determine the route to move the unit to the installation site;
- Don't tear the package open before moving the unit to the installation site. When unpacking is needed, a soft material or protector block with ropes can be used to lift the unit to avoid damaging or scraping of the unit.

2. Select the installation site

(1) The installation site should be selected according the following conditions, which should be approved by users.

- Where an ideal air distribution can be ensured;
- Where there is no blockage in the air passage;
- Where the condensed water can be drained out properly;
- Where the strength can bear the weight of the indoor unit;
- Where enough space can be ensured for maintenance. The outside air should be input from the outdoor directly from the blast pipe. If the blast pipe can't be jointed, the air can't be input from the suspended ceiling. range (refer to Installation of Outdoor Units)
- Where the distance of at least 1m between indoor units, outdoor units, mains supply, connecting wires and television or radio should be kept as to avoid the image disturbance and noises of the above electrical appliances. (Even if 1m can be ensured, noise might occur if there is strong electric wave.) Additionally, equipments, television or other valuables can't be put under the unit as to avoid the condensed water of the unit from dropping into the above articles, causing damaging.

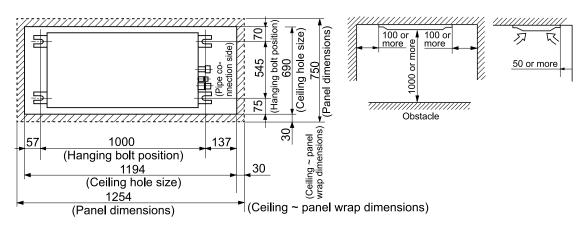
(2) Height of ceiling:

The ceiling should be located at the place, where the central position of air outlet port is less than 3m high above the ground.

(3) Suspender should be used during installation. Check if the location can bear the weight of the unit. Reinforce it before installation if necessary.

3. Preparation before Installation

(1) Location relation between inspection hole on the ceiling and the unit and the suspender (Unit: mm).



AD182MMERA AD242MMERA AD282MMERA



AD302MMERA AD382MMERA AD482MMERA 620 inspection 000 (dimensions of inspection hole bolt) n of hanging b 620 \Rightarrow 545 nole on ceiling) 00 ation ////// barrier space needed for installation (unit:mm) 1406 (location of hanging bolt) 1720 (dimensions of inspection hole on ceiling)

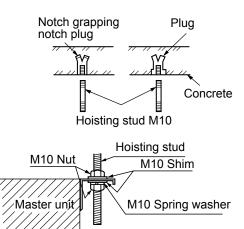
- (2) If necessary, make a hole for installation and inspection on the ceiling. (used for the situation with a ceiling)For the size of the inspection hole on the ceiling, please refer to the above drawing.
- Before installation, finish all the preparations for all piping connected to indoor units (refrigerant, water drainage) and wiring (connection line of the wired control, connection line between indoor units and outdoor unit) so that they can be connected with indoor units after installation.
- For the inspection hole, the ceiling might be reinforced to keep the evenness of the ceiling and avoid the vibration of the ceiling. For details, please consult the construction contractor.

(3) Install the suspender (M10 bolts)

In order to support the weight of the unit, use barb bolts in the situation with a ceiling. In the situation with the new ceiling, use inlaid bolts, embedded bolts or other parts provided on site. Before proceeding the installation, adjust the gap between the bolt and the ceiling.

(4) Installation of Indoor Units

Fix the indoor unit with the hoisting stud. If necessary, the machine can be hanged on the beam with bolts instead of the hoisting stud.



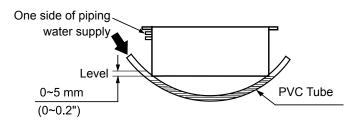
NB:

When the sizes of the master unit don't match the hole on the ceiling, regulate the slot on the hanging bracket.

Adjusting the level

(a) Adjust the level with a level meter or according to the following ways:

Make the adjustment as shown in the figure below.



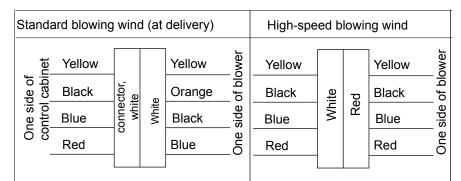


(b) Unless it is regulated to the level position, faults or errors might occur for the floater switch.

Choice of Blowing Wind from Blower (when using the high performance filter)

The blower is provided with a red terminal and a white terminal. The standard wind choice has been set before delivery. When the use of optional components, such as the high performance filter, causes the static pressure rising, change the connection of the connector mounted on the side of the control cabinet, as shown as follows.

For AD182-282MMERA



Standard	Maximal
static	static
pressure	pressure
50	96

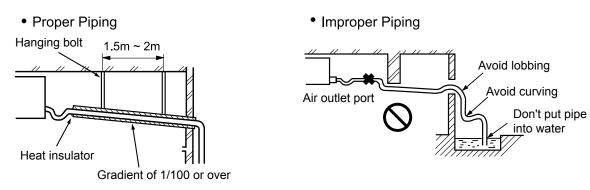
For AD302-482MMERA

Standard blowing wind (at delivery)					High-speed blowing wind					
net	Yellow			Red	d End	Yellow			Red	d End
side of ol cabii	Black	ctor, te	Ð	Yellow	l 1-lead	Black	ite	ğ	Blue	lea
One si control	Blue	connector, white	White	Blue	Down-	Blue	White	Red	White	Down-
	Red			White	Fan	Red			Black	Fan
]]	

Standard	Maximal
static	static
pressure	pressure
50	96

4. Drainpipe

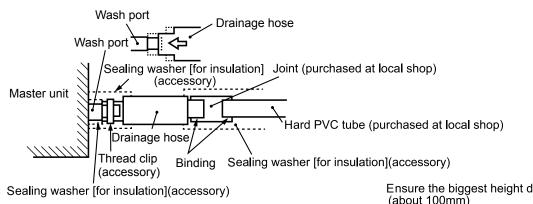
(a) Keep a gradient (1/50-1/100) of the drainpipes and avoid lobbing or curving.



(b) When connecting the drainpipe to the equipment, don't apply too much force on one side of the equipment. Meanwhile, the piping should be positioned as close to the equipment as possible.

(c) For the drainpipe, the general purpose hard PVC tube can be purchased at local shops. During the connection, insert the end of PVC tube into the wash port and fasten it with drainage hose and thread clip. Binding agents shouldn't be used to connect the wash port and drainage hose.





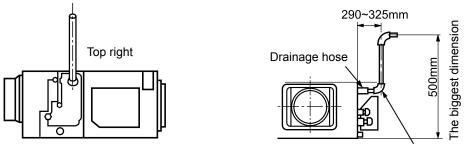
(d) When the laid drain piping is used for multiple equipments, the public piping should be lower about 100mm than the wash ports of equipments, as shown in the figure. Thicker pipes should be used for this application.

Ensure the biggest height differenc (about 100mm)



(e) The hard PVC tube in the room must be provided with the heat insulating layer.

(f) The water pipe should be lifted to the height of 500mm above the ceiling. If there is any barrier above the ceiling, a bracket and the like can be used to bypass the barrier. If the extended height exceeds 500mm, there will be too much back flow amount, causing the overflow in the waterspout. Therefore, the height of the drainpipe should be controlled within the allowance given below.



Connector (purchased at local shop)

(g) Don't place the drainpipes at the places where there is irritant gas. Don't put the drainpipe directly into the sewer, where there might be gases with sulfur.

Testing Drainage System

(a) After finishing the electrical system, test the drainage system.

(b) During testing, make sure that the water flow passes the piping correctly without any water leakage at the connection.

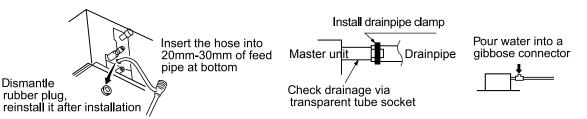
- (c) In the condition of new house, test the drainage system before fitting up the ceiling.
- (d) Even if it is installed in the season needed to heating, the testing should also be performed.

Procedures

- (a) Charge 1000cc of water to the equipment via air outlet port.
- (b) During cooling operation, check the drainage system.

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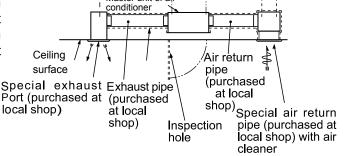




Before completing the electrical connection, a gibbose connector shall be installed on the drainpipe as to provide it with a water inlet port. Then, if any leakage exists in the piping, check it to make the water flow of the drainpipe smooth.

5. Installation of Air Return & Air Exhaust Duct

For the choice and installation of air return port, air return pipe, air exhaust port and exhaust pipe, please consult service personnel of Haier company. Calculate the design chart and exterior static pressure, and select the exhaust pipe with appropriate length and shapes.



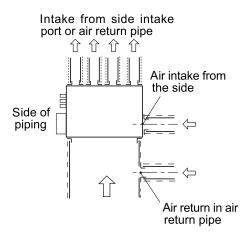
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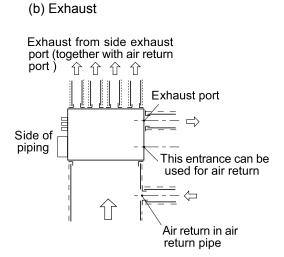
Master unit of ai

- The length difference between pipes should be limited to be less than 2:1;
- Make the piping as short as possible;
- Keep the min. elbow quantity;
- Wind the heat insulating material around the flange between the master unit and the exhaust pipe for heat insulation and sealing. Install the piping before fitting up the ceiling.

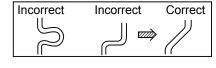
6. Connection of Air Return Pipe & Exhaust Duct

(a) Intake of fresh air (at simplex feeding)





(c) The blast pipe should be heat-insulated as to prevent condensation.







7. Cautions in Installation of Air Return Pipe & Exhaust Pipe

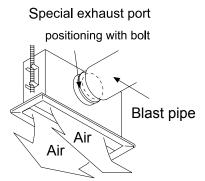
It is recommended to use the blast pipes, which can be anti-condensation and absorb sound. (purchased at local shops)

Complete the installation of the blast pipes before fitting up the suspended ceiling.

Heat insulation should be made for the blast pipes.

The special exhaust port should be arranged at the place where the air is distributed evenly.

An inspection hole should be left on the surface of the ceiling for future maintenance.



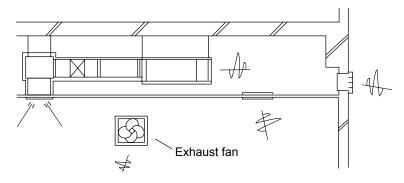
8. Examples for Bad Installation

The unit is not equipped with the air return pipe and the inner side of the suspending ceiling is used as the blast pipe, causing the humidity increasing due to irregular air mass, strong wind or sunlight from the outside world.

There might be condensate dropping down at the outer side of the blast pipe. The humidity is high, even if the inner side of the suspended ceiling isn't used as a blast pipe in new concrete buildings. At this time, the whole body should use the thermo wool for heat preservation (the thermo wool can be packed with a steel wire).

It is operated under the conditions beyond the limits, leading to the overload of the compressor.

Affected by the capacity of the exhaust fan, and the strong wind and wind direction in the outer flue, when the blowing quantity of the air conditioner exceeds the limits, the drained water of the heat exchanger will overflow, causing water leakage.



Example of bad installation

9. Refrigerant Pipe

Pipe Length & Height Difference

Please refer to the attached manual of outdoor units.

Piping Materials & Heat Insulating Materials

As to prevent condensation, heat insulating treatment should be performed. The heat insulating treatment for piping should be done respectively.

Piping Material	Hard PVC tube VP31.5mm (inner bore)		
Heat Insulating	Vesicant polythene		
Material	thickness: over 7mm		



Tubing Materials & Specifications

Мо	del	AD182MMERA	AD242-482MMERA			
Tubing Size	Gas pipe	Φ12.7	Ф15.88			
(mm)	Liquid pipe	Ф6.35	Ф9.52			
Tubing Material	Phosphor	osphor deoxy bronze seamless pipe (TP2) for air conditioner				

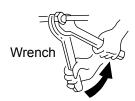
Refrigerant Recharge Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount or compressor failure can be caused by filling too much or little refrigerant.

Connecting Procedures of Refrigerant Tubing

Proceed the flare tube connecting operation to connect all the refrigerant tubes.

- Dual wrenches must be used in the connection of indoor unit tubing.
- Mounting torque refers to the right table



Outer diameter of tubing (mm)	Mounting torque
Ф6.35	11.8~13.7N·m
Ф9.52	32.7~39.9N∙m
Ф12.7	49.0~53.9N·m
Ф15.88	78.4~98.0N·m
Ф19.05	97.2~118.6N·m

Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one master unit.]

Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds. Connecting

Connecting circular terminals:

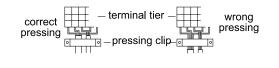
1. Connecting circular terminals: The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it.

2. Connecting straight terminals:

The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier, tighten the screw and confirm it has been clamped by pulling the line gently.

3. Pressing connecting line:

After connecting line is completed, press the connecting line with clips which should press on the protective sleeve of the connecting line.



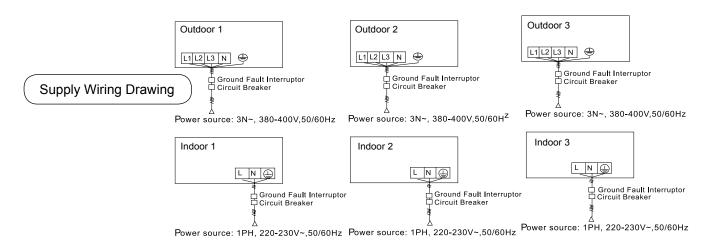
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11.9.2 Electrical Wiring

- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

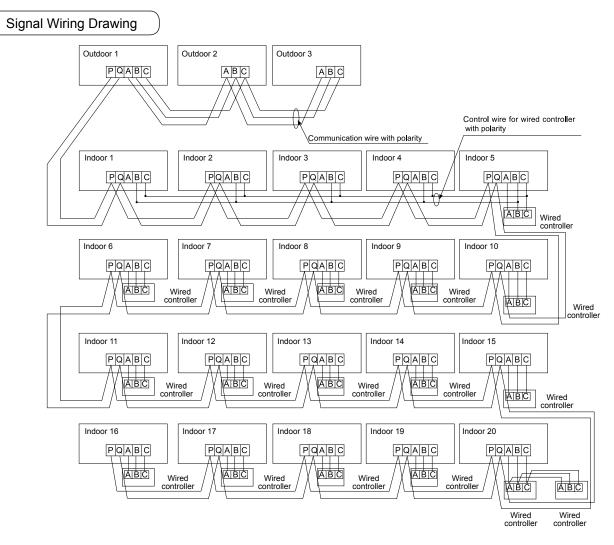
- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while ⊕ should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below: 3×1.0-1.5) mm²; parameters for signal line: 2×0.75-1.25)mm²(shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.

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Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure (1-5 indoor units). The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)
- B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired control are connected via three lines with polarity.
- C. Two wired controllers control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controls can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.



The combination of multiple indoor units can be controlled by wired controller or remote controller.

% Switching mode of Wired control master unit/ Wired control slave unit/ remote control types can be used for switching over %

Setting mode Socket/dip switch	Wired control master unit	Wired control slave unit	Remote control
SW01-[1][2][3][4]	All OFF	[0][0][1]	All OFF
CN21 socket	CN21 socket Null		Connect to remote receiver
Terminal block (control)	A, B, C connect with wired controller	B, C connect with wired controller	A, B, C Null

Note:

The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Items	Cross	Length	Rated current of	Rated current of residual circuit breaker (A)	Cross sectional area of signal line	
Total current of indoor units (A)	section (mm ²)	(m)	overflow breaker (A)	Ground fault interrupter (mA)	Outdoor -indoor (mm ²)	Indoor -indoor (mm²)
<10	2	20	20	20 A, 30 mA, 0.1S or below		
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below	2 cores×(
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below	mm ² shie	lded line
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below		

% The electrical power line and signal lines must be fastened tightly.

* Every indoor unit must have the ground connection.

* The power line should be enlarged if it exceeds the permissible length.

% Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.

% It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm ² ×3 core shielded line

% The shielding lay of the signal line must be grounded at one end.

% The total length of the signal line shall not be more than 250m.



11.9.3 Test Run

Before Test Run

Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above $1M\Omega$. It can't be operated if it is below $1M\Omega$.

Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.

Check if the arrangements of the drainpipe and connection line are correct.

The drainpipe shall be placed at the lower part while the connection line placed at the upper part.

Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials.

The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.

Checkup of Installation

 \Box Check if the mains voltage is matching

 \Box Check if there is air leakage at the piping joints

- Check if the connections of mains power and indoor & outdoor units are correct
- Check if the serial numbers of terminals are matching $\hfill\square$

 \Box Check if the installation place meets the requirement

 \Box Check if there is too much noise

 \Box Check if the connecting line is fastened

 \Box Check if the connectors for tubing are heat insulated

- $\hfill\square$ Check if the water is drained to the outside
- □ Check if the indoor units are positioned

Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

Set the wired controller to cooling/heating mode, press "ON/OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/OFF" button to quit the compulsive running and stop the operation of the air conditioner.



12. Medium ESP Duct Type Indoor Unit (AD*MJERA)

12.1 Feature



- 5-28K
- Only 250mm thick
- Built-in drain pump
- 50/100Pa



12.2 Specification

MODEL			AD052MJERA	AD072MJERA
Power suppl	ly .	V-Ph-Hz	1/220~230/50/60	1/220~230/50/60
	Capacity	kBtu/h	5.1	7.5
Cooling	Capacity	kW	1.5	2.2
	Power Input	W	98	98
	Current	А	0.45	0.45
	Capacity	kBtu/h	5.8	8.5
Heating	Capacity	kW	1.7	2.5
	Power Input	W	98	98
	Current	А	0.45	0.45
	Heating capacity at low temp.	kW	1.42	2.08
Operating cu	urrent	А	0.45	0.45
Power consu	umption	kW	98	98
	Brand		Broad Ocean	Broad Ocean
	Model		Y6S443B215	Y6S443B215
	Туре		AC	AC
	Insulation Class		В	В
INDOOR	IP Class		20	20
MOTOR	Power Input	W	95	95
	Power output	W	42	42
	Capacitor	μF	2.5	2.5
	Speed (High/Middle/Low)	rpm	790/760/630/520(50Hz) 750/730/590/510(60Hz)	790/760/630/520(50Hz) 750/730/590/510(60Hz)
	Brand		Haier	Haier
INDOOR FAN	Туре		Cross	Cross
	Quantity		1	1
	a. Number of rows		2	2
	b. Tube pitch(a)x row pitch(b)	mm	13.3	13.3
	c. Fin spacing	mm	1.4	1.4
INDOOR COIL	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube	Φ7 Inner groove tube
	f. Coil length x height x width	mm	515 x336 x 26.6	515 x336 x 26.6
	g. Number of circuits		3	3

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MODEL			AD052MJERA	AD072MJERA
	Cabinet Coating Type		Galvanized	Galvanized
Cabinet	Cabinet Salt Spray Test Duration	Hour	48	48
	Control Box IP Class		IP20	IP20
	Sheet Metal Thickness		0.8	0.8
	Drain Pan Material		EPS	EPS
Construction	Drain Pan Insulation		HF-1	HF-1
Constitution	Drain Pump Option	mm	600	600
	Branch Outlet Option		NO	NO
	Material		Hot zinc plate	Hot zinc plate
Indoor Wall	Thickness	mm	1.2	1.2
	Double or Single Skin		Single	Single
	Material		PP	PP
Air Filter	Mesh		100	100
	Pressure Drop	Ра	5	5
D	Liquid pipe	mm	6.35	6.35
Piping dimension	Gas pipe	mm	12.7	12.7
	Drain hose	mm	31.5	31.5
Fresh air dime	ension	mm	1	1
Sound pressu	re level (H/M/L)	dB(A)	35/33/31	35/33/31
Sound power	level (H/M/L)	dB(A)	39/37/35	39/37/35
Standard stati	ic pressure	Ра	50	50
Max. static pro	essure	Pa	100	100
Indoor air flow	/ (H/M/L)	m³/h	585/495/408	585/495/408
Air outlet dime	ensions	mm	512*160	512*160
Air return dim	ensions	mm	570*220	570*220
Dimension (W	(*H*D)	mm	750/720/250	750/720/250
Packing (W*	H*D)	mm	920/820/340	920/820/340
Net weight		kg	24.1	24.1
Gross weight		kg	28.3	28.3

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



MODEL			AD092MJERA	AD122MJERA
Power supp	ly .	V-Ph-Hz	1/220~230/50/60	1/220~230/50/60
	Capacity	kBtu/h	9.5	12.3
Cooling	Capacity	kW	2.8	3.6
	Power Input	W	98	98
	Current	А	0.45	0.45
	Capacity	kBtu/h	10.9	13.6
	Capacity	kW	3.2	4
Heating	Power Input	W	98	98
	Current	А	0.45	0.45
	Heating capacity at low temp.	kW	2.67	3.33
Operating c	urrent	А	0.45	0.45
Power cons	umption	kW	98	98
	Brand		Broad Ocean	Broad Ocean
	Model		Y6S443B215	Y6S443B215
	Туре		AC	AC
	Insulation Class		В	В
INDOOR	IP Class		20	20
MOTOR	Power Input	W	95	95
	Power output	W	42	42
	Capacitor	μF	2.5	2.5
	Speed (High/Middle/Low)	rpm	790/760/630/520(50Hz) 750/730/590/510(60Hz)	790/760/630/520(50Hz) 750/730/590/510(60Hz)
	Brand		Haier	Haier
INDOOR FAN	Туре		Cross	Cross
	Quantity		1	1
	a. Number of rows		2	2
	b. Tube pitch(a)x row pitch(b)	mm	13.3	13.3
	c. Fin spacing	mm	1.4	1.4
INDOOR COIL	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube	Φ7 Inner groove tube
	f. Coil length x height x width	mm	515 x336 x 26.6	515 x336 x 26.6
	g. Number of circuits		3	3

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Haier

MODEL			AD092MJERA	AD122MJERA
	Cabinet Coating Type		Galvanized	Galvanized
Cabinet	Cabinet Salt Spray Test Duration	Hour	48	48
	Control Box IP Class		IP20	IP20
	Sheet Metal Thickness		0.8	0.8
	Drain Pan Material		EPS	EPS
Construction	Drain Pan Insulation		HF-1	HF-1
Conolidolion	Drain Pump Option	mm	600	600
	Branch Outlet Option		NO	NO
	Material		Hot zinc plate	Hot zinc plate
Indoor Wall	Thickness	mm	1.2	1.2
	Double or Single Skin		Single	Single
	Material		PP	PP
Air Filter	Mesh		100	100
	Pressure Drop	Pa	5	5
	Liquid pipe	mm	6.35	6.35
Piping dimension	Gas pipe	mm	12.7	12.7
	Drain hose	mm	31.5	31.5
Fresh air dime	ension	mm	1	1
Sound pressu	re level (H/M/L)	dB(A)	35/33/31	35/33/31
Sound power	level (H/M/L)	dB(A)	39/37/35	39/37/35
Standard stati	ic pressure	Pa	50	50
Max. static pro	essure	Pa	100	100
Indoor air flow	/ (H/M/L)	m³/h	585/495/408	585/495/408
Air outlet dime	ensions	mm	512*160	512*160
Air return dim	ensions	mm	570*220	570*220
Dimension (W	(*H*D)	mm	750/720/250	750/720/250
Packing (W*	H*D)	mm	920/820/340	920/820/340
Net weight		kg	24.1	24.1
Gross weight		kg	28.3	28.3

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



MODEL			AD162MJERA	AD182MJERA
Power supp	ly	V-Ph-Hz	1/220~230/50/60	1/220~230/50/60
	Capacity	kBtu/h	15.3	19.1
Cooling	Capacity	kW	4.5	5.6
	Power Input	W	137	144
	Current	А	0.62	0.65
	Capacity	kBtu/h	17.1	21.5
Heating	Capacity	kW	5	6.3
	Power Input	W	137	144
	Current	А	0.62	0.65
	Heating capacity at low temp.	kW	4.17	5.25
Operating c	urrent	А	0.62	0.65
Power cons	umption	kW	137	144
	Brand		Broad Ocean	Broad Ocean
	Model		Y6S443B850	Y6S443B851
	Туре		AC	AC
	Insulation Class		В	В
INDOOR	IP Class		20	20
MOTOR	Power Input	W	134	141
	Power output	W	64	69
	Capacitor	μF	4	4.5
	Speed (High/Middle/Low)	rpm	980/930/750/560(50Hz) 1000/980/780/550(60Hz)	820/770/630/520(50Hz) 790/730/600/500(60Hz)
	Brand		Haier	Haier
INDOOR FAN	Туре		Cross	Cross
17.00	Quantity		1	1
	a. Number of rows		3	2
	b. Tube pitch(a)x row pitch(b)	mm	13.3	13.3
	c. Fin spacing	mm	1.4	1.4
INDOOR COIL	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
JUIL	e. Tube outside dia. and type	mm	Φ7 Inner groove tube	Φ7 Inner groove tube
	f. Coil length x height x width	mm	515 x336 x 39.9	801 x336 x 26.6
	g. Number of circuits		6	4

Haier

MODEL			AD162MJERA	AD182MJERA
	Cabinet Coating Type		Galvanized	Galvanized
Cabinet	Cabinet Salt Spray Test Duration	Hour	48	48
	Control Box IP Class		IP20	IP20
	Sheet Metal Thickness		0.8	0.8
	Drain Pan Material		EPS	EPS
Construction	Drain Pan Insulation		HF-1	HF-1
	Drain Pump Option	mm	600	600
	Branch Outlet Option		NO	NO
	Material		Hot zinc plate	Hot zinc plate
Indoor Wall	Thickness	mm	1.2	1.2
	Double or Single Skin		Single	Single
	Material		PP	PP
Air Filter	Mesh		100	100
	Pressure Drop	Pa	5	5
	Liquid pipe	mm	6.35	6.35
Piping dimension	Gas pipe	mm	12.7	12.7
	Drain hose	mm	31.5	31.5
Fresh air dime	ension	mm	1	1
Sound pressu	re level (H/M/L)	dB(A)	35/33/31	36/34/32
Sound power	level (H/M/L)	dB(A)	39/37/35	40/38/36
Standard stati	c pressure	Pa	50	50
Max. static pro	essure	Pa	100	100
Indoor air flow	/ (H/M/L)	m³/h	750/652/566	920/805/699
Air outlet dime	ensions	mm	512*160	800*160
Air return dim	ensions	mm	570*220	850*220
Dimension (W	/*H*D)	mm	750/720/250	1050/720/250
Packing (W*	H*D)	mm	920/820/340	1170/860/340
Net weight		kg	25.9	30.5
Gross weight		kg	30.1	38

Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



MODEL			AD242MJERA	AD282MJERA
Power supp	ly	V-Ph-Hz	1/220~230/50/60	1/220~230/50/60
	Capacity	kBtu/h	24.2	27.3
Cooling	Capacity	kW	7.1	8
	Power Input	W	187	187
	Current	А	0.85	0.85
	Capacity	kBtu/h	27.3	30.7
Heating	Capacity	kW	8	9
	Power Input	W	187	187
	Current	А	0.85	0.85
	Heating capacity at low temp.	kW	6.67	7.50
Operating c	urrent	А	0.85	0.85
Power cons	umption	kW	187	187
	Brand		Broad Ocean	Broad Ocean
	Model		Y6S419C518	Y6S419C518
	Туре		AC	AC
	Insulation Class		В	В
INDOOR	IP Class		20	20
MOTOR	Power Input	W	183	183
	Power output	W	112	112
	Capacitor	μF	5	5
	Speed (High/Middle/Low)	rpm	1020/970/770/600(50Hz) 980/910/710/550(60Hz)	1020/970/770/600(50Hz) 980/910/710/550(60Hz)
	Brand		Haier	Haier
INDOOR FAN	Туре		Cross	Cross
	Quantity		2	2
	a. Number of rows		3	3
	b. Tube pitch(a)x row pitch(b)	mm	13.3	13.3
	c. Fin spacing	mm	1.4	1.4
INDOOR COIL	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
J J I L	e. Tube outside dia. and type	mm	Φ7 Inner groove tube	Φ7 Inner groove tube
	f. Coil length x height x width	mm	801 x336 x 39.9	801 x336 x 39.9
	g. Number of circuits		6	6

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Haier

MODEL			AD242MJERA	AD282MJERA
	Cabinet Coating Type		Galvanized	Galvanized
Cabinet	Cabinet Salt Spray Test Duration	Hour	48	48
	Control Box IP Class		IP20	IP20
	Sheet Metal Thickness		0.8	0.8
	Drain Pan Material		EPS	EPS
Construction	Drain Pan Insulation		HF-1	HF-1
	Drain Pump Option	mm	600	600
	Branch Outlet Option		NO	NO
	Material		Hot zinc plate	Hot zinc plate
Indoor Wall	Thickness	mm	1.2	1.2
	Double or Single Skin		Single	Single
	Material		PP	PP
Air Filter	Mesh		100	100
	Pressure Drop	Pa	5	5
	Liquid pipe	mm	9.52	9.52
Piping dimension	Gas pipe	mm	15.88	15.88
	Drain hose	mm	31.5	31.5
Fresh air dime	ension	mm	1	/
Sound pressu	re level (H/M/L)	dB(A)	38/36/34	42/39/35
Sound power	level (H/M/L)	dB(A)	42/40/38	46/43/39
Standard stat	c pressure	Pa	50	50
Max. static pro	essure	Pa	100	100
Indoor air flow	/ (H/M/L)	m³/h	1230/1090/950	1230/1090/950
Air outlet dime	ensions	mm	800*160	800*160
Air return dim	ensions	mm	850*220	850*220
Dimension (W	/*H*D)	mm	1050/720/250	1050/720/250
Packing (W*	H*D)	mm	1170/860/340	1170/860/340
Net weight		kg	33.1	33.1
Gross weight		kg	40.6	40.6

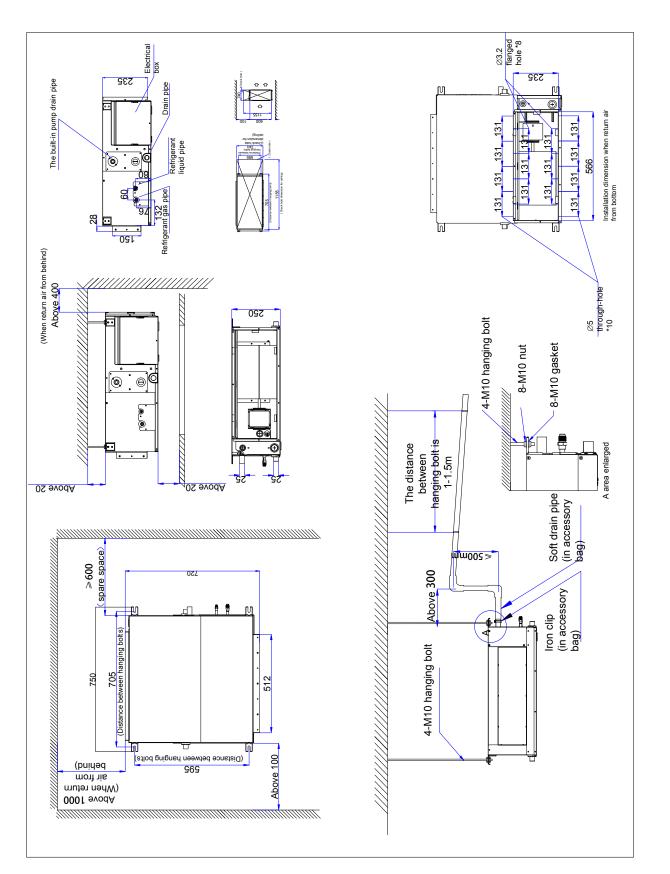
Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



Medium ESP Duct Type Indoor Unit (AD*MJERA)

12.3 Dimension

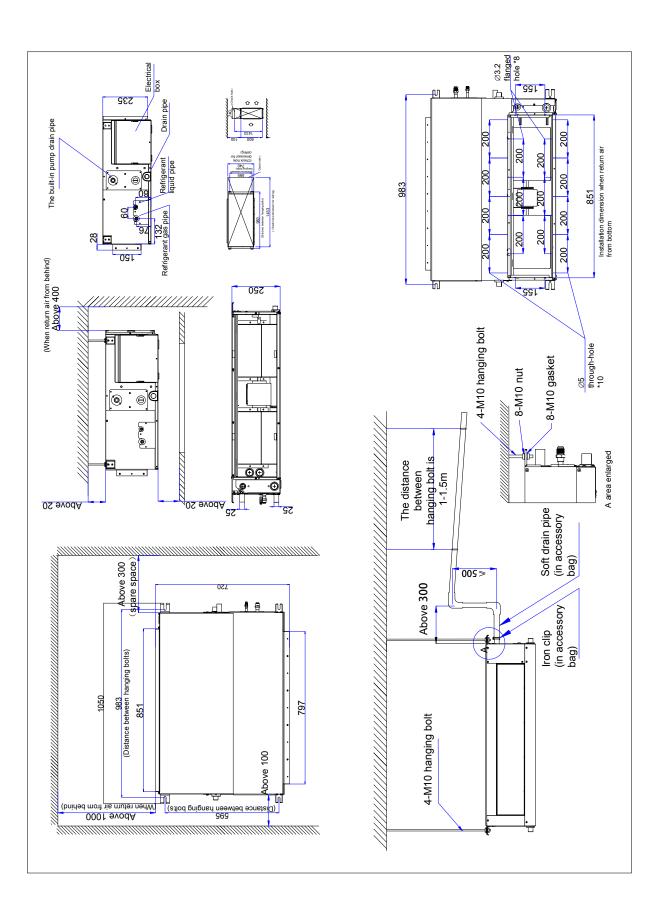
12.3.1 AD05-162MJERA dimension



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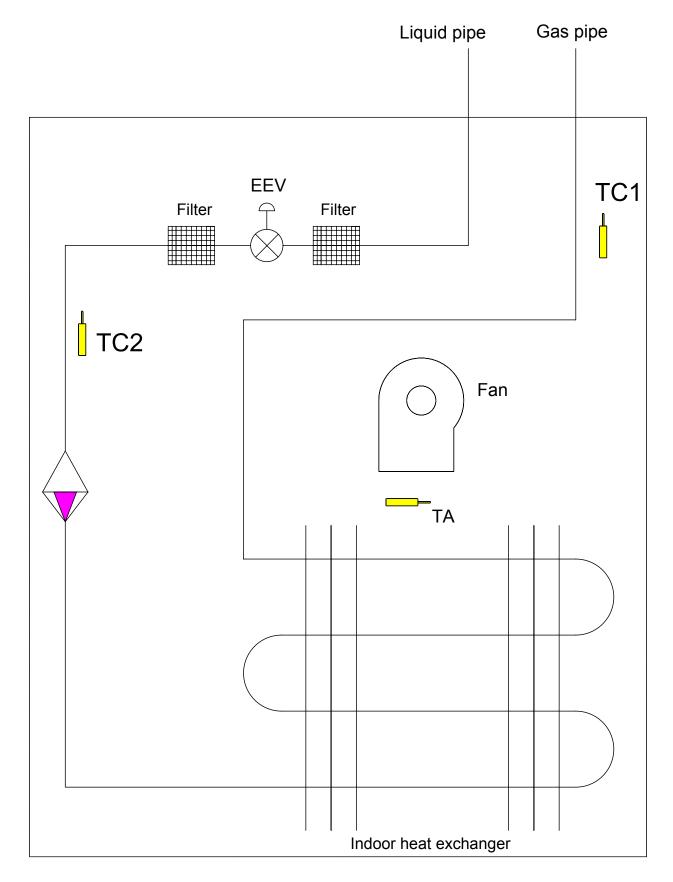
12.3.2 AD18-282MJERA dimension



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12.4 Piping diagram

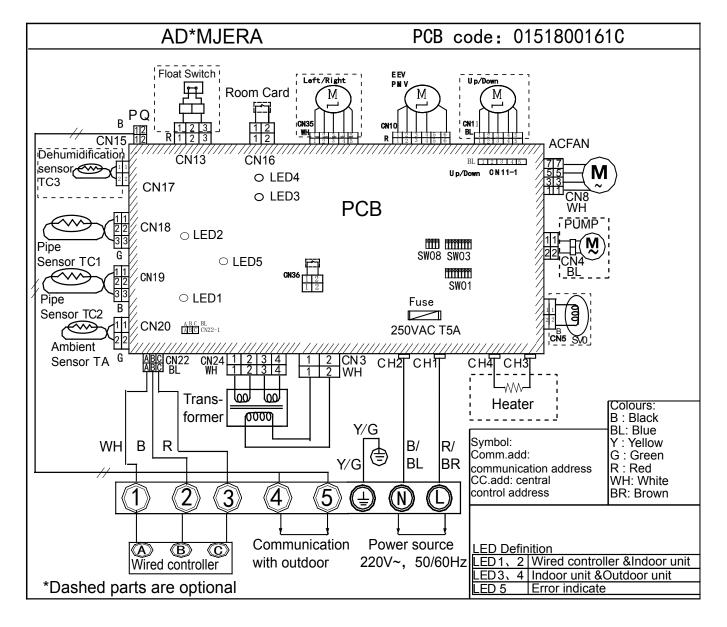


Medium ESP Duct Type Indoor Unit (AD*MJERA)

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12.5 Wiring diagram





12.6 Electric characteristics

	Units					supply	Indoor fan motor		Power input (W)	
Model	Phase	FQY	Voltage	Volt. range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AD052MJERA	1	50/60	220	198~242	0.64	2.56	42	0.51	98	98
AD072MJERA	1	50/60	220	198~242	0.64	2.56	42	0.51	98	98
AD092MJERA	1	50/60	220	198~242	0.64	2.56	42	0.51	98	98
AD122MJERA	1	50/60	220	198~242	0.64	2.56	42	0.51	98	98
AD162MJERA	1	50/60	220	198~242	0.96	3.84	64	0.77	137	137
AD182MJERA	1	50/60	220	198~242	1.01	4.04	69	0.86	144	144
AD242MJERA	1	50/60	220	198~242	1.48	5.92	112	1.18	187	187
AD282MJERA	1	50/60	220	198~242	1.48	5.92	112	1.18	187	187

Symbols:

MCA: Min. circuit amps (A)

MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A) *Notes*:

1. Voltage range

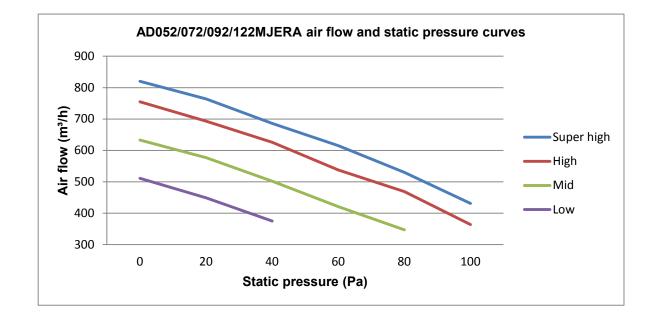
The units are applicable for the electrical systems where voltage supplied to unit is in the range.

2. Maximum allowable voltage unbalance between phases is 2%.

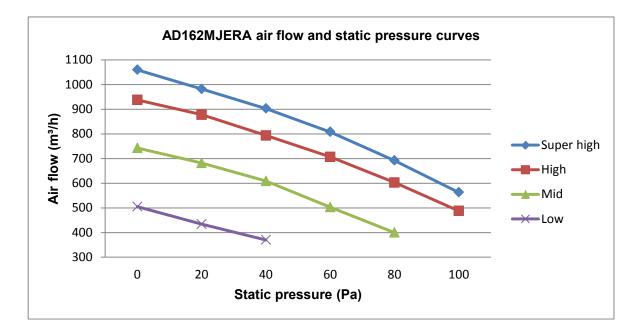
3. MCA=1.25*FLA MFA≤4*FLA.

4. Power supply uses the circuit breaker.

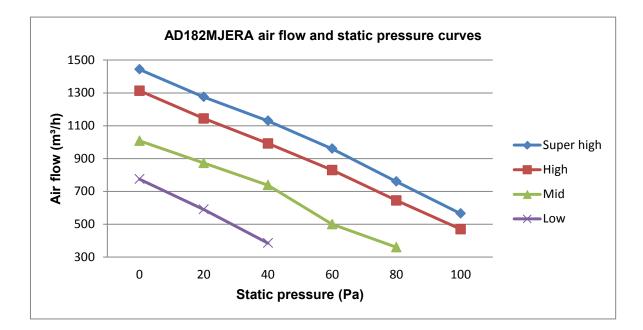


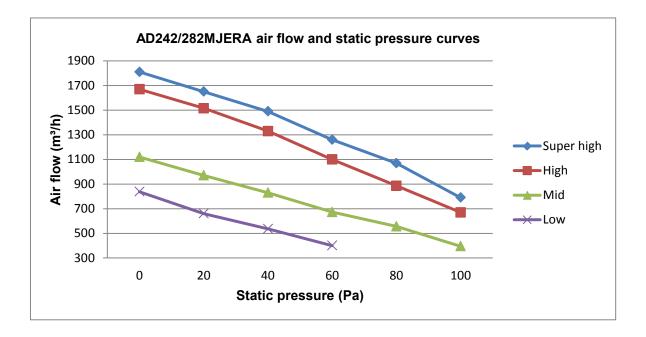


12.7 Airflow and static pressure curves







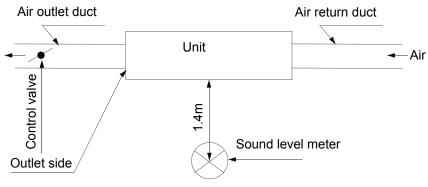


Medium ESP Duct Type Indoor Unit (AD*MJERA)



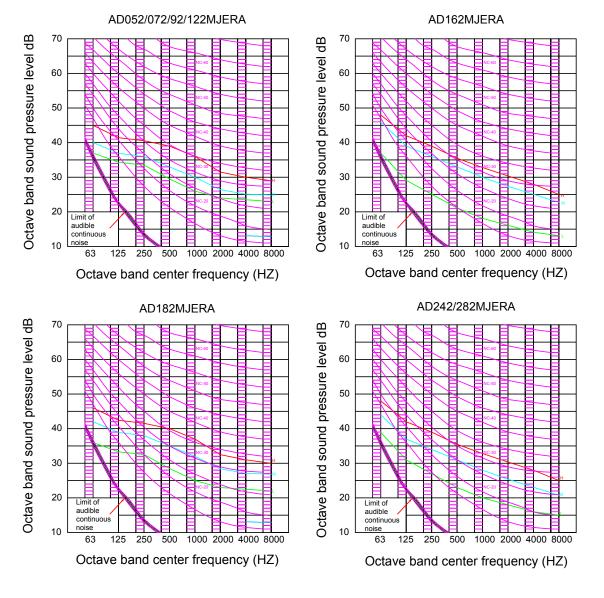
12.8 Sound pressure level

(1) Testing illustrate:



Testing position just below the central of the unit

- (2) Testing condition:
- a. Unit running in the standard condition
- b. Test in the semi-anechoic chamber
- c. Noise level varies from the actual factors such as room structure, etc.



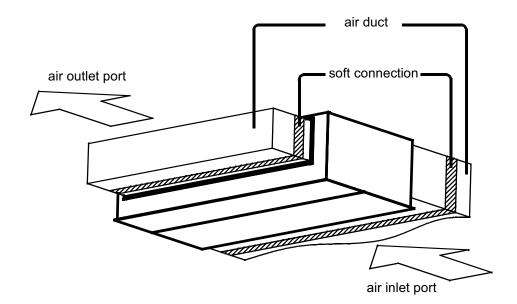
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12.9 Installation

12.9.1 Parts and functions

Indoor unit



12.9.2 Safety

- If the air conditioner is transferred to a new user, this manual shall be transferred to the user, together with the conditioner.
- Before installation, be sure to read Safety Considerations in this manual for proper installation.
- The safety considerations stated below is divided into "▲Warning" and "▲Attention". The matters on severe accidents caused from wrong installation, which is likely to lead to death or serious injury, are listed in "▲ Warning". However, the matters listed in "▲Attention" are also likely cause the severe accidents. In general, both of them are the important items related to the security, which should be strictly abided by.
- After the installation, perform test run to make sure everything is in normal conditions, and then operate and maintain the air conditioner in accordance with the User Manual. The User Manual should be delivered to the user for proper keeping.



- Please ask the special maintenance station for installation and repair. Water leakage, electric shocks or fire accidents might be caused from improper installation if you conduct the installation by your own.
- The installation should be conducted properly according to this manual. Water leakage, electric shocks or fire accidents might be caused from improper installation.

Please make sure to install the air conditioner on the place where can bear the weight of the air conditioner.

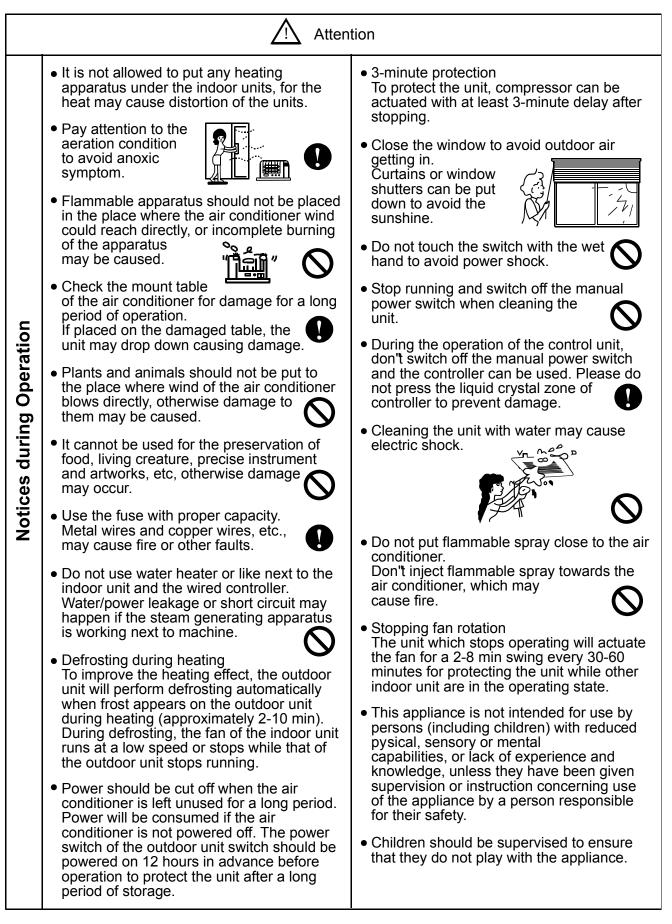
- The air conditioner can't be installed on the grids such as the non-special metal burglar-proof net. The place with insufficient support strength might cause the dropdown of the machine, which may lead to personal injuries.
- The installation should be ensured against typhoons and earthquakes, etc. The installation unconformable to the requirements will lead to accidents due to the turnover of the machine.
- Specific cables should be used for reliable connections of the wirings. Please fix the terminal connections reliably to avoid the outside force applied on the cables from being impressed on the cables. Improper connections and fixings might lead to such accidents as heating or fire accidents.
- Correct shapes of wirings should be kept while the embossed shape is not allowed. The wirings should be reliably connected to avoid the cover and the plate of the electrical cabinet lipping the wiring. Improper installation might cause such accidents as heating or fire accidents.
- While placing or reinstalling the air conditioner, except the specific refrigerant (R410A), don't let the air go into the refrigeration cycle system. The air in the refrigeration cycle system might lead to the cracking or personal injuries due to abnormal high pressure of the refrigeration cycle system.
- During installation, please use the accompanied spare parts or specific parts. If not, water leakage, electric shocks, fire accidents or refrigerant leakage might be caused.
- Don't drain the water from the drainpipe to the waterspout where may exist harmful gases such as sulfureted gas to avoid the harmful gases entering into the room.
- During installation, if refrigerant leakage occurs, ventilation measures should be taken, for the refrigerant gas might generate harmful gases upon contacting the flame.
- After installation, check if any refrigerant leakage exists. If the refrigerant gas leaks in the room, such things as air blowing heaters and stoves, etc. may generate harmful gases.
- Don't install the air conditioner at the places where the flammable gases may leak. In case the gas leakage occurs around the machine, such accidents as fire disasters may be caused.
- The drainpipe should be properly mounted according to this manual as to ensure the smooth drainage. In addition, heat preservation should be taken to avoid condensation. Improper drainpipe mounting might cause water leakage, which will get the articles at home wet.
- The refrigerant gas pipe and liquid pipe should be heat insulated to preserve heat. For inappropriate heat insulation, the water caused from the condensation will drop to get the article at home wet.

- The air conditioner should be effectively grounded. Electric shocks may occur if the air conditioner is ungrounded or inappropriately grounded. The wire for earthing shouldn't be connected to the connections on the gas pipe, water pipe, lightning rod or telephone.
- The breaker for electricity leakage should be mounted. If not, accidents such as electric shocks may happen.
- The installed air conditioner should be checked for electricity leakage by being powered.
- If the ambient humidity bigger than 80%, when the water discharge hole be blocked or the filter becomes dirty, or airflow speed change, there maybe leads to condensing water drop down, and at the same time there maybe some drops of water spit out.

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12.9.3 Emergency running & Test operation





12.9.4 Maintenance

* Only when the air cleaner is switched off and disconnected to the power supply can it be cleaned, or electric shock and injury may appear.

Cleaning the air outlet port and the shell:
 Attention — Don't use gasoline, benzene, diluents, polishing powder or liquid insecticide to clean them. Do not clean them with hot water of above 50°C to avoid fading or distorting.
 Wipe them with soft dry cloth. Water or neutral dry cleanser is recommended if the dust cannot be removed. The Wind Deflector can be dismantled to clean (as below).

Cleaning Wind Deflector:

• Do not wipe the wind deflector with water forcibly to avoid falling off.

Cleaning Air Cleaner:

- 🕂 Attention -

- Don't rinse the air cleaner with hot water of above 50°C to avoid fading and distorting.
- Don't put the air cleaner on the fire to dry to avoid catching fire.
- Wipe dust with water or dust collector. (A) Wipe dust with dust collector.

(B) Clean it with soft bush in mild detergent if there is too much dust on it



Throw off the water and airing it in the cool dry condition.



Maintenance before and after Operating Season

Before Operating Season:

- 1. Please make the following checkup. If abnormal condition occurs, consult the after-service personnel.
- There is no blockage in inlet port and outlet port of outdoor and indoor units.
- · The ground line and the wiring are in the proper state
- 2. After cleaning, the air cleaner must be mounted.
- 3. Switch on to the power.

After Operating Season:

1. In sunny days, blowing operation can be performed for half a day to make the inside of machine dry.

2. Electrical power should be cut down to economize electricity, or the machine will still consume power. Air cleaner and shell must be mounted after cleaning.



12.9.5 Fault checkup

Please check the following when consigning repair service:

	Symptoms	Reasons
		Water flow sound can be heard when starting operation, during
		operation or immediately after stopping operation. When it starts
	Water flow sound	to work for 2-3 minutes, the sound may become louder, which is
		the flowing sound of refrigerant or the draining sound of condensed
		water.
		During operation, the air conditioner may make the cracking
	Cracking sound	sound, which is caused from the temperature changes or the
<i>"</i>		slight dilation of heat exchanger.
l ä	Terrible smell in outlet air	The terrible smell, caused from walls, carpet, furniture, clothing,
ple		cigarette and cosmetics, attaches on the conditioner.
are not problems	Flashing operating indicator	When switching it on again after power failure, turn on the manual
P P		power switch and the operating indicator flashes.
are		It displays the awaiting indication as it fails to perform refrigerating
	Awaiting indication	operation while other indoor units are in heating operation. When
All these	, maining maiocatori	the operator set it to the refrigerating or heating mode and the
I II		operation is opposite to the setting, it displays the awaiting indication.
◄		To prevent oil and refrigerant from blocking the shutdown indoor
	Sound in shutdown indoor unit or	units, refrigerant flows in the short time and make the sounds
	white steam or cold air	of refrigerant flowing. Otherwise, when other indoor units performs
		heating operation, white steam may occur; during refrigerating
		operation, cold air may appear.
	 Clicking sound when switching the 	When the conditioner is powered on, the sound is made due
	air condition on	to the resetting of the expansion valve.
	Start or stop working automatically	Check if it is in the state of Timer-ON and Timer-OFF.
	Failure to work	Check if there is a power failure.
×		Check if the manual power switch is turned off.
ped		Check if the supply fuse and breaker are disconnected.
L C		Check if the protective unit is working.
the		Check if refrigerating and heating functions are selected
another check.) <u> </u>	simultaneously with the awaiting indication on line control.
e v		Check if air intake port and air outlet port of outdoor units are
ma		blocked.
se		Check if the door and windows are open.
Please	Bad cooling & heating effects	Check if the filtering screen of air cleaner is blocked with sludge
₽		or dust.
		Check if the setting of wind quantity is at low wind.
		Check if the setting of operation is at the Fan Operation state.
		Check if the temperature setting is proper.

Under the following circumstances, immediately stop the operation, disconnect the manual supply switch and contact the after-service personnel.

- When buttons are inflexible actuated;
- When fuse and breaker have been burnt over and over;
- When there are foreign objects and water in the refrigerator;
- When it cannot still be operated after removing the operation of protective unit;
- When other abnormal conditions occur.

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12.9.6 Installation procedures

The standard attached accessories of the units of this series refer to the packing; prepare other accessories according to the requirements of the local installation point of our company.

1. Before installation [before finishing the installation, don't throw away the attached parts required for the installation]

- Determine the route to move the unit to the installation site;
- Don't tear the package open before moving the unit to the installation site. When unpacking is needed, a soft material or protector block with ropes can be used to lift the unit to avoid damaging or scraping of the unit.

2. Select the installation site

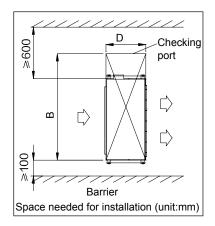
(1) The installation site should be selected according the following conditions, which should be approved by users.

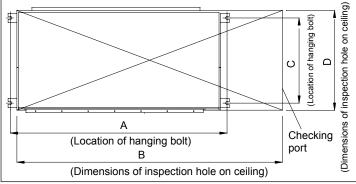
- where an ideal air distribution can be ensured;
- where there is no blockage in the air passage;
- where the condensed water can be drained out properly;
- where the strength can bear the weight of the indoor unit;
- where enough space can be ensured for maintenance. The outside air should be input from the outdoor directly from the blast pipe. If the blast pipe can't be jointed, the air can't be input from the suspended ceiling.
- where the lengths of the piping between indoor units and outdoor units are within the allowable range (refer to Installation of Outdoor Units)
- where the distance of at least 1m between indoor units, outdoor units, mains supply, connecting wires and television or radio should be kept as to avoid the image disturbance and noises of the above electrical appliances. (Even if 1m can be ensured, noise might occur if there is strong electric wave.) Additionally, equipments, television or other valuables can't be put under the unit as to avoid the condensed water of the unit from dropping into the above articles, causing damaging.

(2) Height of Ceiling:

The ceiling should be located at the place, where the central position of air outlet port is less than 3m high above the ground.

(3) Hoisting studs should be used during installation. Check if the location can bear the weight of the unit. Reinforce it before installation if necessary.





Size	А	В	С	D
Model	(mm)	(mm)	(mm)	(mm)
AD052-162MJERA	705	1155	595	740
AD182-282MJERA	983	1433	595	740



3. Preparation before Installation \bigcirc (1) Location relation between inspection hole on the ceiling and the unit 50 Right 1 and the hoisting studs (unit: mm). 720 С ΠŲ Top Size A С Е Model (mm) (mm) (mm) AD052-162MJERA 705 595 662 ш ⊲ AD182-282MJERA 983 595 947 Īñ H

(2) If necessary, make a hole for installation and inspection on the ceiling. (used for the situation with a ceiling)

- For the size of the inspection hole on the ceiling, please refer to the above drawing.
- Before installation, finish all the preparations for all piping connected to indoor units (refrigerant, water drainage) and wiring (connection line of the line control, connection line between indoor units and outdoor unit) so that they can be connected with indoor units right after installation.
- · For the inspection hole, the ceiling might be reinforced to keep the evenness of the ceiling and avoid the vibration of the ceiling. For details, please consult the construction contractor.

(3) Install the hoisting studs (M10 bolts)

In order to support the weight of the unit, use barb bolts in the situation with a ceiling. In the situation with the new ceiling, use inlaid bolts, embedded bolts or other parts provided on site. Before proceeding the installation, adjust the gap between the bolt and the ceiling.

(4) Installation of Indoor Units

• Fix the indoor unit with the hoisting stud. If necessary, the machine can be hanged on the beam with bolts instead of the hoisting stud. NB:

Plug notch plug Concrete Hoisting stud M10 Hoisting stud

Indoor Unit (AD*MJERA Medium ESP Duct Type

M10 nut M10 shim Main unit M10 spring washer

Notch grapping

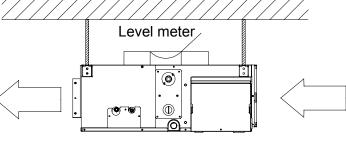
When the sizes of the main unit don't match the hole on the ceiling, regulate the slot on the nging bracket.

Adjusting the level

Adjust the level with a level meter or according to the following ways:

Adjusting the level

· Make the adjustment as shown in the figure.



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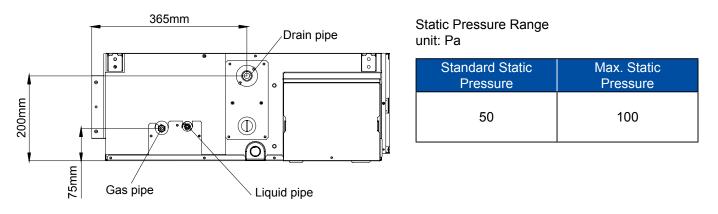
Choice of Blowing Wind from Blower

(when using the high performance filter)

The blower is provided with a red terminal, a white terminal and a blue terminal. The standard wind choice has been set before delivery. When the use of optional components, such as the high performance filter, causes the static pressure rising, change the connection of the connector mounted on the side of the control cabinet, as shown as follows.

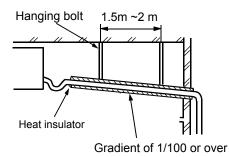
Sta	Standard blowing wind(at delivery)				High-speed blowing wind			Low-speed blowing wind									
Motor	Blue Black Orange Yellow	white	white	Red Blue Black Yellow	PCB side	Motor	Red Blue Black Yellow	red	white	Red Blue Black Yellow	PCB side	Motor	Black Orange Orange Yellow	Blue	white	Red Blue Black Yellow	PCB side

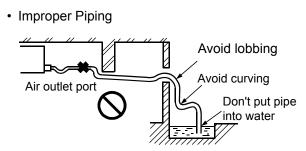
4. Drainpipes



(a) Keep a gradient (1/50-1/100) of the drainpipes and avoid lobbing or curving.

• Proper Piping

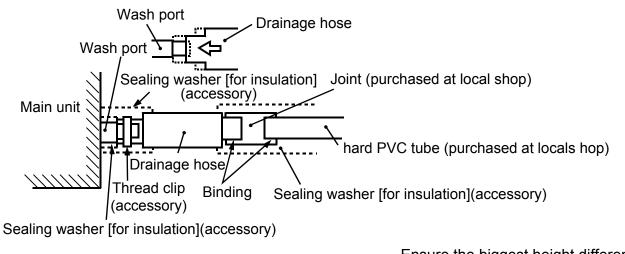




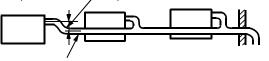
(b) When connecting the drainpipe to the equipment, don't apply too much force on one side of the equipment. Meanwhile, the piping should be positioned as close to the equipment as possible.

(c) For the drainpipe, the general purpose hard PVC tube can be purchased at local shops. During the connection, insert the end of PVC tube into the wash port and fasten it with drainage hose and thread clip. Binding agents shouldn't be used to connect the wash port and drainage hose.





(d) When the laid drain piping is used for multiple equipments, the public piping should be lower about 100mm than the wash ports of equipments, as shown in the figure. Thicker pipes should be used for this application. Ensure the biggest height difference (about 100mm)



Gradient of 1/100 or over

(e) The hard PVC tube in the room must be provided with the heat insulating layer.

(f) Don't place the drainpipes at the places where there is irritant gas. Don't put the drainpipe directly into the sewer, where there might be gases with sulfur.

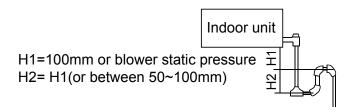
(g) Backwater bend

Because the drainage was laid in the position of binging subatmospheric pressure easily, gain of elevation of water in the drain pan conduces leakage water, for avoiding leakage water, design a Backwater bend.

Configuration of Backwater bend can be cleaned, a " T " joint can be used in installing as shown as in the picture below.

Backwater bend was installed in the neighborhood of air conditioning

A backwater bend was designed in the middle of drain pipe s shown as in the picture below.



Testing Drainage System

(a) After finishing the electrical system, test the drainage system.

(b) During testing, make sure that the water flow passes the piping correctly without any water leakage at the connection.

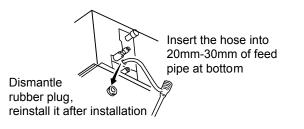
- (c) In the condition of new house, test the drainage system before fitting up the ceiling.
- (d) Even if it is installed in the season needed to heating, the testing should also be performed.

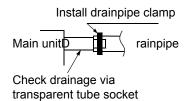
Procedures

(b) During refrigerating operation, check the drainage system..

⁽a) Provide about 1000cc of water to the equipment via air outlet port with the feed pump.







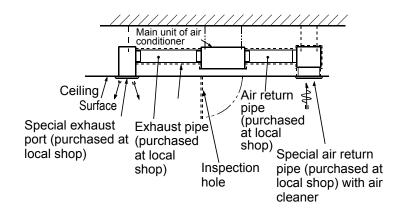
Pour water into a gibbose connector



Before completing the electrical connection, a gibbose connector shall be installed on the drainpipe as to provide it with a water inlet port. Then, if any leakage exists in the piping, check it to make the water flow of the drainpipe smooth.

5. Installation of Air Return & Air Exhaust Pipes

For the choice and installation of air return port, air return pipe, air exhaust port and exhaust pipe, please consult service personnel of Haier company. Calculate the design chart and exterior static pressure, and select the exhaust pipe with appropriate length and shapes.

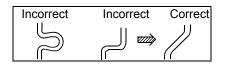


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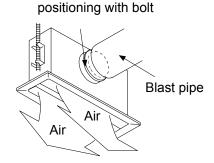
- The length difference between pipes should be limited to be less than 2:1;
- Make the piping as short as possible;
- · Keep the min. elbow quantity;
- Wind the heat insulating material around the flange between the main unit and the exhaust pipe for heat insulation and sealing. Install the piping before fitting up the ceiling.

6. Cautions in Installation of Air Return Pipe & Exhaust Pipe

- It is recommended to use the blast pipes, which can be anti-condensation and absorb sound. (purchased at local shops)
- Complete the installation of the blast pipes before fitting up the suspended ceiling.
- Heat insulation should be made for the blast pipes.
- The special exhaust port should be arranged at the place where the air is distributed evenly.
- An inspection hole should be left on the surface of the ceiling for future maintenance.



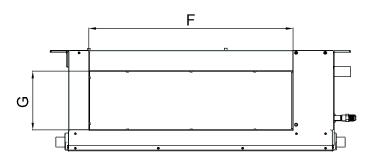
Special exhaust port

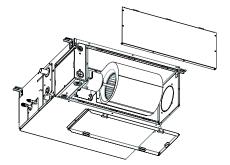




7.Connection of return air duct (setting back air return opening when leaving factory) Remarks:

In installation, you can select the lower air return or back air return by adjusting the location of air inlet frame. Air return from bottom will influence the unit noise, so we suggest use rear return installation.

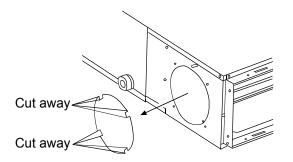




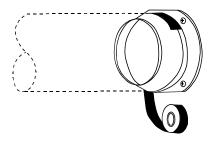
Back air return opening

8. Concatenation means of exchanging flesh air

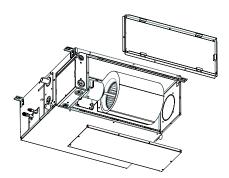
(1) Cut away the nummular component of lateral board



(3) Airproof the joint by airproof cingulum avoiding

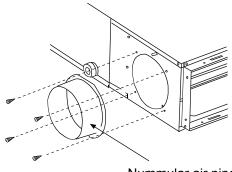


Size	F	G
Model	(mm)	(mm)
AD052-162MJERA	512	148
AD182-282MJERA	797	148



Below air return opening

(2) Install the nummular air pipe (air pipe can be purchased in local district)

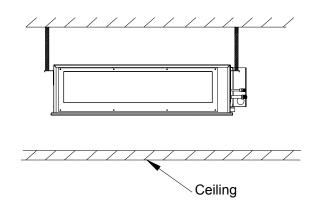


Nummular air pipe



9.Install outlet flange

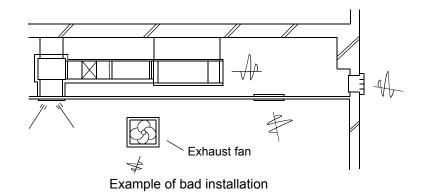
Install outlet flange basis the needs, the outlet flange is standard component, bolts are laid in accessories box.



Note: You can select not to connect with the flange. Instead of it, you can use the round plastic air outlet (purchased by user)

10. Examples for Bad Installation

- The unit is not equipped with the air return pipe and the inner side of the suspending ceiling is used as the blast pipe, causing the humidity increasing due to irregular air mass, strong wind or sunlight from the outside world.
- There might be condensate dropping down at the outer side of the blast pipe. The humidity is high, even if the inner side of the suspended ceiling isn't used as a blast pipe in new concrete buildings. At this time, the whole body should use the thermo wool for heat preservation (the thermo wool can be packed with a steel wire).
- It is operated under the conditions beyond the limits, leading to the overload of the compressor.
- Affected by the capacity of the exhaust fan, and the strong wind and wind direction in the outer flue, when the blowing quantity of the air conditioner exceeds the limits, the drained water of the heat exchanger will overflow, causing water leakage.



11. Refrigerant Tube

Tubing Permissible Length & Height Difference

Please refer to the attached manual of outdoor units.

Piping Materials & Heat Insulating Materials

As to prevent condensation, heat insulating treatment should be performed. The heat insulating treatment for gas and liquid piping should be done respectively.

Piping	Hard PVC tube
Material	VP31.5mm(inner bore)
Heat Insulating	Vesicant polythene
Material	thickness: over 7mm

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Tubing Materials & Specifications

Model		AD052~182MJERA	AD242~282MJERA			
Tubing Size (mm)	Gas pipe	φ12.7	φ15.88			
Tubing Size (mm)	Liquid pipe	φ6.35	φ9.52			
Tubing Material	Phosphor deoxybronze seamless pipe (TP 2) for air conditioner					

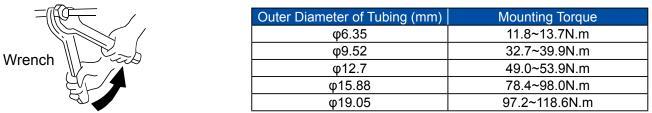
Refrigerant Filling Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount or compressor failure can be caused by filling too much or little refrigerant.

Connecting Procedures of Refrigerant Tubing

Proceed the flare tube connecting operation to connect all the refrigerant tubes.

- Dual wrenches must be used in the connection of indoor unit tubing.
- Mounting torque refers to the right table



Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one main unit.]

Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.

Connecting

Connecting circular terminals

1. Connecting circular terminals:

The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it.

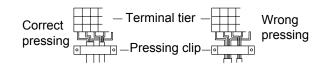
2.Connecting straight terminals:

The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier, tighten the screw and confirm it has been clamped by pulling the line gently.

3. Pressing connecting line

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After connecting line is completed, press the connecting line with clips which should press on the protective sleeve of the connecting line.





12.9.7 Electrical wiring

- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

ATTENTION

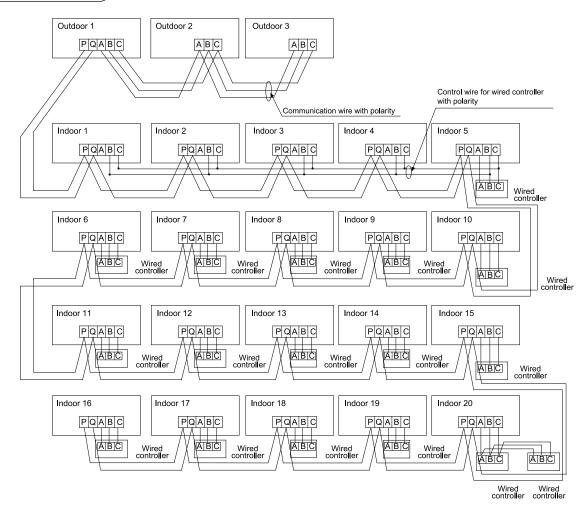
- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the
 pressing clip.
- · Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line, signal line are provided by users. Parameters for power lines are shown as below: 3×(1.0-1.5) mm 2; parameters for signal line: 2×(0.75-1.25)mm² (shielded line)] 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.

Supply Wiring Drawing		Ave outdoor unit G Breaker for Electricity leakage Overflow breaker A-,380-400V,50/60Hz
	Indoor unit 1 wall mounted type Twa 1 2 Twi N T Breaker for Electricity leakage Supply: 1PH 220-230V~50/60Hz Supply: 1PH 220-230V~50/60Hz Supply: 1PH	

 Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.



Signal Wiring Drawing



Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure (1-5 indoor units). The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)
- B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired control are connected via three lines with polarity.
- C. Two wired controllers control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controls can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.



Items	Cross	Length (m)	Rated current of overflow breaker (A)	Rated current of residual circuit breaker (A)	Cross sectional area of signal line		
Total current of indoor units (A)	section (mm²)			Ground fault interrupter (mA)	Outdoor -indoor (mm ²)	Indoor -indoor (mm²)	
<10	2	20	20	20 A, 30 mA, 0.1S or below			
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below	2 cores×(0		
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below	mm ² shield	ded line	
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below			

% The electrical power line and signal lines must be fastened tightly.

* Every indoor unit must have the ground connection.

* The power line should be enlarged if it exceeds the permissible length.

- * Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.
- * It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm ² ×3 core shielded line

% The shielding lay of the signal line must be grounded at one end.

% The total length of the signal line shall not be more than 250m.



13. Medium ESP Duct Type Indoor Unit (AD*MZERA)

13.1 Features



AD182MZERA AD242MZERA AD282MZERA

- 1. New European exterior design, elegant.
- 2. Ultra-thin size, save ceiling space, leading European high top trend.
- 3. The duct thickness is only 270mm, beyond the high static pressure duct 300mm thickness of the bottom line.
- 4. Reserved fresh air inlet, advocating European health consumer environment.
- 5. Back and bottom return air exchange, according to the installation site flexibility to choose the return air type, accommodate more installation field.



13.2 Specification

	MODEL		AD182MZERA	AD242MZERA	AD282MZERA
Power supply	1	Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	19.1	24.2	27.3
Casling	Capacity	kW	5.6	7.1	8.0
Cooling	Power input	W	210	210	210
	Current	А	0.95	0.95	0.95
	Capacity	kBtu/h	21.5	27.3	30.7
	Capacity	kW	6.3	8.0	9.0
Heating	Power input	W	210	210	210
	Current	А	0.95	0.95	0.95
	Heating capacity at low temp.	kW	5.0	6.3	7.1
Operating cu	rrent	А	0.95	0.95	0.95
Power consu	mption	kW	210	210	210
	Brand		WEILING	WEILING	WEILING
	Model		YSK100-4A-4	YSK100-4A-4	YSK100-4A-4
	Туре		AC	AC	AC
	Insulation class		В	В	В
Indoor motor	IP class		IP20	IP20	IP20
	Power input	W	168	168	168
	Power output	W	88	88	88
	Capacitor	μF	8 µF /450v	8 µF /450v	8 µF /450v
	Speed (SH/H/M/L)	rpm	1000/940/880/840	1000/940/880/840	1000/940/880/840
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		2	2	2
	a. Number of rows		2	3	3
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	21*13.3
	c. Fin spacing	mm	1.4	1.4	1.4
Indoor coil	d. Fin type (code)		Hydrophilic aluminum		n
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube		e
	f. Coil length×height×width	mm	813*252*26.6	813*252*39.9	813*252*39.9
	g. Number of circuits		4	6	6

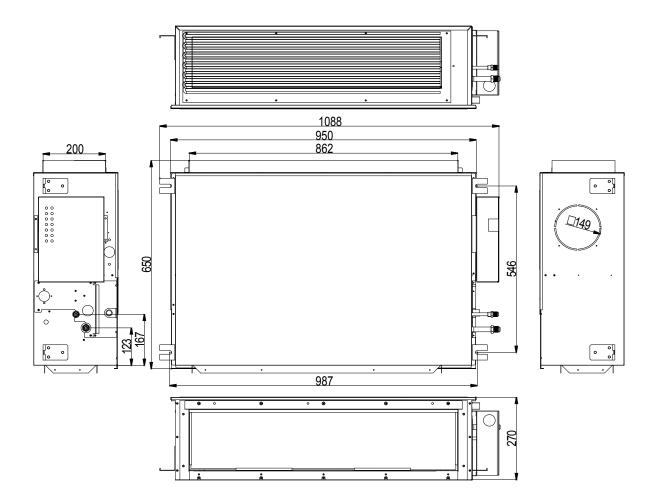
Haier

	MODEL		AD182MZERA	AD242MZERA	AD282MZERA
	Cabinet coating type		Galvanized	Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	72	72	72
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		0.8	0.8	0.8
	Drain pan material		EPS	EPS	EPS
	Drain pan insulation		20	20	20
	Drain pump option		Standard 700mm	Standard 700mm	Standard 700mm
	Branch outlet option		No	No	No
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	0.8	0.8	0.8
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
	Liquid pipe	mm	6.35	9.52	9.52
Piping dimension	Gas pipe	mm	12.7	15.88	15.88
differior	Drain hose	mm	40	40	40
Fresh air dim	ension	mm	Ф150	Ф150	Ф150
Sound press	ure level (H/M/L)	dB(A)	44/42/39	44/42/39	44/42/39
Sound powe	r level (H/M/L)	dB(A)	57/55/52	57/55/52	57/55/52
Standard stat	tic pressure	Ра	80	80	80
Max. static pr	ressure	Ра	120	120	120
Indoor air flow	w (H/M/L)	m³/h	950/850/780	950/850/780	950/850/780
Air outlet dim	ensions	mm	800*167	800*167	800*167
Air return dim	ensions	mm	862*200	862*200	862*200
Dimension (W*H*D)		mm	950*270*650	950*270*650	950*270*650
Packing (W*H	H*D)	mm	1170/340/860	1170/340/860	1170/340/860
Net weight		kg	37	37	37
Gross weight	:	kg	39	39	39

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



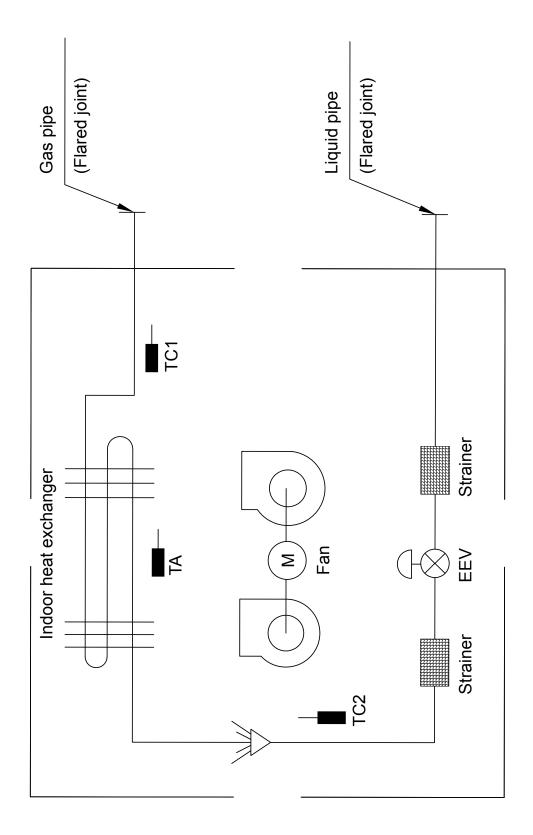
13.3 Dimension



-



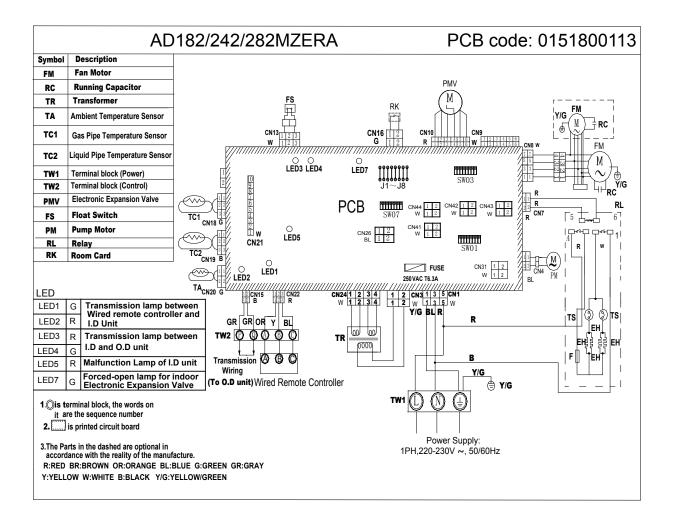
13.4 Piping diagram



Medium ESP Duct Type Indoor Unit (AD*MZERA)



13.5 Wiring diagram





13.6 Electric characteristic

Units					Power supply		Indoor fan motor		Power input (w)	
Model	Phase	FQY	Voltage	Volt range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AD182MZERA	1	50/60	220	198~242	2	6.4	88	1.6	210	210
AD242MZERA	1	50/60	220	198~242	2	6.4	88	1.6	210	210
AD282MZERA	1	50/60	220	198~242	2	6.4	88	1.6	210	210

Symbols:

MCA: Min. circuit amps (A) MFA: Max. fuse amps of circuit breaker

Output: Fan motor rated output (w)

FLA: Full load amps (A)

Note:

1. Voltage range

The units are applicable for the electrical systems where voltage supplied to unit is in the range.

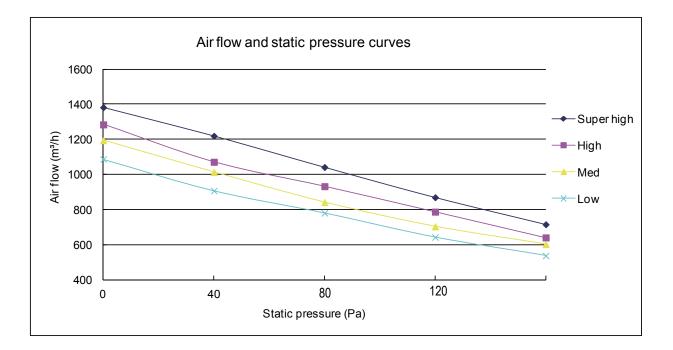
2. Maximum allowable voltage unbalance between phases is 2%.

3. MCA=1.25*FLA MFA≤4*FLA

4. Power supply uses the circuit breaker.



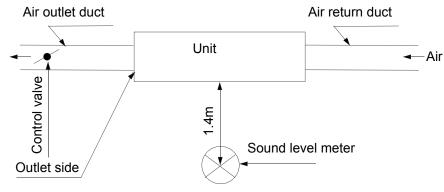
13.7 Air flow and static pressure curves





13.8 Noise level

(1) Testing illustrate:

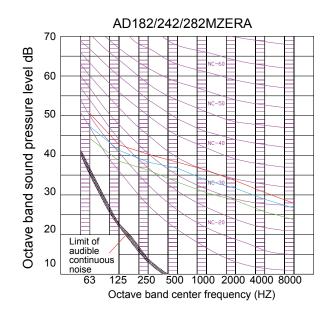


Testing position just below the central of the unit

(2) Testing condition:

- a. Unit running in the standard condition
- b. Test in the semi-anechoic chamber
- c. Noise level varies from the actual factors such as room structure, etc.

(3) Octave band level:





13.9 Installation

13.9.1 Installation Procedures

The standard attached accessories of the units of this series refer to the packing; prepare other accessories according to the requirements of the local installation point of our company.

1. Before installation [before finishing the installation, don't throw away the attached parts required for the installation]

- Determine the route to move the unit to the installation site;
- Don't tear the package open before moving the unit to the installation site. When unpacking is needed, a soft material or protector block with ropes can be used to lift the unit to avoid damaging or scraping of the unit.

2. Select the installation site

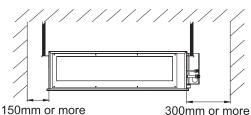
(1) The installation site should be selected according the following conditions, which should be approved by users.

- Where an ideal air distribution can be ensured;
- Where there is no blockage in the air passage;
- Where the condensed water can be drained out properly;
- Where the strength can bear the weight of the indoor unit;
- Where enough space can be ensured for maintenance. The outside air should be input from the outdoor directly from the blast pipe. If the blast pipe can't be jointed, the air can't be input from the suspended ceiling. range (refer to Installation of Outdoor Units)
- Where the distance of at least 1m between indoor units, outdoor units, mains supply, connecting wires and television or radio should be kept as to avoid the image disturbance and noises of the above electrical appliances. (Even if 1m can be ensured, noise might occur if there is strong electric wave.) Additionally, equipments, television or other valuables can't be put under the unit as to avoid the condensed water of the unit from dropping into the above articles, causing damaging.

(2) Height of ceiling:

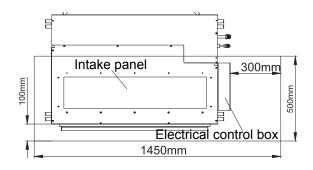
The ceiling should be located at the place, where the central position of air outlet port is less than 3m high above the ground.

(3) Hoisting studs should be used during installation. Check if the location can bear the weight of the unit. Reinforce it before installation if necessary



(4) The dimension of maintenance

Make sure that it is easy to demount the electrical control box and fan motor.

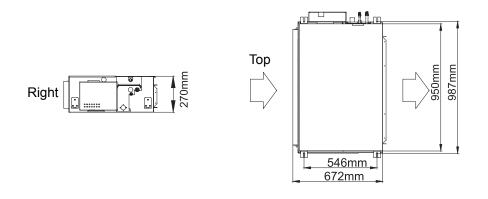


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3. Preparation before Installation

(1) Location relation between inspection hole on the ceiling and the unit and the hoisting studs (unit: mm). The installation distance with mark * can be adjusted due to the actual space (Max: 510mm Min: 370mm).



(2) If necessary, make a hole for installation and inspection on the ceiling. (used for the situation with a ceiling)
 For the size of the inspection hole on the ceiling, please refer to the above drawing.

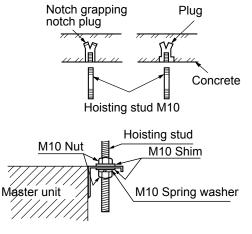
- Before installation, finish all the preparations for all piping connected to indoor units (refrigerant, water drainage) and wiring (connection line of the wired control, connection line between indoor units and outdoor unit) so that they can be connected with indoor units after installation.
- For the inspection hole, the ceiling might be reinforced to keep the evenness of the ceiling and avoid the vibration of the ceiling. For details, please consult the construction contractor.

(3) Install the suspender (M10 bolts)

In order to support the weight of the unit, use barb bolts in the situation with a ceiling. In the situation with the new ceiling, use inlaid bolts, embedded bolts or other parts provided on site. Before proceeding the installation, adjust the gap between the bolt and the ceiling.

(4) Installation of Indoor Units

Fix the indoor unit with the hoisting stud. If necessary, the machine can be hanged on the beam with bolts instead of the hoisting stud.



NB:

When the sizes of the master unit don't match the hole on the ceiling, regulate the slot on the hanging bracket.

Adjusting the level

- (a) Adjust the level with a level meter or according to the following ways:
- Make the adjustment as shown in the figure below.

Level meter

Indoor Unit (AD*MZERA Medium ESP Duct Type



Choice of Blowing Wind from Blower

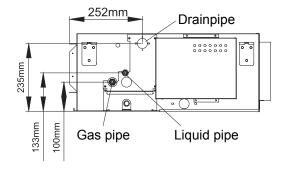
(when using the high performance filter)

The blower is provided with a red terminal and a white terminal. The standard wind choice has been set before delivery. When the use of optional components, such as the high performance filter, causes the static pressure rising, change the connection of the connector mounted on the side of the control cabinet, as shown as follows.

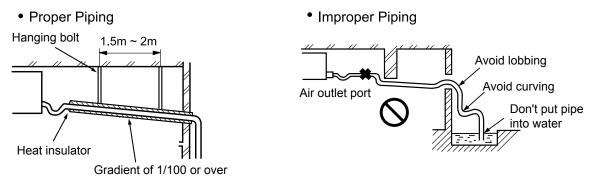
Standard blowing wind (at delivery)					High-spe	ed b	lowir	ng wind		
net	White			White	d End	White			Black	d End
de of cabij	Blue	ctor, te	Ð	Blue	lea	Blue	ite	ð	White	n-lea
One side o control ca	Yellow	connector white	White	Yellow	Down	Yellow	White	Red	Blue	Dowl
0 8	Red	0		Red	Fanl	Red	-		Red	Fan
				1			L		1	

Standard static	Maximal static
pressure	pressure
80	120

4. Drainpipe



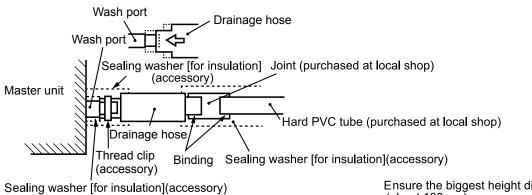
(a) Keep a gradient (1/50-1/100) of the drainpipes and avoid lobbing or curving.



(b) When connecting the drainpipe to the equipment, don't apply too much force on one side of the equipment. Meanwhile, the piping should be positioned as close to the equipment as possible.

(c) For the drainpipe, the general purpose hard PVC tube can be purchased at local shops. During the connection, insert the end of PVC tube into the wash port and fasten it with drainage hose and thread clip. Binding agents shouldn't be used to connect the wash port and drainage hose.





(d) When the laid drain piping is used for multiple equipments, the public piping should be lower about 100mm than the wash ports of equipments, as shown in the figure.

Ensure the biggest height difference (about 100mm)

Gradient of 1/100 or over

Thicker pipes should be used for this application.

(e) The hard PVC tube in the room must be provided with the heat insulating layer.

(f) Don't place the drainpipes at the places where there is irritant gas. Don't put the drainpipe directly into the sewer where there might be gases with sulfur.

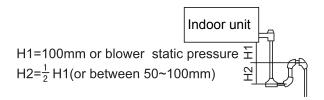
(g) Backwater bend

Because the drainage was laid in the position of binging Subatmospheric pressure easily gain of elevation of water in the drain pan conduces Leakage water for avoiding Leakage water design a Backwater bend.

Configuration of Backwater bend can be cleaned a " T " joint can be used in installing as shown as in the picture below.

Backwater bend was installed in the neighborhood of air conditioning

A backwater bend was designed in the middle of drain pipe s shown as in the picture below.



Testing Drainage System

(a) After finishing the electrical system, test the drainage system.

(b) During testing, make sure that the water flow passes the piping correctly without any water leakage at the connection.

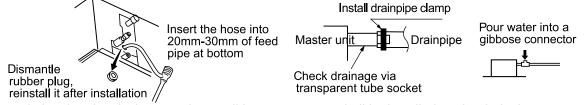
- (c) In the condition of new house, test the drainage system before fitting up the ceiling.
- (d) Even if it is installed in the season needed to heating, the testing should also be performed.

Procedures

- (a) Charge 1000cc of water to the equipment via air outlet port.
- (b) During cooling operation, check the drainage system.

Medium ESP Duct Type ndoor Unit (AD*MZERA)

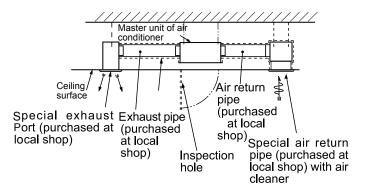




Before completing the electrical connection, a gibbose connector shall be installed on the drainpipe as to provide it with a water inlet port. Then, if any leakage exists in the piping, check it to make the water flow of the drainpipe smooth.

5. Installation of Air Return & Air Exhaust Duct

For the choice and installation of air return port, air return pipe, air exhaust port and exhaust pipe, please consult service personnel of Haier company. Calculate the design chart and exterior static pressure, and select the exhaust pipe with appropriate length and shapes.



Incorrect

- The length difference between pipes should be limited to be less than 2:1;
- Make the piping as short as possible;
- Keep the min. elbow quantity;
- Wind the heat insulating material around the flange between the master unit and the exhaust pipe for heat insulation and sealing. Install the piping before fitting up the ceiling.

6. Cautions in Installation of Air Return Pipe & Exhaust Pipe

It is recommended to use the blast pipes, which can be anti-condensation and absorb sound. (purchased at local shops)

Complete the installation of the blast pipes before fitting up the suspended ceiling.

Heat insulation should be made for the blast pipes.

The special exhaust port should be arranged at the place where the air is distributed evenly.

An inspection hole should be left on the surface of the ceiling for future maintenance.

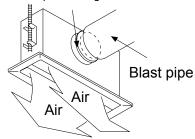
Special exhaust port

Incorrect

viii)

Correct

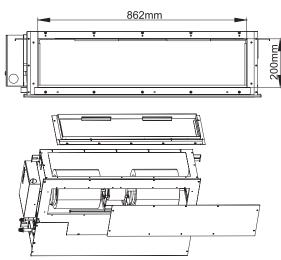
positioning with bolt





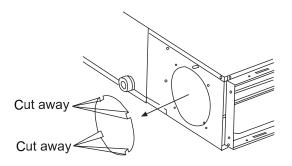
7. Connection of return air duct (setting back air return opening when leaving factory) Remarks:

In installation you can select the lower air return or back air return by adjusting the location of air inlet frame.

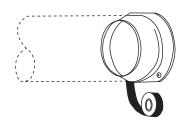


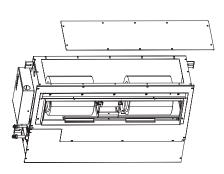
8. Concatenation means of exchanging flesh air

(1) Cut away the nummular component of lateral board

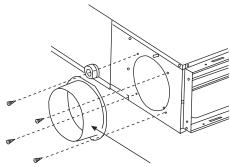


(3) Airproof the joint by airproof cingulum avoiding





(2) Install the nummular air pipe (air pipe can be purchased in local district)

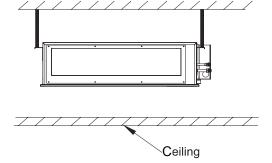


Nummular air pipe



9. Install outlet flange

Install outlet flange basis on the needs, the outlet flange is a standard component, bolts are laid in accessories box.



Note:

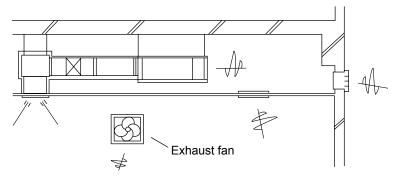
You can select not to connect with the flange. Instead of it you can use the round plastic air outlet (purchased by user).

8. Examples for Bad Installation

The unit is not equipped with the air return pipe and the inner side of the suspending ceiling is used as the blast pipe, causing the humidity increasing due to irregular air mass, strong wind or sunlight from the outside world. There might be condensate dropping down at the outer side of the blast pipe. The humidity is high, even if the inner side of the suspended ceiling isn't used as a blast pipe in new concrete buildings. At this time, the whole body should use the thermo wool for heat preservation (the thermo wool can be packed with a steel wire).

It is operated under the conditions beyond the limits, leading to the overload of the compressor.

Affected by the capacity of the exhaust fan, and the strong wind and wind direction in the outer flue, when the blowing quantity of the air conditioner exceeds the limits, the drained water of the heat exchanger will overflow, causing water leakage.



Example of bad installation

9. Refrigerant Pipe

Pipe Length & Height Difference

Please refer to the attached manual of outdoor units.

Piping Materials & Heat Insulating Materials

As to prevent condensation, heat insulating treatment should be performed. The heat insulating treatment for piping should be done respectively.

Piping Material	Hard PVC tube VP31.5mm (inner bore)
Heat Insulating	Vesicant polythene
Material	thickness: over 7mm



Tubing Materials & Specifications

Model		AD182MZERA	AD242/282MZERA			
Tubing Size	Gas pipe	Φ12.7	Ф15.88			
(mm)	Liquid pipe	Ф6.35	Ф9.52			
Tubing Material	Phosphor deoxy bronze seamless pipe (TP2) for air conditioner					

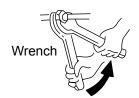
Refrigerant Recharge Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount or compressor failure can be caused by filling too much or little refrigerant.

Connecting Procedures of Refrigerant Tubing

Proceed the flare tube connecting operation to connect all the refrigerant tubes.

- Dual wrenches must be used in the connection of indoor unit tubing.
- Mounting torque refers to the right table



Outer diameter of tubing (mm)	Mounting torque
Ф6.35	11.8~13.7N·m
Ф9.52	32.7~39.9N∙m
Φ12.7	49.0~53.9N·m
Ф15.88	78.4~98.0N·m
Ф19.05	97.2~118.6N·m

Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one master unit.]

Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds. Connecting

Connecting circular terminals:

1. Connecting circular terminals:

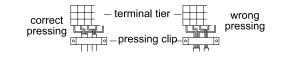
The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it.

2. Connecting straight terminals:

The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier, tighten the screw and confirm it has been clamped by pulling the line gently.

3. Pressing connecting line:

After connecting line is completed, press the connecting line with clips which should press on the protective sleeve of the connecting line.



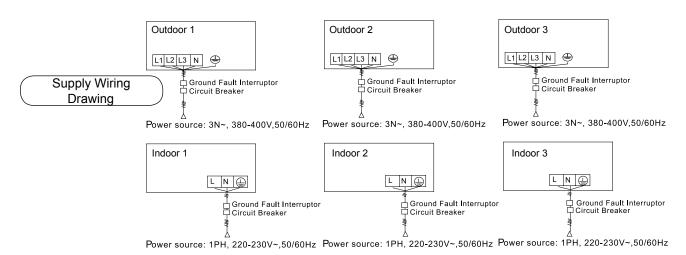
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13.9.2 Electrical Wiring

- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

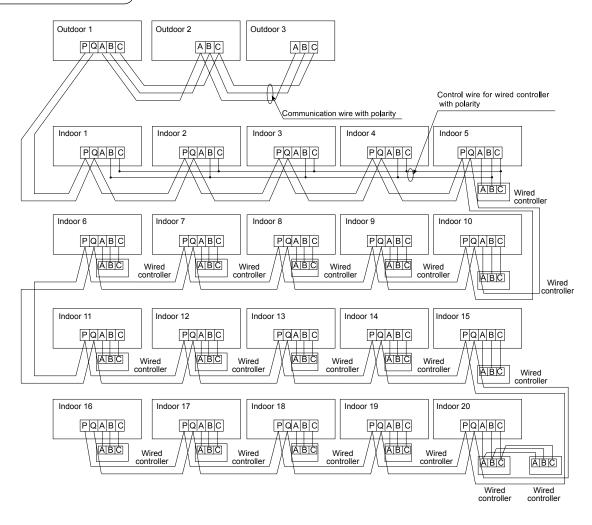
- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below: 3x1.0-1.5) mm²; parameters for signal line: 2x0.75-1.25)mm²(shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.



Signal Wiring Drawing



Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure (1-5 indoor units). The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)
- B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired control are connected via three lines with polarity.
- C. Two wired controllers control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controls can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.



The combination of multiple indoor units can be controlled by wired controller or remote controller.

% Switching mode of Wired control master unit/ Wired control slave unit/ remote control types can be used for switching over %

Setting mode Socket/dip switch	Wired control master unit	Wired control slave unit	Remote control
SW01-[1][2][3][4]	All OFF	[0][0][0][1]	All OFF
CN21 socket	Null	Null	Connect to remote receiver
Terminal block (control)	A, B, C connect with wired controller	B, C connect with wired controller	A, B, C Null

Note:

The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Items	Cross	Rated Rated current of residual circuit Length current of leakage breaker (A)		Cross s area of s		
Total current of indoor units (A)	section (mm²)	(m)	overflow breaker (A)	Leaking current (mA)	Outdoor -indoor (mm ²)	Indoor -indoor (mm²)
<10	2	20	20	20 A, 30 mA, 0.1S or below		
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below	2 cores×(
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below	mm ² shie	lded line
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below		

% The electrical power line and signal lines must be fastened tightly.

※ Every indoor unit must have the ground connection.

% The power line should be enlarged if it exceeds the permissible length.

* Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.

* It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm ² ×3 core shielded line

% The shielding lay of the signal line must be grounded at one end.

% The total length of the signal line shall not be more than 250m.



13.9.3 Test Run

Before Test Run

Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above $1M\Omega$. It can't be operated if it is below $1M\Omega$.

Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.

Check if the arrangements of the drainpipe and connection line are correct.

The drainpipe shall be placed at the lower part while the connection line placed at the upper part.

Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials.

The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.

Checkup of Installation

 \Box Check if the mains voltage is matching

 \Box Check if there is air leakage at the piping joints

- Check if the connections of mains power and indoor & outdoor units are correct
- Check if the serial numbers of terminals are matching $\hfill\square$

 \Box Check if the installation place meets the requirement

 \Box Check if there is too much noise

 \Box Check if the connecting line is fastened

 $\hfill\square$ Check if the connectors for tubing are heat insulated

- $\hfill\square$ Check if the water is drained to the outside
- \Box Check if the indoor units are positioned

Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

Set the wired controller to cooling/heating mode, press "ON/ OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/ OFF" button to quit the compulsive running and stop the operation of the air conditioner.



14. Medium ESP Duct Type Indoor Unit (AD*MNERA)

14.1 Features



AD302MNERA AD382MNERA AD482MNERA

Compact Design Flexible Duct Connection Built in High Head Drain Pump Static Pressure 80/120Pa 3 Models Ranging from 9kW to 14kW



14.2 Specification

	MODEL		AD302MNERA	AD382MNERA	AD482MNERA
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	30.7	38.2	47.8
Cooling	Capacity	kW	9	11.2	14
	Power input	W	490	490	490
	Current	Α	2.2	2.2	2.2
	Capacity	kBtu/h	34.1	42.7	54.6
	Capacity	kW	10	12.5	16
Heating	Power input	W	490	490	490
	Current	Α	2.2	2.2	2.2
	Heating capacity at low temp.	kW	8	10	12.5
Operating current		Α	2.2	2.2	2.2
Power consumption		kW	0.49	0.49	0.49
	Brand		Broad ocean	Broad ocean	Broad ocean
	Model		Y7S423C529	Y7S423C529	Y7S423C529
	Туре		AC	AC	AC
	Insulation class		F	F	F
Indoor motor	IP class		IP20	IP20	IP20
motor	Power input	W	478	478	478
	Power output	W	240/280	240/280	240/280
	Capacitor	μF	12.5 µF /450v	12.5 µF /450v	12.5 µF /450v
	Speed (SH/H/M/L)	rpm		1340/1260/1190/11	10
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		2	2	2
	a. Number of rows		4	4	4
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	21*13.3
	c. Fin spacing	mm	1.45	1.45	1.45
Indoor coil	d. Fin type (code)			Hydrophilic aluminum	
	e. Tube outside dia. and type	mm		Φ7 Inner groove tu	be
	f. Coil length×height ×width	mm	1001×287.5×53.2	1001×287.5×53.2	1001×287.5×53.2
	g. Number of circuits		7	7	7

-

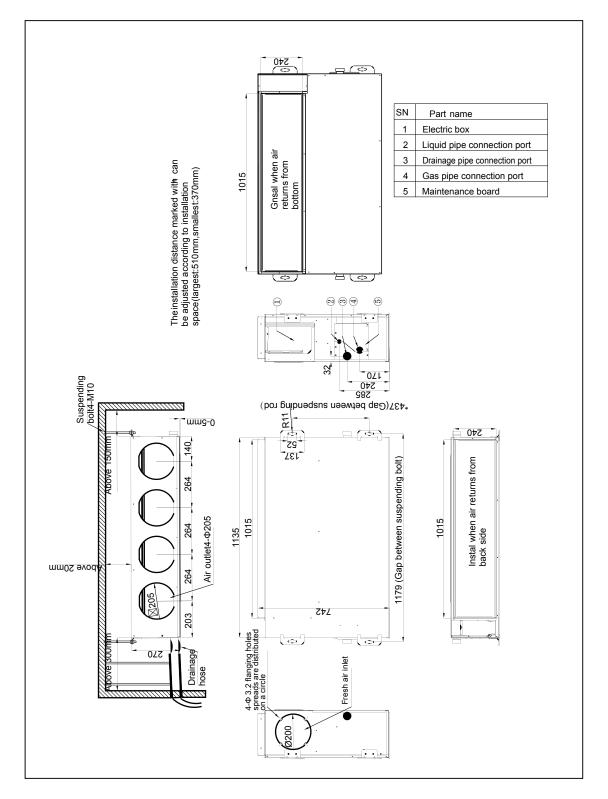


	MODEL		AD302MNERA	AD382MNERA	AD482MNERA	
	Cabinet coating type		Galvanized	Galvanized	Galvanized	
Cabinet	Cabinet salt spray test duration	Hour	72	72	72	
	Control box IP class		IP20	IP20	IP20	
	Sheet metal thickness		0.8	0.8	0.8	
	Drain pan material		Hot zinc plate +PS	Hot zinc plate +PS	Hot zinc plate +PS	
Construction	Drain pan insulation		20	20	20	
	Drain pump option		Optional KT-NP01	Optional KT-NP01	Optional KT-NP01	
	Branch outlet option		No	No	No	
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate	
Indoor Wall	Thickness	mm	0.8	0.8	0.8	
	Double or single skin		Single	Single	Single	
	Material		PP	PP	PP	
Air Filter	Mesh		100	100	100	
	Pressure drop	Pa	5	5	5	
	Liquid pipe	mm	9.52	9.52	9.52	
Piping dimension	Gas pipe	mm	15.88	15.88	15.88	
	Drain hose	mm	38	38	38	
Fresh air dimension		mm	Φ200	Ф200	Ф200	
Sound pressure level (H/M/L)		dB(A)	49/47/43	49/47/43	49/47/43	
Sound power level (H/M/L)		dB(A)	62/60/56	62/60/56	62/60/56	
Standard static pressure		Pa	80	80	80	
Max. static pressure		Pa	120	120	120	
Indoor air flow (H/M/L)		m³/h	1600/1453/1295	1600/1453/1295	1600/1453/1295	
Air outlet dimensions		mm	205*4	205*4	205*4	
Air return dimensions		mm	1015*240	1015*240	1015*240	
Dimension (W*H*D)		mm	1135*270*742	1135*270*742	1135*270*742	
Packing (W*H*D)		mm	1357373 856	1357373 856	1357373 856	
Net weight		kg	50	50	50	
Gross weight kg			56	56	56	

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



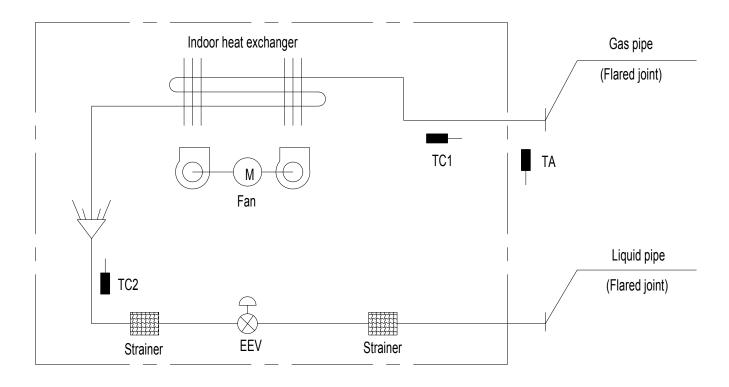
14.3 Dimension



Medium ESP Duct Type Indoor Unit (AD*MNERA)

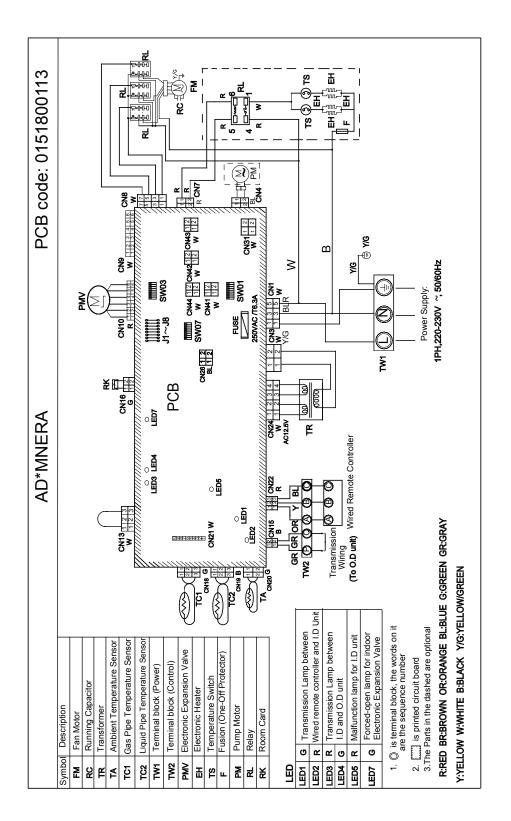


14.4 Piping diagram





14.5 Wiring diagram



Medium ESP Duct Type Indoor Unit (AD*MNERA)



14.6 Electric characteristics

Units				Power supply		Indoor fan motor		Power input (w)		
Model	Phase	FQY	Voltage	Volt range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AD302MNERA	1	50/60	220	198~242	3	9.6	240/280	2.4	490	490
AD382MNERA	1	50/60	220	198~242	3	9.6	240/280	2.4	490	490
AD482MNERA	1	50/60	220	198~242	3	9.6	240/280	2.4	490	490

Symbols:

MCA: Min. circuit amps (A) MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

Note:

1. Voltage range

The units are applicable for the electrical systems where voltage supplied to unit is in the range.

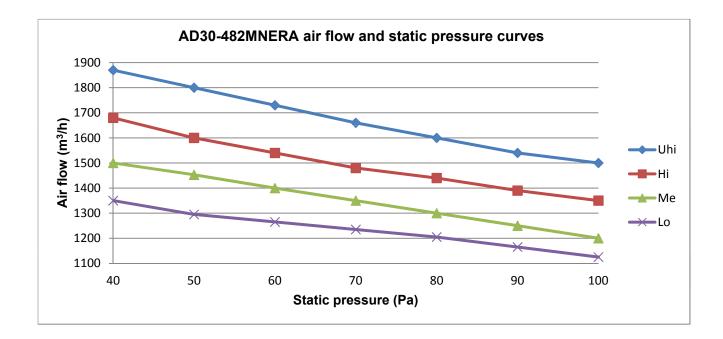
2. Maximum allowable voltage unbalance between phases is 2%.

3. MCA=1.25*FLA MFA≤4*FLA

4. Power supply uses the circuit breaker.



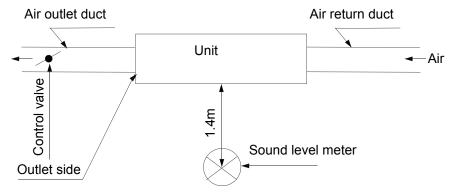
14.7 Air flow static pressure curves





14.8 Sound pressure level

(1) Testing illustrate:

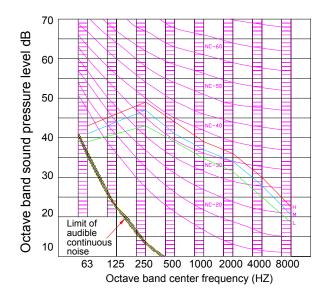


Testing position just below the central of the unit

(2) Testing condition:

- a. Unit running in the standard condition
- b. Test in the semi-anechoic chamber
- c. Noise level varies from the actual factors such as room structure, etc.

(3) Octave band level:





14.9 Installation

14.9.1 Installation Procedures

The standard attached accessories of the units of this series refer to the packing; prepare other accessories according to the requirements of the local installation point of our company.

1. Before installation [before finishing the installation, don't throw away the attached parts required for the installation]

Determine the route to move the unit to the installation site;

Don't tear the package open before moving the unit to the installation site. When unpacking is needed, a soft material or protector block with ropes can be used to lift the unit to avoid damaging or scraping of the unit.

2. Select the installation site

(1) The installation site should be selected according the following conditions, which should be approved by users.

- Where an ideal air distribution can be ensured;
- Where there is no blockage in the air passage;
- Where the condensed water can be drained out properly;
- Where the strength can bear the weight of the indoor unit;
- Where enough space can be ensured for maintenance. The outside air should be input from the outdoor directly from the blast pipe. If the blast pipe can't be jointed, the air can't be input from the suspended ceiling. range (refer to Installation of Outdoor Units)
- Where the distance of at least 1m between indoor units, outdoor units, mains supply, connecting wires and television or radio should be kept as to avoid the image disturbance and noises of the above electrical appliances. (Even if 1m can be ensured, noise might occur if there is strong electric wave.) Additionally, equipments, television or other valuables can't be put under the unit as to avoid the condensed water of the unit from dropping into the above articles, causing damaging.

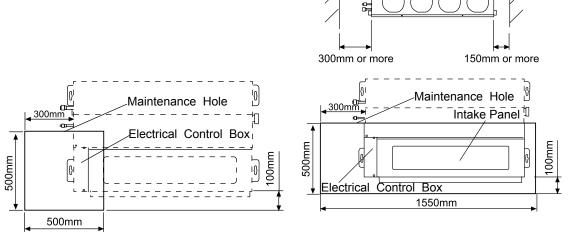
(2) Height of Ceiling:

The ceiling should be located at the place, where the central position of air outlet port is less than 3m high above the ground.

(3) Suspender should be used during installation. Check if the location can bear the weight of the unit. Reinforce it before installation if necessary.

(4) The dimension of maintenance

Make sure that it is easy to demount the electrical control box, fan, motor, filter.



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3. Preparation before Installation

(1) Location relation between inspection hole on the ceiling and the unit and the suspender (unit: mm).

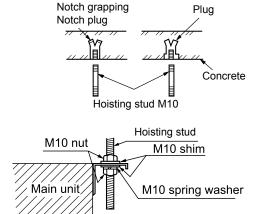
The installation distance with mark * can be adjusted due to the actual space (Max: 510mm, Min: 370mm).

(2) If necessary, make a hole for installation and inspection on the ceiling. (used for the situation with a ceiling)

- For the size of the inspection hole on the ceiling, please refer to the above drawing.
- Before installation, finish all the preparations for all piping connected to indoor units (refrigerant, water drainage) and wiring (connection line of the wired control, connection line between indoor units and outdoor unit) so that they can be connected with indoor units after installation.
- For the inspection hole, the ceiling might be reinforced to keep the evenness of the ceiling and avoid the vibration of the ceiling. For details, please consult the construction contractor.

(3) Install the suspender (M10 bolts)

In order to support the weight of the unit, use barb bolts in the situation with a ceiling. In the situation with the new ceiling, use inlaid bolts, embedded bolts or other parts provided on site. Before proceeding the installation, adjust the gap between the bolt and the ceiling.



(4) Installation of indoor units

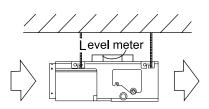
Fix the indoor unit with the hoisting stud. If necessary, the machine can be hanged on the beam with bolts instead of the hoisting stud.

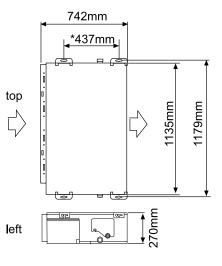
NB:

When the sizes of the master unit don't match the hole on the ceiling, regulate the slot on the hanging bracket.

Adjusting the level

(a) Adjust the level with a level meter or according to the following ways:Make the adjustment as shown in the figure below.



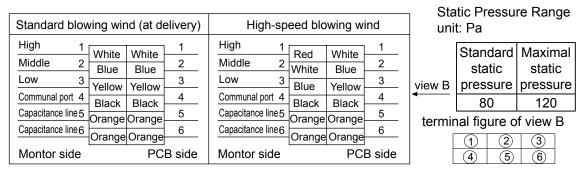




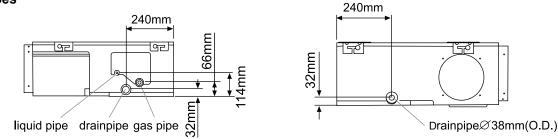
Choice of Blowing Wind from Blower

(when using the high performance filter)

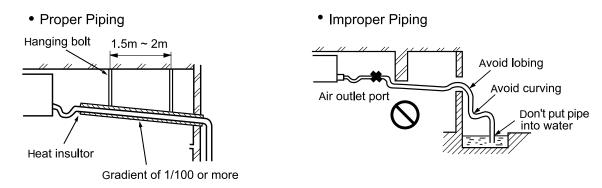
The blower is provided with a red terminal and a white terminal. The standard wind choice has been set before delivery. When the use of optional components, such as the high performance filter, causes the static pressure rising, change the connection of the connector mounted on the side of the control cabinet, as shown as follows.



4. Drain pipes



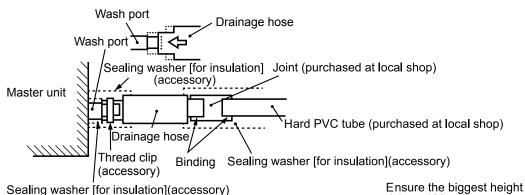
(a) Keep a gradient (1/50-1/100) of the drainpipes and avoid lobbing or curving.



(b) When connecting the drainpipe to the equipment, don't apply too much force on one side of the equipment. Meanwhile, the piping should be positioned as close to the equipment as possible.

(c) For the drainpipe, the general purpose hard PVC tube can be purchased at local shops. During the connection, insert the end of PVC tube into the wash port and fasten it with drainage hose and thread clip. Binding agents shouldn't be used to connect the wash port and drainage hose.

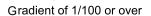




(d) When the laid drain piping is used for multiple equipments, the public piping should be lower about 100mm than the wash ports of equipments, as shown in the figure.

Thicker pipes should be used for this application.

Ensure the biggest height difference (about 100mm)



(e) The hard PVC tube in the room must be provided with the heat insulating layer.

(f) Don't place the drainpipes at the places where there is irritant gas. Don't put the drainpipe directly into the sewer, where there might be gases with sulfur.

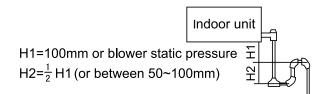
(g) Backwater bend

Because the drainage was laid in the position of binging Subatmospheric pressure easily, gain of elevation of water in the drain pan conduces Leakage water, for avoiding Leakage water, design a Backwater bend.

Configuration of Backwater bend can be cleaned, a " T " joint can be used in installing as shown as in the picture below.

Backwater bend was installed in the neighborhood of air conditioning

A backwater bend was designed in the middle of drain pipe s shown as in the picture below.



Testing Drainage System

(a) After finishing the electrical system, test the drainage system.

(b) During testing, make sure that the water flow passes the piping correctly without any water leakage at the connection.

(c) In the condition of new house, test the drainage system before fitting up the ceiling.

(d) Even if it is installed in the season needed to heating, the testing should also be performed.

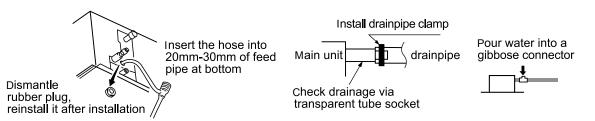
Procedures

(a) Charge 1000cc of water to the equipment via air outlet port.

(b) During cooling operation, check the drainage system.

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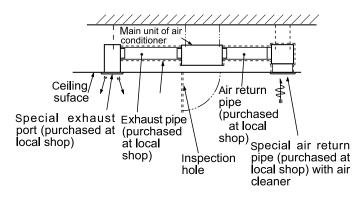




Before completing the electrical connection, a gibbose connector shall be installed on the drainpipe as to provide it with a water inlet port. Then, if any leakage exists in the piping, check it to make the water flow of the drainpipe smooth.

5. Installation of Air Return & Air Exhaust Duct

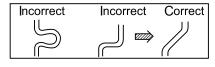
For the choice and installation of air return port, air return pipe, air exhaust port and exhaust pipe, please consult service personnel of Haier company. Calculate the design chart and exterior static pressure, and select the exhaust pipe with appropriate length and shapes.

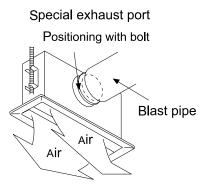


- The length difference between pipes should be limited to be less than 2:1;
- Make the piping as short as possible;
- Keep the min. elbow quantity;
- Wind the heat insulating material around the flange between the master unit and the exhaust pipe for heat insulation and sealing. Install the piping before fitting up the ceiling.

6. Cautions in Installation of Air Return Pipe & Exhaust Pipe

- It is recommended to use the blast pipes, which can be anti-condensation and absorb sound. (purchased at local shops)
- Complete the installation of the blast pipes before fitting up the suspended ceiling.
- Heat insulation should be made for the blast pipes.
- The special exhaust port should be arranged at the place where the air is distributed evenly.
- An inspection hole should be left on the surface of the ceiling for future maintenance.





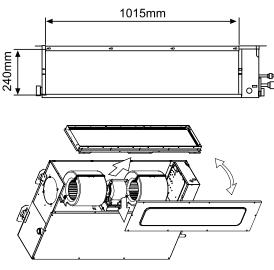
Medium ESP Duct Type Indoor Unit (AD<u>*MNERA</u>

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7. Connection of return air duct (setting back air return opening when leaving factory) Remarks:

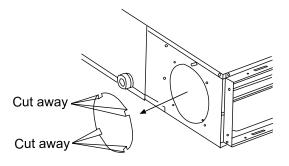
In installation, you can select the lower air return or back air return by adjusting the location of air inlet frame.



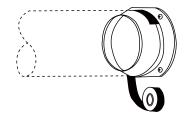
Back air return opening

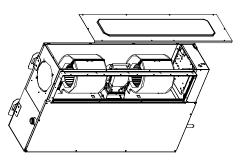
8. Concatenation means of exchanging flesh air

(1) Cut away the nummular component of lateral board



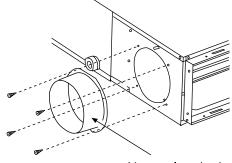
(3) Airproof the joint by airproof cingulum avoiding





Below air return opening

(2) Install the nummular air pipe (air pipe can be purchased in local district)

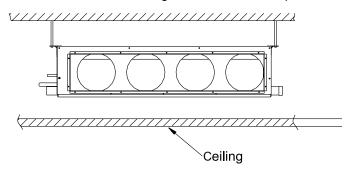


Nummular air pipe



9. Install outlet flange

Install outlet flange basis on the needs, the outlet flange is a standard component, bolts are laid in accessories box.

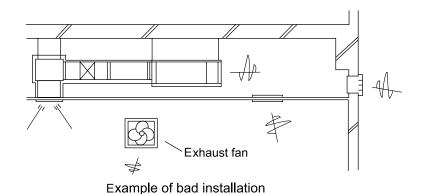


Note:

You can select not to connect with the flange. Instead of it, you can use the round plastic air outlet (purchased by user).

10. Examples for Bad Installation

- The unit is not equipped with the air return pipe and the inner side of the suspending ceiling is used as the blast pipe, causing the humidity increasing due to irregular air mass, strong wind or sunlight from the outside world.
- There might be condensate dropping down at the outer side of the blast pipe. The humidity is high, even if the inner side of the suspended ceiling isn't used as a blast pipe in new concrete buildings. At this time, the whole body should use the thermo wool for heat preservation (the thermo wool can be packed with a steel wire).
- It is operated under the conditions beyond the limits, leading to the overload of the compressor.
- Affected by the capacity of the exhaust fan, and the strong wind and wind direction in the outer flue, when the blowing quantity of the air conditioner exceeds the limits, the drained water of the heat exchanger will overflow, causing water leakage.



11. Refrigerant Tube

Tubing Permissible Length & Height Difference

Please refer to the attached manual of outdoor units.

Piping Materials & Heat Insulating Materials

As to prevent condensation, heat insulating treatment should be performed. The heat insulating treatment for gas and liquid piping should be done respectively.

Dining Material	Hard PVC tube
Piping Material	VP31.5mm (inner bore)
Heat Insulating	Vesicant polythene
Material	thickness: over 7mm



Pipe Materials & Specifications

Model		AD302-482MNERA		
Tubing Size (mm)	Gas pipe	Ф15.88		
Tubing Size (mm)	Liquid pipe	Ф9.52		
Tubing Material	Phosphor deoxy bronze seamless pipe (TP2) for air conditioner			

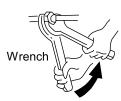
Refrigerant Recharge Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount or compressor failure can be caused by filling too much or little refrigerant.

Connecting Procedures of Refrigerant Tubing

Proceed the flare tube connecting operation to connect all the refrigerant tubes.

- Dual wrenches must be used in the connection of indoor unit tubing.
- Mounting torque refers to the right table



0	
Outer diameter of tubing (mm)	Mounting torque
Ф6.35	11.8~13.7N·m
Ф9.52	32.7~39.9N·m
Φ12.7	49.0~53.9N·m
Ф15.88	78.4~98.0N·m
Ф19.05	97.2~118.6N·m

Connecting

Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one master unit.]

Checkup for Air Leakage

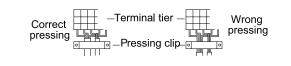
Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.

circular terminals: 1. Connecting circular terminals: The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it. 2. Connecting straight terminals: The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier, tighten the screw and confirm it has been clamped by pulling the

Connecting

line aently. 3. Pressing connecting line:

After connecting line is completed, press the connecting line with clips which should press on the protective sleeve of the connecting line.



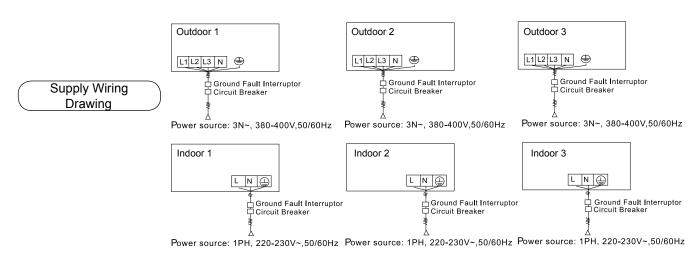
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14.9.2 Electrical wiring

- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

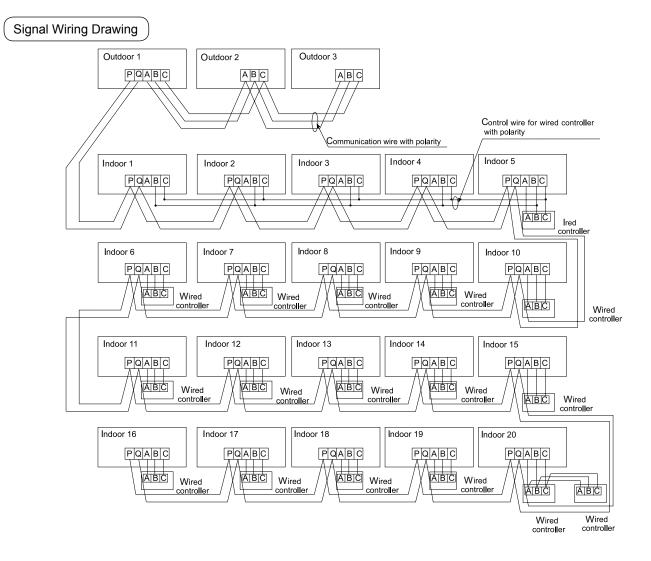
- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below: 3×1.0-1.5) mm²; parameters for signal line: 2×0.75-1.25)mm²(shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.

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Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure (1-5 indoor units). The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)
- B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired control are connected via three lines with polarity.
- C. Two wired controllers control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controls can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.

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The combination of multiple indoor units can be controlled by wired controller or remote controller.

% Switching mode of Wired control master unit/ Wired control slave unit/ remote control types can be used for switching over %

Setting mode Socket/dip switch	Wired control master unit	Wired control slave unit	Remote control
SW01-[1][2][3][4]	All OFF	[0][0][1]	All OFF
CN21 socket	Null	Null	Connect to remote receiver
Terminal block (control)	A, B, C connect with wired controller	B, C connect with wired controller	A, B, C Null

Note:

The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Items	Cross Length current of breaker (A)		Cross		Rated current of residual circuit	Cross s area of s	
Total current of indoor units (A)	section (mm ²)	(m)	overflow breaker (A)	Ground fault interrupter (mA)	Outdoor -indoor (mm ²)	Indoor -indoor (mm²)	
<10	2	20	20	20 A, 30 mA, 0.1S or below			
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below	2 cores×(
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below	mm ² shie	Ided line	
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below			

% The electrical power line and signal lines must be fastened tightly.

* Every indoor unit must have the ground connection.

* The power line should be enlarged if it exceeds the permissible length.

- % Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.
- % It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm ² ×3 core shielded line

% The shielding lay of the signal line must be grounded at one end.

% The total length of the signal line shall not be more than 250m.



14.9.3 Test Run

Before Test Run

- Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above $1M\Omega$. It can't be operated if it is below $1M\Omega$.
- Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.
- Check if the arrangements of the drainpipe and connection line are correct.
- The drainpipe shall be placed at the lower part while the connection line placed at the upper part.
- Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials.
- The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.
- Checkup of Installation
- Check if the mains voltage is matching
- Check if there is air leakage at the piping joints
- $\hfill \Box$ Check if the connections of mains power and indoor & outdoor units are correct
- Check if the serial numbers of terminals are matching
- Check if the installation place meets the requirement
- $\hfill\square$ Check if there is too much noise
- $_{\Box}$ Check if the connecting line is fastened
- Check if the connectors for tubing are heat insulated Check if the water is drained to the outside
- $^{\Box}$ Check if the indoor units are positioned

Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

Set the wired controller to cooling/heating mode, press "ON/ OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/ OFF" button to quit the compulsive running and stop the operation of the air conditioner.



15. Constant Air Volume Duct Type Indoor Unit (AD*MQERA)

15.1 Feature

AD072MQERA AD092MQERA AD122MQERA AD152MQERA AD182MQERA AD242MQERA AD282MQERA AD302MQERA

AD422MQERA AD482MQERA AD542MQERA



- Auto adjusted ESP 0-200Pa
- Low sound level
- Built-in high head drain pump



15.2 Specification

MODEL			AD072MQERA	AD092MQERA
Power supply		V-Ph-Hz	1/220-240/50/60	1/220-240/50/60
	Capacity	kBtu/h	7.6	9.6
Qaalina	Capacity	kW	2.2	2.8
Cooling	Power Input	W	120	120
	Current	А	1.08	1.08
	Capacity	kBtu/h	8.6	10.6
	Capacity	kW	2.5	3.2
Heating	Power Input	W	120	120
	Current	А	1.08	1.08
	Heating capacity at low temp.	kW	2.08	2.67
Operating cu	urrent	А	1.08	1.08
Power consu	umption	W	120	120
	Brand		Broad Ocean	Broad Ocean
	Model		ZWK601B500007	ZWK601B500007
	Туре		DC	DC
	Insulation Class		В	В
INDOOR MOTOR	IP Class		20	20
	Power Input	W	133	133
	Power output	W	120	120
	Capacitor	μF	/	/
	Speed (H)	rpm	1550	1550
	Brand		Haier	Haier
INDOOR FAN	Туре		Cross	Cross
	Quantity		1	1
	a. Number of rows		2	2
	b. Tube pitch(a)x row pitch(b)	mm	13.2	13.2
	c. Fin spacing	mm	1.4	1.4
INDOOR COIL	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
5012	e. Tube outside dia. and type	mm	Φ6.35 Inner groove tube	Φ6.35 Inner groove tube
	f. Coil length x height x width	mm	405x211.2x26.4	405x211.2x26.4
	g. Number of circuits		2	2



MODEL			AD072MQERA	AD092MQERA
	Cabinet Coating Type		Plastic	Plastic
Cabinet	Cabinet Salt Spray Test Duration	Hour	48	48
	Control Box IP Class		I	I
	Sheet Metal Thickness		1.2	1.2
	Drain Pan Material		EPS	EPS
Construction	Drain Pan Insulation		HF-1	HF-1
	Drain Pump Option	mm	600	600
	Branch Outlet Option		NO	NO
	Material		Hot zinc plate	Hot zinc plate
Indoor Wall	Thickness	mm	1.2	1.2
	Double or Single Skin		Single	Single
	Material		PP	PP
Air Filter	Mesh		100	100
	Pressure Drop	Pa	5	5
	Liquid pipe	mm	6.35	6.35
Piping dimension	Gas pipe	mm	9.52	9.52
	Drain hose	mm	31.5	31.5
Fresh air dime	ension	mm	Ø170	Ø170
Sound pressu	ire level (H/M/L)	dB(A)	30/25/23	30/25/23
Sound power	level (H/M/L)	dB(A)	34/29/27	34/29/27
Standard stati	ic pressure	Pa	50	50
Max. static pro	essure	Pa	200	200
Indoor air flow	Indoor air flow (H/M/L)		500/410/360	600/510/450
Air outlet dimensions		mm	247*174*2	247*174*2
Air return dimensions		mm	660*200	660*200
Dimension (W*H*D)		mm	750/635/280	750/635/280
Packing (W*H*D)		mm	980/740/335	980/740/335
Net weight		kg	29	29
Gross weight		kg	35	35

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



MODEL			AD122MQERA	AD152MQERA	
Power supply		V-Ph-Hz	1/220-240/50/60	1/220-240/50/60	
	Capacity	kBtu/h	12.1	15.1	
Caslina	Capacity	kW	3.6	4.5	
Cooling	Power Input	W	181	181	
	Current	А	1.54	1.54	
	Capacity	kBtu/h	13.6	17	
	Capacity	kW	4	5	
Heating	Power Input	W	181	181	
	Current	А	1.54	1.54	
	Heating capacity at low temp.	kW	3.33	4.17	
Operating c	urrent	А	1.54	1.54	
Power cons	umption	W	181	181	
	Brand		Broad Ocean	Broad Ocean	
	Model		ZWK601B500006	ZWK601B500006	
	Туре		DC	DC	
	Insulation Class		В	В	
INDOOR MOTOR	IP Class		20	20	
MOTOR	Power Input	W	207	207	
	Power output	W	186	186	
	Capacitor	μF	1	1	
	Speed (H)	rpm	1550	1550	
	Brand		Haier	Haier	
INDOOR FAN	Туре		Cross	Cross	
	Quantity		1	1	
	a. Number of rows		3	3	
	b. Tube pitch(a)x row pitch(b)	mm	13.2	13.2	
	c. Fin spacing	mm	1.4	1.4	
INDOOR COIL	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum	
	e. Tube outside dia. and type	mm	Φ6.35 Inner groove tube	Ф6.35 Inner groove tube	
	f. Coil length x height x width	mm	610x211.2x39.6	610x211.2x39.6	
	g. Number of circuits		6	6	



MODEL			AD122MQERA	AD152MQERA
	Cabinet Coating Type		Plastic	Plastic
Cabinet	Cabinet Salt Spray Test Duration	Hour	48	48
	Control Box IP Class		I	I
	Sheet Metal Thickness		1.2	1.2
	Drain Pan Material		EPS	EPS
Construction	Drain Pan Insulation		HF-1	HF-1
	Drain Pump Option	mm	600	600
	Branch Outlet Option		NO	NO
	Material		Hot zinc plate	Hot zinc plate
Indoor Wall	Thickness	mm	1.2	1.2
	Double or Single Skin		Single	Single
	Material		PP	PP
Air Filter	Mesh		100	100
	Pressure Drop	Pa	5	5
	Liquid pipe	mm	6.35	6.35
Piping dimension	Gas pipe	mm	12.7	12.7
annonoion	Drain hose	mm	31.5	31.5
Fresh air dime	ension	mm	Ø170	Ø170
Sound pressu	re level (H/M/L)	dB(A)	32/29/26	32/29/26
Sound power	level (H/M/L)	dB(A)	36/33/30	36/33/30
Standard stat	ic pressure	Pa	50	50
Max. static pro	essure	Pa	200	200
Indoor air flow (H/M/L)		m³/h	700/580/500	780/680/600
Air outlet dimensions		mm	247*174*2	247*174*2
Air return dim	ensions	mm	660*200	660*200
Dimension (W*H*D)		mm	750/635/280	750/635/280
Packing (W*H*D)		mm	980/740/335	980/740/335
Net weight		kg	29	29
Gross weight		kg	35	35

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



MODEL			AD182MQERA	AD242MQERA
Power supp	ly	V-Ph-Hz	1/220-240/50/60	1/220-240/50/60
	Capacity	kBtu/h	18.2	24
Qaalina	Capacity	kW	5.6	7.1
Cooling	Power Input	W	181	252.3
	Current	А	1.54	2.08
	Capacity	kBtu/h	20	27
	Capacity	kW	6.3	8
Heating	Power Input	W	181	252.3
	Current	А	1.54	2.08
	Heating capacity at low temp.	kW	5.25	6.67
Operating c	urrent	А	1.54	2.08
Power cons	umption	W	181	252.3
	Brand		Broad Ocean	Broad Ocean
	Model		ZWK601B500006	ZWK601C500005
	Туре		DC	DC
	Insulation Class		В	В
INDOOR MOTOR	IP Class		20	20
MOTOR	Power Input	W	207	272
	Power output	W	186	245
	Capacitor	μF	1	1
	Speed (H)	rpm	1550	1550
	Brand		Haier	Haier
INDOOR FAN	Туре		Cross	Cross
	Quantity		1	2
	a. Number of rows		3	3
	b. Tube pitch(a)x row pitch(b)	mm	13.2	13.2
	c. Fin spacing	mm	1.4	1.4
INDOOR COIL	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e. Tube outside dia. and type	mm	Φ6.35 Inner groove tube	Φ6.35 Inner groove tube
	f. Coil length x height x width	mm	610x211.2x39.6	810x211.2x39.6
	g. Number of circuits		6	6



MODEL			AD182MQERA	AD242MQERA
	Cabinet Coating Type		Plastic	Plastic
Cabinet	Cabinet Salt Spray Test Duration	Hour	48	48
	Control Box IP Class		I	I
	Sheet Metal Thickness		1.2	1.2
	Drain Pan Material		EPS	EPS
Construction	Drain Pan Insulation		HF-1	HF-1
	Drain Pump Option	mm	600	600
	Branch Outlet Option		NO	NO
	Material		Hot zinc plate	Hot zinc plate
Indoor Wall	Thickness	mm	1.2	1.2
	Double or Single Skin		Single	Single
	Material		PP	PP
Air Filter	Mesh		100	100
	Pressure Drop	Pa	5	5
	Liquid pipe	mm	6.35	9.52
Piping dimension	Gas pipe	mm	12.7	15.88
annonoion	Drain hose	mm	31.5	31.5
Fresh air dime	ension	mm	Ø170	Ø170
Sound pressu	re level (H/M/L)	dB(A)	32/29/26	33/29/25
Sound power	level (H/M/L)	dB(A)	36/33/30	37/33/29
Standard stat	ic pressure	Pa	50	50
Max. static pro	essure	Pa	200	200
Indoor air flow	/ (H/M/L)	m³/h	900/780/600	1100/1020/920
Air outlet dimensions		mm	247*174*2	247174*3
Air return dim	ensions	mm	660*200	740*200
Dimension (W*H*D)		mm	750/635/280	950/635/280
Packing (W*H*D)		mm	980/740/335	1180/740/335
Net weight		kg	29	34
Gross weight		kg	35	41

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



MODEL			AD282MQERA	AD302MQERA	
Power supply		V-Ph-Hz	1/220-240/50/60	1/220-240/50/60	
	Capacity	kBtu/h	27.3	30	
Qaalina	Capacity	kW	8	9	
Cooling	Power Input	W	259.3	259.3	
	Current	А	2.14	2.14	
	Capacity	kBtu/h	30.7	34	
	Capacity	kW	9	10	
Heating	Power Input	W	259.3	259.3	
	Current	А	2.14	2.14	
	Heating capacity at low temp.	kW	7.50	8.33	
Operating c	urrent	А	2.14	2.14	
Power cons	umption	W	259.3	259.3	
	Brand		Broad Ocean	Broad Ocean	
	Model		ZWK601C500005	ZWK601C500005	
	Туре		DC	DC	
	Insulation Class		В	В	
INDOOR MOTOR	IP Class		20	20	
MOTOR	Power Input	W	272	272	
	Power output	W	245	245	
	Capacitor	μF	1	1	
	Speed (H)	rpm	1550	1550	
	Brand		Haier	Haier	
INDOOR FAN	Туре		Cross	Cross	
	Quantity		2	2	
	a. Number of rows		3	3	
	b. Tube pitch(a)x row pitch(b)	mm	13.2	13.2	
	c. Fin spacing	mm	1.4	1.4	
INDOOR COIL	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum	
	e. Tube outside dia. and type	mm	Ф6.35 Inner groove tube	Φ6.35 Inner groove tube	
	f. Coil length x height x width	mm	810x211.2x39.6	810x211.2x39.6	
	g. Number of circuits		6	6	



MODEL			AD282MQERA	AD302MQERA
	Cabinet Coating Type		Plastic	Plastic
Cabinet	Cabinet Salt Spray Test Duration	Hour	48	48
	Control Box IP Class		I	I
	Sheet Metal Thickness		1.2	1.2
	Drain Pan Material		EPS	EPS
Construction	Drain Pan Insulation		HF-1	HF-1
	Drain Pump Option	mm	600	600
	Branch Outlet Option		NO	NO
	Material		Hot zinc plate	Hot zinc plate
Indoor Wall	Thickness	mm	1.2	1.2
	Double or Single Skin		Single	Single
	Material		PP	PP
Air Filter	Mesh		100	100
	Pressure Drop	Pa	5	5
	Liquid pipe	mm	9.52	9.52
Piping dimension	Gas pipe	mm	15.88	15.88
annononon	Drain hose	mm	31.5	31.5
Fresh air dime	ension	mm	Ø170	Ø170
Sound pressu	ire level (H/M/L)	dB(A)	33/29/25	33/29/25
Sound power	level (H/M/L)	dB(A)	37/33/29	37/33/29
Standard stat	ic pressure	Pa	50	50
Max. static pro	essure	Pa	200	200
Indoor air flow (H/M/L)		m³/h	1100/1020/920	1500/1320/1220
Air outlet dimensions		mm	247*174*3	247*174*3
Air return dim	ensions	mm	740*200	740*200
Dimension (W*H*D)		mm	950/635/280	950/635/280
Packing (W*H*D)		mm	1180/740/335	1180/740/335
Net weight		kg	34	34
Gross weight		kg	41	41

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



MODEL			AD362MQERA	AD422MQERA	
Power supp	ly	V-Ph-Hz	1/220-240/50/60	1/220-240/50/60	
	Capacity	kBtu/h	36	42	
	Capacity	kW	11.2	12.5	
Cooling	Power Input	W	315.6	315.6	
	Current	А	2.6	2.6	
	Capacity	kBtu/h	40	47	
	Capacity	kW	12.5	14	
Heating	Power Input	W	315.6	315.6	
	Current	А	2.6	2.6	
	Heating capacity at low temp.	kW	10.66	11.66	
Operating c	urrent	А	315.6	315.6	
Power cons	umption	W	2.6	2.6	
	Brand		Broad Ocean	Broad Ocean	
	Model		SSA512T108D/ SSA512T109C	SSA512T108D/ SSA512T109C	
	Туре		DC	DC	
INDOOR	Insulation Class		В	В	
MOTOR	IP Class		20	20	
	Power Input	W	234	234	
	Power output	W	212	212	
	Capacitor	μF	1	1	
	Speed (H)	rpm	1550	1550	
	Brand		Haier	Haier	
INDOOR FAN	Туре		Cross	Cross	
	Quantity		3	3	
	a. Number of rows		4	4	
	b. Tube pitch(a)x row pitch(b)	mm	13.2	13.2	
	c. Fin spacing	mm	1.4	1.4	
INDOOR COIL	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum	
	e. Tube outside dia. and type	mm	Φ9.52 Inner groove tube	Φ9.542Inner groove tube	
	f. Coil length x height x width	mm	1210x211.2x39.6	1210x211.2x39.6	
	g. Number of circuits		6	6	

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MODEL			AD362MQERA	AD422MQERA
	Cabinet Coating Type		Plastic	Plastic
Cabinet	Cabinet Salt Spray Test Duration	Hour	48	48
	Control Box IP Class		I	I
	Sheet Metal Thickness		1.2	1.2
	Drain Pan Material		EPS	EPS
Construction	Drain Pan Insulation		HF-1	HF-1
	Drain Pump Option	mm	600	600
	Branch Outlet Option		NO	NO
	Material		Hot zinc plate	Hot zinc plate
Indoor Wall	Thickness	mm	1.2	1.2
	Double or Single Skin		Single	Single
	Material		PP	PP
Air Filter	Mesh		100	100
	Pressure Drop	Pa	5	5
	Liquid pipe	mm	9.52	9.52
Piping dimension	Gas pipe	mm	15.88	15.88
amension	Drain hose	mm	31.5	31.5
Fresh air dimension		mm	Ø170	Ø170
Sound pressu	re level (H/M/L)	dB(A)	38/36/30	38/36/30
Sound power	level (H/M/L)	dB(A)	42/40/34	42/40/34
Standard stat	ic pressure	Ра	50	50
Max. static pro	essure	Ра	200	200
Indoor air flow	/ (H/M/L)	m³/h	1700/1510/1400	2000/1780/1620
Air outlet dimensions		mm	247*174*4	247*174*4
Air return dimensions		mm	1280*235	1280*235
Dimension (W*H*D)		mm	1370/740/280	1370/740/280
Packing (W*H*D)		mm	1555/839/380	1555/839/380
Net weight		kg	54	54
Gross weight		kg	68	68

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



MODEL			AD482MQERA	AD542MQERA	
Power supp	ly	V-Ph-Hz	1/220-240/50/60	1/220-240/50/60	
	Capacity	kBtu/h	48	54	
O a a l'as a	Capacity	kW	14	16	
Cooling	Power Input	W	366.8	366.8	
	Current	А	2.86	2.86	
	Capacity	kBtu/h	54	60	
	Capacity	kW	16	18	
Heating	Power Input	W	366.8	366.8	
	Current	А	2.86	2.86	
	Heating capacity at low temp.	kW	13.33	15	
Operating c	urrent	А	366.8	366.8	
Power cons	umption	W	2.86	2.86	
	Brand		Broad Ocean	Broad Ocean	
	Model		SSA512T108D/ SSA512T110C	SSA512T108D/ SSA512T110C	
	Туре		DC	DC	
INDOOR	Insulation Class		В	В	
MOTOR	IP Class		20	20	
	Power Input	W	270	270	
	Power output	W	254	254	
	Capacitor	μF	1	1	
	Speed (H)	rpm	1550	1550	
	Brand		Haier	Haier	
INDOOR FAN	Туре		Cross	Cross	
	Quantity		3	3	
	a. Number of rows		4	4	
	b. Tube pitch(a)x row pitch(b)	mm	13.2	13.2	
	c. Fin spacing	mm	1.4	1.4	
INDOOR COIL	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum	
JUL	e. Tube outside dia. and type	mm	Φ9.52 Inner groove tube	Φ9.52 Inner groove tube	
	f. Coil length x height x width	mm	1210x211.2x39.6	1210x211.2x39.6	
	g. Number of circuits		6	6	



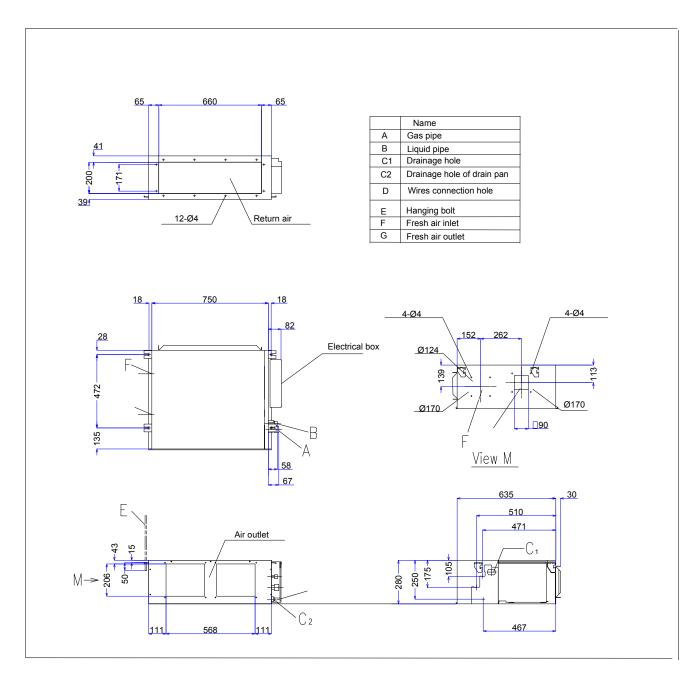
MODEL			AD482MQERA	AD542MQERA
	Cabinet Coating Type		Plastic	Plastic
Cabinet	Cabinet Salt Spray Test Duration	Hour	48	48
	Control Box IP Class		I	I
	Sheet Metal Thickness		1.2	1.2
	Drain Pan Material		EPS	EPS
Construction	Drain Pan Insulation		HF-1	HF-1
	Drain Pump Option	mm	600	600
	Branch Outlet Option		NO	NO
	Material		Hot zinc plate	Hot zinc plate
Indoor Wall	Thickness	mm	1.2	1.2
	Double or Single Skin		Single	Single
	Material		PP	PP
Air Filter	Mesh		100	100
	Pressure Drop	Pa	5	5
	Liquid pipe	mm	9.52	9.52
Piping dimension	Gas pipe	mm	15.88	15.88
annonoion	Drain hose	mm	31.5	31.5
Fresh air dimension		mm	Ø170	Ø170
Sound pressu	re level (H/M/L)	dB(A)	40/34/29	40/34/29
Sound power	level (H/M/L)	dB(A)	44/38/33	44/38/33
Standard stat	ic pressure	Ра	50	50
Max. static pro	essure	Ра	200	200
Indoor air flow	/ (H/M/L)	m³/h	2280/1920/1780	2280/1920/1780
Air outlet dimensions		mm	247*174*4	247*174*4
Air return dimensions		mm	1280*235	1280*235
Dimension (W*H*D)		mm	1370/740/280	1370/740/280
Packing (W*H*D)		mm	1555/839/380	1555/839/380
Net weight		kg	54	54
Gross weight		kg	68	68

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



15.3 Dimension

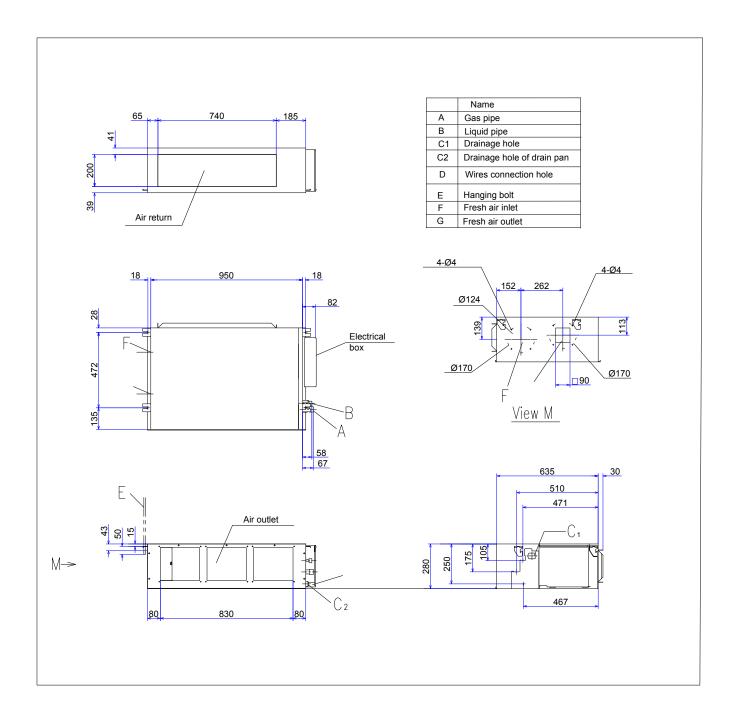
AD07-182MQERA dimension



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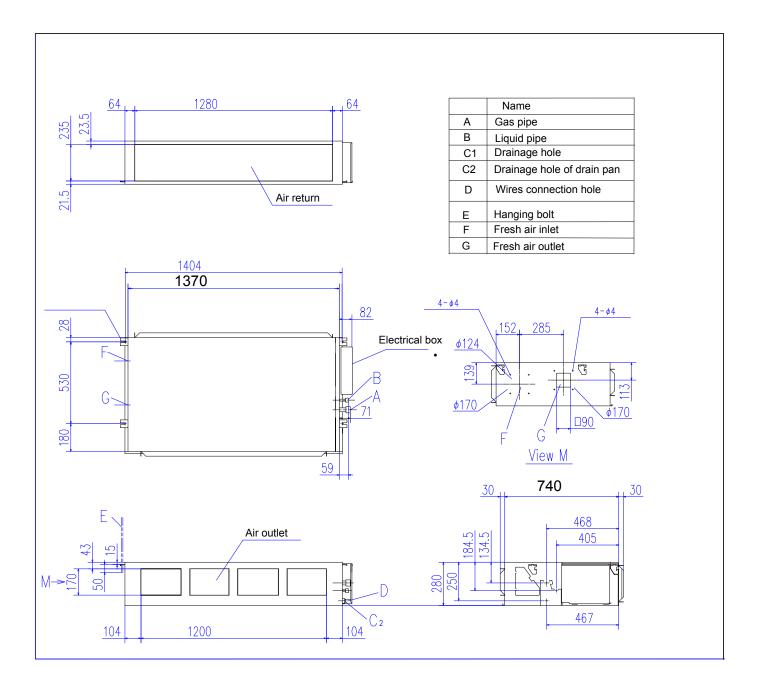


AD24-302MQERA dimension





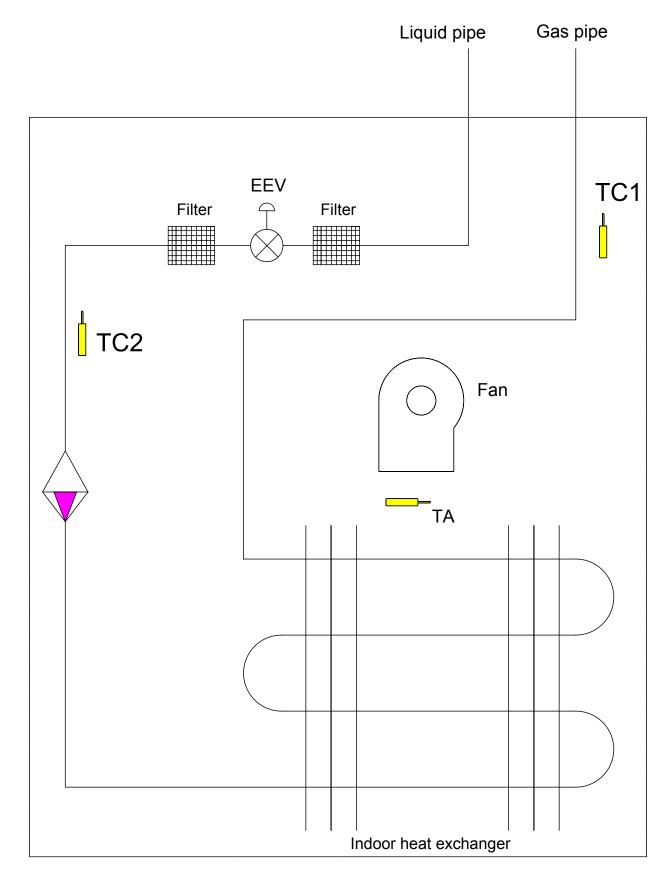
AD36-542MQERA dimension



_



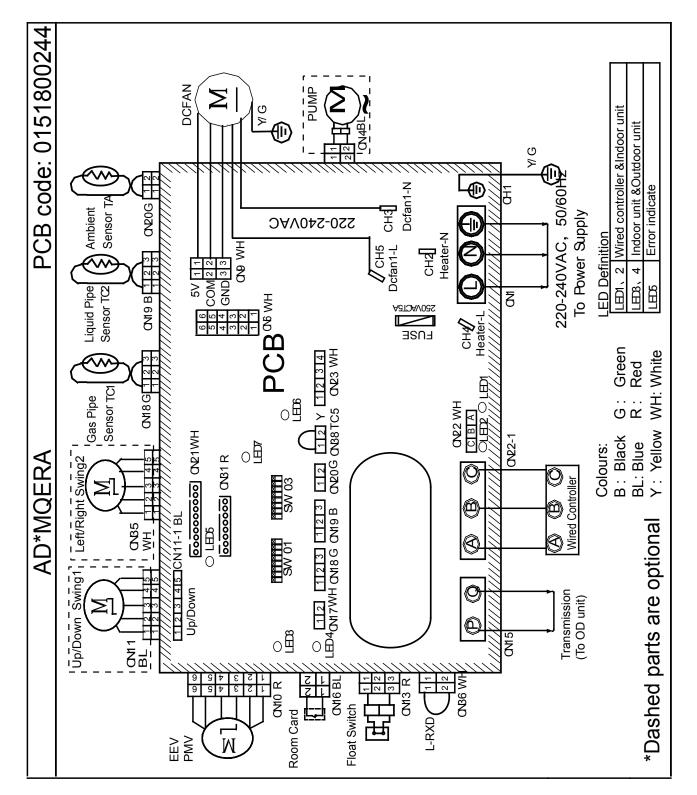
15.4 Piping diagram





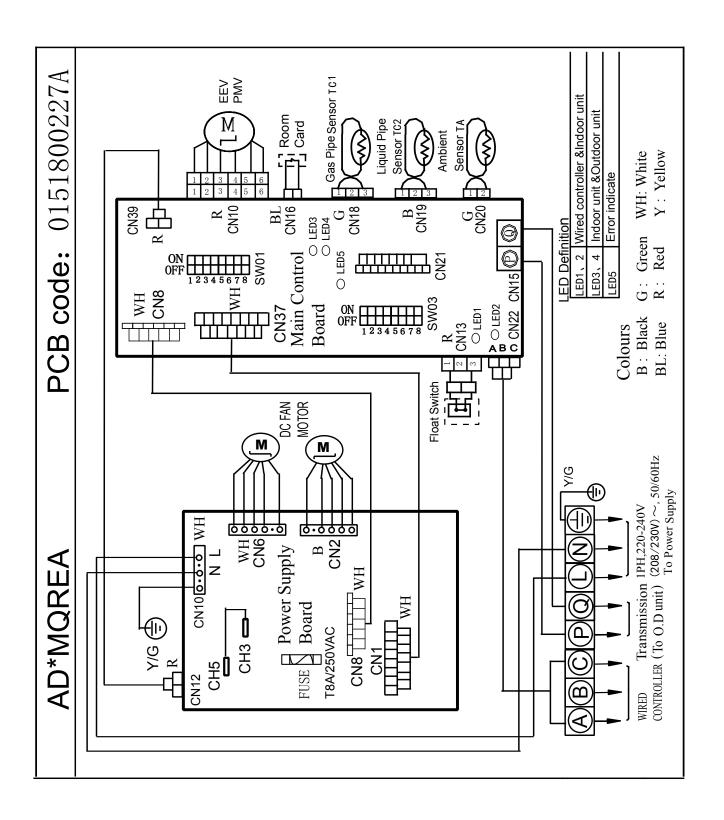
15.5 Wiring diagram

AD072-302MQERA





AD362-542MQERA



Constant Air Volume Duct Type Indoor Unit (AD*MQERA



15.6 Electric characteristics

Units				Power	supply	Indoor fan motor		Power input (W)		
Model	Phase	FQY	Voltage	Volt. range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AD072MQERA	1	50/60	220	198~242	1.35	4.32	120	1.08	120	120
AD092MQERA	1	50/60	220	198~242	1.35	4.32	120	1.08	120	120
AD122MQERA	1	50/60	220	198~242	1.93	6.16	186	1.54	181	181
AD152MQERA	1	50/60	220	198~242	1.93	6.16	186	1.54	181	181
AD182MQERA	1	50/60	220	198~242	1.93	6.16	186	1.54	181	181
AD242MQERA	1	50/60	220	198~242	2.60	8.32	245	2.08	252.3	252.3
AD282MQERA	1	50/60	220	198~242	2.68	8.56	245	2.14	259.3	259.3
AD302MQERA	1	50/60	220	198~242	2.68	8.56	245	2.14	259.3	259.3
AD362MQERA	1	50/60	220	198~242	3.25	10.40	212	2.60	315.6	315.6
AD422MQERA	1	50/60	220	198~242	3.25	10.40	212	2.60	315.6	315.6
AD482MQERA	1	50/60	220	198~242	3.58	11.44	254	2.86	366.8	366.8
AD542MQERA	1	50/60	220	198~242	3.58	11.44	254	2.86	366.8	366.8

Symbols:

MCA: Min. circuit amps (A)

MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A) *Notes*:

1. Voltage range

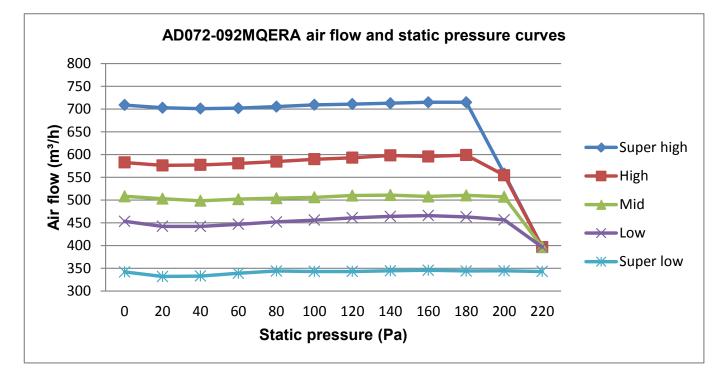
The units are applicable for the electrical systems where voltage supplied to unit is in the range.

2. Maximum allowable voltage unbalance between phases is 2%.

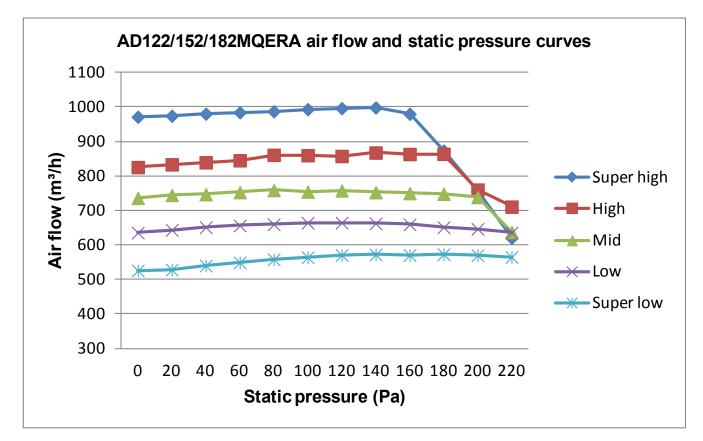
3. MCA=1.25*FLA MFA≤4*FLA.

4. Power supply uses the circuit breaker.



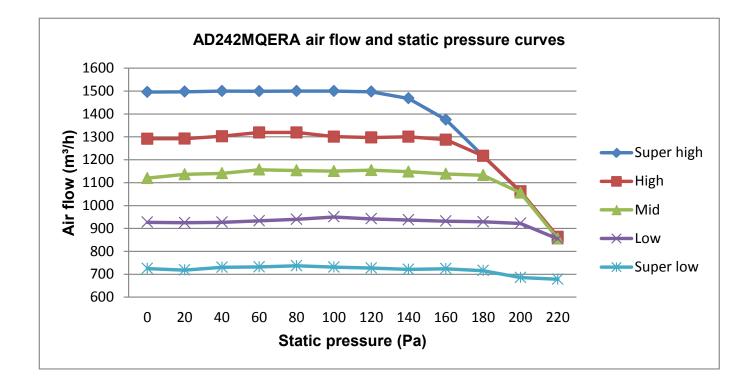


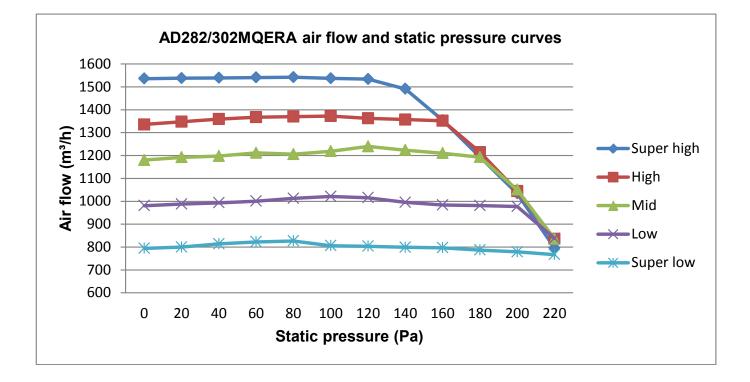
15.7 Airflow and static pressure curves



Constant Air Volume Duct Type Indoor Unit (AD*MQERA

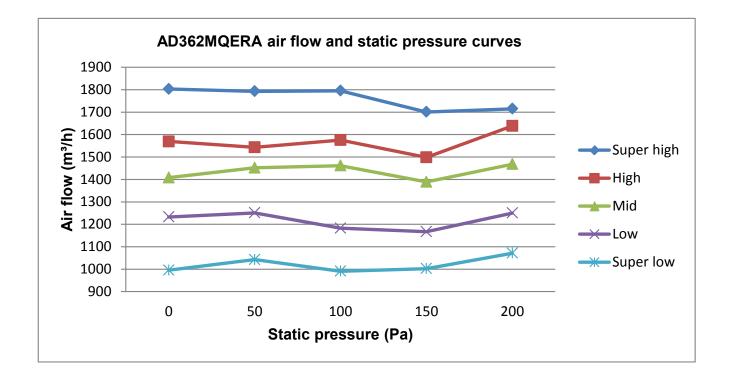


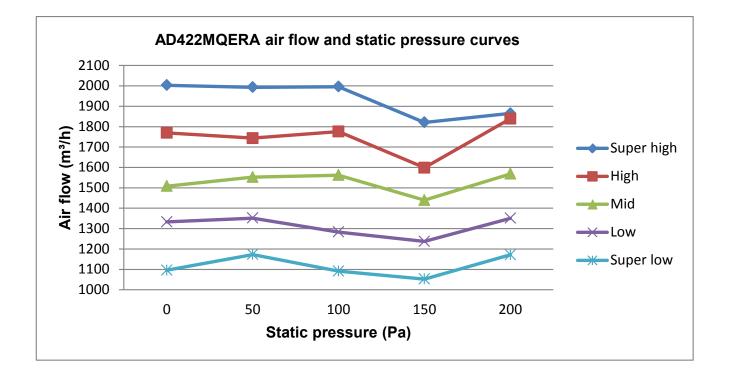




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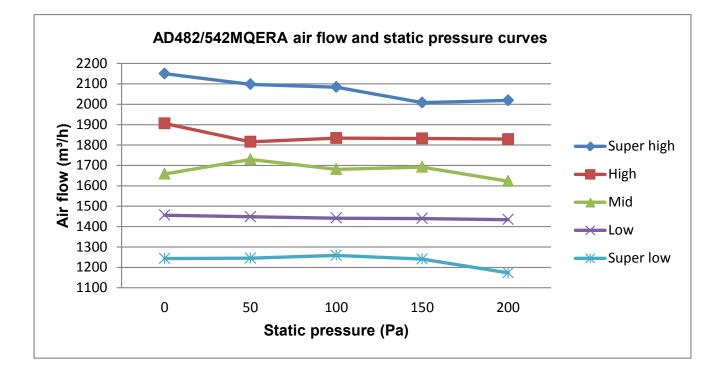






Constant Air Volume Duct

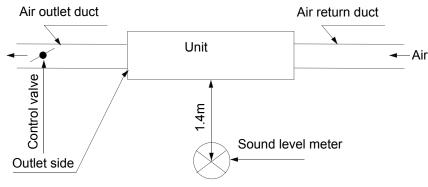






15.8 Sound pressure level

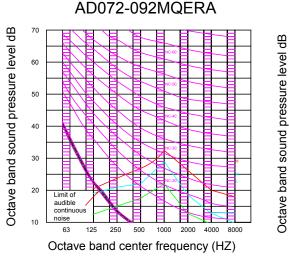
(1) Testing illustrate:

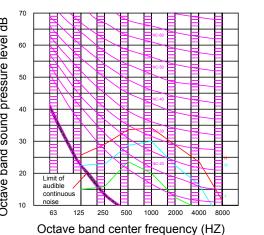


Testing position just below the central of the unit

- (2) Testing condition:
- a. Unit running in the standard condition
- b. Test in the semi-anechoic chamber

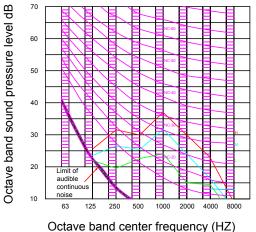
c. Noise level varies from the actual factors such as room structure, etc.



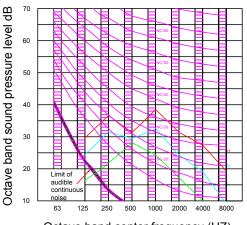


AD122-182MQERA

AD242MQERA

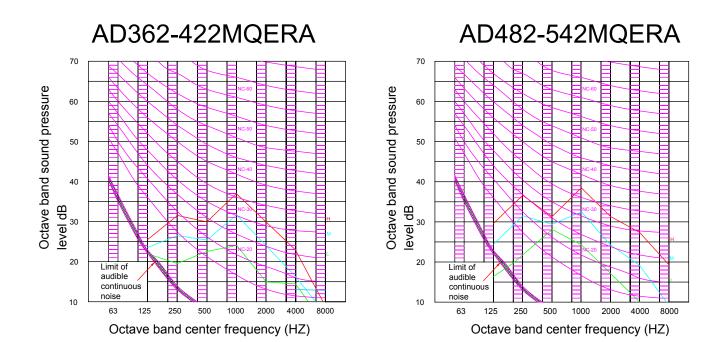


AD282-302MQERA



Octave band center frequency (HZ)





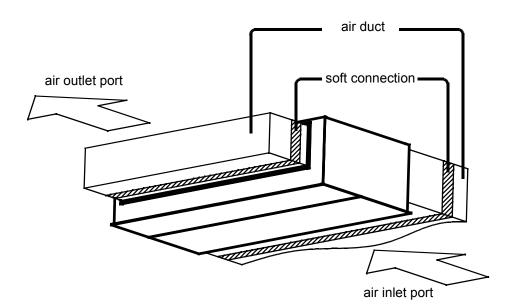
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15.9 Installation

15.9.1 Parts and functions

Indoor unit



15.9.2 Safety

- If the air conditioner is transferred to a new user, this manual shall be transferred to the user, together with the conditioner.
- Before installation, be sure to read Safety Considerations in this manual for proper installation.
- The safety considerations stated below is divided into "▲ Warning" and "▲ Attention". The matters on severe accidents caused from wrong installation, which is likely to lead to death or serious injury, are listed in "▲ Warning". However, the matters listed in "▲ Attention" are also likely cause the severe accidents. In general, both of them are the important items related to the security, which should be strictly abided by.
- After the installation, perform test run to make sure everything is in normal conditions, and then operate and maintain the air conditioner in accordance with the User Manual. The User Manual should be delivered to the user for proper keeping.



▲ WARNING

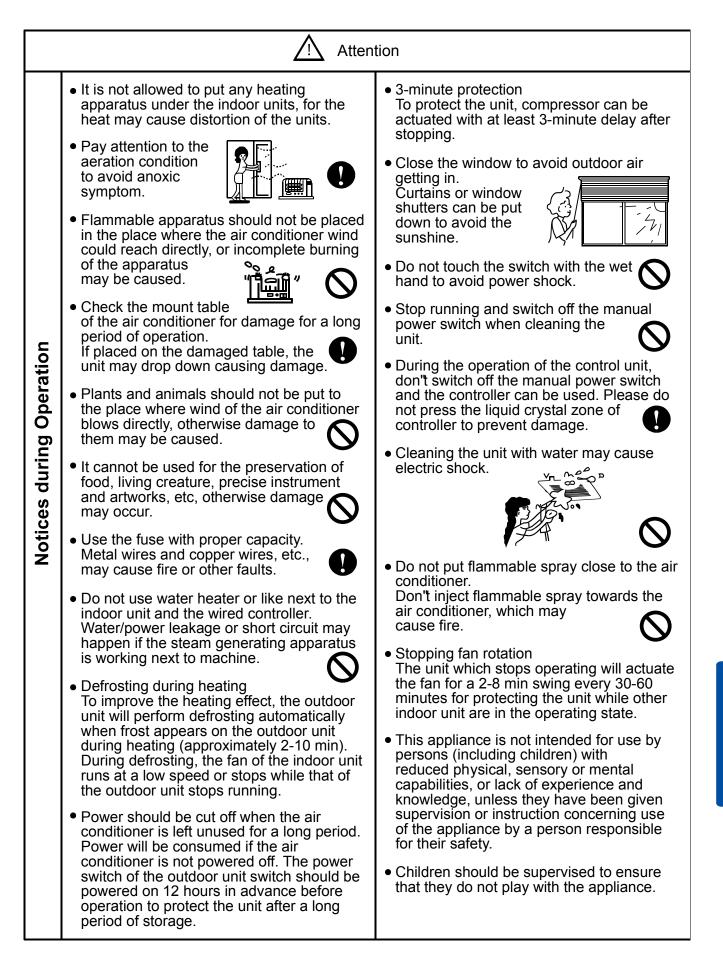
- Please ask the special maintenance station for installation and repair. Water leakage, electric shocks or fire accidents might be caused from improper installation if you conduct the installation by your own.
- The installation should be conducted properly according to this manual. Water leakage, electric shocks or fire accidents might be caused from improper installation. Please make sure to install the air conditioner on the place where can bear the weight of the air conditioner.
- The air conditioner can't be installed on the grids such as the non-special metal burglar-proof net. The place with insufficient support strength might cause the dropdown of the machine, which may lead to personal injuries.
- The installation should be ensured against typhoons and earthquakes, etc. The installation unconformable to the requirements will lead to accidents due to the turnover of the machine.
- Specific cables should be used for reliable connections of the wirings. Please fix the terminal connections reliably to avoid the outside force applied on the cables from being impressed on the cables. Improper connections and fixings might lead to such accidents as heating or fire accidents.
- Correct shapes of wirings should be kept while the embossed shape is not allowed. The wirings should be reliably connected to avoid the cover and the plate of the electrical cabinet lipping the wiring. Improper installation might cause such accidents as heating or fire accidents.
- While placing or reinstalling the air conditioner, except the specific refrigerant (R410A), don't let the air go into the refrigeration cycle system. The air in the refrigeration cycle system might lead to the cracking or personal injuries due to abnormal high pressure of the refrigeration cycle system.
- During installation, please use the accompanied spare parts or specific parts. If not, water leakage, electric shocks, fire accidents or refrigerant leakage might be caused.
- Don't drain the water from the drainpipe to the waterspout where may exist harmful gases such as sulfureted gas to avoid the harmful gases entering into the room.
- During installation, if refrigerant leakage occurs, ventilation measures should be taken, for the refrigerant gas might generate harmful gases upon contacting the flame.
- After installation, check if any refrigerant leakage exists. If the refrigerant gas leaks in the room, such things as air blowing heaters and stoves, etc. may generate harmful gases.
- Don't install the air conditioner at the places where the flammable gases may leak. In case the gas leakage occurs around the machine, such accidents as fire disasters may be caused.
- The drainpipe should be properly mounted according to this manual as to ensure the smooth drainage. In addition, heat preservation should be taken to avoid condensation. Improper drainpipe mounting might cause water leakage, which will get the articles at home wet.
- The refrigerant gas pipe and liquid pipe should be heat insulated to preserve heat. For inappropriate heat insulation, the water caused from the condensation will drop to get the article at home wet.

ATTENTION

- The air conditioner should be effectively grounded. Electric shocks may occur if the air conditioner is ungrounded or inappropriately grounded. The wire for earthing shouldn't be connected to the connections on the gas pipe, water pipe, lightning rod or telephone.
- The breaker for electricity leakage should be mounted. If not, accidents such as electric shocks may happen.
- The installed air conditioner should be checked for electricity leakage by being powered.
- If the ambient humidity bigger than 80%, when the water discharge hole be blocked or the filter becomes dirty, or airflow speed change, there maybe leads to condensing water drop down, and at the same time there maybe some drops of water spit out.

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15.9.3 Maintenance

* Only when the air cleaner is switched off and disconnected to the power supply can it be cleaned, or electric shock and injury may appear.

Cleaning the air outlet port and the shell:
 Attention Don't use gasoline, benzene, diluents, polishing powder or liquid insecticide to clean them. Do not clean them with hot water of above 50°C to avoid fading or distorting.
 Wipe them with soft dry cloth. Water or neutral dry cleanser is recommended if the dust cannot be removed. The Wind Deflector can be dismantled to clean (as below).

(Cleaning Wind Deflector:)

· Do not wipe the wind deflector with water forcibly to avoid falling off.

Cleaning Air Cleaner:

- 🛆 Attention ·

- Don't rinse the air cleaner with hot water of above 50°C to avoid fading and distorting.
- Don't put the air cleaner on the fire to dry to avoid catching fire.
- Wipe dust with water or dust collector. (A) Wipe dust with dust collector.

(B) Clean it with soft bush in mild detergent if there is too much dust on it



Throw off the water and airing it in the cool dry condition.



Maintenance before and after Operating Season

Before Operating Season:

- 1. Please make the following checkup. If abnormal condition occurs, consult the after-service personnel.
- There is no blockage in inlet port and outlet port of outdoor and indoor units.
- The ground line and the wiring are in the proper state
- 2. After cleaning, the air cleaner must be mounted.
- 3. Switch on to the power.

After Operating Season:

1. In sunny days, blowing operation can be performed for half a day to make the inside of machine dry.

2. Electrical power should be cut down to economize electricity, or the machine will still consume power. Air cleaner and shell must be mounted after cleaning.



15.9.4 Fault checkup

Please check the following when consigning repair service:

	Symptoms	Reasons		
		Water flow sound can be heard when starting operation, during		
		operation or immediately after stopping operation. When it starts		
	Water flow sound	to work for 2-3 minutes, the sound may become louder, which is		
		the flowing sound of refrigerant or the draining sound of condensed		
		water.		
		During operation, the air conditioner may make the cracking		
	 Cracking sound 	sound, which is caused from the temperature changes or the		
		slight dilation of heat exchanger.		
l ä	Terrible smell in outlet air	The terrible smell, caused from walls, carpet, furniture, clothing,		
q		cigarette and cosmetics, attaches on the conditioner.		
are not problems	Flashing operating indicator	When switching it on again after power failure, turn on the manual		
<u> </u>		power switch and the operating indicator flashes.		
are		It displays the awaiting indication as it fails to perform refrigerating		
1 1	Awaiting indication	operation while other indoor units are in heating operation. When		
All these		the operator set it to the refrigerating or heating mode and the		
E I		operation is opposite to the setting, it displays the awaiting indication.		
[∞]	Sound in shutdown indoor unit or	To prevent oil and refrigerant from blocking the shutdown indoor		
		units, refrigerant flows in the short time and make the sounds		
	white steam or cold air	of refrigerant flowing. Otherwise, when other indoor units performs		
		heating operation, white steam may occur; during refrigerating		
		operation, cold air may appear.		
	Clicking sound when switching the	When the conditioner is powered on, the sound is made due		
	air condition on	to the resetting of the expansion valve.		
	Start or stop working automatically	Check if it is in the state of Timer-ON and Timer-OFF.		
	Failure to work	Check if there is a power failure.		
<u>×</u>		Check if the manual power switch is turned off.		
р Ч		Check if the supply fuse and breaker are disconnected.		
5		Check if the protective unit is working.		
the		Check if refrigerating and heating functions are selected		
Please make another check.	N P	simultaneously with the awaiting indication on line control.		
		Check if air intake port and air outlet port of outdoor units are		
		blocked.		
		Check if the door and windows are open.		
	Bad cooling & heating effects	Check if the filtering screen of air cleaner is blocked with sludge		
₽		or dust.		
		Check if the setting of wind quantity is at low wind.		
		Check if the setting of operation is at the Fan Operation state.		
		Check if the temperature setting is proper.		

Under the following circumstances, immediately stop the operation, disconnect the manual supply switch and contact the after-service personnel.

- When buttons are inflexible actuated;
- · When fuse and breaker have been burnt over and over;
- When there are foreign objects and water in the refrigerator;
- When it cannot still be operated after removing the operation of protective unit;
- When other abnormal conditions occur.

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15.9.5 Installation procedures

The standard attached accessories of the units of this series refer to the packing; prepare other accessories according to the requirements of the local installation point of our company.

1. Before installation [before finishing the installation, don't throw away the attached parts required for the installation]

- Determine the route to move the unit to the installation site;
- Don't tear the package open before moving the unit to the installation site. When unpacking is needed, a soft material or protector block with ropes can be used to lift the unit to avoid damaging or scraping of the unit.

2. Select the installation site

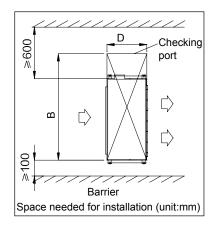
(1) The installation site should be selected according the following conditions, which should be approved by users.

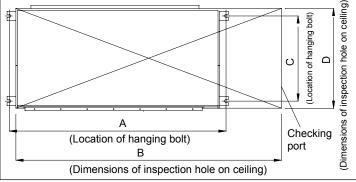
- where an ideal air distribution can be ensured;
- where there is no blockage in the air passage;
- where the condensed water can be drained out properly;
- · where the strength can bear the weight of the indoor unit;
- where enough space can be ensured for maintenance. The outside air should be input from the outdoor directly from the blast pipe. If the blast pipe can't be jointed, the air can't be input from the suspended ceiling.
- where the lengths of the piping between indoor units and outdoor units are within the allowable range (refer to Installation of Outdoor Units)
- where the distance of at least 1m between indoor units, outdoor units, mains supply, connecting wires and television or radio should be kept as to avoid the image disturbance and noises of the above electrical appliances. (Even if 1m can be ensured, noise might occur if there is strong electric wave.) Additionally, equipments, television or other valuables can't be put under the unit as to avoid the condensed water of the unit from dropping into the above articles, causing damaging.

(2) Height of Ceiling:

The ceiling should be located at the place, where the central position of air outlet port is less than 3m high above the ground.

(3) Hoisting studs should be used during installation. Check if the location can bear the weight of the unit. Reinforce it before installation if necessary.





Size	A	В	С	D
Model	(mm)	(mm)	(mm)	(mm)
AD072-182MQERA	786	1100	472	635
AD242-302MQERA	986	1300	472	635
AD362-542MQERA	1404	1720	530	738

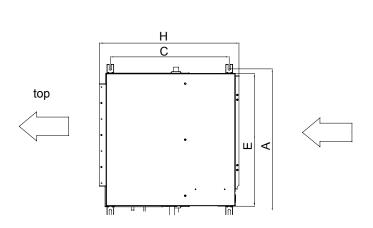


280mm

3. Preparation before Installation

(1) Location relation between inspection hole on the ceiling and the unit and the hoisting studs (unit: mm).

S S	ize A	C	E	Н
Model	(mm)	(mm)	(mm)	(mm)
AD072-182MQE	RA 786	472	750	695
AD242-302MQE	RA 986	472	950	695
AD362-542MQE	RA 1404	530	1368	798



(2) If necessary, make a hole for installation and inspection on the ceiling. (used for the situation with a ceiling)

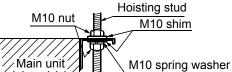
- For the size of the inspection hole on the ceiling, please refer to the above drawing.
- Before installation, finish all the preparations for all piping connected to indoor units (refrigerant, water drainage) and wiring (connection line of the line control, connection line between indoor units and outdoor unit) so that they can be connected with indoor units right after installation.
- For the inspection hole, the ceiling might be reinforced to keep the evenness of the ceiling and avoid the vibration of the ceiling. For details, please consult the construction contractor.

(3) Install the hoisting studs (M10 bolts)

In order to support the weight of the unit, use barb bolts in the situation with a ceiling. In the situation with the new ceiling, use inlaid bolts, embedded bolts or other parts provided on site. Before proceeding the installation, adjust the gap between the bolt and the ceiling.

(4) Installation of Indoor Units

• Fix the indoor unit with the hoisting stud. If necessary, the machine can be hanged on the beam with bolts instead of the hoisting stud. Notch grapping Plug notch plug



When the sizes of the main unit don't match the hole on the ceiling, regulate the slot on the hanging bracket.

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Adjusting the level

NB:

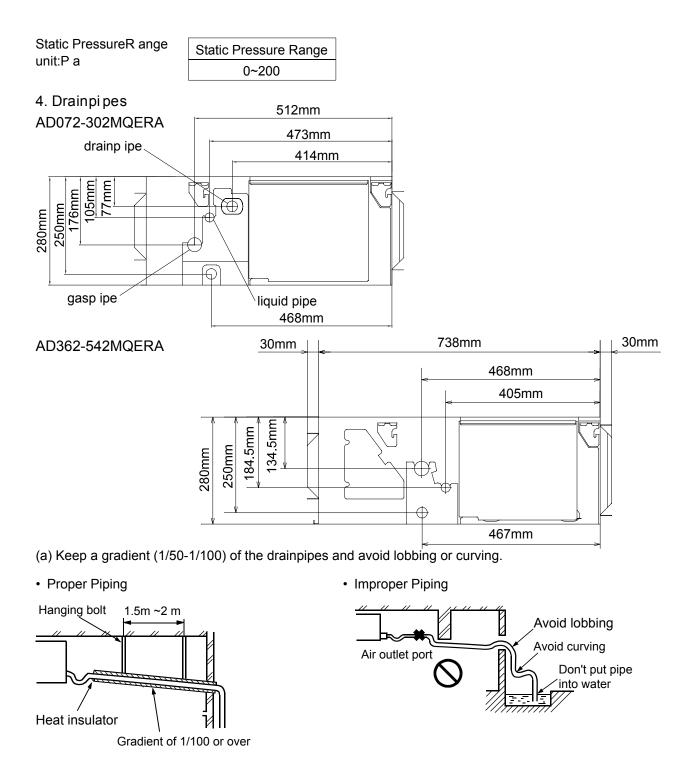
Adjust the level with a level meter or according to the following ways:

Adjusting the level

• Make the adjustment as shown in the figure.

levelm eter

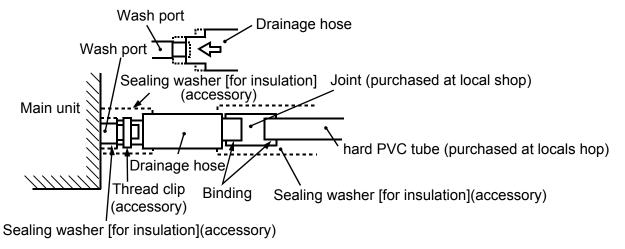




(b) When connecting the drainpipe to the equipment, don't apply too much force on one side of the equipment. Meanwhile, the piping should be positioned as close to the equipment as possible.

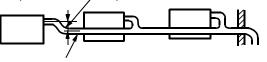
(c) For the drainpipe, the general purpose hard PVC tube can be purchased at local shops. During the connection, insert the end of PVC tube into the wash port and fasten it with drainage hose and thread clip. Binding agents shouldn't be used to connect the wash port and drainage hose.





(d) When the laid drain piping is used for multiple equipments, the public piping should be lower about 100mm than the wash ports of equipments, as shown in the figure.Thicker pipes should be used for this application.

Ensure the biggest height difference (about 100mm)



Gradient of 1/100 or over

(e) The hard PVC tube in the room must be provided with the heat insulating layer.

(f) Don't place the drainpipes at the places where there is irritant gas. Don't put the drainpipe directly into the sewer, where there might be gases with sulfur.

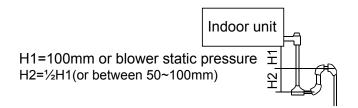
(g) Backwater bend

Because the drainage was laid in the position of binging Sub-atmospheric pressure easily, gain of elevation of water in the drain pan conduced Leakage water, for avoiding Leakage water , design a Backwater bend.

Configuration of Backwater bend can be cleaned, a " T " joint can be used in installing as shown as in the picture below.

Backwater bend was installed in the neighborhood of air conditioning

A backwater bend was designed in the middle of drain pipe s shown as in the picture below.



Testing Drainage System

(a) After finishing the electrical system, test the drainage system.

(b) During testing, make sure that the water flow passes the piping correctly without any water leakage at the connection.

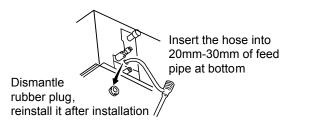
- (c) In the condition of new house, test the drainage system before fitting up the ceiling.
- (d) Even if it is installed in the season needed to heating, the testing should also be performed.

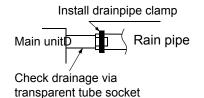
Procedures

(b) During refrigerating operation, check the drainage system..

⁽a) Provide about 1000cc of water to the equipment via air outlet port with the feed pump.







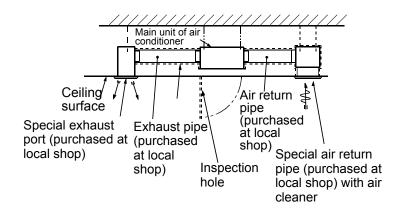
Pour water into a gibbose connector



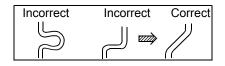
Before completing the electrical connection, a gibbose connector shall be installed on the drainpipe as to provide it with a water inlet port. Then, if any leakage exists in the piping, check it to make the water flow of the drainpipe smooth.

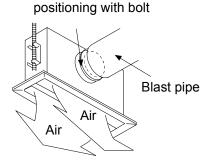
5. Installation of Air Return & Air Exhaust Pipes

For the choice and installation of air return port, air return pipe, air exhaust port and exhaust pipe, please consult service personnel of Haier company. Calculate the design chart and exterior static pressure, and select the exhaust pipe with appropriate length and shapes.



- The length difference between pipes should be limited to be less than 2:1;
- · Make the piping as short as possible;
- · Keep the min. elbow quantity;
- Wind the heat insulating material around the flange between the main unit and the exhaust pipe for heat insulation and sealing. Install the piping before fitting up the ceiling.
- · At least 2 meters air duct is needed at air inlet and air outlet.
- Flexible connection is needed between indoor units and air duct.
- ESP should be lower than 200 Pa.
- 6. Cautions in Installation of Air Return Pipe & Exhaust Pipe
- It is recommended to use the blast pipes, which can be anti-condensation and absorb sound. (purchased at local shops)
- Complete the installation of the blast pipes before fitting up the suspended ceiling.
- Heat insulation should be made for the blast pipes.
- The special exhaust port should be arranged at the place where the air is distributed evenly.
- An inspection hole should be left on the surface of the ceiling for future maintenance.



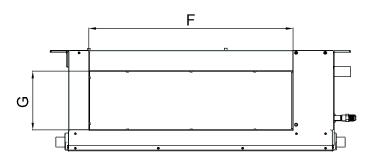


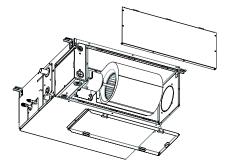
Special exhaust port



7.Connection of return air duct (setting back air return opening when leaving factory) Remarks:

In installation, you can select the lower air return or back air return by adjusting the location of air inlet frame. Air return from bottom will influence the unit noise, so we suggest use rear return installation.

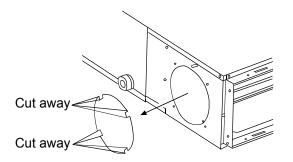




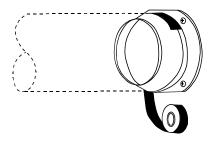
Back air return opening

8. Concatenation means of exchanging flesh air

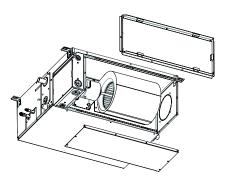
(1) Cut away the nummular component of lateral board



(3) Airproof the joint by airproof cingulum avoiding

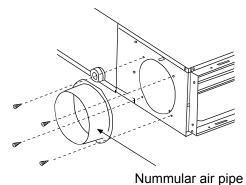


Size	F	G
Model	(mm)	(mm)
AD072-182MQERA	660	200
AD242-302MQERA	740	200
AD362-542MQERA	1280	235



Below air return opening

(2) Install the nummular air pipe (air pipe can be purchased in local district)

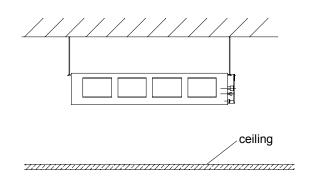


Constant Air Volume Duct Type Indoor Unit (AD*MQERA



9.Install outlet flange

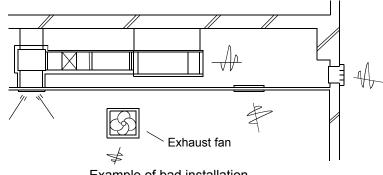
Install outlet flange according to the needs, the outlet flange is standard component, bolts are laid in accessories box.



Note: You can select not to connect with the flange. Instead of it, you can use the round plastic air outlet (purchased by user)

10. Examples for Bad Installation

- The unit is not equipped with the air return pipe and the inner side of the suspending ceiling is used as the blast pipe, causing the humidity increasing due to irregular air mass, strong wind or sunlight from the outside world.
- There might be condensate dropping down at the outer side of the blast pipe. The humidity is high, even if the inner side of the suspended ceiling isn't used as a blast pipe in new concrete buildings. At this time, the whole body should use the thermo wool for heat preservation (the thermo wool can be packed with a steel wire).
- It is operated under the conditions beyond the limits, leading to the overload of the compressor.
- Affected by the capacity of the exhaust fan, and the strong wind and wind direction in the outer flue, when the blowing quantity of the air conditioner exceeds the limits, the drained water of the heat exchanger will overflow, causing water leakage.



Example of bad installation

11. Static Pressure Grade Setting

For AD362~542MQERA units, after installation need to preliminary estimates external static pressure, according to the external static pressure setting the unit's static pressure grade by controller.

Note: the detail operation methods for setting the unit*s static pressure grade refer to the controller manual.

The static pressure range of each grade as follows:

Grade	Static pressure range
1	0~25pa
2	25~75pa
3	75~125pa
4	125~175pa
5	175~200pa

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12. Refrigerant Tube

Tubing Permissible Length & Height Difference

Please refer to the attached manual of outdoor units.

Piping Materials & Heat Insulating Materials

As to prevent condensation, heat insulating treatment should be performed. The heat insulating treatment for gas and liquid piping should be done respectively.

Piping	Hard PVC tube
Material	VP25mm(inner bore)
Heat Insulating Material	Vesicant polythene thickness: over 7mm

Tubing Materials & Specifications

Model		AD072~092MQERA	AD122~182MQERA	A AD242~542MQERA		
Tubing Size (mm) Gas pipe		Ф9.52	Φ12.7	Ф15.88		
Tubing Size (mm)	Liquid pipe	Ф6.35	Ф9.52			
Tubing Material	Phosphor deoxy bronze seamless pipe (TP ₂) for air conditioner					

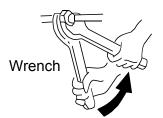
Refrigerant Filling Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount or compressor failure can be caused by filling too much or little refrigerant.

Connecting Procedures of Refrigerant Tubing

Proceed the flare tube connecting operation to connect all the refrigerant tubes.

- Dual wrenches must be used in the connection of indoor unit tubing.
- · Mounting torque refers to the right table



Outer Diameter of Tubing (mm)	Mounting Torque
Ф6.35	11.8~13.7N.m
Ф9.52	32.7~39.9N.m
Φ12.7	49.0~53.9N.m
Φ15.88	78.4~98.0N.m
Φ19.05	97.2~118.6N.m



Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

(Vacuumizing)

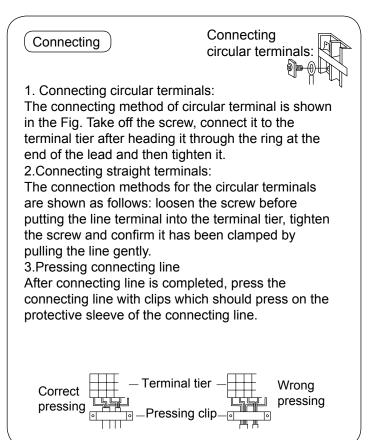
Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one main unit.]

Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.

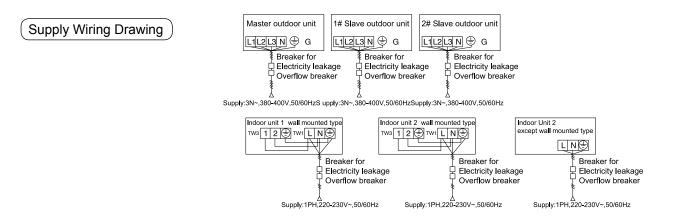




15.9.6 Electrical wiring

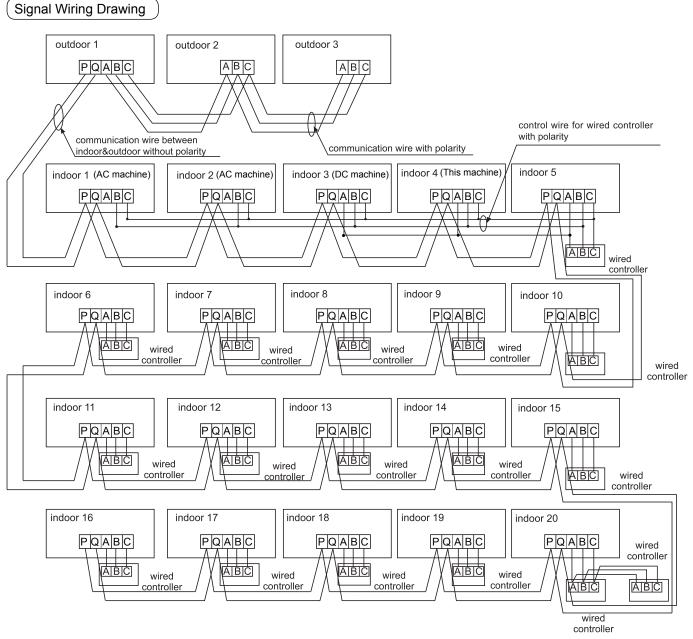
- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the
 pressing clip.
- · Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- · Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line, signal line are provided by users. Parameters for power lines are shown as below: 3×(1.0-1.5) mm²; parameters for signal line: 2×(0.75-1.25)mm² (shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



 Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.





Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure, (1-5 indoor units). The indoor unit 5 is the wired control master unit and others are the wired control slave units. The remote control and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via three lines with polarity. SW01 on the master unit of wired control is set to 0 while SW01 on other salve units of wired control are set to 1, 2, 3 and so on in turn.
- B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired controller are connected via three lines with polarity.
- C. Two wired controller control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controller can be set to be the master wired controller while the other is set to be the auxiliary wired controller. The master wired controller and indoor units, and the master and auxiliary wired controller are connected via three lines with polarity.

Note: For DC motor slim low ESP duct, the PCB comes with the terminal blocks. Please be sure to pay attention to do the wiring according to the identification. The power lines and signal lines go through the metal wire hole separately with the protective sleeve of the connecting line.



Indoor power supply wiring & signal wiring between indoor and outdoor & signal wiring between indoor.

Items	Cross	Length	Rated Current of	Rated current of residual Circuit Breaker(A)	Cross Sectional Area of Signal Line
Current of Indoor Unite(A)	Section (mm²)	(m)	Overflow Breaker(A)	Ground Fault Interruptor(mA) Response time(S)	Outdoor- Indoor- indoor indoor (mm ²) (mm ²)
<7	2.5	20	10	10 A, 30mA, 0.1S or below	
≥7 and <11	4	20	16	16 A, 30mA, 0.1S or below	
≥11 and <16	6	25	20	20 A, 30mA, 0.1S or below	2 cores×0.75-2.0 mm ²
≥16 and <22	8	30	32	32 A, 30mA, 0.1S or below	shielded line
≥22 and <27	10	40	32	32 A, 30mA, 0.1S or below	

- · The electrical power line and signal lines must be fastened tightly.
- Every indoor unit must have the ground connection.
- The power line should be enlarged if it exceeds the permissible length.
- Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.
- It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm ² ×3 core shielded line

- % The shielding lay of the signal line must be grounded at one end.
- % The total length of the signal line shall not be more than 250m.



16. High ESP Duct Type Indoor Unit

16.1 Features



0~198Pa external static pressure

The external static pressure can be adjusted from 0Pa to 196Pa steplessly, which will make the unit supply quick temperature adjustment to the room.

Multi rooms sharing one indoor unit

The duct unit can be applicable for multi rooms, because the duct can be set as multiple air outlets according to the load.

Build-in the ceiling, space saving

The duct unit is installed above the ceiling, just leaving the air outlet in the ceiling, which will not affect the indoor decor and supply less space of indoor.



16.2 Specification

MODEL			AD182MHERA	AD242MHERA	AD282MHERA
Power supp	ly	Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	19.1	24.2	27.3
O a a line a	Capacity	kW	5.6	7.1	8
Cooling	Power input	W	450	450	450
	Current	Α	2.05	2.05	2.05
	Capacity	kBtu/h	21.5	27.3	30.7
	Capacity	kW	6.3	8	9
Heating	Power input	W	450	450	450
	Current	А	2.05	2.05	2.05
	Heating capacity at low temp.	kW	5.0	6.3	7.1
Operating c	urrent	Α	2.2	2.2	2.2
Power consumption		kW	0.49	0.49	0.49
	Brand		SANSO / Broad ocean		
	Model		MLA832-14W-R / Y7S423B529		
	Туре		AC	AC	AC
	Insulation class		E/B	E/B	E/B
Indoor motor	IP class		IP20	IP20	IP20
	Power input	W	480/605	480/605	480/605
	Power output	W	260	260	260
	Capacitor	μF	12.5 µF	12.5 µF	12.5 µF
	Speed (High/Middle/Low)	rpm	1400/1350/1290	1400/1350/1290	1400/1350/1290
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		2	2	2
	a. Number of rows		2	3	3
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	21*13.3
	c. Fin spacing	mm	1.4	1.4	1.4
Indoor coil	d. Fin type (code)		ŀ	lydrophilic aluminun	n
	e. Tube outside dia. and type	mm	Φ	7.0 Inner groove tub)e
	f. Coil length×height×width	mm	685*441*26.6	685*441*39.9	685*441*39.9
	g. Number of circuits		7	5	5

High ESP Duct Type Indoor Unit

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	MODEL		AD182MHERA	AD242MHERA	AD282MHERA
	Cabinet coating type		Galvanized	Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	72	72	72
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		1	1	1
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		Optional KT-NP01	Optional KT-NP01	Optional KT-NP01
	Branch outlet option		No	No	No
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	1	1	1
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
	Liquid pipe	mm	6.35	9.52	9.52
Piping dimension	Gas pipe	mm	12.7	15.88	15.88
	Drain hose	mm	32	32	32
Fresh air dimensi	ion	mm	750*250	750*250	750*250
Sound pressure I	evel (H/L)	dB(A)	42/40/38	42/40/38	42/40/38
Sound power leve	el (H/L)	dB(A)	55/53/51	55/53/51	55/53/51
Standard static p	ressure	Pa	100	100	100
Max. static press	ure	Ра	196	196	196
Indoor air flow (H	/M/L)	m³/h	1500/1357/1089	1500/1357/1089	1500/1357/1089
Air outlet dimensi	ions	mm	600*250	600*250	600*250
Air return dimens	ions	mm	750*250	750*250	750*250
Dimension (W*H*	*D)	mm	975*360*906	975*360*906	975*360*906
Packing (W*H*D)		mm	1048*413*943	1048*413*943	1048*413*943
Net weight		kg	48	48	48
Gross weight		kg	58	58	58

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



	MODEL		AD302MHERA	AD382MHERA	AD482MHERA
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	30.7	38.2	47.8
Occline	Capacity	kW	9.0	11.2	14.0
Cooling	Power input	W	560	560	560
	Current	A	2.55	2.55	2.55
	Capacity	kBtu/h	34.1	42.7	54.6
	Capacity	kW	10.0	12.5	16.0
Heating	Power input	W	560	560	560
	Current	Α	2.55	2.55	2.55
	Heating capacity at low temp.	kW	8.0	10.0	12.5
Operating cu	rrent	A	2.6	2.6	2.6
Power consumption		kW	0.58	0.58	0.58
	Brand		HUATE / Broad ocean		
	Model		YSK-270W-4 /Y7S423B815		
	Туре		AC	AC	AC
	Insulation class		B/B	B/ B	B/B
Indoor motor	IP class		IP20	IP20	IP20
	Power input	W	550/702	550/702	550/702
	Power output	W	270	270	270
	Capacitor	μF	12.5 µF	12.5 µF	12.5 µF
	Speed (SH/H/M/L)	rpm	1070/950/860/690	1070/950/860/690	1070/950/860/690
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		2	2	2
	a. Number of rows		2	2	2
	b. Tube pitch (a)×row pitch (b)	mm	25*21.65	25*21.65	25*21.65
	c. Fin spacing	mm	1.8	1.8	1.8
Indoor coil	d. Fin type (code)		ŀ	lydrophilic aluminun	n
	e. Tube outside dia. and type	mm	Ф	9.52 Inner groove tu	be
	f. Coil length×height×width	mm	1062*450*43.4	1062*450*43.4	1062*450*43.4
	g. Number of circuits		5	5	5

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	MODEL		AD302MHERA	AD382MHERA	AD482MHERA
	Cabinet coating type		Galvanized	Galvanized	Galvanized
Cabinet	Cabinet salt spray test duration	Hour	72	72	72
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		1	1	1
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		Optional KT-NP01	Optional KT-NP01	Optional KT-NP01
	Branch outlet option		No	No	No
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	1	1	1
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
	Liquid pipe	mm	9.52	9.52	9.52
Piping dimension	Gas pipe	mm	15.88	15.88	15.88
dimension	Drain hose	mm	32	32	32
Fresh air dimer	nsion	mm	1100*255	1100*255	1100*255
Sound pressur	e level (H/L)	dB(A)	45/43/40	45/43/40	45/43/40
Sound power le	evel (H/L)	dB(A)	58/53/50	58/53/50	58/53/50
Standard static	; pressure	Pa	100	100	100
Max. static pre	ssure	Pa	196	196	196
Indoor air flow	(H/M/L)	m³/h	1560/1412/1133	1600/1448/1162	2100/1901/1525
Air outlet dimer	nsions	mm	853*255	853*255	853*255
Air return dime	nsions	mm	1100*255	1100*255	1100*255
Dimension (W*	H*D)	mm	1355*360*876	1355*360*876	1355*360*876
Packing (W*H*	D)	mm	1378*405*938	1378*405*938	1378*405*938
Net weight		kg	62	62	62
Gross weight		kg	77	77	77

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



	MODEL		AD722MHERA	AD962MHERA		
Power supply	1	Ph-V-Hz	1,220~230,50/60	1,220~230,50/60		
	Capacity	kBtu/h	77.1	95.5		
Qaaliaa	Capacity	kW	22.6	28		
Cooling	Power input	W	1110	1110		
	Current	Α	5.05	5.05		
	Capacity	kBtu/h	85.3	105.8		
	Capacity	kW	25	31		
Heating	Power input	W	1110	1110		
	Current	Α	5.05	5.05		
	Heating capacity at low temp.	kW				
Operating cu	rrent	Α	4.1	4.1		
Power consu	mption	kW	0.895	0.895		
	Brand		HUATE / Broad ocean	HUATE / Broad ocean		
	Model		YSK270-4C / Y7S423C238	YSK270-4C / Y7S423C238		
	Туре		AC	AC		
	Insulation class		В	В		
Indoor motor	IP class		IP20	IP20		
	Power input	W	550*2	550*2		
	Power output	W	238*2	238*2		
	Capacitor	μF	12.5 µF	12.5 µF		
	Speed (High/Middle/Low)	rpm	1250/1020/870	1250/1020/870		
	Brand		Haier	Haier		
Indoor fan	Туре		Centrifugal	Centrifugal		
	Quantity		4	4		
	a. Number of rows		3	3		
	b. Tube pitch (a)×row pitch (b)	mm	25*21.65	25*21.65		
	c. Fin spacing	mm	1.6	1.6		
Indoor coil	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum		
	e. Tube outside dia. and type	mm	Φ9.52 Inner groove tube	Φ9.52 Inner groove tube		
	f. Coil length×height×width	mm	1430*450*64.95	1430*450*64.95		
	g. Number of circuits		9	9		

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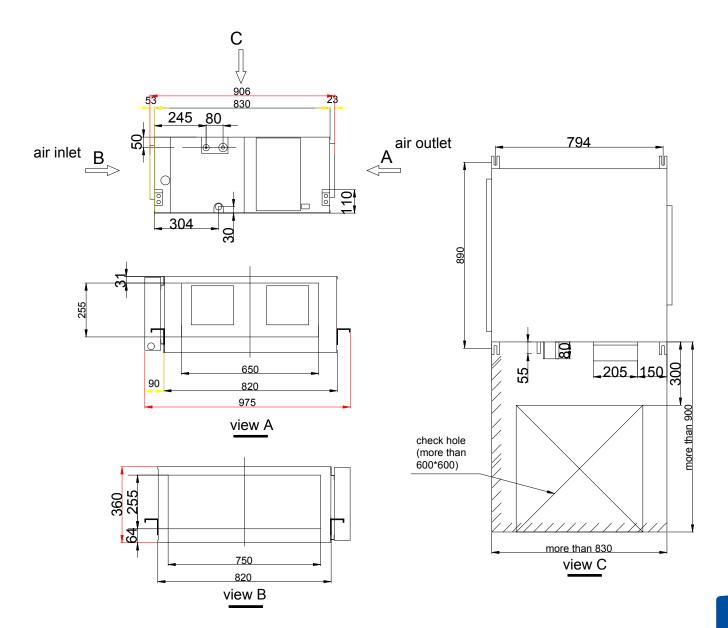
	MODEL		AD722MHERA	AD962MHERA	
	Cabinet coating type		Galvanized	Galvanized	
Cabinet	Cabinet salt spray test duration	Hour	72	72	
	Control box IP class		IP20	IP20	
	Sheet metal thickness		1	1	
	Drain pan material		PS	PS	
Construction	Drain pan insulation		20	20	
	Drain pump option		Optional KT-NP01	Optional KT-NP01	
	Cabinet salt spray test durationHourControl box IP classSheet metal thicknessDrain pan materialDrain pan insulationDrain pan insulationDrain pan insulationDrain pump optionBranch outlet optionMaterialThicknessmmDouble or single skinMeshPressure dropPaLiquid pipemmGas pipemmDrain hosemmnsionmme level (H/L)dB(A)eyressurePa(H/M/L)m³/hnsionsmm	No	No		
	Material		Hot zinc plate	Hot zinc plate	
Indoor wall	Thickness	mm	1	1	
	Double or single skin		Single	Single	
	Material		PP	PP	
Air filter	Mesh		100	100	
Air filter	Pressure drop	Pa	5	5	
	Liquid pipe	mm	9.52	9.52	
Piping dimension	Gas pipe	mm	25.4	25.4	
	Drain hose	mm	32	32	
Fresh air dimensio	n	mm	1510*255	1510*255	
Sound pressure le	vel (H/L)	dB(A)	54/51/49	54/51/49	
Sound power leve	I (H/L)	dB(A)	67/62/59	67/62/59	
Standard static pre	essure	Pa	100	100	
Max. static pressu	re	Pa	196	196	
Indoor air flow (H/I	M/L)	m³/h	4050/3255/2612	4050/3255/2612	
Air outlet dimensio	ons	mm	1510*255	1510*255	
Air return dimensio	ons	mm	1510*255	1510*255	
Dimension (W*H*[כ)	mm	1725*360*876	1725*360*876	
Packing (W*H*D)		mm	1830*530*990	1830*530*990	
Net weight		kg	92	92	
Gross weight		kg	100	100	

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



16.3 Dimension

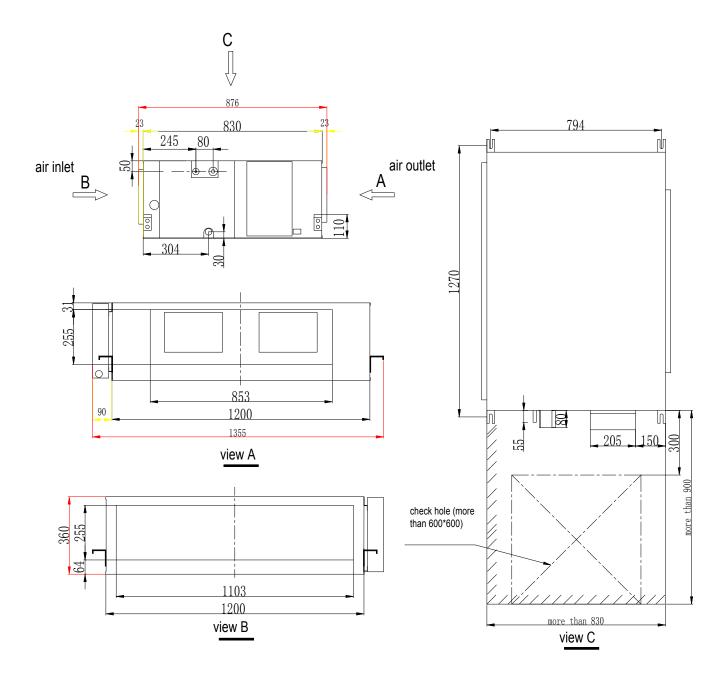
AD182MHERA AD242MHERA AD282MHERA



High ESP Duct Type Indoor Unit

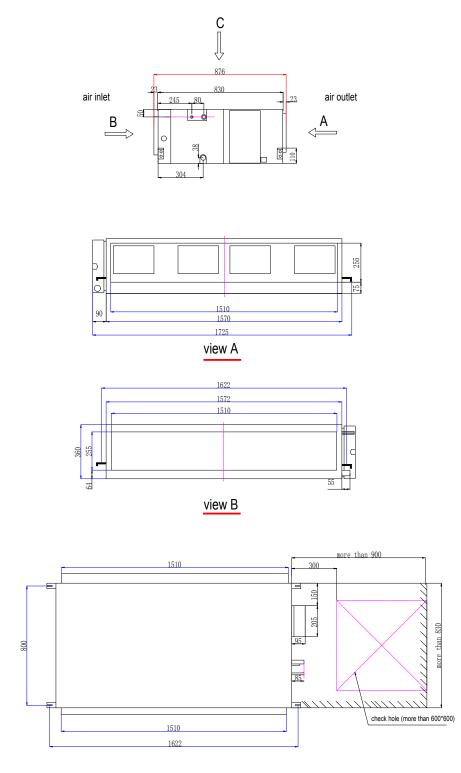


AD302MHERA AD382MHERA AD482MHERA





AD722MHERA AD962MHERA



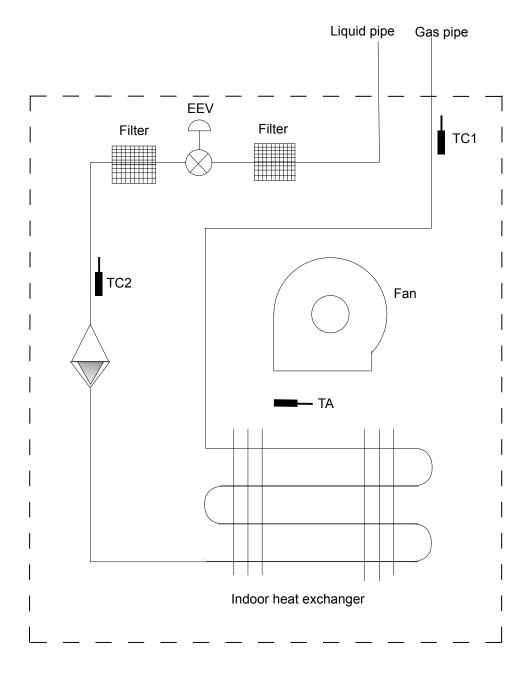
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16.4 Piping diagram

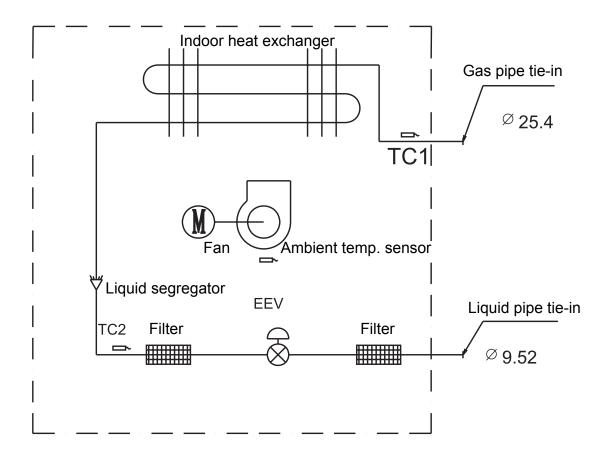
AD18-482MHERA



— 410 —

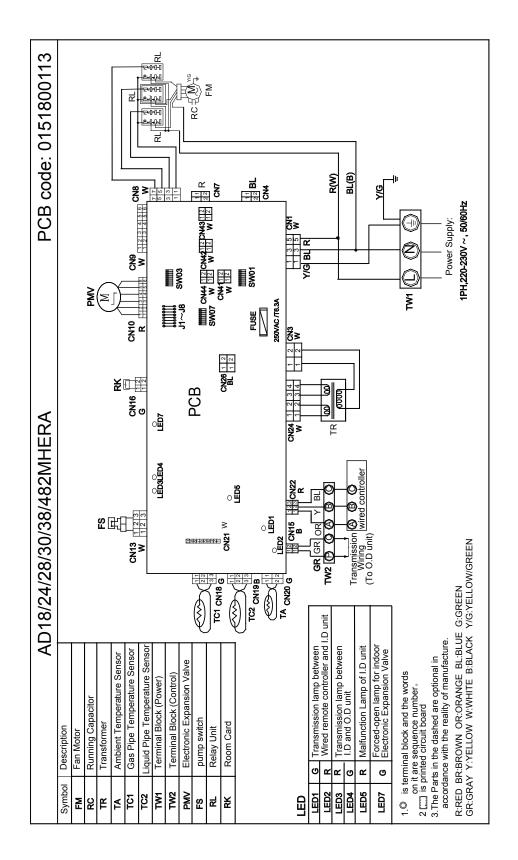


AD722-962MHERA

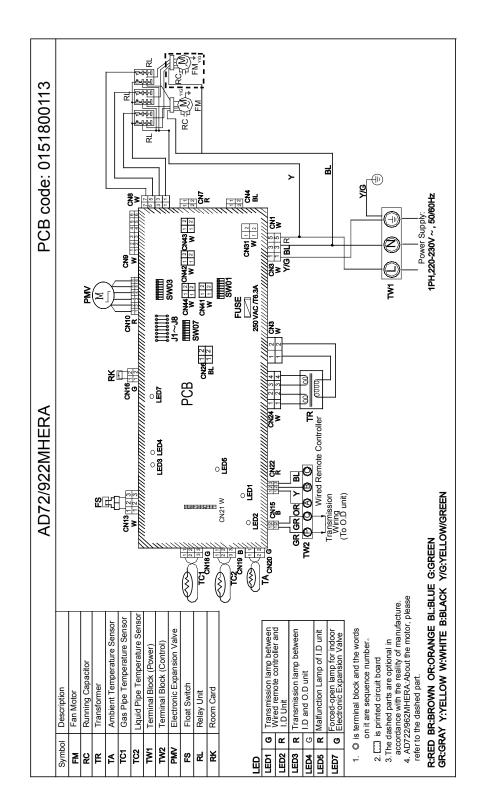




16.5 Wiring diagram









16.6 Electric characteristics

Units						supply	Indoor far	motor	Power input (w)		
Model	Phase	FQY	Voltage	Volt range	MCA	MFA	Output (W)	FLA	Cooling	Heating	
AD182MHERA	1ph	50/60	220	198~242	2.5	8	260	2	450	450	
AD242MHERA	1ph	50/60	220	198~242	2.5	8	260	2	450	450	
AD282MHERA	1ph	50/60	220	198~242	2.5	8	260	2	450	450	
AD302MHERA	1ph	50/60	220	198~242	3	9.6	270	2.4	560	560	
AD382MHERA	1ph	50/60	220	198~242	3	9.6	270	2.4	560	560	
AD482MHERA	1ph	50/60	220	198~242	3	9.6	270	2.4	560	560	
AD722MHERA	1ph	50/60	220	198~242	4.65	14.88	238*2	1.86*2	1100	1100	
AD962MHERA	1ph	50/60	220	198~242	4.65	14.88	238*2	1.86*2	1100	1100	

Symbols:

MCA: Min. circuit amps (A) MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

Note:

1. Voltage range

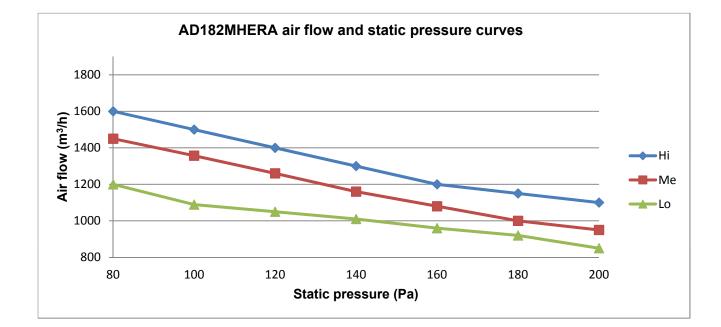
The units are applicable for the electrical systems where voltage supplied to unit is in the range.

2. Maximum allowable voltage unbalance between phases is 2%.

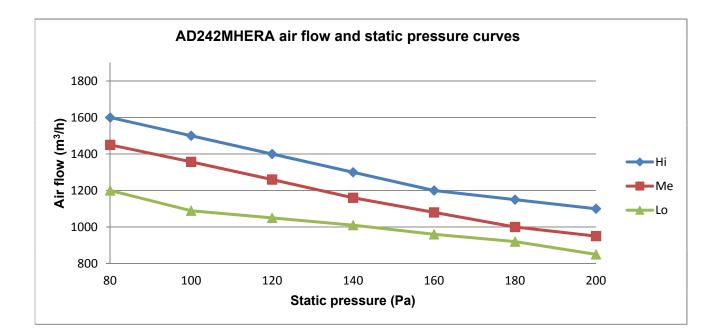
3. MCA=1.25*FLA MFA≤4*FLA

4. Power supply uses the circuit breaker.



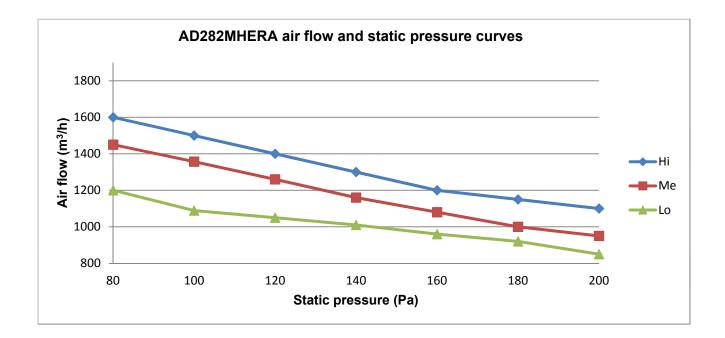


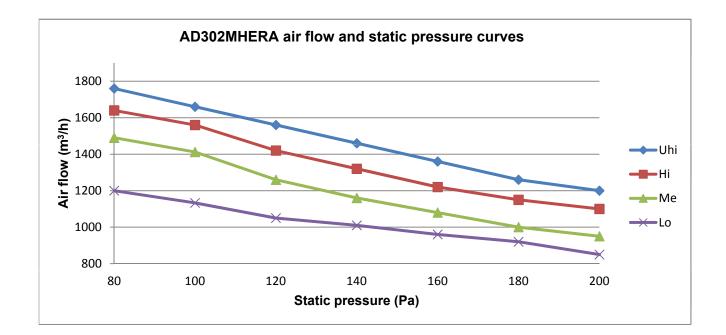
16.7 Air flow and static pressure curves



High ESP Duct Type Indoor Unit

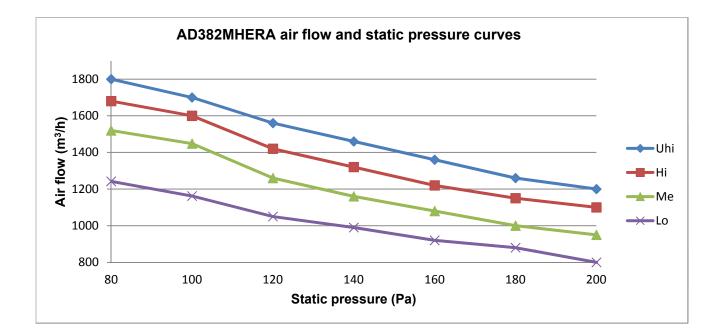


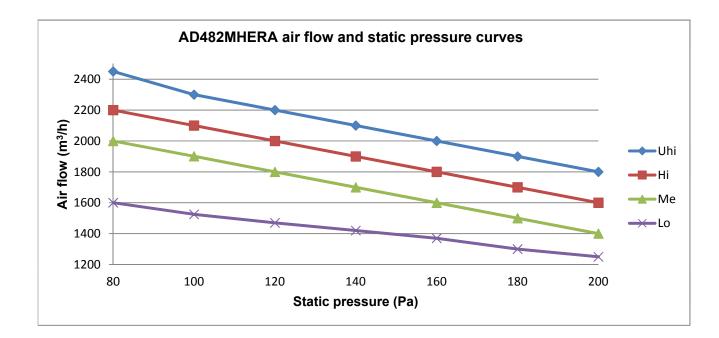




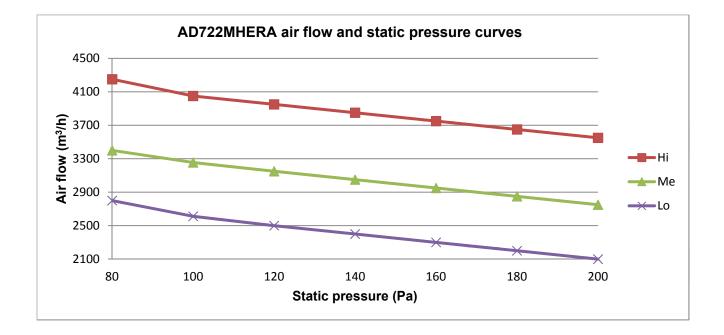
— 416 —

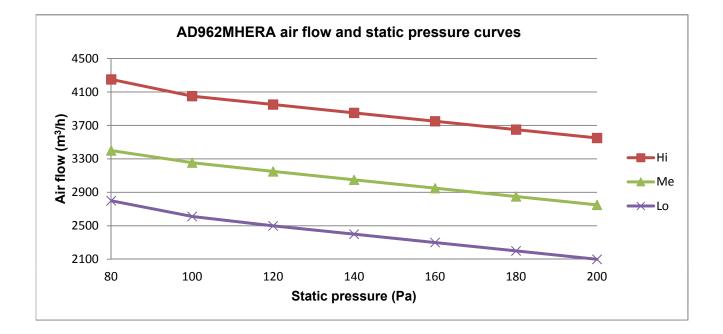












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Air inlet

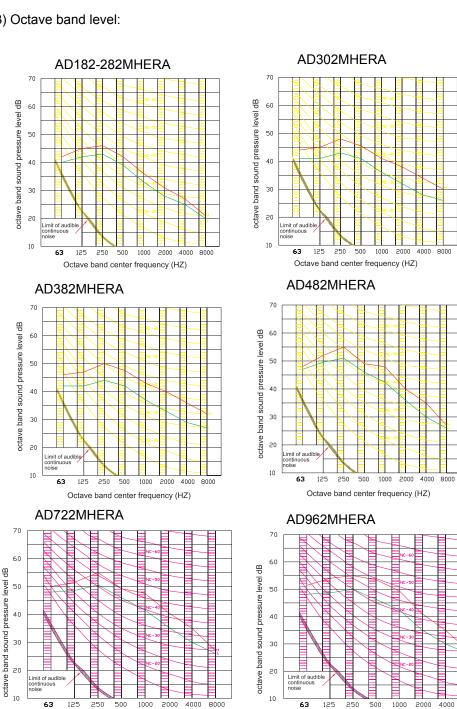
1.5M

16.8 Sound pressure level

- (1) Testing illustrate:
- (2) Testing condition:
- a: Unit running in the normal condition
- b: Test in the semi-anechoic chamber

Octave band center frequency (HZ)

- c: Noise level varies from the actual factors such as room structure, etc.
- (3) Octave band level:



Octave band center frequency (HZ)

8000

Air outlet duct

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16.9 Installation

16.9.1 Installation Procedures

The standard attached accessories of the units of this series refer to the packing; prepare other accessories according to the requirements of the local installation point of our company.

1. Before installation [before finishing the installation, don't throw away the attached parts required for the installation]

- Determine the route to move the unit to the installation site;
- Don't tear the package open before moving the unit to the installation site. When unpacking is needed, a soft material or protector block with ropes can be used to lift the unit to avoid damaging or scraping of the unit.

2. Select the installation site

(1) The installation site should be selected according the following conditions, which should be approved by users.

- Where an ideal air distribution can be ensured;
- Where there is no blockage in the air passage;
- Where the condensed water can be drained out properly;
- Where the strength can bear the weight of the indoor unit;
- Where enough space can be ensured for maintenance. The outside air should be input from the outdoor directly from the blast pipe. If the blast pipe can't be jointed, the air can't be input from the suspended ceiling. range (refer to Installation of Outdoor Units)
- Where the distance of at least 1m between indoor units, outdoor units, mains supply, connecting wires and television or radio should be kept as to avoid the image disturbance and noises of the above electrical appliances. (Even if 1m can be ensured, noise might occur if there is strong electric wave.) Additionally, equipments, television or other valuables can't be put under the unit as to avoid the condensed water of the unit from dropping into the above articles, causing damaging.

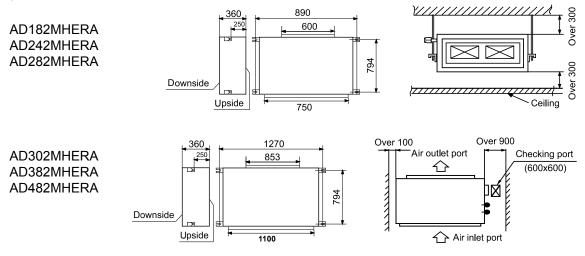
(2) Height of Ceiling:

The ceiling should be located at the place, where the central position of air outlet port is less than 3m high above the ground.

(3) Suspender should be used during installation. Check if the location can bear the weight of the unit. Reinforce it before installation if necessary.

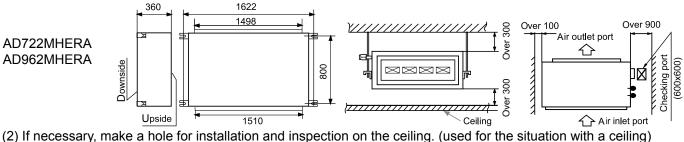
3. Preparation before Installation

(1) Location relation between inspection hole on the ceiling and the unit and the suspender (unit: mm).



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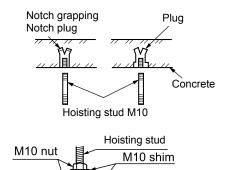


For the size of the inspection hole on the ceiling, please refer to the above drawing.

- Before installation, finish all the preparations for all piping connected to indoor units (refrigerant, water drainage) and wiring (connection line of the wired control, connection line between indoor units and outdoor unit) so that they can be connected with indoor units after installation.
- For the inspection hole, the ceiling might be reinforced to keep the evenness of the ceiling and avoid the vibration of the ceiling. For details, please consult the construction contractor.

(3) Install the suspender (M10 bolts)

In order to support the weight of the unit, use barb bolts in the situation with a ceiling. In the situation with the new ceiling, use inlaid bolts, embedded bolts or other parts provided on site. Before proceeding the installation, adjust the gap between the bolt and the ceiling.



M10 spring washer

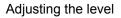
Main unit

(4) Installation of indoor units

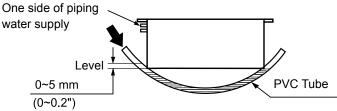
Fix the indoor unit with the hoisting stud. If necessary, the machine can be hanged on the beam with bolts instead of the hoisting stud.



When the sizes of the master unit don't match the hole on the ceiling, regulate the slot on the hanging bracket.



(a) Adjust the level with a level meter or according to the following ways: Make the adjustment as shown in the figure below.



Make one side of piping a little lower

(b) Unless it is regulated to the level position, faults or errors might occur for the floater switch.

Choice of Blowing Wind from Blower

(when using the high performance filter)

The blower is provided with a red terminal and a white terminal. The standard wind choice has been set before delivery. When the use of optional components, such as the high performance filter, causes the static pressure rising, change the connection of the connector mounted on the side of the control cabinet, as shown as follows.



Star	Standard blowing wind (at delivery)			High-speed blowing wind			Super high-speed blowing wind			vind					
f	Blue			White	ower	Blue			White	ower	Blue	-		White	ower
side of rol cabij	Blue	Connector, white	White	Blue	l de of bl	Blue	White	Red	Blue	de of bl	Blue	Vhite	Red	Red	le of blo
One	Black	° O O	\$	Red	One sid	Black			Brown	One sid	Black	>		Black	One sid
				1			L							J	

Standard static pressure	Maximal static pressure	
100	196	AD302-482MHERA

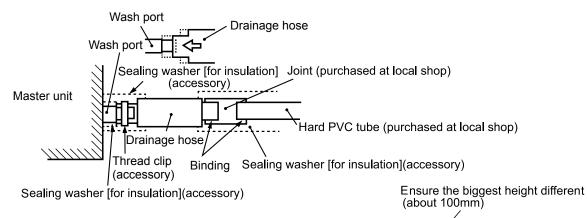
4. Drainpipe

(a) Keep a gradient (1/50-1/100) of the drainpipes and avoid lobbing or curving.

Proper Piping
 Hanging bolt
 1.5m ~ 2m
 Improper Piping
 Avoid lobing
 Avoid curving
 Don't put pipe
 Into water

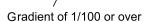
(b) When connecting the drainpipe to the equipment, don't apply too much force on one side of the equipment. Meanwhile, the piping should be positioned as close to the equipment as possible.

(c) For the drainpipe, the general purpose hard PVC tube can be purchased at local shops. During the connection, insert the end of PVC tube into the wash port and fasten it with drainage hose and thread clip. Binding agents shouldn't be used to connect the wash port and drainage hose.



(d) When the laid drain piping is used for multiple equipments, the public piping should be lower about 100mm than the wash ports of equipments, as shown in the figure.

Thicker pipes should be used for this application.



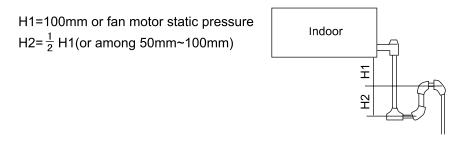
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(e) The hard PVC tube in the room must be provided with the heat insulating layer. (f) Water trap:

Because it is easy to cause minus pressure at the water drainage hole, once the water level in drainage pan goes up, water will leak. To prevent water leakage, we design a water trap here.

Water trap should be easy to be cleaned. Adopt T-shape connector like below figure. It should be near the unit, as the figure, it is set at the middle of drainage hose.



(g) Don't place the drainpipes at the places where there is irritant gas. Don't put the drainpipe directly into the sewer, where there might be gases with sulfur.

Testing Drainage System

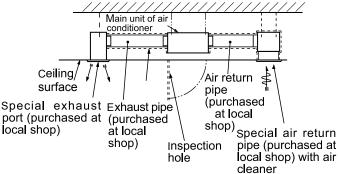
- (a) After finishing the electrical system, test the drainage system.
- (b) During testing, make sure that the water flow passes the piping correctly without any water leakage at the connection.
- (c) In the condition of new house, test the drainage system before fitting up the ceiling.
- (d) Even if it is installed in the season needed to heating, the testing should also be performed.

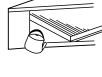
Procedures

- (a) Charge 1000cc of water to the equipment via air outlet port.
- (b) During cooling operation, check the drainage system.

5. Installation of Air Return & Air Exhaust Duct

For the choice and installation of air return port, air return pipe, air exhaust port and exhaust pipe, please consult service personnel of Haier company. Calculate the design chart and exterior static pressure, and select the exhaust pipe with appropriate length and shapes.





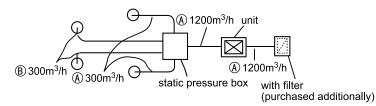


- The length difference between pipes should be limited to be less than 2:1;
- Make the piping as short as possible;
- Keep the min. elbow quantity;
- Wind the heat insulating material around the flange between the master unit and the exhaust pipe for heat insulation and sealing. Install the piping before fitting up the ceiling.

Incorrect Incorrect Correct

6. Calculation of simple duct

Assume the friction resistance per unit is 1Pa/m, when the size of one side of air pipe is 250mm, like below figure:



	Flux	Gas pipe (mm×mm)
A	1200m³/h (20m³/min)	250×310
В	300m ³ /h (5m ³ /min)	250×120

Calculation of resistance in duct:

Straight pipe	1Papermeter,1Pa/m
	Each bend regarded as 3-4m of straight pipe
Air outlet	25Pa per outlet
Static pressure box	50Pa per static pressure box
Inlet grille (with filter)	40Pa for each one

Simple duct selection Note:1Pa/m

Shape	Square pipe
Flux Item	Size
(m³/h)	(mm×mm)
100	250×60
200	250×90
300	250×120
400	250×140
500	250×170
600 (10)	250×190
800	250×230
1000	250×270
1200 (20)	250×310
1400	250×350
1600	250×390
1800 (30)	250×430
2000	250×470
2400	250×560
3000 (50)	250×650
3500	250×740
4000	250×830
4500	250×920
5000	250×1000
5500	250×1090
6000 (100)	250×1180

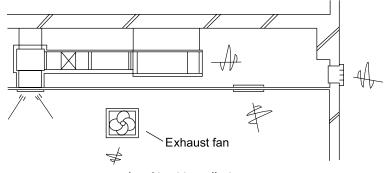


7. Cautions in Installation of Air Return Pipe & Exhaust Pipe

- It is recommended to use the blast pipes, which can be anti-condensation and absorb sound. (purchased at local shops)
- Complete the installation of the blast pipes before fitting up the suspended ceiling.
- Heat insulation should be made for the blast pipes.
- The special exhaust port should be arranged at the place where the air is distributed evenly.
- An inspection hole should be left on the surface of the ceiling for future maintenance.

8. Examples for Bad Installation

- The unit is not equipped with the air return pipe and the inner side of the suspending ceiling is used as the blast pipe, causing the humidity increasing due to irregular air mass, strong wind or sunlight from the outside world.
- There might be condensate dropping down at the outer side of the blast pipe. The humidity is high, even if the inner side of the suspended ceiling isn't used as a blast pipe in new concrete buildings. At this time, the whole body should use the thermo wool for heat preservation (the thermo wool can be packed with a steel wire).
- It is operated under the conditions beyond the limits, leading to the overload of the compressor.
- Affected by the capacity of the exhaust fan, and the strong wind and wind direction in the outer flue, when the blowing quantity of the air conditioner exceeds the limits, the drained water of the heat exchanger will overflow, causing water leakage.



Example of bad installation

9. Refrigerant Pipe

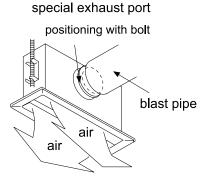
Pipe Length & Height Difference

Please refer to the attached manual of outdoor units.

Piping Materials & Heat Insulating Materials

As to prevent condensation, heat insulating treatment should be performed. The heat insulating treatment for piping should be done respectively.

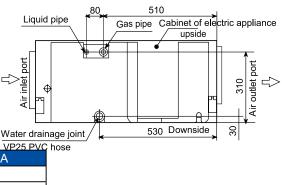
Piping Material	Hard PVC tube
Fipility Material	VP31.5mm (inner bore)
Heat Insulating	Vesicant polythene
Material	thickness: over 7mm





Pipe Materials & Specifications								
Model AD182MHERA AD242-482MHERA								
Tubing Size	Gas pipe	Φ12.7	Ф15.88					
(mm)	Liquid pipe	Ф6.35	Ф9.52					
Tubing	Tubing Phosphor deoxy bronze seamless pipe (TP2) for air							
Material	conditioner							

.



			VP25 PV0
Mo	del	AD722MHERA	AD962MHERA
Tubing Size	Gas pipe	Ф25.4	Φ25.4
(mm)	Liquid pipe	Ф9.52	Ф9.52
Tubing Material	Phospho	or deoxy bronze seamless pip	be (TP2) for air conditioner

Refrigerant Recharge Amount

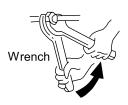
Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount or compressor failure can be caused by filling too much or little refrigerant.

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Connecting Procedures of Refrigerant Tubing

Proceed the flare tube connecting operation to connect all the refrigerant tubes.

- Dual wrenches must be used in the connection of indoor unit tubing.
- Mounting torque refers to the right table.



Outer diameter of tubing (mm)	Mounting torque
Ф6.35	11.8~13.7N·m
Ф9.52	32.7~39.9N·m
Φ12.7	49.0~53.9N·m
Φ15.88	78.4~98.0N·m

Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

Vacuumizing

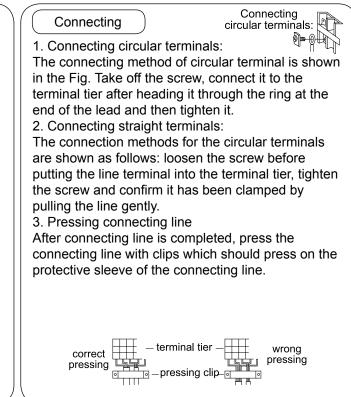
Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one master unit.]

Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.

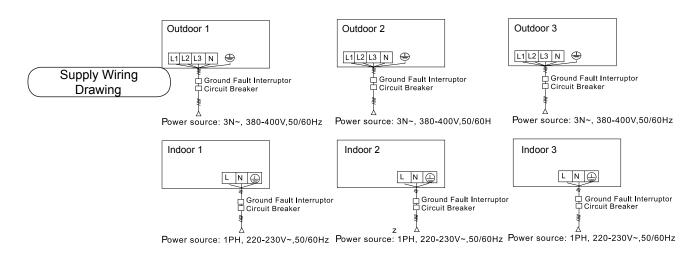




16.9.2 Electrical Wiring

- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below: 3×1.0-1.5) mm²; parameters for signal line: 2×0.75-1.25)mm²(shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.

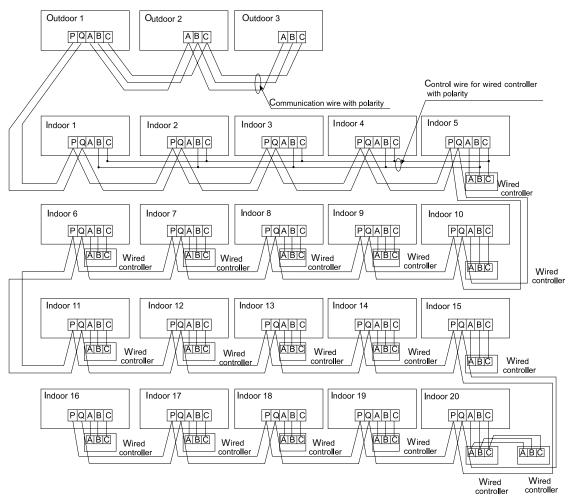


Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.

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Signal Wiring Drawing



Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure (1-5 indoor units). The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)
- B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired control are connected via three lines with polarity.
- C. Two wired controllers control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controls can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.

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The combination of multiple indoor units can be controlled by wired controller or remote controller.

% Switching mode of Wired control master unit/ Wired control slave unit/ remote control types can be used for switching over %

Setting mode Socket/dip switch	Wired control master unit	Wired control slave unit	Remote control
SW01-[1][2][3][4]	All OFF	[0][0][1]	All OFF
CN21 socket	Null	Null	Connect to remote receiver
Terminal block (control)	A, B, C connect with wired controller	B, C connect with wired controller	A, B, C Null

Note:

The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Items	Cross		Rated current of	Rated current of residual circuit breaker (A)	Cross sectional area of signal line		
Total current of indoor units (A)	section (mm ²)	(m)	overflow breaker (A)	Ground fault interrupter (mA)	Outdoor -indoor (mm ²)	Indoor -indoor (mm²)	
<10	2	20	20	20 A, 30 mA, 0.1S or below			
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below	2 cores×(
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below	mm ² shie	lded line	
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below			

% The electrical power line and signal lines must be fastened tightly.

* Every indoor unit must have the ground connection.

* The power line should be enlarged if it exceeds the permissible length.

* Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.

% It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions			
≤ 250	0.75mm ² ×3 core shielded line			

% The shielding lay of the signal line must be grounded at one end.

% The total length of the signal line shall not be more than 250m.



16.9.3 Test Run

Before Test Run

- Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above $1M\Omega$. It can't be operated if it is below $1M\Omega$.
- Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.
- Check if the arrangements of the drainpipe and connection line are correct.
- The drainpipe shall be placed at the lower part while the connection line placed at the upper part.
- Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials.
- The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.
- Checkup of Installation
- Check if the mains voltage is matching
- Check if there is air leakage at the piping joints
- $\hfill \Box$ Check if the connections of mains power and indoor & outdoor units are correct
- Check if the serial numbers of terminals are matching
- Check if the installation place meets the requirement
- \Box Check if there is too much noise
- $_{\Box}$ Check if the connecting line is fastened
- Check if the connectors for tubing are heat insulated Check if the water is drained to the outside
- $^{\Box}$ Check if the indoor units are positioned

Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

Set the wired controller to cooling/heating mode, press "ON/ OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/ OFF" button to quit the compulsive running and stop the operation of the air conditioner.



17. Fresh Air Type Indoor Unit

17.1 Features



AD482MPERA



AD722MPERA AD962MPERA

Connection condition: The Fresh Air unit can be independently connected with outdoor unit or connected together with common indoor units.

The fresh air unit can be installed with common indoor units to introduce outside fresh air into inside room; So it can realize both air-conditioning and fresh-air function in one system.

Operation Range: Cooling mode: 19-42°C; Heating mode: -5-18°C; Fan mode: outdoor ambient temp. above 0°C

Note:

- 1. In cooling mode, when inlet temp is lower than 19°C, Fresh Air unit will enter Fan mode automatically; when inlet temp. is higher than 43 °C, the system will run as much as possible, or stop for system protection.
- 2. In heating mode, when inlet temp is higher than 18°C, Fresh Air unit will enter Fan mode automatically; when inlet temp. is lower than -5°C, the system will run as much as possible, or stop for system protection.

Outdoor series	Outdoor model
MRVIII-C (T1 380V)	AV08/10NMVESA, AV*IMVESA
MRVIII-C (T1 208-230V)	AV*CMVESA
MRVIII-C (T1 460V)	AV*GMVESA
MRVIII-C (T3 380V)	AV*NMVERB
MRVIII-C PLUS (DC)	AV*IMSEVA
MRVIII-C PLUS (AC)	AV*IMSEVA(A)
MRVIV-C (T1 380V)	AV*NMMEUA
MRVIV-C (T3 380V)	AV*IMMEUB

The outdoor units which can connect with the fresh air type indoor units are as follows:

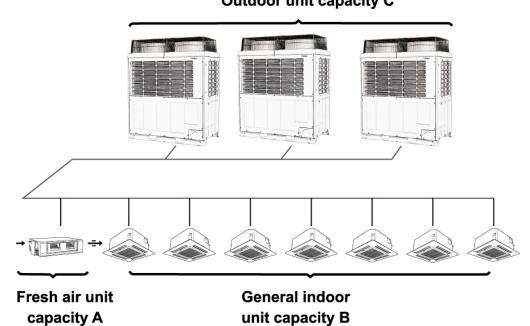


The matching rule of Duct Fresh Air.

Duct fresh air unit	Connection method	Quantity of duct fresh air	Outdoor unit selection	Quantity of outdoor unit
	Fresh air unit only	2	10HP	1
AD482MPERA	Together with general indoor units	1	Minimum outdoor capacity 18HP.	Min. 18HP
	Fresh air unit only	1	8HP	1
AD722MPERA	Together with general indoor units	1	Minimum outdoor capacity 18HP.	Min. 28HP
	Fresh air unit only	1	10HP	1
AD962MPERA	Together with general indoor units	1	Minimum outdoor capacity 18HP.	Min. 36HP

The matching rule of mixed connection of Duct Fresh Air and general indoor units in one system.

- Because the return air of Duct Air Fresh is from outside, in which the temperature difference is higher than normal indoor air return type, in order to ensure the cooling/ heating effect, the matching must simultaneously satisfy the following two conditions:
- 1. C*80% \leq A+B \leq C*100% (80% total outdoor capacity \leq total indoor capacity \leq 100% total outdoor capacity)
- 2. A \leq C*30% (the fresh air capacity \leq 30% total outdoor capacity)



Outdoor unit capacity C

When in mixed installation

Only one Duct Fresh Air can be connected in one system. Not recommend to install more than one Fresh Air Units in one outdoor system (either modular or combination system)

Notes: Location of Duct Fresh Air Installation:

- Compared to general indoor units, the sound pressure level of Duct Fresh Air units is larger, so it is not recommended to install Duct Fresh Air at locations as Hall, office building, etc, where numbers of persons will stay.
- It is recommended to install Duct Fresh Air units at places insensitive to sound pressure level.

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17.2 Specification

	MODEL		AD482MPERA	AD722MPERA	AD962MPERA
Power supp	ly	Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	47.7	77.1	95.5
Cooling	Capacity	kW	14	22.6	28.0
	Power input	W	560	730	870
	Current	A	2.5	3.3	4.0
	Capacity	kBtu/h	30.4	51.8	60.8
	Capacity	kW	8.9	15.2	17.8
Heating	Power input	W	560	730	870
Heating	Current	A	2.5	3.3	4.0
	Heating capacity at low temp.	kW	9.8	16.5	20.8
Operating cu	urrent	A	2.5	3.3	4.0
Max. running	g current	A	3.1	4.1	4.9
Max. operat	ing pressure of heat side	MPa	4.15	4.15	4.15
	Brand		HUATE /Broad ocean	Broad ocean	Broad ocean
	Model		YSK-270W-4 /Y7S423B815	Y7S423B86	Y7S423B86
	Туре		AC	AC	AC
Indoor	Insulation class		B/B	В	В
motor	IP class		IP20	IP20	IP20
	Power input	W	550	515*2	515*2
	Power output	W	265/ 270	326*2	326*2
	Capacitor	μF	12.5	12.5	12.5
	Speed (SH-H-M-L)	rpm	1070±40/950±50 /880±50/730±50	-/1295±40/1164±40 /925±40	-/1295±40/1164±40 /925±40
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		2	4	4
	a. Number of rows		2	3	3
	b. Tube pitch (a)×row pitch (b)	mm	25*21.65	25*21.65	25*21.65
	c. Fin spacing	mm	1.8	1.6	1.6
Indoor coil	d. Fin type (code)		ŀ	lydrophilic aluminiur	n
	e. Tube outside dia. and type	mm	Φ	9.52 Inner groove tu	be
	f. Coil length×height×width	mm	1062*450*43.4	1430*450*64.95	1430*450*64.95
	g. Number of circuits		5	9	9

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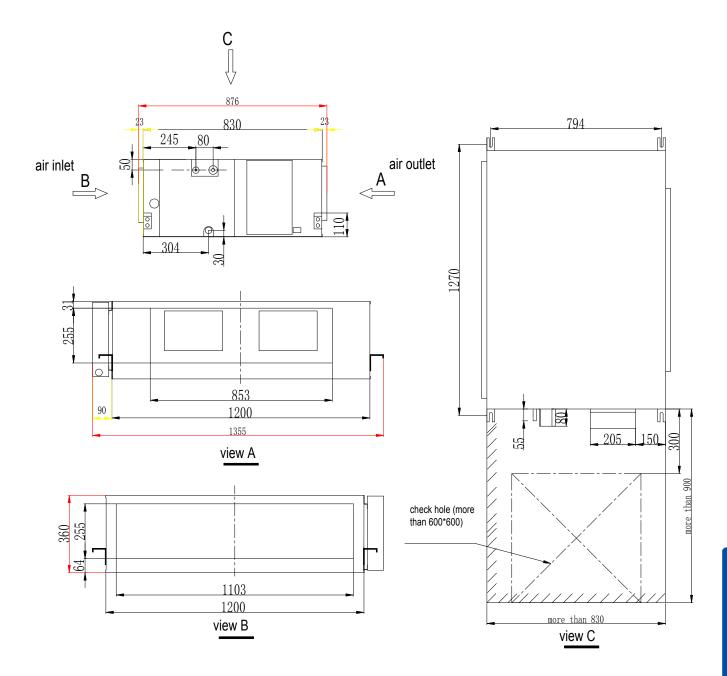
	MODEL		AD482MPERA	AD722MPERA	AD962MPERA	
	Cabinet coating type		Galvanized	Galvanized	Galvanized	
Cabinet	Cabinet salt spray test duration	Hour	72	72	72	
	Control box IP class		IP20	IP20	IP20	
	Sheet metal thickness		1	1	1	
Construction	Drain pan material		PS	PS	PS	
	Drain pan insulation		20	20	20	
	Drain pump option		Optional KT-NP01	Optional KT-NP01	Optional KT-NP01	
	Branch outlet option		No	No	No	
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate	
Indoor wall	Thickness	mm	1	1	1	
	Double or single skin		Single	Single	Single	
	Material		PP	PP	PP	
Air filter	Mesh		100	100	100	
	Pressure drop	Ра	5	5	5	
Piping dimension	Liquid pipe	mm	9.52	9.52	9.52	
	Gas pipe	mm	15.88	25.4	25.4	
annension	Drain hose	mm	32/36	32/36	32/36	
Fresh air dimension		mm	1100×255	1510×255	1510×255	
Air return dim	nensions	mm	1100×255	1510×255	1510×255	
Air outlet dim	ensions	mm	853×255	1510×255	1510×255	
Sound press	ure level (H/M/L)	dB(A)	48/47/42	55/53/50	55/54/52	
Sound power	level (H/M/L)	dB(A)	61/60/56	68/65/60	68/66/62	
Standard stat	tic pressure	Pa	100	100	100	
Max. static pr	ressure	Ра	185	200	200	
Indoor air flow	w (H/M/L)	m³/h	1600/1460/1070	2300/1900/1320	2800/2400/1820	
Dimension (V	V*H*D)	mm	1355*360*876	1725*360*876	1725*360*876	
Packing (W*H	H*D)	mm	1386*966*418	1830*990*530	1830*990*530	
Net weight		kg	62	120	120	
Gross weight		kg	77	140	140	
Nominal cond	dition: indoor temperature (cooling): 27	DB (°C)/19WB (°C), ind	oor temperature (he	ating): 20DB (°C)	

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



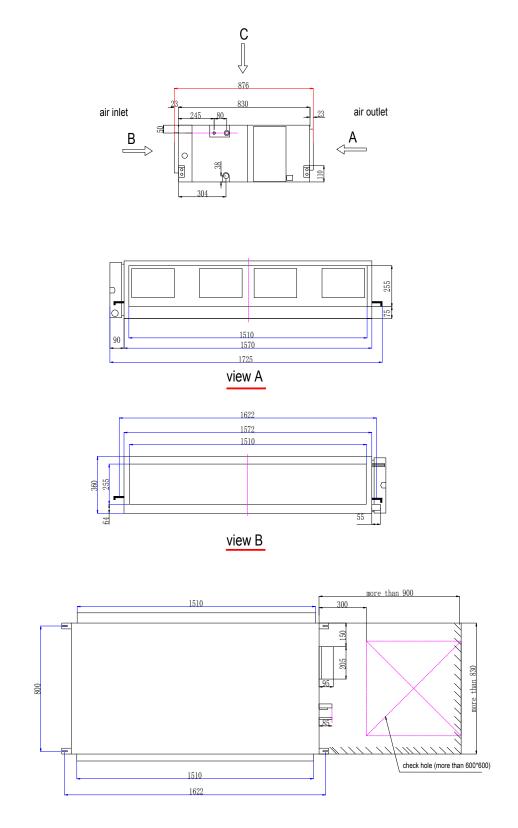
17.3 Dimension

AD482MPERA





AD72/962MPERA



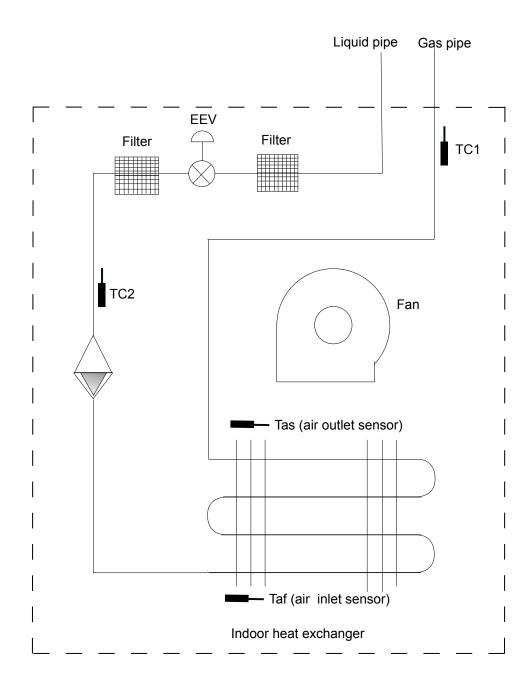


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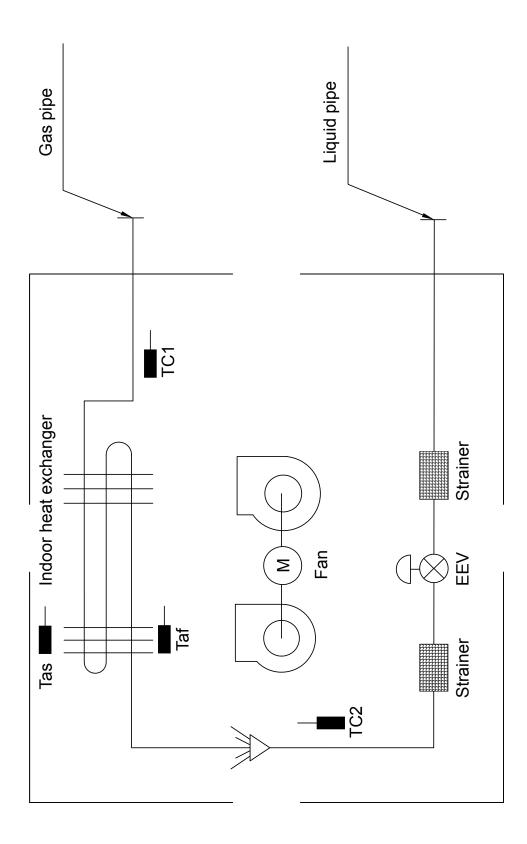
17.4 Piping diagram

AD482MPERA

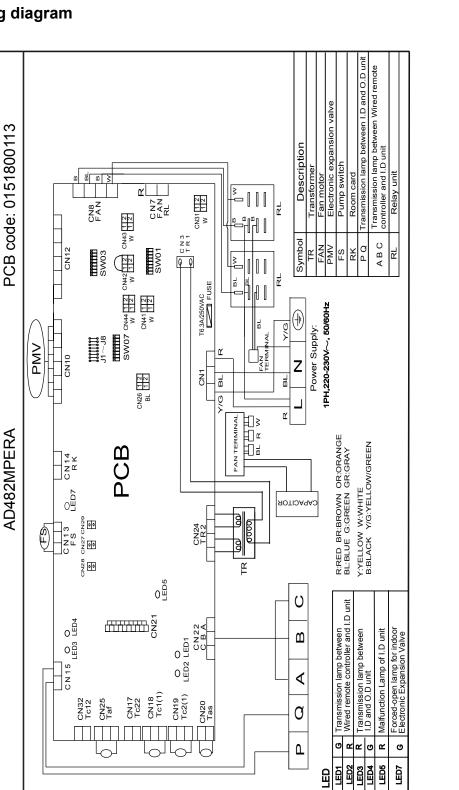




AD72-962MPERA



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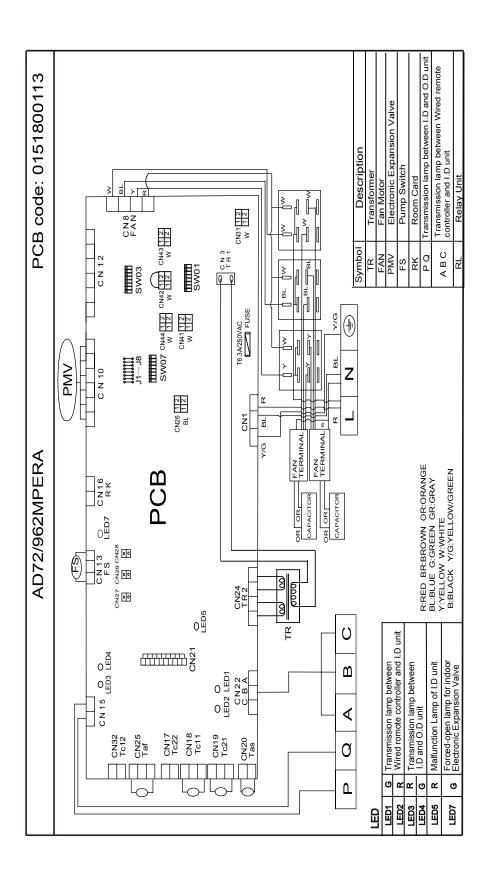


17.5 Wiring diagram

Fresh Air Type Indoor Unit







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17.6 Electric characteristics

Units					Power	supply	Indoor fan	motor	Power i	nput (W)
Model	Phase	FQY	Voltage	Volt range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AD482MPERA	1	50/60	220	198-242	3.25	10.4	265/270	2.6	560	560
AD722MPERA	1	50/60	220	198-242	5.6	18	326*2	2.25*2	730	730
AD962MPERA	1	50/60	220	198-242	5.6	18	326*2	2.25*2	870	870

Symbols:

MCA: Min. circuit amps (A) MFA: Max. fuse amps of circuit breaker W: Fan motor rated output (W) FLA: Full load amps (A)

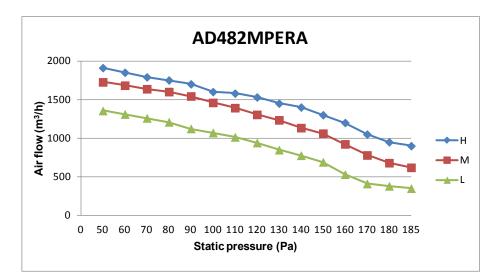
Notes:

1. Voltage range

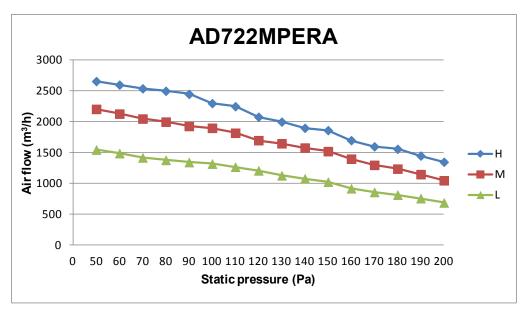
The units are applicable for the electrical systems where voltage supplied to unit is in the range.

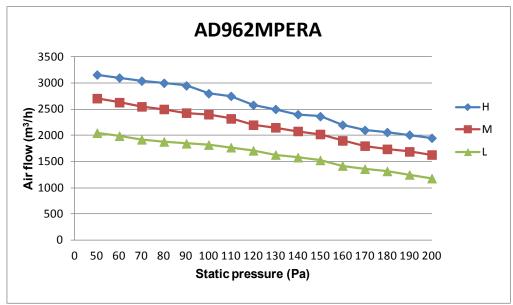
- 2. Maximum allowable voltage unbalance between phases is 2%.
- 3. MCA=1.25*FLA MFA≤4*FLA
- 4. Power supply uses the circuit breaker.





17.7 Air flow and static pressure curves

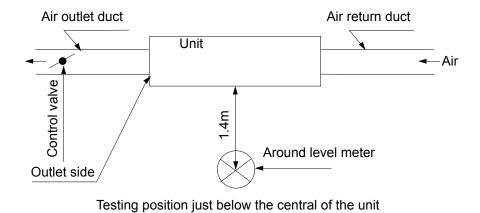




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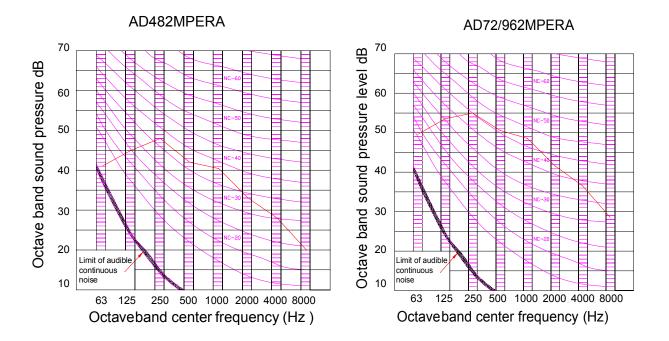


17.8 Sound pressure level



Note:

- 1. The test is on the standard condition.
- 2. The noise level dB is measured in the semi-anechoic chamber, using a Real Time Analyzer calibrated sound intensity meter. It is a sound pressure noise level.





17.9 Installation

17.9.1 Installation Procedures

The standard attached accessories of the units of this series refer to the packing; prepare other accessories according to the requirements of the local installation point of our company.

1. Before installation [before finishing the installation, don't throw away the attached parts required for the installation]

- Determine the route to move the unit to the installation site;
- Don't tear the package open before moving the unit to the installation site. When unpacking is needed, a soft material or protector block with ropes can be used to lift the unit to avoid damaging or scraping of the unit.

2. Select the installation site

(1) The installation site should be selected according the following conditions, which should be approved by users.

- Where an ideal air distribution can be ensured;
- Where there is no blockage in the air passage;
- Where the condensed water can be drained out properly;
- Where the strength can bear the weight of the indoor unit;
- Where enough space can be ensured for maintenance. The outside air should be input from the Outdoor directly from the blast pipe. If the blast pipe can't be jointed, the air can't be input from the Suspended ceiling.
- Where the lengths of the piping between indoor units and outdoor units are within the allowable Range (refer to installation of outdoor units)
- Where the distance of at least 1m between indoor units, outdoor units, mains supply, connecting Wires and television or radio should be kept as to avoid the image disturbance and noises of the above electrical appliances. (Even if 1m can be ensured, noise might occur if there is strong electric Wave.) Additionally, equipments, television or other valuables can't be put under the unit as to avoid the condensed water of the unit from dropping into the above articles, causing damaging.

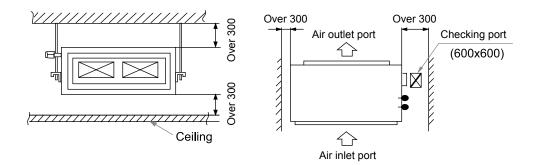
(2) Height of Ceiling:

The ceiling should be located at the place, where the central position of air outlet port is less than 3m high above the ground.

(3) Suspender should be used during installation. Check if the location can bear the weight of the unit. Reinforce it before installation if necessary.

3. Preparation before Installation

(1) Installation Space (unit: mm).

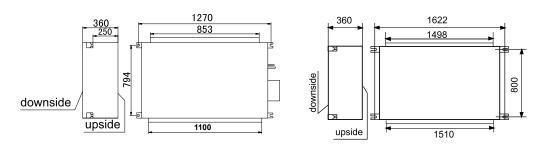


(2) Location relation between inspection hole on the ceiling and the unit and the suspender (unit: mm).



AD482MPERA

AD722MPERA, AD962MPERA



(3) If necessary, make a hole for installation and inspection on the ceiling. (used for the situation with a ceiling)

- For the size of the inspection hole on the ceiling, please refer to the above drawing.
- Before installation, finish all the preparations for all piping connected to indoor units (refrigerant, Water drainage) and wiring (connection line of the wired control, connection line between indoor units and outdoor unit) so that they can be connected with indoor units after installation.
- For the inspection hole, the ceiling might be reinforced to keep the evenness of the ceiling and avoid the vibration of the ceiling. For details, please consult the construction contractor.

(4) Install the suspender (M10 bolts)

In order to support the weight of the unit, use barb bolts in the situation with a ceiling. In the situation with the new ceiling, use inlaid bolts, embedded bolts or other parts provided on site. Before proceeding the installation, adjust the gap between the bolt and the ceiling.

Notch grapping Notch plug Notch plug Notch plug Notch plug Notch plug Notch plug Concrete Hoisting stud M10 Hoisting stud

M10 shim

M10 spring washer

M10 nut

Main unit

- (5) Installation of Indoor Units
- Fix the indoor unit with the hoisting stud. If necessary, the machine can be hanged on the beam with bolts instead of the hoisting stud.

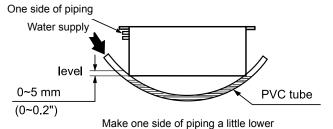


When the sizes of the master unit don't match the hole on the ceiling, regulate the slot on the hanging bracket.

Adjusting the level

(a) Adjust the level with a level meter or according to the following ways:

Make the adjustment as shown in the figure below.

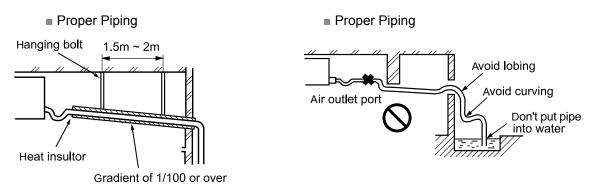


(b) Unless it is regulated to the level position, faults or errors might occur for the floater switch.

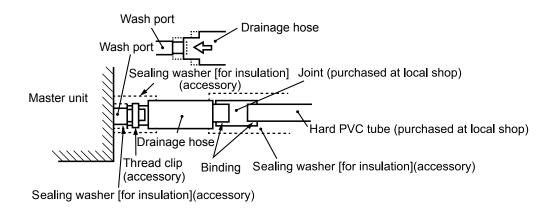


4. Drainpipes

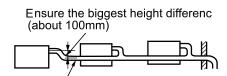
(a) Keep a gradient (1/50-1/100) of the drainpipes and avoid lobbing or curving.



- (b) When connecting the drainpipe to the equipment, don't apply too much force on one side of the equipment. Meanwhile, the piping should be positioned as close to the equipment as possible.
- (c) For the drainpipe, the general purpose hard PVC tube can be purchased at local shops. During the connection, insert the end of PVC tube into the wash port and fasten it with drainage hose and thread clip. Binding agents shouldn't be used to connect the wash port and drainage hose.



(d) When the laid drain piping is used for multiple equipments, the public piping should be lower about 100mm than the wash ports of equipments, as shown in the figure. Thicker pipes should be used for this application.



Gradient of 1/100 or over

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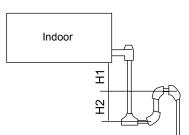
(e) The hard PVC tube in the room must be provided with the heat insulating layer.

(f) Water trap:

Because it is easy to cause minus pressure at the water drainage hole, once the water level in drainage pan goes up, water will leak. To prevent water leakage, we design a water trap here.

Water trap should be easy to be cleaned. Adopt T-shape connector like below figure. It should be near the unit, as the figure, it is set at the middle of drainage hose.

H1=100mm or fan motor static pressure H2= $\frac{1}{2}$ H1(or among 50mm~100mm)



(g) Don't place the drainpipes at the places where there is irritant gas. Don't put the drainpipe directly into the sewer, where there might be gases with sulfur.

Testing Drainage System

(a) After finishing the electrical system, test the drainage system.

(b) During testing, make sure that the water flow passes the piping correctly without any water leakage at the connection.

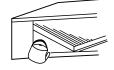
(c) In the condition of new house, test the drainage system before fitting up the ceiling.

(d) Even if it is installed in the season needed to heating, the testing should also be performed.

Procedures

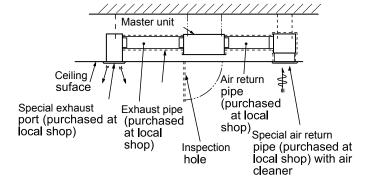
(a) Charge 1000cc of water to the equipment via air outlet port.

(b) During cooling operation, check the drainage system.



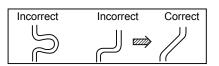
5. Installation of Air Return & Air Exhaust Duct

For the choice and installation of air return port, air return pipe, air exhaust port and exhaust pipe, please consult service personnel of Haier company. Calculate the design chart and exterior static pressure, and select the exhaust pipe with appropriate length and shapes.



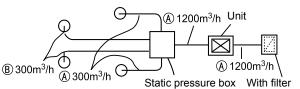


- The length difference between pipes should be limited to be less than 2:1;
- Make the piping as short as possible;
- Keep the min. elbow quantity;
- Wind the heat insulating material around the flange between the master unit and the exhaust pipe for heat insulation and sealing. Install the piping before fitting up the ceiling.



6. Calculation of simple duct

Assume the friction resistance per unit is 1Pa/m, when the size of one side of air pipe is 250mm, like below figure:



(purchased additionally)

	Flux	Gas pipe	
	Flux	(mmxmm)	
	1200m³/h	250×210	
A	(20m ³ /min)	250×310	
	300m ³ /h	250,420	
В	(5m³/min)	250×120	

Calculation of resistance in duct:

Straight Pipe	1Pa per meter,1Pa/m
Bended Section	Each bend regarded as 3-4m of straight pipe
Air Outlet	25Pa per outlet
Static Pressure Box	50Pa per static pressure box
Inlet Grille (with filter)	40Pa for each one

Simple duct selection

Note:1Pa/m

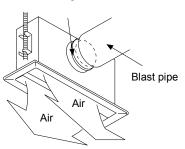
Shape	Square Pipe
Flux m³/h (m³/min)	Size (mm×mm)
100	250×60
200	250×90
300	250×120
400	250×140
500	250×170
600 (10)	250×190
800	250×230
1000	250×270
1200 (20)	250×310
1400	250×350
1600	250×390
1800 (30)	250×430
2000	250×470
2400	250×560
3000 (50)	250×650
3500	250×740
4000	250×830
4500	250×920
5000	250×1000
5500	250×1090
6000 (100)	250×1180



7. Cautions in Installation of Air Return Pipe & Exhaust Pipe

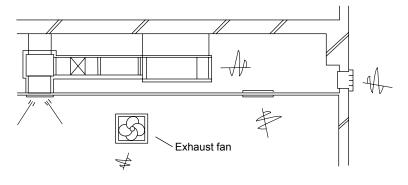
- It is recommended to use the blast pipes, which can be anti-condensation and absorb sound. (purchased at local shops)
- Complete the installation of the blast pipes before fitting up the suspended ceiling.
- Heat insulation should be made for the blast pipes.
- The special exhaust port should be arranged at the place where the air is distributed evenly.
- An inspection hole should be left on the surface of the ceiling for future maintenance.

Special exhaust port Positioning with bolt



8. Examples for Bad Installation

- The unit is not equipped with the air return pipe and the inner side of the suspending ceiling is used as the blast pipe, causing the humidity increasing due to irregular air mass, strong wind or sunlight from the outside world.
- There might be condensate dropping down at the outer side of the blast pipe. The humidity is high, even if the inner side of the suspended ceiling isn't used as a blast pipe in new concrete buildings. At this time, the whole body should use the thermo wool for heat preservation (the thermo wool can be packed with a steel wire).
- It is operated under the conditions beyond the limits, leading to the overload of the compressor.
- Affected by the capacity of the exhaust fan, and the strong wind and wind direction in the outer flue, when the blowing quantity of the air conditioner exceeds the limits, the drained water of the heat exchanger will overflow, causing water leakage.



Example of bad installation

9. Refrigerant Pipe

Pipe Length & Height Difference

Please refer to the attached manual of outdoor units.

Piping Materials & Heat Insulating Materials

As to prevent condensation, heat insulating treatment should be performed. The heat insulating treatment for piping should be done respectively.

Piping	Hard PVC tube
Material	VP31.5mm (inner bore)
Heat Insulating Material	Vesicant polythene thickness: over 7mm



Pipe Materials & Specifications

Mode		AD482MPERA	AD722MPERA, AD962MPERA		
Bing Size (mm) Gas Pipe		Ф15.88	Ф25.4		
Pipe Size (mm)	Liquid Pipe	Ф9.52	Ф9.52		
Pipe Material	Р	Phosphor deoxy bronze seamless pipe (TP2) for air conditioner			

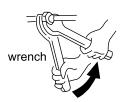
Refrigerant Recharge Amount

Recharge the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount or compressor failure can be caused by too much or less refrigerant.

Connecting Procedures of Refrigerant Tubing

Proceed the flare tube connecting operation to connect all the refrigerant tubes.

- Dual wrenches must be used in the connection of indoor unit tubing.
- Mounting torque refers to the right table



Outer diameter of tubing (mm)	Mounting torque
Ф9.52	40~50N.m
Ф15.88	90~120N.m
Ф19.05	100~140N.m
Ф25.4	

Cutting and Enlarging

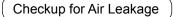
Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

Vacuumizing

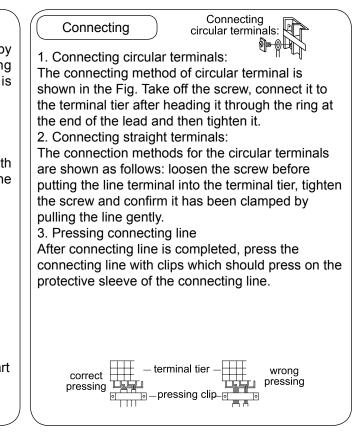
Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one master unit.]



Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.



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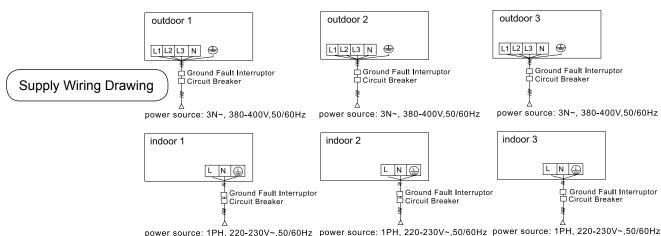
17.9.2 Electrical Wiring

∠ WARNING

- Electrical construction should be made with specific mains circuit by gualified personnel according to installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging wiring layout, specified cables should be used as mains line, which accords with local regulations on wiring. Connecting and fastening should be performed reliably to avoid external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

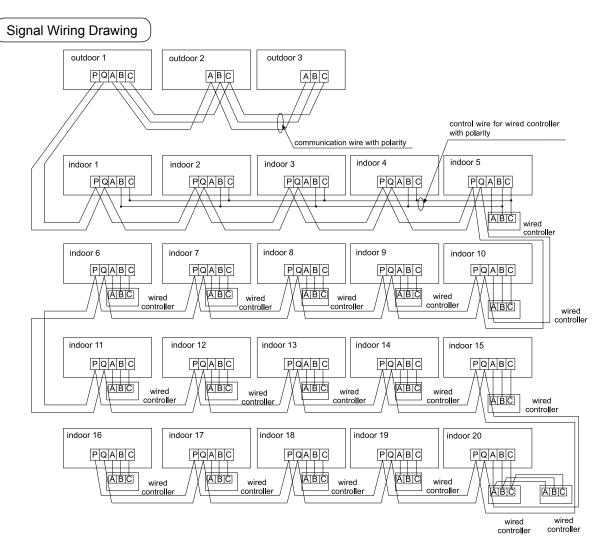
ATTENTION

- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below: 3×1.0-1.5) mm²; parameters for signal line: 2×0.75-1.25)mm²(shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



- Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.





Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure (1-5 indoor units). The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)
- B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired control are connected via three lines with polarity.
- C. Two wired controllers control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controls can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.

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The combination of multiple indoor units can be controlled by wired controller or remote controller.

% Switching mode of Wired control master unit/ Wired control slave unit/ remote control types can be used for switching over %

Setting mode Socket/dip switch	Wired control master unit	Wired control slave unit	Remote control
SW01-[1][2][3][4]	All OFF	[0][0][1]	All OFF
CN21 socket	Null	Null	Connect to remote receiver
Terminal block (control)	A, B, C connect with wired controller	B, C connect with wired controller	A, B, C Null

Note:

The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Items			Cross sectional area of signal line			
Total current of indoor units (A)	section (mm ²)	Length (m)	current of overflow breaker (A)	breaker (A) Ground fault interrupter (mA) Response time (S)	Outdoor -indoor (mm ²)	Indoor -indoor (mm²)
<10	2	20	20	20 A, 30 mA, 0.1S or below		
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below	2 cores×(
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below	mm ² shie	lded line
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below		

% The electrical power line and signal lines must be fastened tightly.

* Every indoor unit must have the ground connection.

* The power line should be enlarged if it exceeds the permissible length.

* Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.

% It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm ² ×3 core shielded line

% The shielding lay of the signal line must be grounded at one end.

% The total length of the signal line shall not be more than 250m.



17.9.3 Test Run

Before Test Run

- Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above 1MΩ. It can't be operated if it is below 1MΩ.
- Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.

Check if the arrangements of the drainpipe and connection line are correct.

The drainpipe shall be placed at the lower part while the connection line placed at the upper part.

Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials.

The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.

Checkup of Installation

Check if the mains voltage is matching

Check if there is air leakage at the piping joints

□ Check if the connections of mains power

□ and indoor & outdoor units are correct

 \Box Check if the serial numbers of terminals are Matching

Check if the installation place meets the requirement Check if there is too much noise

[□]Check if the connecting line is fastened

□ Check if the connectors for tubing are heat insulated □ Check if the water is drained to the outside

 \square Check if the indoor units are positioned

Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

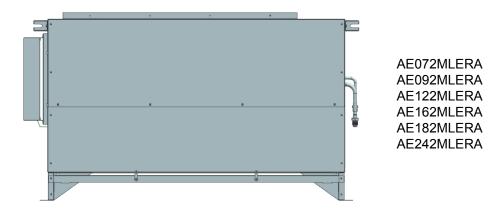
When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

Set the wired controller to cooling/heating mode, press "ON/OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/OFF" button to quit the compulsive running and stop the operation of the air conditioner.



18. Built-in Floor Standing Type Indoor Unit

18.1 Features



1) Cooling /heating rapidly:

Efficient hydrophilic aluminum foils heat exchanger, high efficiency thread brass faster to reach room temperature needs

2) Small size, save space:

Indoor unit using reasonable optimized structure design, miniaturization characteristics, installation space requirements small, and hidden installation, saves a lot of space for the room to increase the value of the use of the room, and can be installed in the room at various locations to meet the needs of individual users.

3) High efficiency filter is equipped at the air return side of the unit. Much purer air will be supplied to indoor.

4) The static pressure optional, mute comfortable:

External static pressure can be switched by the terminal in the electric control box. Select between 0 Pa and 30Pa.

5) Fault self-test function:

Through the control system of the air conditioner when the air conditioner during operation, failure, fault self-test, and the test results are converted to the corresponding fault codes, display online remote control, and then through the fault codes in the manual can easily find fault, to exclude.



18.2 Specification

	MODEL		AE072MLERA	AE092MLERA	AE122MLERA
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	7.5	9.6	12.3
Ossilias	Capacity	kW	2.2	2.8	3.6
Cooling	Power input	W	110	110	110
	Current	A	0.62	0.62	0.62
	Capacity	kBtu/h	8.5	10.9	13.6
	Capacity	kW	2.5	3.2	4.0
Heating	Power input	W	110	110	110
	Current	A	0.62	0.62	0.62
	Heating capacity at low temp.	kW	2.0	2.5	3.2
Operating cu	rrent	A	0.62	0.62	0.62
Power consu	mption	kW	0.102/0.12	0.102/0.12	0.102/0.12
	Brand		Broad Ocean	Broad Ocean	Broad Ocean
	Model		Y5S413B851	Y5S413B851	Y5S413B851
	Туре		AC	AC	AC
	Insulation class		В	В	В
Indoor motor	IP class		IP22	IP22	IP22
	Power input	W	115	115	115
	Power output	W	33/ 37	33/ 37	33/ 37
	Capacitor	μF	5	5	5
	Speed (High/Middle/Low)	rpm		2.8 110 0.62 10.9 3.2 110 0.62 2.5 0.62 2.5 0.62 2.5 0.62 2.5 0.62 2.5 0.62 2.5 0.62 2.5 0.62 2.5 0.62 102/0.12 Broad Ocean Y5S413B851 AC B IP22 115 33/37 5 865/750/630 885/750/620 Haier Centrifugal 2 21*13.3 1.3 Hydrophilic aluminur	
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		2	2	2
	a. Number of rows		2	2	2
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	21*13.3
	c. Fin spacing	mm	1.3	1.3	1.3
Indoor coil	d. Fin type (code)		Н	lydrophilic aluminu	m
	e. Tube outside dia. and type	mm	4	7 Inner groove tub	e
	f. Coil length×height×width	mm	797×252×26.6	797×252×26.6	797×252×26.6
	g. Number of circuits		3	3	3



	MODEL		AE072MLERA	AE092MLERA	AE122MLERA
	Cabinet coating type		/	/	/
Cabinet	Cabinet salt spray test duration	Hour	1	1	/
	Control box IP class		/	/	/
	Sheet metal thickness		0.8/1.0/1.5	0.8/1.0/1.5	0.8/1.0/1.5
	Drain pan material		1	/	/
Construction	Drain pan insulation		/	/	/
	Drain pump option		No	No	No
	Branch outlet option		1	1	/
	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
Indoor wall	Thickness	mm	0.8/1.0/1.5	0.8/1.0/1.5	0.8/1.0/1.5
	Double or single skin		/ / ur / / / / / 0.8/1.0/1.5 0.8/1.0/1.5 / /	Single	
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
Air filter	Pressure drop	Pa	30	30	30
	Liquid pipe	mm	6.35	6.35	6.35
Piping dimension	Gas pipe	mm	9.52	9.52	12.7
	Drain hose	mm	20	20	20
Fresh air dimensio	on	mm	1	1	/
Sound pressure le	evel (H/M/L)	dB(A)	38/35/33	38/35/33	40/37/35
Sound power leve	I (H/M/L)	dB(A)	51/48/46	51/48/46	53/50/48
Standard static pr	essure	Pa	0	0	0
Max. static pressu	ire	Pa	30	30	30
Indoor air flow (H/	M/L)	m³/h	750/650/550	750/650/550	750/650/550
Air outlet dimensions		mm	780*118	780*118	780*118
Air return dimensions		mm	946*190	946*190	946*190
Dimension (W*H*D)		mm	1116*624*221	1116*624*221	1116*624*221
Packing (W*H*D)		mm	1425*685*315	1425*685*315	1425*685*315
Net weight		kg	29	29	29
Gross weight		kg	37	37	37

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



	MODEL		AE162MLERA	AE182MLERA	AE242MLERA
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	15.4	19.1	24.2
Cooling	Capacity	kW	4.5	5.6	7.1
Cooling	Power input	W	150	150	150
	Current	А	0.68	0.68	0.68
	Capacity	kBtu/h	17.1	21.5	27.3
	Capacity	kW	5.0	6.3	8.0
Heating	Power input	W	150	150	150
	Current	Α	0.68	0.68	0.68
Orrentia	Heating capacity at low temp.	kW	4.0	5.0	6.3
Operating curr	ent	Α	0.7	0.7	0.7
Power consum	ption	kW	0.151/0.183	0.151/0.183	0.151/0.183
	Brand		Broad Ocean	Broad Ocean	Broad Ocean
	Model		Y5S413C818	Y5S413C818	Y5S413C818
	Туре		AC	AC	AC
	Insulation class		В	В	В
Indoor motor	IP class		IP20	IP20	IP20
	Power input	W	146	146	146
	Power output	W	63/ 70	63/ 70	63/ 70
	Capacitor	μF	5	5	5
	Speed (High/Middle/Low)	rpm		1160/1100/1030 1180/1080/1000	
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Centrifugal	Centrifugal	Centrifugal
	Quantity		2	2	2
	a. Number of rows		3	3	3
	b. Tube pitch (a)×row pitch (b)	mm	21*13.3	21*13.3	21*13.3
	c. Fin spacing	mm	1.45	1.45	1.45
Indoor coil	d. Fin type (code)		Н	ydrophilic aluminui	n
	e. Tube outside dia. and type	mm	¢	7 Inner groove tub	e
	f. Coil length×height×width	mm	797×252×40	797×252×40	797×252×40
	g. Number of circuits		4	4	4



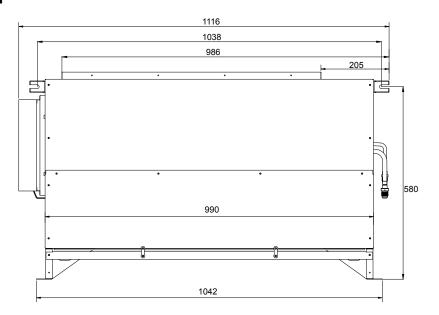
MODEL			AE162MLERA	AE182MLERA	AE242MLERA
	Cabinet coating type		/	/	/
Cabinet	Cabinet salt spray test duration	Hour	/	/	/
	Control box IP class	İ	/	/	/
Construction	Sheet metal thickness		0.8/1.0/1.5	0.8/1.0/1.5	0.8/1.0/1.5
	Drain pan material		/	/	/
	Drain pan insulation	İ	/	/	/
	Drain pump option		No	No	No
	Branch outlet option	ĺ	1	/	/
Indoor wall	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
	Thickness	mm	0.8/1.0/1.5	0.8/1.0/1.5	0.8/1.0/1.5
	Double or single skin		Single	Single	Single
Air filter	Material		PP	PP	PP
	Mesh		100	100	100
	Pressure drop	Ра	30	30	30
Piping dimension	Liquid pipe	mm	6.35	6.35	9.52
	Gas pipe	mm	12.7	12.7	15.88
	Drain hose	mm	20	20	20
Fresh air dimension		mm	1	1	/
Sound pressure level (H/M/L)		dB(A)	40/37/35	42/39/36	42/39/36
Sound power level (H/M/L)		dB(A)	53/50/48	55/52/49	55/52/49
Standard static pressure		Ра	0	0	0
Max. static pressure		Ра	30	30	30
Indoor air flow (H/M/L)		m³/h	950/830/720	950/830/720	950/830/720
Air outlet dimensions		mm	780*118	780*118	780*118
Air return dimensions		mm	946*190	946*190	946*190
Dimension (W*H*D)		mm	1116*624*221	1116*624*221	1116*624*221
Packing (W*H*D)		mm	1425*685*315	1425*685*315	1425*685*315
Net weight		kg	31	31	31
ivel weight		1	1	39	Ì

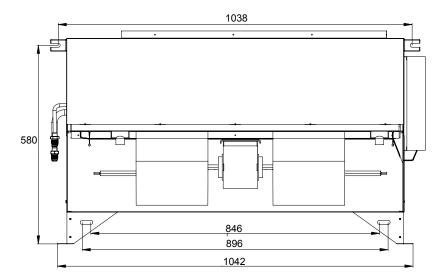
Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

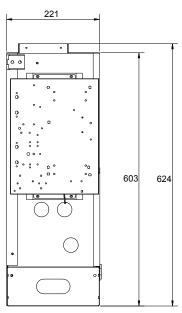
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18.3 Dimension



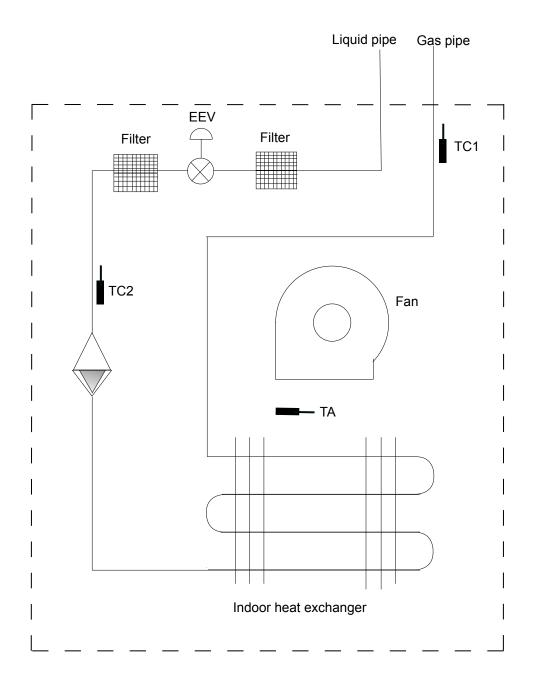




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18.4 Piping diagram

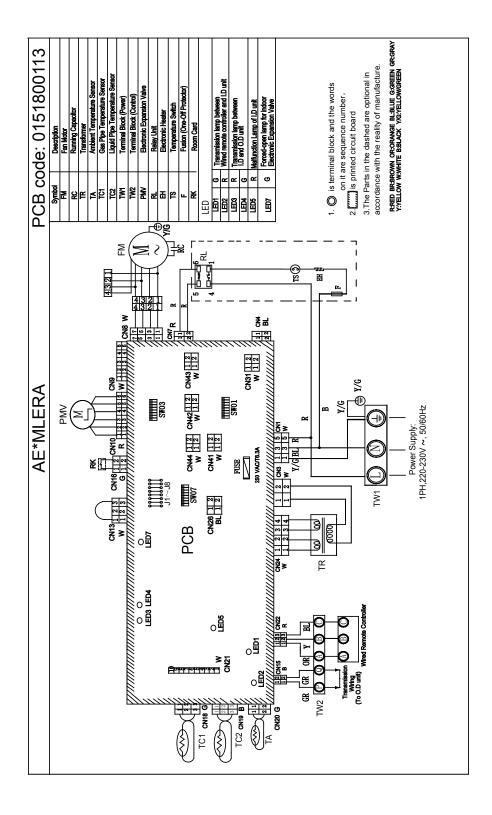


Built-in Floor Standing Type Indoor Unit

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18.5 Wiring diagram



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18.6 Electric characteristics

Units			Power supply		Indoor fan motor		Power input (w)		
Model	Voltage	FQY	Volt range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AE072MLERA	220	50/60	198~242	0.68	2.16	33/37	0.54	110	110
AE092MLERA	220	50/60	198~242	0.68	2.16	33/37	0.54	110	110
AE122MLERA	220	50/60	198~242	0.68	2.16	33/37	0.54	110	110
AE162MLERA	220	50/60	198~242	1.1	3.4	63/70	0.85	150	150
AE182MLERA	220	50/60	198~242	1.1	3.4	63/70	0.85	150	150
AE242MLERA	220	50/60	198~242	1.1	3.4	63/70	0.85	150	150

Symbols:

MCA: Min. circuit amps (A) MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

Note:

1. Voltage range

The units are applicable for the electrical systems where voltage supplied to unit is in the range.

2. Maximum allowable voltage unbalance between phases is 2%.

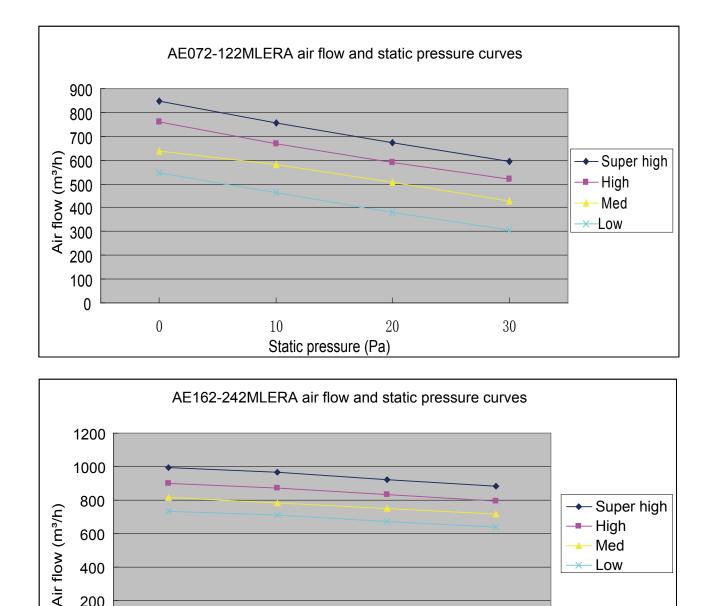
3. MCA=1.25*FLA MFA≤4*FLA

4. Power supply uses the circuit breaker.



Static pressure (Pa)

18.7 Air flow and static pressure curves

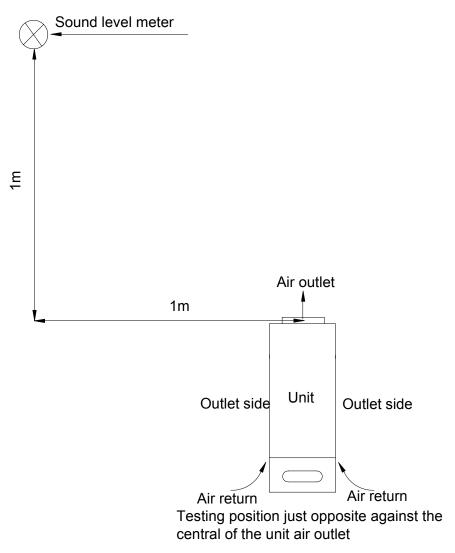


----- Low



18.8 Noise level

1) Testing illustrate:



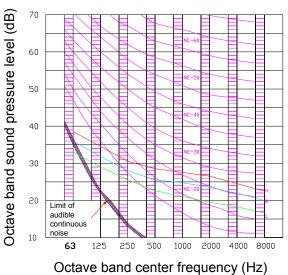
2) Testing condition:

- a: Unit running in the normal condition
- b: Test in the semi-anechoic chamber
- c: Noise level varies from the actual factors such as room structure, etc.

Note:

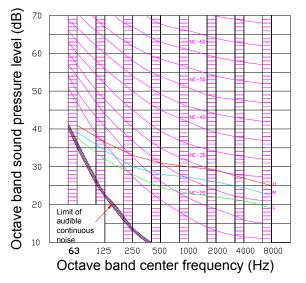
The noise level will be measured in the third octave band limited values in the semi-anechoic chamber, using a Real Time Analyses calibrated sound intensity meter. It is a sound pressure noise level.

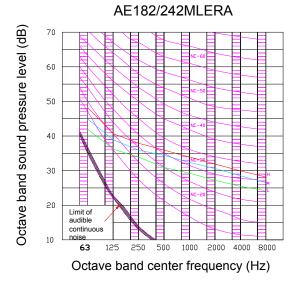




AE072/092MLERA

AE122/162MLERA







18.9 Installation

18.9.1 Installation Procedures

This manual cannot completely illustrate all the properties of the products you bought. Please contact the local Haier distribution center if you have any question or request.

Please use the standard tools according to the installation requirements.

Except the standard attached accessories of the series' units, pls. prepare other accessories according to this manual request.

1. Choose the suitable installation location. Indoor units should be installed in places with the environment of even circulation of cool and warm blows. The following places should be avoided.

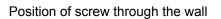
** Places with high salinity (beach), high sulfureted gas (such as the thermal spring regions where copper tubes and soft soldering are easy to be eroded), much oil (including mechanical oil) and steam; places where organic substance solvent is frequently used; places where machines generate the high frequency electromagnetic wave (abnormal condition will appear in the control system); places where there is high humidity exists near the door or windows (dew is easily formed); and places where the special sprayer is frequently used.

Indoor Units

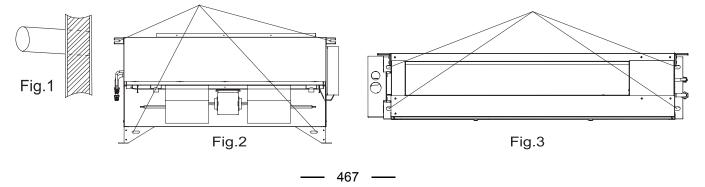
- (1) The distance between wind outlet port and the ground should not be more than 2.2m.
- (2) Select appropriate places for installation where the outlet air can be spread to places all over the house and arrange proper locations for connecting pipes and lines as well as the drainpipe to the outdoor.
- (3) Ceiling construction must be hard enough to hold the weight of the unit.
- (4) Make sure that the connecting pipe, the drainpipe and connecting guide line can be put into walls to connect the outdoor units.
- (5) It is recommended to make the connecting pipe between the outdoor and indoor units and the drainpipe are as short as possible.
- (6) Please read the attached installation instruction of outdoor units for regulation of filling amount of refrigerant if necessary.
- (7) The connecting flange should be checked by users.
- (8) Those electrical appliances such as television, instruments, devices, artwork, piano, wireless equipment and other valuables should not be placed under the indoor unit as to prevent condensate from dropping into them and causing damage.

2. The following steps can be taken after selecting the installation place:

- (1) Cut a hole on the wall and put the connecting pipe and connecting thread into the PVC, which is purchased at the local shop. With a slight downwards tilt towards the exterior, the gradient should be kept at least 1/100, as shown in Fig.1.
- (2) Before cutting the hole, check if there are pipes or reinforcing steel bars at the rear of the hole. Making the hole in the place where wires or pipes should be avoided.
- (3) Fix the unit support and change the connection pipes, connecting the shapes of wires and drainpipes so as to let them go through the wall hole.
- (4) When unit can be installed beside the wall, and be fixed with screw through the wall, the position as the Fig.2. When not, unit can be fixed with screw under the ground, the position as the Fig.3.



Position of screw under the ground





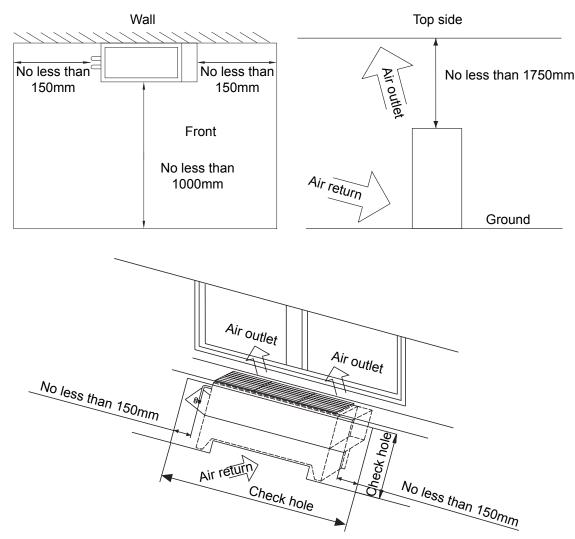
1116 221 1038 986 -205 F 603 624 580 990 -1042 1038 580 846 896 1042 Ģ 144 C

3. Relationship between locations of the unit and the hoisting studs (unit: mm).

Pipe Length & Height Difference

- (1) The indoor units of this series are low static pressure air conditioners.
- (2) The indoor units should be installed with an inspection hole for maintenance.
- (3) When being installed as vertical type, the drainage pan with cushion must face to the outside and be with enough room for maintenance in case of removing the filter for cleaning.





The condensate drainage pipe should be over 1% gradient. And it should be wrapped with heat insulation pipe.

Choice of Blowing Wind from Blower

(when using the high performance filter)

The blower is provided with a red terminal and a white terminal. The standard wind choice has been set before delivery. When the use of optional components, such as the high performance filter, causes the static pressure rising, change the connection of the connector mounted on the side of the control cabinet, as shown as follows.

Stan	Standard blowing wind (at delivery)			High-speed blowing wind									
let	Yellow			Yellow	ower	Yellow			Yellow	 blower			
side of ol cabir	Black	ctor, e	en en	Orange	of blo	Black	ite	g	Black	of blo		Standard	Maximal
One sid	Blue	connector white	White	Black :	side	Blue	White	Red	Blue	side	side		static pressure
	Red			Blue	One	Red	-		Red	One		0	30

The indoor units of this series are low pressure duct type. Please contact the professional design and after-sales service people for the following items: calculate the heat load and the external static pressure, choose the correct return outlet, air return pipe, air discharging outlet and air discharging pipe.



For normal drainage, the water drainage piping should be connected according to the installation manual. Heat insulation should be performed to avoid condensation. Improper pipe connection may cause water going into the machine.

Requirements:

- Heat insulating treatment should be made for the water drainpipes of the indoor units.
- Heat preservation should be made for the connection with the indoor units. Improper heat preservation may cause condensing.
- The drainpipe should be designed with a down gradient of 1/100. The midway of the elbow shouldn't be made in S shape. Or abnormal noise may be caused.
- The lateral length of the drainpipe should be kept within 20m.
- The central piping can be connected according the following figure.
- Don't apply external force to the connection of drainpipes.



Down gradient of over 1/100

Piping Materials & Heat Insulating Materials

As to prevent condensation, heat insulating treatment should be performed. The heat insulating treatment for piping should be done respectively.

Piping Material	Hard PVC tube VP31.5mm (inner bore)			
Heat Insulating Material	Vesicant polythene thickness: over 7mm			

Hose

The drainage hose is made of Φ 19.05mm (3/4") PVC tube, which can adjust the eccentricity and the angle of the hard PVC tube.

Stretch the hose directly to make connections as to avoid distortion. The soft end of the hose should be positioned with a clamp.

The hose should be used in the horizon direction.

Heat Insulating Treatment:

Wrap the connection between the clamp and the root segment of the indoor unit without any gap with heat insulating materials as shown in the drawing.

Confirming water drainage

During the test run, check the condition of water drainage and make sure that there is no leakage on the connection of piping, which should also be performed during the winter.

Tubing Permissible Length & Height Difference

Please refer to the attached manual of outdoor units.

Hose	e Hos	e clamp
	×	/
	h	
	L	
	Heat insu	lating
Attached heat	material	
insulating mate	erial	Horniness pvc pipe

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Pipe Materials & Specifications

Model		AE072/092MLERA	AD122/162/182MLERA	AE242MLERA
Pipe Size (mm)	Gas Pipe	Ф9.52	Ф12.7	Ф15.88
	Liquid Pipe	Ф6.35	Ф6.35	Ф9.52

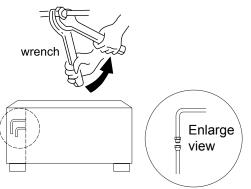
Refrigerant Recharge Amount

Recharge the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount or compressor failure can be caused by too much or less refrigerant.

Connecting Procedures of Refrigerant Tubing

Proceed the flare tube connecting operation to connect all the refrigerant tubes.

- Dual wrenches must be used in the connection of indoor unit tubing.
- Mounting torque refers to the right table.



Outer diameter of tubing (mm)	Mounting torque (N.m)	Increase mounting torque (N.m)
Ф6.35	11.8 (1.2kgf.m)	13.7 (1.4kgf.m)
Ф9.52	24.5 (2.5kgf.m)	29.4 (3.0kgf.m)
Ф12.70	49.0 (5.0kgf.m)	53.9 (5.5kgf.m)
Ф15.88	78.4 (8.0kgf.m)	98.0 (10.0kgf.m)

Cutting and Enlarging

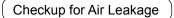
Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

Vacuumizing

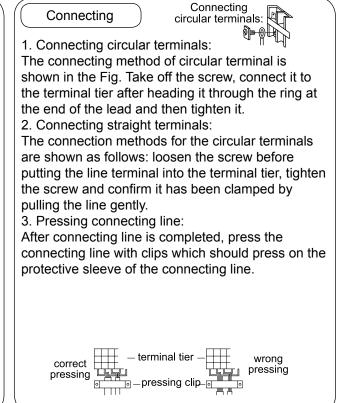
Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one master unit.]



Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.



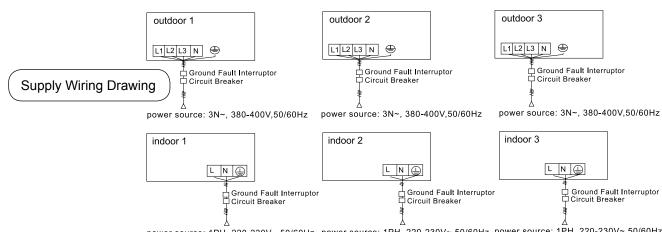


18.9.2 Electrical Wiring

∠ WARNING

- Electrical construction should be made with specific mains circuit by gualified personnel according to installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging wiring layout, specified cables should be used as mains line, which accords with local regulations on wiring. Connecting and fastening should be performed reliably to avoid external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

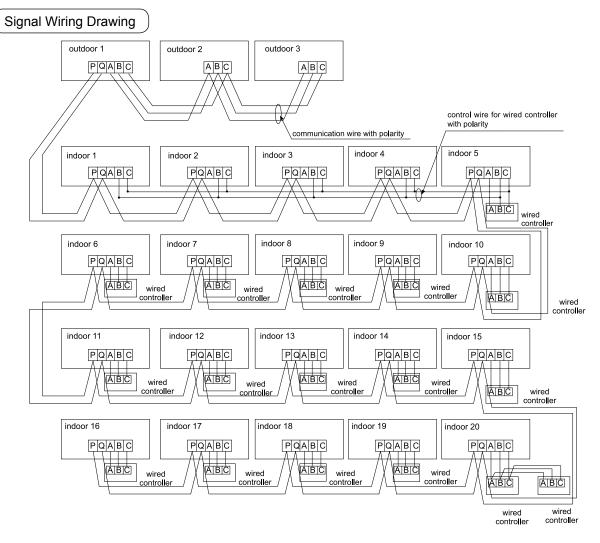
- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below: 3×1.0-1.5) mm²; parameters for signal line: 2×0.75-1.25)mm²(shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



- power source: 1PH, 220-230V~,50/60Hz power source: 1PH, 220-230V~,50/60Hz power source: 1PH, 220-230V~,50/60Hz
- Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.

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Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above figure (1-5 indoor units). The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)
- B. One wired controller controls one indoor unit, as shown in the above figure (indoor unit 6-19). The indoor unit and the wired control are connected via three lines with polarity.
- C. Two wired controllers control one indoor unit, as shown in the figure (indoor unit 20). Either of the wired controls can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.



The combination of multiple indoor units can be controlled by wired controller or remote controller.

% Switching mode of Wired control master unit/ Wired control slave unit/ remote control types can be used for switching over %

Setting mode Socket/dip switch	Wired control master unit	Wired control slave unit	Remote control
SW01-[1][2][3][4]	All OFF	[0][0][1]	All OFF
CN21 socket	Null	Null	Connect to remote receiver
Terminal block (control)	A, B, C connect with wired controller	B, C connect with wired controller	A, B, C Null

Note:

The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Items			Cross sectional area of signal line			
Total current of indoor units (A)	section (mm ²)	Length (m)	current of overflow breaker (A)	leakage breaker (A) Leaking current (mA) Operating period (S)	Outdoor -indoor (mm²)	Indoor -indoor (mm²)
<10	2	20	20	20 A, 30 mA, 0.1S or below		
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below	2 cores×(0.75-2.0)	
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below	mm ² shielded line	
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below		

% The electrical power line and signal lines must be fastened tightly.

% Every indoor unit must have the ground connection.

 $\ensuremath{\mathbbmm}$ The power line should be enlarged if it exceeds the permissible length.

* Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.

% It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions				
≤ 250	0.75mm ² ×3 core shielded line				

% The shielding lay of the signal line must be grounded at one end.

% The total length of the signal line shall not be more than 250m.



18.9.3 Test Run

Before Test Run

- Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above 1MΩ. It can't be operated if it is below 1MΩ.
- Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.

Check if the arrangements of the drainpipe and connection line are correct.

The drainpipe shall be placed at the lower part while the connection line placed at the upper part.

Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials.

The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.

Checkup of Installation

Check if the mains voltage is matching

Check if there is air leakage at the piping joints

Check if the connections of mains power

□ and indoor & outdoor units are correct

 $\hfill\square$ Check if the serial numbers of terminals are Matching

Check if the installation place meets the requirement Check if there is too much noise

[□]Check if the connecting line is fastened

 $\hfill\square$ Check if the connectors for tubing are heat insulated

Check if the water is drained to the outside

 $_{\Box}$ Check if the indoor units are positioned

Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

Set the wired controller to cooling/heating mode, press "ON/OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/OFF" button to quit the compulsive running and stop the operation of the air conditioner.



19. Console Type Indoor Unit

19.1 Features



Compact unit, space saving

The console indoor unit is very slim and will be harmonious with room. It can be placed at the corner, and it is very space saving.

Dual air sending position

The console indoor unit can send the air from the top and the bottom, which will realize the indoor temperature be adjusted soon. AF052MAERA AF072MAERA AF092MAERA AF122MAERA AF182MAERA

Quiet operation

Thanks to the low noise centrifugal fan, the unit always works quietly, it lets your life more comfortable.

High efficiency filter

The console indoor unit adopts high efficiency filter to improve the air quality.





19.2 Specification

MODEL			AF052MAERA	AF072MAERA	AF092MAERA	
Power supp	bly	Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60	
	Capacity	kBtu/h	5.1	7.5	9.6	
Cooling	Capacity	kW	1.5	2.2	2.8	
	Power input	W	100	100	100	
	Current	A	0.44	0.44	0.44	
	Capacity	kBtu/h	5.8	8.5	10.9	
	Capacity	kW	1.7	2.5	3.2	
Heating	Power input	W	100	100	100	
	Current	A	0.44	0.44	0.44	
	Heating capacity at low temp.	kW	2.0	2.0	2.5	
Operating c	current	A	0.45	0.45	0.45	
Power cons	Power consumption		0.08	0.08	0.08	
	Brand		Welling	Welling	Welling	
	Model		RPG23A/RPG23	RPG23A/RPG23	RPG23A/RPG23	
	Туре		AC	AC	AC	
	Insulation class		E	E	E	
Indoor	IP class		IP20	IP20	IP20	
motor	Power input	W	55+33	55+33	55+33	
	Power output (up/down)	W	20/11	20/11	20/11	
	Capacitor	μF	1.2µF/450V	1.2µF/450V	1.2µF/450V	
	Speed (High/Middle/Low)	rpm	900/850/800 (Up) 850/800/750 (Down)			
	Brand		Haier	Haier	Haier	
Indoor fan	Туре		cross	Cross	Cross	
	Quantity		2	2	2	
	a. Number of rows		2	2	2	
	b. Tube pitch (a)×row pitch(b)	mm	21*13	21*13	21*13	
	c. Fin spacing	mm	1.4	1.4	1.4	
Indoor coil	d. Fin type (code)		Hydrophilic aluminum		1	
	e. Tube outside dia. and type	mm		Φ7 Inner groove tube	e	
	f. Coil length×height×width	mm	514×420×26	514×420×26	514×420×26	
	g. Number of circuits		4	4	4	



	MODEL		AF052MAERA	AF072MAERA	AF092MAERA
	Cabinet coating type		Plastic	Plastic	Plastic
Cabinet	Cabinet salt spray test duration	Hour	1	1	1
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		/	/	/
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		20	20	20
	Drain pump option		NO	NO	NO
	Branch outlet option		NO	NO	NO
	Material		Plastic	Plastic	Plastic
Indoor wall	Thickness	mm	/	/	1
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
	Liquid pipe	mm	6.35	6.35	6.35
Piping dimension	Gas pipe	mm	12.7	12.7	12.7
	Drain hose	mm	16.5	16.5	16.5
Fresh air dim	ension	mm	/	1	/
Sound pressu	ire level (H/M/L)	dB(A)	42/38/35	43/39/36	43/39/36
Sound power	level (H/M/L)	dB(A)	55/52/48	56/53/49	56/53/49
Standard stat	ic pressure	Pa	0	0	0
Indoor air flov	v (H/M/L)	m³/h	420/330/240	460/370/280	460/370/280
Dimension (W	/*H*D)	mm	720/255/640	720*255*640	720*255*640
Packing (W*F	l*D)	mm	784/305/720	784*305*720	784*305*720
Net weight		kg	18	18.0	18.0
Gross weight		kg	20	20.0	20.0
	lition: indoor temperature (perature (cooling): 35DB (°	• • • •	. , .	ature (heating): 7DB (•••••••••••••••••••••••••••••••••••••••

The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



	MODEL		AF122MAERA	AF182MAERA
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	12.3	19.1
Cooling	Capacity	kW	3.6	5.6
Cooling	Power input	W	100	100
	Current	A	0.44	0.44
	Capacity	kBtu/h	13.6	20.5
	Capacity	kW	4.0	6.0
Heating	Power input	W	100	100
	Current	A	0.44	0.44
	Heating capacity at low temp.	kW	3.2	4.5
Operating cu	rrent	A	0.45	0.45
Power consumption		kW	0.08	0.08
	Brand		Welling	Welling
	Model		RPG23A/RPG23	RPG23A/RPG23
	Туре		AC	AC
	Insulation class		E	E
Indoor motor	IP class		IP20	IP20
	Power input	W	55+33	55+33
	Power output (up/down)	W	20/11	20/11
	Capacitor	μF	1.2µF/450V	1.2µF/450V
	Speed (High/Middle/Low)	rpm	1000/925/850 (Up) 950/875/800 (Down)	1250/1000/950 (Up) 1200/950/900 (Down)
	Brand		Haier	Haier
Indoor fan	Туре		Cross	Cross
	Quantity		2	2
	a. Number of rows		2	2
	b. Tube pitch (a)×row pitch(b)	mm	21*13	21*13
	c. Fin spacing	mm	1.4	1.4
Indoor coil	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube	Φ7 Inner groove tube
	f. Coil length×height×width	mm	514×420×26	514×420×26
	g. Number of circuits		4	4

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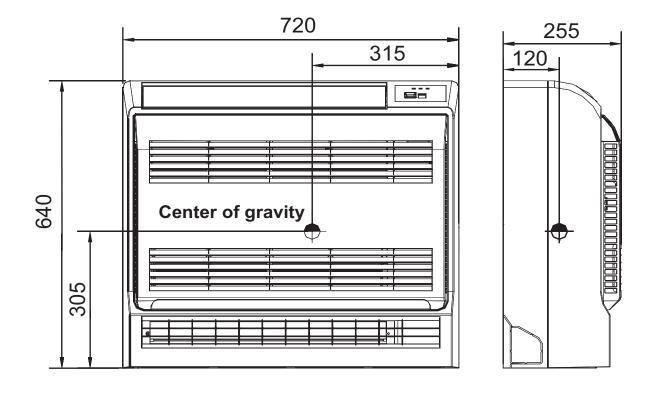


MODEL			AF122MAERA	AF182MAERA
	Cabinet coating type		Plastic	Plastic
Cabinet	Cabinet salt spray test duration	Hour	1	1
	Control box IP class		IP20	IP20
	Sheet metal thickness		1	1
	Drain pan material		PS	PS
Construction	Drain pan insulation		20	20
	Drain pump option		NO	NO
	Branch outlet option		NO	NO
Indoor wall	Material		Plastic	Plastic
	Thickness	mm	1	1
	Double or single skin		Single	Single
	Material		PP	PP
Air filter	Mesh		100	100
	Pressure drop	Ра	5	5
Piping dimension	Liquid pipe	mm	6.35	6.35
	Gas pipe	mm	12.7	12.7
	Drain hose	mm	16.5	16.5
Fresh air dimension		mm	1	1
Sound pressure level (H/M/L)		dB(A)	43/39/36	48/46/42
Sound power level (H/M/L)		dB(A)	56/53/49	61/59/55
Standard static pressure		Ра	0	0
Indoor air flow (H/M/L)		m³/h	520/430/340	580/490/400
Dimension (W*H*D)		mm	720*255*640	720*255*640
Packing (W*H*D)		mm	784*305*720	784*305*720
Net weight		kg	18.0	18.0
Gross weight		kg	20.0	20.0
Outdoor temperati	: indoor temperature (cooling): 27 ure (cooling): 35DB (°C)/24WB (°(Il be measured in the third octave	C), outdo	or temperature (heating): 7	′DB (°C)/6WB (°C)
	eter. It is a sound pressure noise l			- ,

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19.3 Dimension

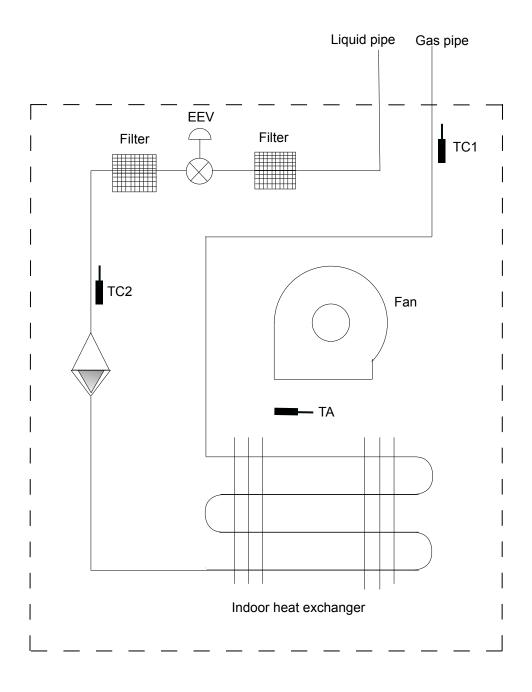


Console Type Indoor Unit

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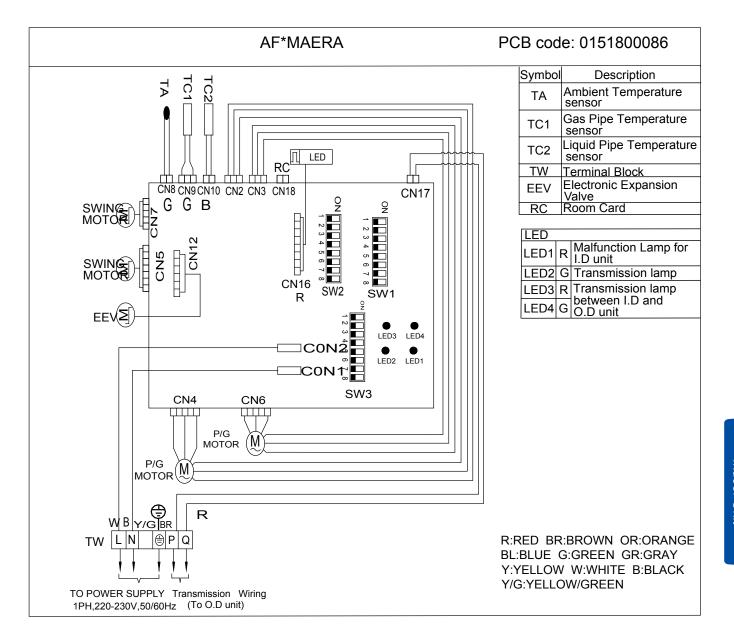


19.4 Piping diagram

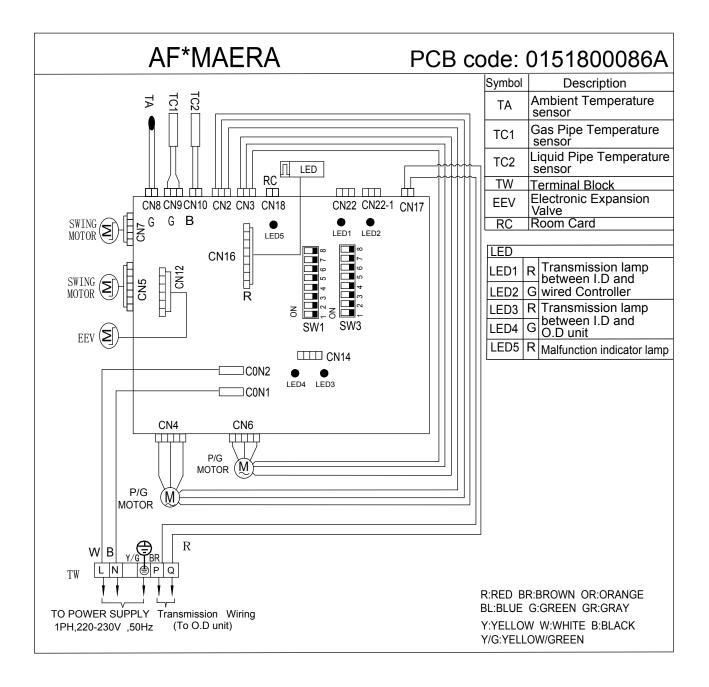




19.5 Wiring diagram







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19.6 Electric characteristics

Units				Power supply		Indoor fan motor		Power input (w)		
Model	Phase	FQY	Voltage	Volt range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AF052MAERA	1	50/60	220	198~242	0.28	0.88	20/11	0.22	100	100
AF072MAERA	1	50/60	220	198~242	0.28	0.88	20/11	0.22	100	100
AF092MAERA	1	50/60	220	198~242	0.28	0.88	20/11	0.22	100	100
AF122MAERA	1	50/60	220	198~242	0.28	0.88	20/11	0.22	100	100
AF182MAERA	1	50/60	220	198~242	0.28	0.88	20/11	0.22	100	100

Symbols:

MCA: Min. circuit amps (A) MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

Note:

1. Voltage range

The units are applicable for the electrical systems where voltage supplied to unit is in the range.

2. Maximum allowable voltage unbalance between phases is 2%.

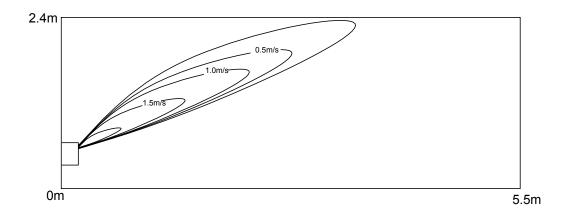
3. MCA=1.25*FLA MFA≤4*FLA

4. Power supply uses the circuit breaker.



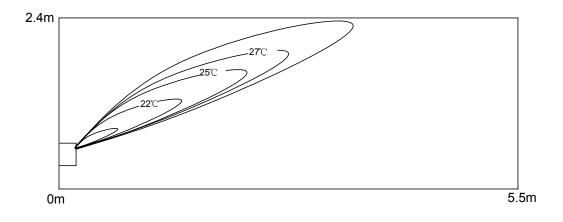
19.7 Air velocity and temperature distribution

- A) On the floor
- a. Cooling / Air velocity distribution
 Cooling
 Blowy angle: 25
 Air velocity distribution



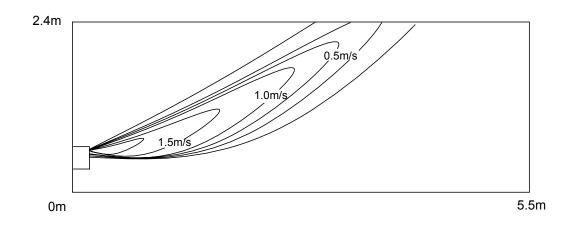
b. Cooling / Temperature distribution

Cooling Blowy angle: 25 Temperature distribution



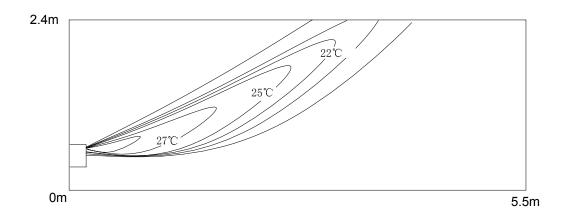


c. Heating / Air velocity distribution
Heating
Blowy angle: 5
Air velocity distribution



d. Heating / Temperature distribution

Heating Blowy angle: 5 Temperature distribution

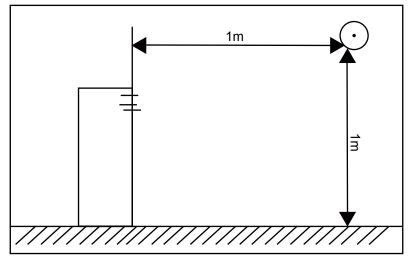


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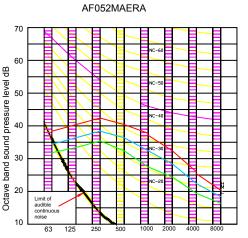
19.8 Sound pressure level

(1) Testing illustrate:

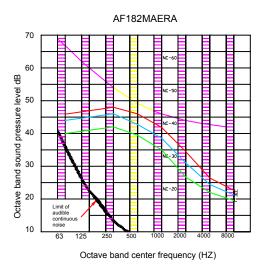


- (2) Testing condition:
- a. Unit running in the nominal condition.
- b. Test in the semi-anechoic chamber.
- c. Noise level varies from the actual factors such as room structure, etc.

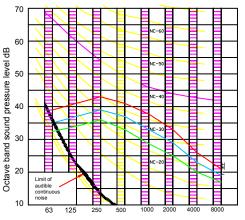
(3) Octave band level:



Octave band center frequency (HZ)



AF072/092/122MAERA



Octave band center frequency (HZ)



19.9 Installation

19.9.1 Installation Procedures

Installation of indoor unit

Necessary tools

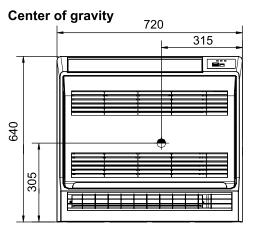
- (1) Screw driver
- (2) Hacksaw
- (3) Dia. 70mm hole core drill
- (4) Spanner (dia. 17,27mm)
- (5) Spanner (14,17,27mm)
- (6) Pipe cutter
- (7) Flaring tool
- (8) Knife
- (9) Nipper
- (10) Gas leakage detector or soap water
- (11) Measuring tape
- (12) Reamer
- (13) Refrigerant oil

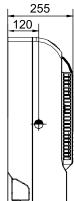
Selection of installation place

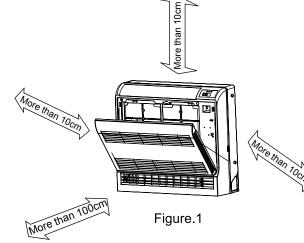
- Place where it is easy to route drainage pipe and outdoor piping.
- Place, away from heat source and with less direct sunlight.
- Place where cool and warm air could be delivered evenly to every corner of the room.
- Place near power supply socket. Leave enough space around the unit.
- Place, robust not causing vibration, where the body can be supported sufficiently.
- To prevent interference, place it at least 1m away from other electric machines, such as TV set, radio.

Selection of installation place

- According to the dimension of the figure 2 shown, nail two cement steel nails on the wall, keep 2~3 mm out. Then hang the back of the unit on them.
- There must be no gap between the indoor unit and wall.
- Remove the front panel, then use two fastening screws to fix the unit on the floor.
- As Figure 3 shown.
- Once refrigerant piping and drain piping connections are completed, fill the gap of the through hole with putty.
- Attach the front panel and front grille in their original positions once all connections are complete.







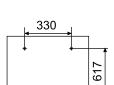
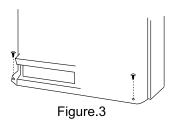


Figure.2



Console Type Indoor Unit



Fixing of the unit

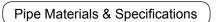
1. Position of the wall hole

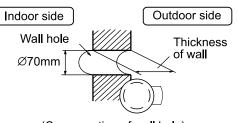
Wall hole should be decided according to installation place and piping direction. (refer to installation drawings).

2. Making a wall hole Drill a hole of 120×70mm dia. with a little slope towards outside.

Pipe Length & Height Difference

Please refer to the attached manual of outdoor units.





(Cross section of wall hole)

odel	AF052-182MAERA		
Gas Pipe	Φ12.7		
Liquid Pipe	Ф6.35		
Phosphor deoxy bronze seamless pipe (TP2) for air conditioner			
	Gas Pipe Liquid Pipe		

Refrigerant Recharge Amount

Recharge the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount while compressor failure can be caused by too much or less refrigerant.

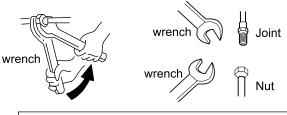
Connecting Procedures of Refrigerant Tubing

Connecting Procedures of Refrigerant Pipe

Schematic diagram for unit connection

Proceed the flare tube connecting operation to connect all the refrigerant tubes.

- Dual wrenches must be used in the connection of indoor unit tubing
- Mounting torque refers to the right table
- Pipe connection process
- Apply refrigeration oil on the end of the pipe to be connected and on the flared section
- Align the pipes to be connected and tighten the nut (See the figure)
- Ensure that no foreign articles enter into the pipes
- Cautions for pipe connection
- Pipes free from twists, deformation, water, dust.
- Dedicated tools for each R407C and R410A should be used and stored separately
- Optimized radii of bends
- Insulation to be applied on all gaseous pipes
- Flared section free from cracks



Threads on the pipes may be damaged when tightening if the pipes are not well aligned.

Outer diameter of tubing (mm)	Mounting torque (N.m)	Increase mounting torque (N.m)		
Φ6.35	11.8 (1.2kgf.m)	13.7 (1.4kgf.m)		
Φ12.7	49.0 (5.0kgf.m)	53.9 (5.5kgf.m)		

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Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Vacuum pump with check valve should be used for vacuumizing to prevent pump oil flowing into the machine.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when only connected one master unit.]

Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.

Connecting circular terminals: Connecting 1. Connecting circular terminals: The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it. 2. Connecting straight terminals: The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier, tighten the screw and confirm it has been clamped by pulling the line gently. 3. Pressing connecting line: After connecting line is completed, press the terminal tie wrona connecting line with clips which should press correct pressing pressing on the protective sleeve of the connecting line. pressing clip

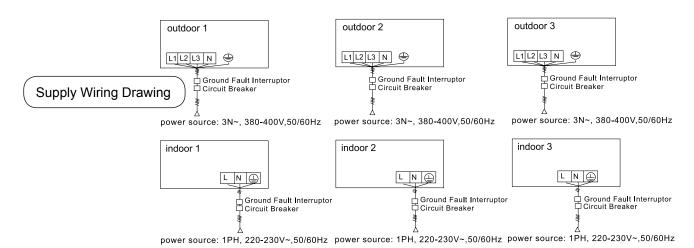


19.9.2 Electrical Wiring

🛆 WARNING

- Electrical construction should be made with specific mains circuit by qualified personnel according to installation instruction. Electric shock and fire may be caused if capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while ④ should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below: 3×1.0-1.5) mm²; parameters for signal line: 2×0.75-1.25)mm²(shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



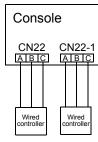
- Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated.
- Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.

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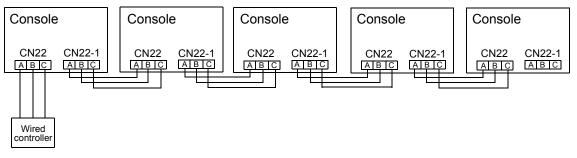
Console wired controller wiring and instruction

Two wired controllers control one Console unit One wired controller controls one Console unit

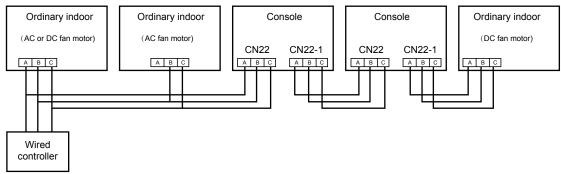


Console CN22 CN22-1 AIBIC AIBIC

Recommended: One wired controller controls more than one indoor unit (limited in Consoles)



Not recommended: One wired controller controls more than one indoor unit (ordinary indoors)



Console wired controller wiring instruction:

1. One wired controller controls one console unit (one to one), connecting the wires of wired controller to CN22 terminal on PCB directly.

2. Two wired controllers control one console unit (two to one), connecting the wires of wired controller 1 and 2 to CN22 and CN22-1 on PCB respectively.

3. One wired controller controls more than one unit (one to more), limited in console units is recommended and mixed different type indoor units are not recommended. It's easy to do wrong wiring when there're many different type indoors.

If you choose one to more (mixed different type indoor units), please refer to the below principles: a. The communication wires of wired controller inlet or outlet console units are 3 cores. It means to connect all the wires "ABC".

b. When one wired controller connects to more indoors, all the wires between terminals are 3 cores. When other indoor units are slave ones of wired controller, for AC fan motor indoor unit connects B,C terminal, for DC fan motor indoor unit connects A,B,C teiminal.

c. When the "A" wire is not connect to other ordinary indoors which are the slave ones of wired controller, please do some insulation on it and avoid touching other electric circuit.



19.9.3 Test Run

Before Test Run

- Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above 1MΩ. It can't be operated if it is below 1MΩ.
- Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.

Check if the arrangements of the drainpipe and connection line are correct.

The drainpipe shall be placed at the lower part while the connection line placed at the upper part. Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials. The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.

Checkup of Installation

- □ Check if the mains voltage is matching
- \square Check if there is air leakage at the piping joints
- \square Check if the connections of mains power and indoor & outdoor units are correct
- \Box Check if the serial numbers of terminals are matching
- Check if the installation place meets the requirement
- \Box Check if there is too much noise
- \Box Check if the connecting line is fastened
- □ Check if the connectors for tubing are heat insulated
- $\hfill\square$ Check if the water is drained to the outside
- $\hfill\square$ Check if the indoor units are positioned

Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

Set the wired controller to cooling/heating mode, press 'ON/OFF' button for 5 seconds to enter into the compulsive cooling/heating mode. Repress 'ON/OFF' button to quit the compulsive running and stop the operation of the air conditioner.



20. High Wall Type Indoor Unit

20.1 Features



AS072MGERA AS092MGERA AS122MGERA AS162MGERA AS182MGERA AS242MGERA

- EEV inside put
- The EEV box inside put, easy for installation
- High-quality DC fan motor, reduce the indoor unit noise greatly new fashion design

20.2 Specification

	MODEL		AS072MGERA	AS092MGERA	AS122MGERA	
Power supply	1	Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60	
Cooling	Capacity	kBtu/h	7.5	9.6	12.3	
	Capacity	kW	2.2	2.8	3.6	
	Power input	W	71	71	71	
	Current	A	0.31	0.31	0.31	
	Capacity	kBtu/h	8.5	10.9	13.6	
	Capacity	kW	2.5	3.2	4.0	
Heating	Power input	W	71	71	71	
	Current	A	0.31	0.31	0.31	
	Heating capacity at low temp.	kW	2	2.5	3.2	
Operating current		A	0.25	0.25	0.25	
Power consumption		kW	0.05	0.05	0.05	
	Brand		SHINANO	SHINANO	SHINANO	
	Model		DR-8838-801A	DR-8838-801A	DR-8838-801A	
	Туре		DC	DC	DC	
	Insulation class		E	E	E	
Indoor motor	IP class		IP20	IP20	IP20	
	Power input	W	52	52	52	
	Power output (up/down)	W	40	40	40	
	Capacitor	μF	/	/	/	
	Speed (High/Middle/Low)	rpm	1300/1000/900	1300/1000/900	1300/1000/900	
	Brand		Haier	Haier	Haier	
Indoor fan	Туре		Cross	Cross	Cross	
	Quantity		1	1	1	
Indoor coil	a. Number of rows		2	2	2	
	b. Tube pitch (a)×row pitch(b)	mm	26.6*1.35	26.6*1.35	26.6*1.35	
	c. Fin spacing	mm	1.35	1.35	1.35	
	d. Fin type (code)		Hydrophilic aluminum			
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube			
	f. Coil length×height×width	mm	/	/	/	
	g. Number of circuits		4	4	4	



	MODEL		AS072MGERA	AS092MGERA	AS122MGERA
	Cabinet coating type		Plastic	Plastic	Plastic
Cabinet	Cabinet salt spray test duration	Hour	/	1	1
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		/	1	1
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		15	15	15
	Drain pump option		No	No	No
	Branch outlet option		No	No	No
	Material		Plastic	Plastic	Plastic
Indoor wall	Thickness	mm	/	1	1
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
	Liquid pipe	mm	6.35	6.35	6.35
Piping dimension	Gas pipe	mm	12.7	12.7	12.7
dimension	Drain hose	mm	16.8	16.8	16.8
Fresh air dime	nsion	mm	/	/	1
Sound pressur	re level (H/M/L)	dB(A)	37/33/31	37/34/31	41/36/33
Sound power I	evel (H/M/L)	dB(A)	48/44/42	48/44/42	52/47/44
Standard station	c pressure	Pa	0	0	0
Indoor air flow	(H/M/L)	m³/h	600/462/415	600/462/415	600/462/415
Dimension (W ³	*H*D)	mm	938*187*265	938*187*265	938*187*265
Packing (W*H*	Packing (W*H*D)		1016*304*360	1016*304*360	1016*304*360
Net weight		kg	10.9	10.9	10.9
Gross weight		kg	13.1	13.1	13.1
Outdoor tempe The noise leve	tion: indoor temperature (cooling) erature (cooling): 35DB (°C)/24W I will be measured in the third oct / meter. It is a sound pressure no	B (°C), o tave ban	utdoor temperature d limited values, usi	(heating): 7DB (°C)	/6WB (°C)

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MODEL			AS162MGERA	AS182MGERA	AS242MGERA
Power supply	1	Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
	Capacity	kBtu/h	15.4	19.1	24.2
Occline	Capacity	kW	4.5	5.6	7.1
Cooling	Power input	W	71	94	94
	Current	А	0.31	0.41	0.41
	Capacity	kBtu/h	17.1	21.5	27.3
	Capacity	kW	5	6.3	8
Heating	Power input	W	71	94	94
	Current	Α	0.31	0.41	0.41
	Heating capacity at low temp.	kW	4	5	6.3
Operating cu	rrent	A	0.25	0.3	0.3
Power consu	mption	kW	0.05	0.07	0.07
	Brand		SHINANO	SHIBAURA	SHIBAURA
	Model		DR-8838-801A	SIC-310-40-1	SIC-310-40-1
	Туре		DC	DC	DC
	Insulation class		E	E	E
Indoor motor	IP class		IP20	IP42	IP42
	Power input	W	52	53	53
	Power output (up/down)	W	40	40	40
	Capacitor	μF	/	1	/
	Speed (High/Middle/Low)	rpm	1300/1000/900	1250/1000/900	1250/1000/900
	Brand		Haier	Haier	Haier
Indoor fan	Туре		Cross	Cross	Cross
	Quantity		1	1	1
	a. Number of rows		2	2	2
	b. Tube pitch (a)×row pitch(b)	mm	26.6*1.35	26.6*1.36	26.6*1.36
	c. Fin spacing	mm	1.35	1.35	1.35
Indoor coil	d. Fin type (code)		I	- Hydrophilic aluminum	า
	e. Tube outside dia. and type	mm		Φ7 Inner groove tube	9
	f. Coil length×height×width	mm	/	/	/
	g. Number of circuits		4	4	4



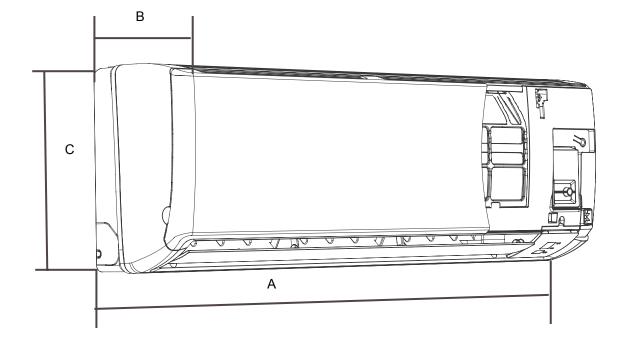
	MODEL		AS162MGERA	AS182MGERA	AS242MGERA
	Cabinet coating type		Plastic	Plastic	Plastic
Cabinet	Cabinet salt spray test duration	Hour	/	/	1
	Control box IP class		IP20	IP20	IP20
	Sheet metal thickness		/	/	1
	Drain pan material		PS	PS	PS
Construction	Drain pan insulation		15	15	15
	Drain pump option		No	No	No
	Branch outlet option		No	No	No
	Material		Plastic	Plastic	Plastic
Indoor wall	Thickness	mm	/	/	1
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
Air filter	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
	Liquid pipe	mm	6.35	9.52	9.52
Piping dimension	Gas pipe	mm	12.7	15.88	15.88
dimension	Drain hose	mm	16.8	16.8	16.8
Fresh air dime	nsion	mm	/	/	/
Sound pressur	re level (H/M/L)	dB(A)	41/36/33	43/39/34	48/39/37
Sound power I	evel (H/M/L)	dB(A)	52/47/44	54/50/45	59/50/48
Standard station	c pressure	Pa	0	0	0
Indoor air flow	(H/M/L)	m³/h	600/462/415	800/640/576	800/640/576
Dimension (W ³	*H*D)	mm	938*187*265	1046*239*299	1046*239*299
Packing (W*H*D)		mm	1016*304*360	1111*329*373	1111*329*373
Net weight		kg	10.9	13	13
Gross weight		kg	13.1	16.5	16.5
Outdoor tempe The noise leve	tion: indoor temperature (cooling) erature (cooling): 35DB (°C)/24W I will be measured in the third oct / meter. It is a sound pressure no	B (°C), o tave ban	utdoor temperature d limited values, usi	(heating): 7DB (°C)	/6WB (°C)

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20.3 Dimension

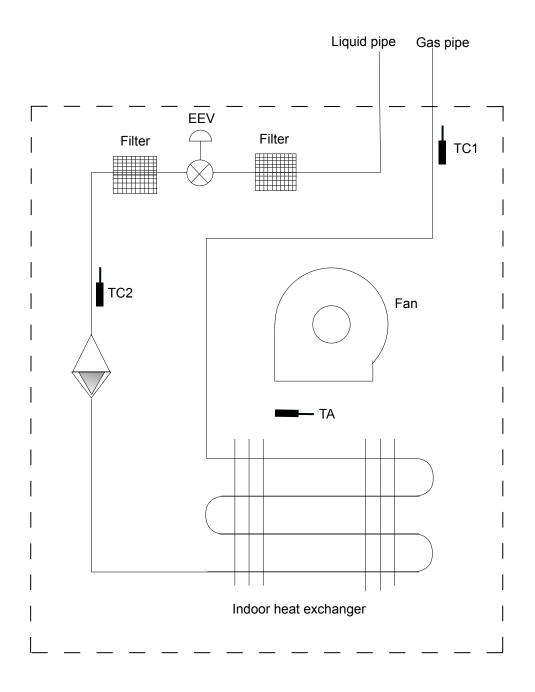
MODLE	А	В	С
AS072/092/122/162MGERA	938	187	265
AS182/242MGERA	1046	239	299



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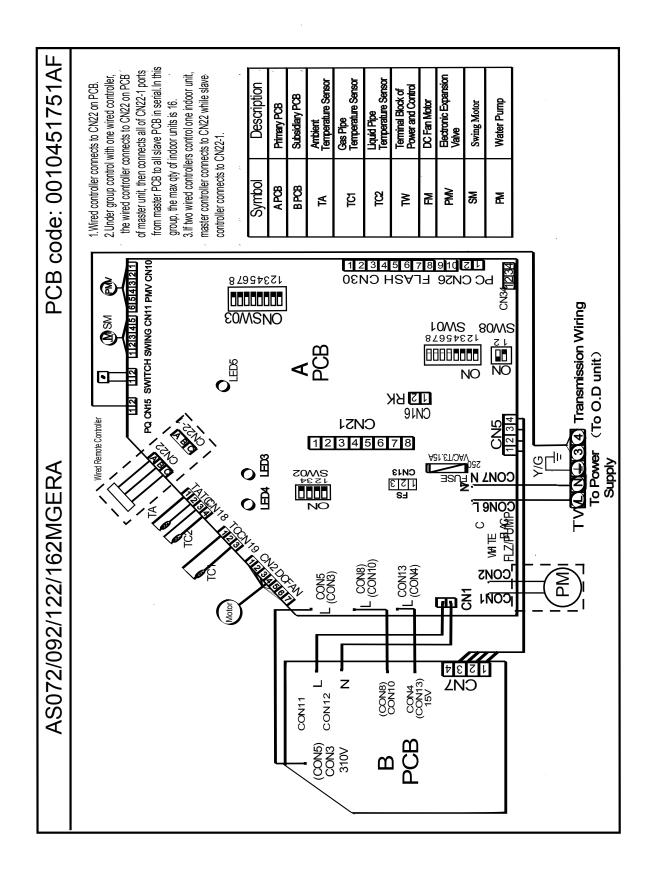
20.4 Piping diagram





20.5 Wiring diagram

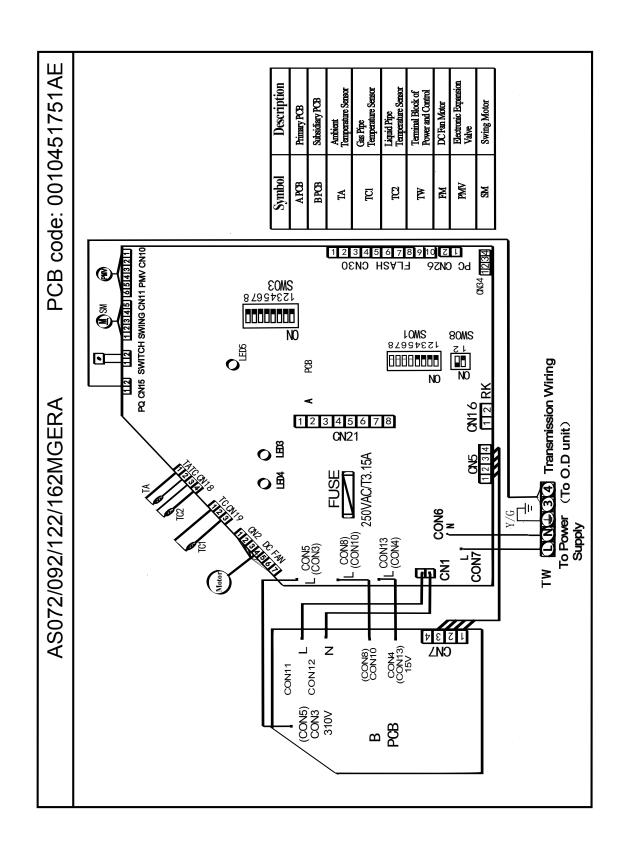
Wired controller is available



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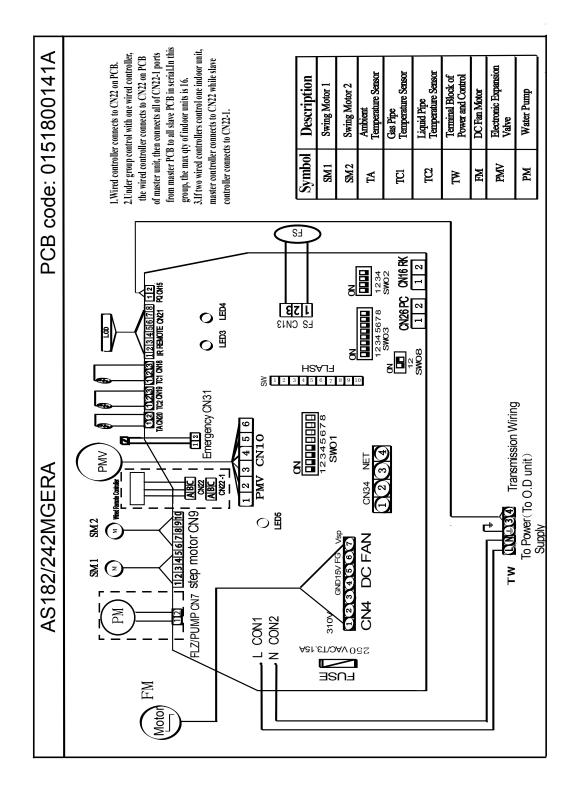


Wired controller is unavailable





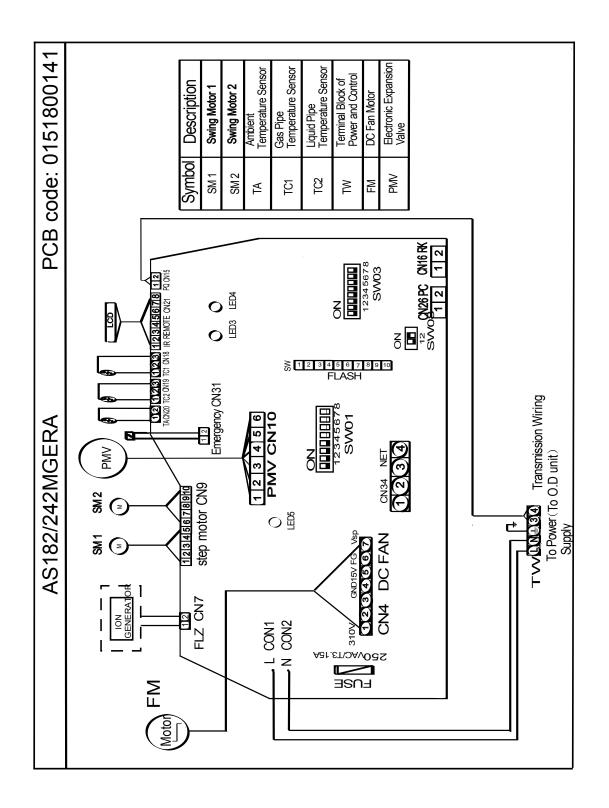
Wired controller is available



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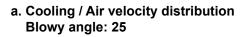


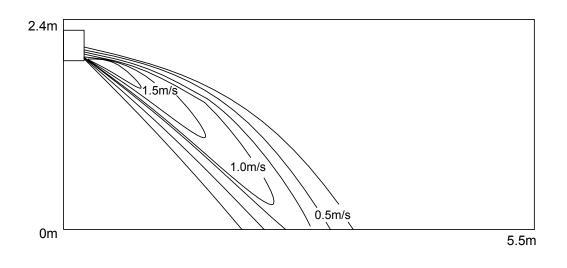
Wired controller is unavailable



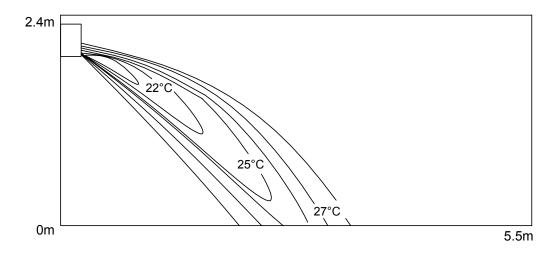


20.6 Air velocity and temperature distribution



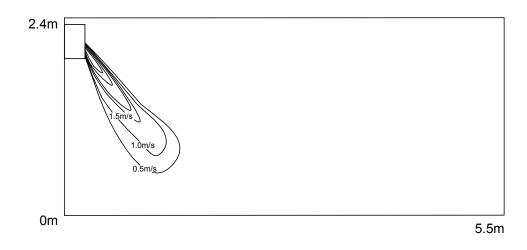


b. Cooling / Temperature distribution Blowy angle: 25

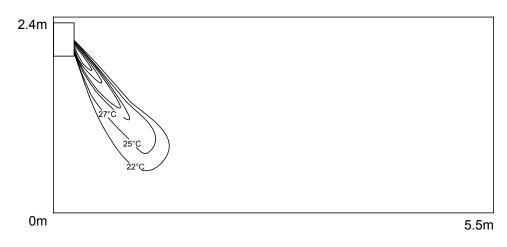




c. Heating / Air velocity distribution Blowy angle: 65



d. Cooling / Temperature distribution Blowy angle: 65





20.7 Electric characteristics

Units					Power	supply	Indoor fan	motor	Power i	nput (W)
Model	Phase	FQY	Voltage	Volt range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AS072MGERA	1	50/60	220	198-242	0.21	0.66	40	0.165	71	71
AS092MGERA	1	50/60	220	198-242	0.21	0.66	40	0.165	71	71
AS122MGERA	1	50/60	220	198-242	0.21	0.66	40	0.165	71	71
AS162MGERA	1	50/60	220	198-242	0.21	0.66	40	0.165	71	71
AS182MGERA	1	50/60	220	198-242	0.25	0.8	40	0.2	94	94
AS242MGERA	1	50/60	220	198-242	0.25	0.8	40	0.2	94	94

Symbols:

MCA: Min. circuit amps (A) MFA: Max. fuse amps of circuit breaker W: Fan motor rated output (W) FLA: Full load amps (A)

Notes:

1. Voltage range

The units are applicable for the electrical systems where voltage supplied to unit is in the range.

2. Maximum allowable voltage unbalance between phases is 2%.

3. MCA=1.25*FLA MFA ≤4*FLA

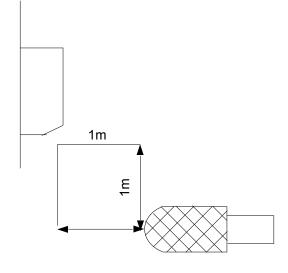
4. Power supply uses the circuit breaker.

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20.8 Sound pressure level

(1) Testing illustrate:

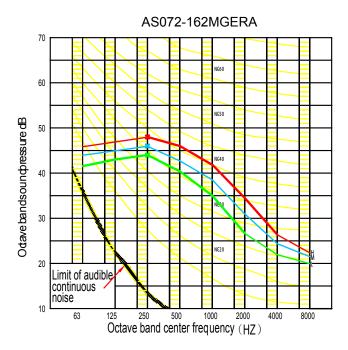


(2) Testing condition:

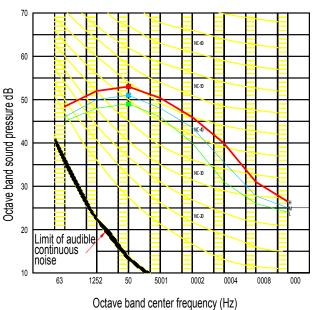
a. Unit running in the nominal condition

b. Test in the semi-anechoic chamber

c. Noise level varies from the actual factors such as room structure, etc.



AS182/242MGERA



High Wall Type Indoor Unit



20.9 Installation

20.9.1 Installation Procedures

If you have any problem on product, contact the local Haier distribution center if you have any question or request.

Please use the standard tool according to the installation requirements.

The standard attached accessories of the units of this series refer to the packing; prepare other accessories according to the requirements of the local installation point of our company.

1. Choose the suitable installation location. Indoor units should be installed in places with the environment of even circulation of cool and warm blows. The following places should be avoided.

**Places with high salinity (beach), high sulfureted gas (such as the thermal spring regions where copper tubes and soft soldering are easy to be eroded), much oil (including mechanical oil) and steam; places where organic substance solvent is frequently used; places where machines generate the high frequency electromagnetic wave (abnormal condition will appear in the control system); places where there is high humidity exists near the door or windows (dew is easily formed); and places where the special sprayer is frequently used.

Indoor Units

(1) The distance between wind outlet port and the ground should not be more than 2.7m. The distance to streets should not be less than 2.5m.

(2) Select appropriate places for installation where the outlet air can be spread to places all over the house and arrange proper locations for connecting pipes and lines as well as the drainpipe to the outdoor.

(3) Ceiling construction must be hard enough to hold the weight of the unit.

(4) Make sure that the connecting pipe, drainpipe and connecting guide line can be put into walls to connect the outdoor units.

(5) It is recommended to make the connecting pipe between the outdoor and indoor units and the drainpipe are as short as possible.

(6) Please read the attached installation instruction of outdoor units for regulation of filling amount of refrigerant if necessary.

(7) Select a place close to the supply socket of air conditioner and enough space should be kept near the machine.

(8) Those electrical appliances such as television, instruments, devices, artwork, piano, wireless equipment and other valuables should not be placed under the indoor unit and over 1m away from the daylight lamp as to prevent condensate from dropping into them and causing damage.

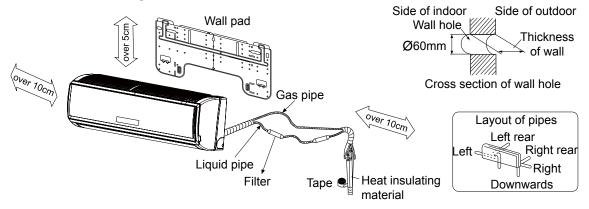
2. The following steps can be taken after selecting the installation place:

Cut a hole on the wall and put the connecting pipe and connecting thread into the PVC, which is purchased at the local shop. With a slight downwards tilt towards the exterior, the gradient should be kept at least 1/100. Before cutting the hole, check if there are pipes or reinforcing steel bars at the rear of the hole. Making the hole in the place with wires or pipes should be avoided.

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3. Installation Drawing of Indoor Units:



(1) Positioning Wall Pad & Locating Wall Holes

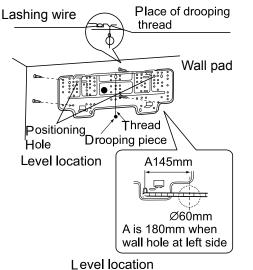
Fix the pad according to the installation location and the pipe layout of indoor unit (please refer to the installation drawing).

Installation should be done under the crossbeam or on the flat wall near the pillar. First fix the pad with a steel nail on the wall.

Drop a thread with a bolt through the pad center or use a level meter to find the level.

Then fix it with a concrete steel nail, (if it is fixed by the expansion bolts, drill holes on the wall according to the pad position with the electric drill).

(bore: 4.8mm, put the plastic sleeves into the holes, stick the panel onto the wall, and then position the pad with 4×25 bolts) and measure the position of the wall hole A.



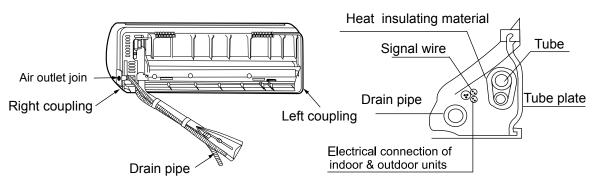
(2) Drilling Hole & Mounting Guard Ring

Drill a hole of 60mm bore with a slight tilt downwards to the outside, mount the guard ring, and seal it with gesso or putty after finishing the installation.

(3) Arranging Wiring of Indoor Unit

Arrange the layout of connection pipe, drain pipe, connecting line, signal line and air refreshing pipe according to the locations of your indoor unit, outdoor unit and wall holes, with drainage hose lower, connecting line upper. Intercrossing winding is not allowed between the mains line and the connecting line, and the drain pipe (especially in the indoor unit and the inside of machine) should be winded with heat insulating materials for heat preservation.





(4) Lead the connection tubing (liquid pipe and gas pipe) through the hole into the wall, or connect piping and wiring of indoor unit (check the number of wiring terminals of indoor and outdoor units and connect terminals with the same number and color), and then put the connection tubing and the connecting line through from the inside wall for the connection with outdoor unit.

Tubing Permissible Length & Height Difference

Please refer to the attached manual of outdoor units.

Tubing Materials & Specifications

Мос	del	AS072-162MGERA	AS182-242MGERA				
Tubing Size (mm)	Gas pipe Liquid pipe	Φ12.7 Φ6.35	Φ15.88 Φ9.52				
Tubing Material		Phosphor deoxy bronze seamless pipe (TP2) for air conditioner					

Refrigerant Filling Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount or compressor failure can be caused by filling too much or little refrigerant.

Connecting Procedures of Refrigerant Tubing

Proceed the flare tube connecting operation to connect all the refrigerant tubes.

- Dual wrenches must be used in the connection
- of indoor unit tubing.
- Mounting torque refers to the right table

Wrench Wrench

ज्याति तः

Refrigerant oil

Nut

Joint

Outer diameter of tubing (mm)	Mounting torque (N.m)	Increase mounting torque (N.m)
Φ6.35	11.8 (1.2kgf.m)	13.7 (1.4kgf.m)
Ф9.52	24.5 (2.5kgf.m)	29.4 (3.0kgf.m)
Ф12.70	49.0 (5.0kgf.m)	53.9 (5.5kgf.m)
Ф15.88	78.4 (8.0kgf.m)	98.0 (10.0kgf.m)
Φ19.05	98.0 (10.0kgf.m)	117.7 (12.0kgf.m)

Refrigerant oil



Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one master unit.]

Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.

Installing and Dismantling Indoor Unit 1. Installation

During the installation of this series machines, fasten the wall pad on the wall first, hang the machine on the pothook, push it towards the wall pad until the sound of 'pa' 'pa' is heard. At this time, the agraffes of the indoor unit have hitched on the pad, as shown in the Fig.1 with dotted line. 2. Dismantling

During dismantling this series machines, push agraffes at the bottom of indoor unit upwards to release them, as shown in Fig.3, and pull up the bottom of indoor unit outwards gently and then raise the unit upwards in the bevel direction to release the pothook at the upper part of the wall pad, as shown in Fig.3.

Connecting

Connecting circular terminals:

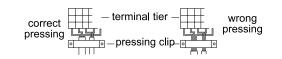
1. Connecting circular terminals: The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it.

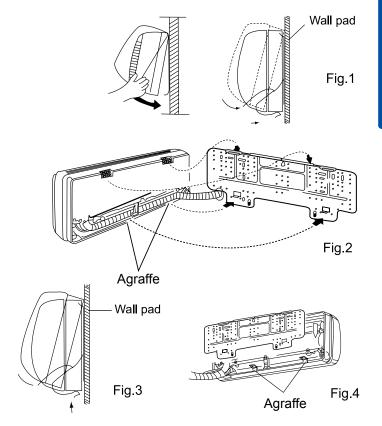
2. Connecting straight terminals:

The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier, tighten the screw and confirm it has been clamped by pulling the line gently.

3. Pressing connecting line

After connecting line is completed, press the connecting line with clips which should press on the protective sleeve of the connecting line.



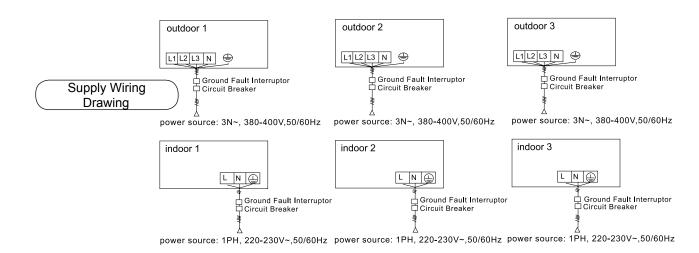




20.9.2 Electrical Wiring

- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

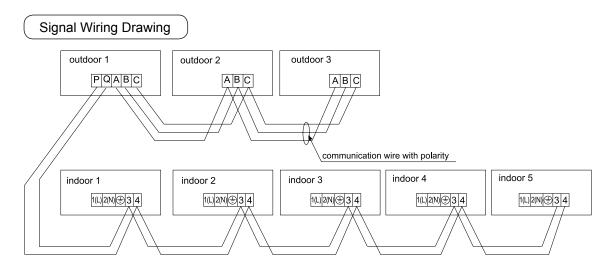
- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while ⊕ should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below: 3×1.0-1.5) mm²; parameters for signal line: 2×0.75-1.25)mm²(shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.

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The combination of multiple indoor units can be controlled by remote controller.

Note:

The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

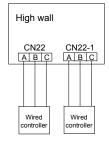
Items	Cross Length current of		Rated current of residual circuit breaker (A)	Cross se area of s		
Total current of indoor units (A)	section (mm²)	(m)	overflow breaker (A)	Ground fault interrupter (mA)	Outdoor -indoor (mm ²)	Indoor -indoor (mm²)
<10	2	20	20	20 A, 30 mA, 0.1S or below		
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below	2 cores×(
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below	mm ² shielded line	
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below		

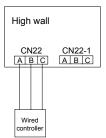
% The electrical power line and signal lines must be fastened tightly.

- % Every indoor unit must have the ground connection.
- * The power line should be enlarged if it exceeds the permissible length.
- Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.
- % It is not permissible if the whole length of signal line exceeds 1000m.

High wall wired controller wiring and instruction

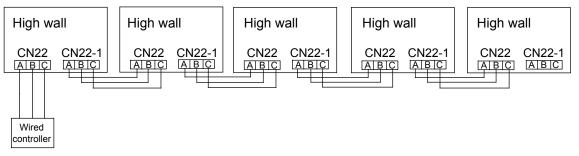
Two wired controllers control one high wall unit One wired controller controls one high wall unit





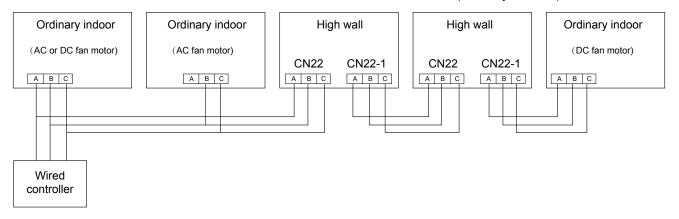
High Wall Type Indoor Unit





Recommended: One wired controller controls more than one indoor unit (limited in high walls)

Not recommended: One wired controller controls more than one indoor unit (ordinary indoors)



High wall wired controller wiring instruction:

- 1. One wired controller controls one high wall unit (one to one), connect the wires of wired controller to CN22 terminal on PCB directly.
- 2. Two wired controllers control one high wall unit (two to one), connect the wires of wired controller 1 and 2 respectively to CN22 and CN22-1 on PCB.
- 3. One wired controller controls more than one unit (one to more), limited in high wall units is recommended and mixed different type indoor units is not recommended. It's easy to do wrong wiring when there're many different type indoors.

If you choose one to more (mixed different type indoor units), please follow the principles below:

- a. The communication wires of wired controller inlet or outlet high wall units are 3 cores. It means to connect all the wires "ABC".
- b. When one wired controller connects to more indoors, all the wires between terminals are 3 cores. When other indoor units are slave ones of wired controller, for AC fan motor indoor unit connects B,C terminal, for DC fan motor indoor unit connects A,B,C terminal.
- c. When the "A" wire is not connect to indoors which are the slave ones of wired controller, please do some insulation on it and avoid touching other electric circuit.

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Description for digital tube on remote receiver

(1) Being electrified for the first time, digital tube displays "88", then turns OFF about 3 seconds.

- (2) Unit stop state: nothing display and shows OFF.
- (3) Unit run state: Power on, the factory default setting is "Display setting temperature consistently" a. Press display (light) button, after display environment temperature 5 seconds, it returns to setting temperature status. b. Press display (light) button consecutively twice, if the interval of two press is less than 5 seconds, then perform the function of the LED display out, press the LED display for the third time, it returns to normal display; If the interval of two press is more than 5 seconds, then according to (1).
- (4) When indoor or outdoor failure occurs, the digital tube displays failure code: the format is "EXX", if failure code is more than 9, it will sliding display automatically.
- If indoor is faulty, it displays indoor failure code.
- If indoor is not faulty, it displays outdoor failure code. Outdoor failure code will be displayed E20 in sliding type generally.

(5) Data query:

Entrance condition: set auto fan speed by remote controller, and press swing up/down for 8 times

■ Within 5 seconds, 2seconds later, the buzzer sounds 3 times, the digital tube will flash and display data.

Display information:

Set temp. by remote control	Data query	Remarks
16	Indoor sensor Tai temperature	Display integer if temp less than 0 degree
17	Indoor sensor TC1 temperature	 Display integer, if temp. less than-9 degree, sliding display.
18	Indoor sensor TC2 temperature	Siluling display.
19	Indoor PMV open angle	Display integer, if open angle more than 99pls, sliding display.
20	Indoor communication address	Display integer
21	Indoor central control address	Display integer
22~30	No definition	

Note:

In the course of data query:

Remote controller setting demand is null. (the set temperature shows the data to be checked) Digital tube will flash to display data.

Quit condition: remote controller sets unit stop or no remote signal is received within 60 seconds.

LED on remote receiver description

(1) Being electrified for the first time, LED is ON, about 3 seconds later, being OFF.

(2) On unit stop, LED is OFF.

(3) On unit running,

- ON/OFF indicator: LED1: without fresh air setting, LED1 is red; with fresh air, LED1 is green.
- Timer/sleep indicator: LED2: with timer or sleep function, LED2 is on, and yellow; or LED2 is off.
- Compressor running indicator: LED3: indoor Thermostat On and compressor running, LED3 is on and green; or LED3 is off.



20.9.3 Test Run

Before Test Run

- Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above 1MΩ. It can't be operated if it is below 1MΩ.
- Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.

Check if the arrangements of the drainpipe and connection line are correct.

The drainpipe shall be placed at the lower part while the connection line placed at the upper part. Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials. The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.

Checkup of Installation

- □ Check if the mains voltage is matching
- \square Check if there is air leakage at the piping joints
- \square Check if the connections of mains power and indoor & outdoor units are correct
- \Box Check if the serial numbers of terminals are matching
- Check if the installation place meets the requirement
- \Box Check if there is too much noise
- \Box Check if the connecting line is fastened
- □ Check if the connectors for tubing are heat insulated
- $\hfill\square$ Check if the water is drained to the outside
- $\hfill\square$ Check if the indoor units are positioned

Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control

Set the wired controller to cooling/heating mode, press 'ON/OFF' button for 5 seconds to enter into the compulsive cooling/heating mode. Repress 'ON/OFF' button to quit the compulsive running and stop the operation of the air conditioner.



21. High Wall Type Indoor Unit (N platform)

21.1 Feature



- Wider capacity range from 1.5kW to 9.0kW, meeting variable capacity needs.
- Built-in EEV and easy support clip, enabling easy installation
- DC fan motor for low sound level and higher efficiency
- Long distance and 3D air supplying,
- Quick cooling & heating



21.2 Specification

			AS052MNERA	AS072MNERA	AS092MNERA
MODEL			AS052MFERA	AS072MFERA	AS092MFERA
Power s	upply	V-Ph-Hz	1/220~240/50/60	1/220~240/50/60	1/220~240/50/60
	Capacity	kBtu/h	5.1	7.5	9.5
	Capacity	kW	1.5	2.2	2.8
Cooling	Power Input	W	43	43	43
	Current	A	0.15	0.15	0.15
	Capacity	kBtu/h	5.8	8.5	10.9
	Capacity	kW	1.7	2.5	3.2
Heating	Power Input	W	43	43	43
	Current	A	0.15	0.15	0.15
	Heating capacity at low temp.	kW	1.4	2.0	2.5
Operatir	ng current	A	0.15	0.15	0.15
Power c	onsumption	kW	0.043	0.043	0.043
	Brand		Broad-ocean	Broad-ocean	Broad-ocean
	Model		ZWK465A00402	ZWK465A00402	ZWK465A00402
	Туре		DC	DC	DC
	Insulation Class		E	E	E
Indoor Motor	IP Class		IP41	IP41	IP41
	Power Input	W	38	38	38
	Power output	W	30	30	30
	Capacitor	μF	1	1	/
	Speed (High/Middle/Low)	rpm	1000/850/700	1000/850/700	1000/850/700
	Brand		Haier	Haier	Haier
Indoor Fan	Туре		Cross	Cross	Cross
	Quantity		1	1	1
	a. Number of rows		2	2	2
	b. Tube pitch(a)x row pitch(b)	mm	26.6*1.4	26.6*1.4	26.6*1.4
	c. Fin spacing	mm	1.4	1.4	1.4
Indoor Coil	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum	Hydrophilic aluminum
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube	Φ7 Inner groove tube	Φ7 Inner groove tube
	f. Coil length x height x width	mm	1	1	/
	g. Number of circuits		2	2	2



			AS052MNERA	AS072MNERA	AS092MNERA
MODEL			AS052MFERA	AS072MFERA	AS092MFERA
	Cabinet Coating Type		Plastic	Plastic	Plastic
Cabinet	Cabinet Salt Spray Test Duration	Hour	1	1	1
	Control Box IP Class		IP20	IP20	IP20
	Sheet Metal Thickness		/	/	1
	Drain Pan Material		ABS	ABS	ABS
Construction	Drain Pan Insulation		15	15	15
	Drain Pump Option		no	no	no
	Branch Outlet Option		no	no	no
	Material		Plastic	Plastic	Plastic
Indoor Wall	Thickness	mm	/	/	1
	Double or Single Skin		Single	Single	Single
	Material		PP	PP	PP
Air Filter	Mesh		100	100	100
	Pressure Drop	Pa	5	5	5
	Liquid pipe	mm	6.35	6.35	6.35
Piping dimension	Gas pipe	mm	9.52	9.52	9.52
	Drain hose	mm	16.8	16.8	16.8
Fresh air dim	ension	mm	/	/	1
Sound pressu	ure level (H/M/L)	dB(A)	33/31/29	35/31/29	36/31/29
Sound power	level (H/M/L)	dB(A)	49/46//41	50/47/42	52/48/44
Standard stat	ic pressure	Ра	0	0	0
Indoor air flov	v (H/M/L)	m³/h	500/430/370	550/480/420	600/530/470
Dimension (W*H*D)		mm	855/200/280	855/200/280	855/200/280
Packing (W*	H*D)	mm	954/279/355	954/279/355	954/279/355
Net weight		kg	10.5	10.5	10.5
Gross weight		kg	12.7	12.7	12.7

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.

-



	MODEL		AS122MNERA	AS162MNERA	AS182MNERA
			AS122MFERA	AS162MFERA	AS182MFERA
Power supply		V-Ph-Hz	1/220~240/50/60	1/220~240/50/60	1/220~240/50/60
	Capacity	kBtu/h	12.3	15.3	19.1
0 "	Capacity	kW	3.6	4.5	5.6
Cooling	Power Input	W	43	57	57
	Current	A	0.15	0.5	0.5
	Capacity	kBtu/h	13.6	17.1	21.5
	Capacity	kW	4	5	6.3
Heating	Power Input	w	43	57	57
	Current	A	0.15	0.5	0.5
	Heating capacity at low temp.	kW	3.2	4.0	5.0
Operatir	ng current	A	0.15	0.5	0.5
Power c	onsumption	kW	0.043	0.057	0.057
	Brand		Broad-ocean	Broad-ocean	Broad-ocean
	Model		ZWK465A00402	ZWK465A00411	ZWK465A00411
	Туре		DC	DC	DC
	Insulation Class		E	E	E
Indoor Motor	IP Class		IP41	IP40	IP40
	Power Input	w	38	52	52
	Power output	w	30	40	40
	Capacitor	μF	1	1	/
	Speed (High/Middle/Low)	rpm	1200/1000/700	1000/800/700	1000/800/700
	Brand		Haier	Haier	Haier
Indoor Fan	Туре		Cross	Cross	Cross
ran	Quantity		1	1	1
	a. Number of rows		2	2	2
	b. Tube pitch(a)x row pitch(b)	mm	26.6*1.4	26.6*1.4	26.6*1.4
	c. Fin spacing	mm	1.4	1.4	1.4
Indoor Coil	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum	Hydrophilic aluminum
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube	Φ7 Inner groove tube	Φ7 Inner groove tube
	f. Coil length x height x width	mm	1	1	/
	g. Number of circuits		2	5	5



	MODE		AS122MNERA	AS162MNERA	AS182MNERA
	MODEL		AS122MFERA	AS162MFERA	AS182MFERA
	Cabinet Coating Type		Plastic	Plastic	Plastic
Cabinet	Cabinet Salt Spray Test Duration	Hour	1	1	/
	Control Box IP Class		IP20	IP20	IP20
	Sheet Metal Thickness		/	1	/
	Drain Pan Material		ABS	ABS	ABS
Construction	Drain Pan Insulation		15	15	15
	Drain Pump Option		no	no	no
	Branch Outlet Option		no	no	no
	Material	ĺ	Plastic	Plastic	Plastic
Indoor Wall	Thickness	mm	/	/	1
	Double or Single Skin	ĺ	Single	Single	Single
	Material		PP	PP	PP
Air Filter	Mesh	İ	100	100	100
	Pressure Drop	Ра	5	5	5
	Liquid pipe	mm	6.35	6.35	6.35
Piping dimension	Gas pipe	mm	12.7	12.7	12.7
	Drain hose	mm	16.8	16.8	16.8
Fres	h air dimension	mm	/	/	/
Sound pressu	ıre level (H/M/L)	dB(A)	37/33/29	39/36/34	40/39/35
Sound power	level (H/M/L)	dB(A)	54/51/50	56/53/51	57/54/52
Standard stat	ic pressure	Pa	0	0	0
Indoor air flov	v (H/M/L)	m³/h	630/560/500	800/720/650	920/800/720
Dimension (W	/*H*D)	mm	855/200/280	1115/243/336	1115/243/336
Packing (W*H*D)		mm	954/279/355	1206/342/418	1206/342/418
Net weight		kg	10.5	16.5	16.5
Gross weight		kg	12.7	20.1	20.1

Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



MODEL			AS242MNERA	AS282MNERA	AS302MNERA	
	MODEL		AS242MFERA	/	/	
Power s	upply	V-Ph-Hz	1/220~240/50/60	1/220~240/50/60	1/220~240/50/60	
	Capacity	kBtu/h	24.2	27.3	30.7	
Cooling	Capacity	kW	7.1	8	9	
Cooling	Power Input	W	57	99	99	
	Current	A	0.5	0.59	0.59	
	Capacity	kBtu/h	27.3	30.7	34.1	
	Capacity	kW	8	9	10	
Heating	Power Input	w	57	99	99	
	Current	A	0.5	0.59	0.59	
	Heating capacity at low temp.	kW	6.3	7.2	8.0	
Operatir	ng current	A	0.5	0.59	0.59	
Power c	Power consumption		0.057	0.099	0.099	
	Brand		Broad-ocean	Broad-ocean	Broad-ocean	
	Model		ZWK465A00411	ZWK465B200014	ZWK465B200014	
	Туре		DC	DC	DC	
	Insulation Class		E	E	E	
Indoor Motor	IP Class		IP40	IP41	IP41	
	Power Input	W	52	94	94	
	Power output	w	40	70	70	
	Capacitor	μF	1	1	/	
	Speed (High/Middle/Low)	rpm	1200/1000/700	1250/900/700	1250/900/700	
	Brand		Haier	Haier	Haier	
Indoor Fan	Туре		Cross	Cross	Cross	
	Quantity		1	2	2	
	a. Number of rows		2	2	2	
Indoor Coil -	b. Tube pitch(a)x row pitch(b)	mm	26.6*1.4	26.6*1.4	26.6*1.4	
	c. Fin spacing	mm	1.4	1.4	1.4	
	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum	Hydrophilic aluminum	
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube	Φ7 Inner groove tube	Φ7 Inner groove tube	
	f. Coil length x height x width	mm	1	1	/	
	g. Number of circuits		5	6	6	

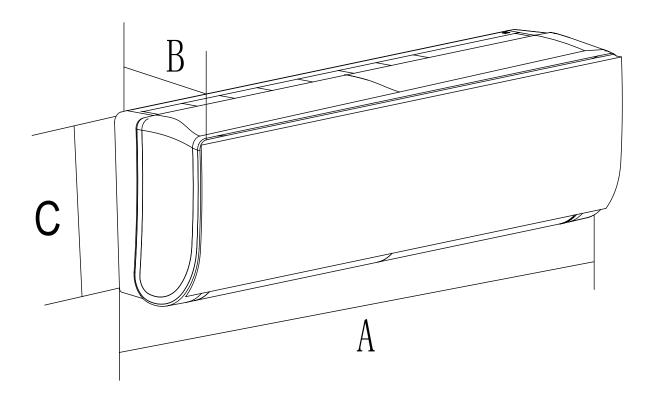


MODEL			AS242MNERA	AS282MNERA	AS302MNERA
	MODEL		AS242MFERA	/	/
	Cabinet Coating Type		Plastic	Plastic	Plastic
Cabinet	Cabinet Salt Spray Test Duration	Hour	1	1	1
	Control Box IP Class		IP20	IP20	IP20
	Sheet Metal Thickness		/	1	/
	Drain Pan Material		ABS	ABS	ABS
Construction	Drain Pan Insulation		15	15	15
	Drain Pump Option		no	no	no
	Branch Outlet Option		no	no	no
	Material		Plastic	Plastic	Plastic
Indoor Wall	Thickness	mm	/	1	1
	Double or Single Skin		Single	Single	Single
	Material		PP	PP	PP
Air Filter	Mesh		100	100	100
	Pressure Drop	Ра	5	5	5
	Liquid pipe	mm	9.52	9.52	9.52
Piping dimension	Gas pipe	mm	15.88	15.88	15.88
	Drain hose	mm	16.8	16.8	16.8
Fresh air dim	ension	mm	/	1	/
Sound pressu	ıre level (H/M/L)	dB(A)	44/40/36	48/43/40	49/44/41
Sound power	level (H/M/L)	dB(A)	58/56/54	60/57/53	61/58/54
Standard static pressure		Ра	0	0	0
Indoor air flow (H/M/L)		m³/h	1010/920/800	1500/1400/1300	1600/1500/1400
Dimension (W*H*D)		mm	1115/243/336	1316/270/365	1316/270/365
Packing (W*H*D)		mm	1206/342/418	1403/384/463	1403/384/463
Net weight		kg	16.5	21.5	21.5
Gross weight		kg	20.1	26.0	26.0

Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.



21.3 Dimension

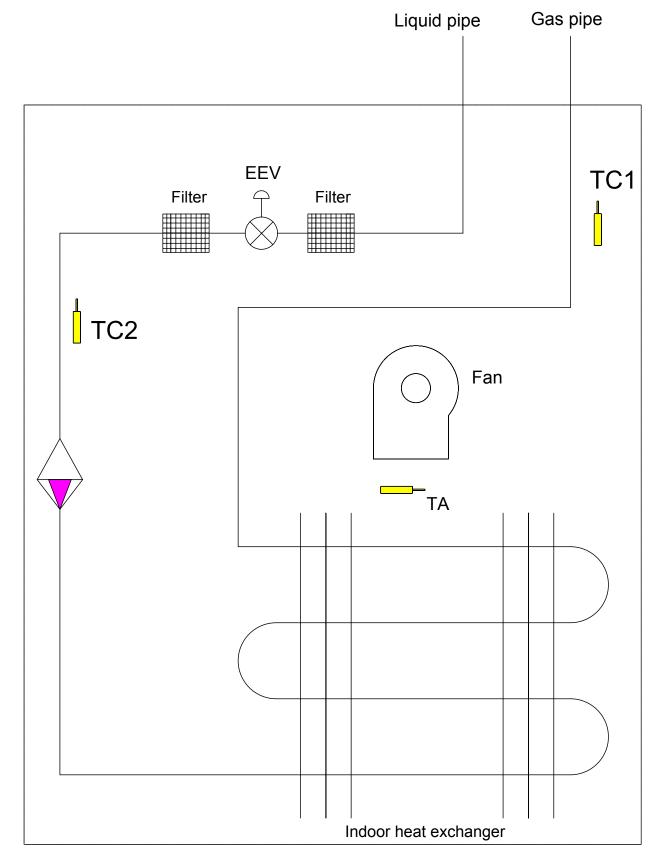


Model	А	В	С
AS052/072/092/122MF/NERA	855	200	280
AS162/182/242MF/NERA	1115	243	336
AS282/302MNERA	1316	270	365

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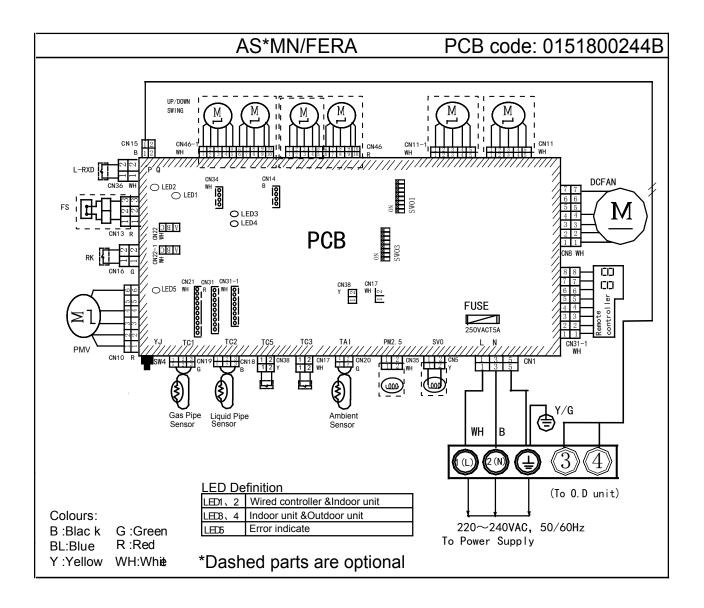
21.4 Piping diagram



High Wall Type Indoor Unit (N platform)



21.5 Wiring diagram





21.6 Electric characteristics

Units					Power supply		Indoor fan motor		Power input (W)	
Model	Phase	FQY	Voltage	Volt. range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AS052MNERA	1	50/60	220	198~242	0.18	0.56	30	0.14	43	43
AS072MNERA	1	50/60	220	198~242	0.18	0.56	30	0.14	43	43
AS092MNERA	1	50/60	220	198~242	0.18	0.56	30	0.14	43	43
AS122MNERA	1	50/60	220	198~242	0.18	0.56	30	0.14	43	43
AS162MNERA	1	50/60	220	198~242	0.24	0.76	40	0.19	57	57
AS182MNERA	1	50/60	220	198~242	0.24	0.76	40	0.19	57	57
AS242MNERA	1	50/60	220	198~242	0.24	0.76	40	0.19	57	57
AS282MNERA	1	50/60	220	198~242	0.4	1.28	70	0.32	99	99
AS302MNERA	1	50/60	220	198~242	0.4	1.28	70	0.32	99	99
AS052MFERA	1	50/60	220	198~242	0.18	0.56	30	0.14	43	43
AS072MFERA	1	50/60	220	198~242	0.18	0.56	30	0.14	43	43
AS092MFERA	1	50/60	220	198~242	0.18	0.56	30	0.14	43	43
AS122MFERA	1	50/60	220	198~242	0.18	0.56	30	0.14	43	43
AS162MFERA	1	50/60	220	198~242	0.24	0.76	40	0.19	57	57
AS182MFERA	1	50/60	220	198~242	0.24	0.76	40	0.19	57	57
AS242MFERA	1	50/60	220	198~242	0.24	0.76	40	0.19	57	57

Symbols:

MCA: Min. circuit amps (A)

MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A) **Notes:**

1. Voltage range

The units are applicable for the electrical systems where voltage supplied to unit is in the range.

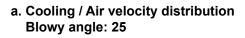
2. Maximum allowable voltage unbalance between phases is 2%.

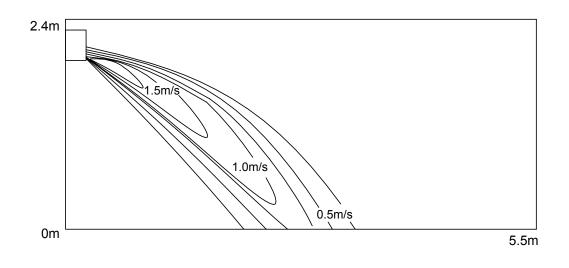
3. MCA=1.25*FLA MFA≤4*FLA.

4. Power supply uses the circuit breaker.

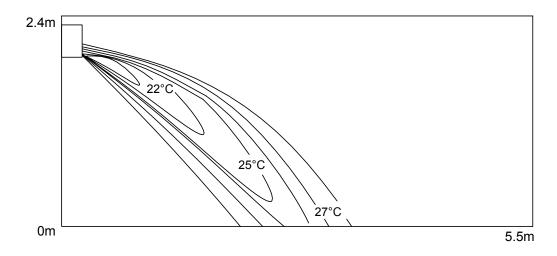


21.7 Air velocity and temperature distribution



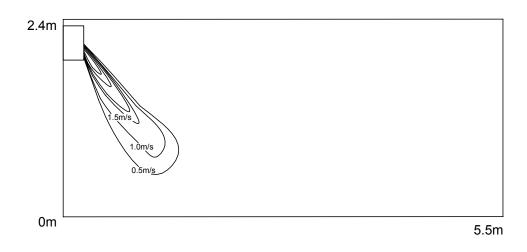


b. Cooling / Temperature distribution Blowy angle: 25

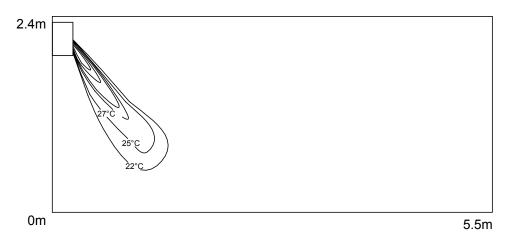




c. Heating / Air velocity distribution Blowy angle: 65



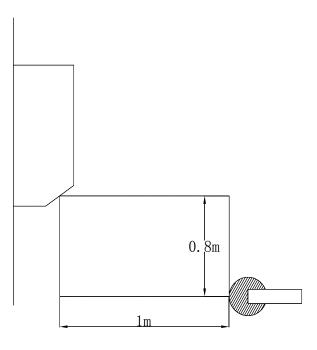
d. Cooling / Temperature distribution Blowy angle: 65





21.8 Sound pressure level

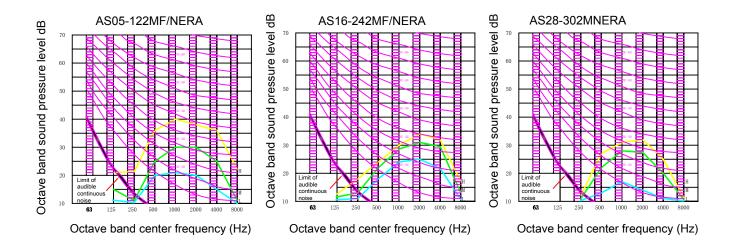
1) Testing illustrate:



2) Testing condition:

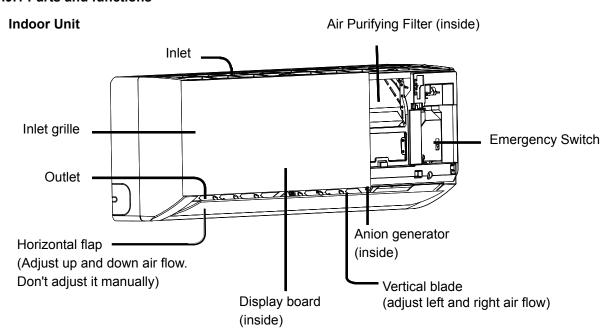
- a: Unit running in the normal condition
- b: Test in the semi-anechoic chamber
- c: Noise level varies from the actual factors such as room structure, etc.

3) Sound curves:





21.9 Installation 21.9.1 Parts and functions



Actual inlet grille and display board may vary from the one shown in the manual according to the product purchased.

Display board A

Signal receiver hole 2 Ambient temp.display When receiving the remote control signal, display the set **6**DRY display temperature.

3COOL display **4**HEAT display 6HEALTH display





Display board B

*Remote signal receiver

(A beeping sound is generated when a signal from

remote controller is received.)

*Power indicator (Lights up when unit starts.)

*Timer mode indicator (Lights up when Timer operation is selected.)

*Operation mode indicator (lights up when the compressor is on.)

*Ambient temp display

When receiving the remote control signal, display the set temperature.





21.9.2 Safety

- If the air conditioner is transferred to a new user, this manual shall be transferred to the user, together with the conditioner.
- Before installation, be sure to read Safety Considerations in this manual for proper installation.
- The safety considerations stated below is divided into" A Warning" and "Attention" The matters on severe accidents caused from wrong installation, which is likely to lead to death or serious injury, are listed in "A Warning". However, the matters listed in "A Attention" are also likely causing the severe accidents. In general, both of them are the important items related to the security, which should be strictly abided by.
- After the installation, perform test run to make sure everything is in normal conditions, and then operate and maintain the air conditioner in accordance with the User Manual. The User Manual should be delivered to the user for proper keeping.

<u>∧</u> Warning

- Please ask the special maintenance station for installation and repair. Water leakage, electric shocks or fire accidents might be caused from improper installation if you conduct the installation by your own.
- The installation should be conducted properly according to this manual. Water leakage, electric shocks or fire accidents might be caused from improper installation.
- Please make sure to install the air conditioner on the place where can bear the weight of the air conditioner. The air conditioner can't be installed on the grids such as the non-special metal burglar-proof net. The place with insufficient support strength might cause the dropdown of the machine, which may lead to personal injuries.
- The installation should be ensured against typhoons and earthquakes, etc. The installation unconformable to the requirements will lead to accidents due to the turnover of the machine.
- Specific cables should be used for reliable connections of the wirings. Please fix the terminal connections reliably to avoid the outside force applied on the cables from being impressed on the cables. Improper connections and fixings might lead to such accidents as heating or fire accidents.
- Correct shapes of wirings should be kept while the embossed shape is not allowed. The wirings should be reliably connected to avoid the cover and the plate of the electrical cabinet lapping the wiring. Improper installation might cause such accidents as heating or fire accidents.
- While placing or reinstalling the air conditioner, except the specific refrigerant (R410A), don't let the air go into the refrigeration cycle system. The air in the refrigeration cycle system might lead to the cracking or personal injuries due to abnormal high pressure of the refrigeration cycle system.
- During installation, please use the accompanied spare parts or specific parts. If not, water leakage, electric shocks, fire accidents or refrigerant leakage might be caused.
- Don't drain the water from the drainpipe to the waterspout where may exist harmful gases such as sulfureted gas to avoid the harmful gases entering into the room.
- During installation, if refrigerant leakage occurs, ventilation measures should be taken, for the refrigerant gas might generate harmful gases upon contacting the flame.
- After installation, check if any refrigerant leakage exists. If the refrigerant gas leaks in the room, such things as air blowing heaters and stoves, etc. may generate harmful gases.

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- Don't install the air conditioner at the places where the flammable gases may leak. In case the gas leakage occurs around the machine, such accidents as fire disasters may be caused.
- The drainpipe should be properly mounted according to this manual as to ensure the smooth drainage. In addition, heat preservation should be taken to avoid condensation. Improper drainpipe mounting might cause water leakage, which will get the articles at home wet.
- The refrigerant gas pipe and liquid pipe should be heat insulated to preserve heat. For inappropriate heat insulation, the water caused from the condensation will drop to get the article at home wet.

\Lambda Warning

- The air conditioner should be effectively grounded. Electric shocks may occur if the air conditioner is ungrounded or inappropriately grounded. The wire for earthing shouldn't be connected to the connections on the gas pipe, water pipe, lightning rod or telephone.
- The breaker for electricity leakage should be mounted. If not, accidents such as electric shocks may happen.
- The installed air conditioner should be checked for electricity leakage by being powered.
- when the water discharge hole be blocked or the filter becomes dirty, there maybe leads to condensing water drop down, and at the same time there maybe some drops of water spit out.
- In case of ambient dew point temperature greater than 28 degrees Celsius or humidity greater than 80%, there maybe cause condensation drops or blow out, electrical or moisture sensitive items shouldn't be put below.



0	Items with this warning sign concerning the product's safety and the personal security must be performed strictly.
\oslash	Items with this forbidding sign refer to absolutely forbidden behaviors. If not, they may cause machine damage or endanger operator's personal safety.

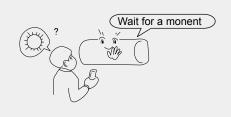
Clean the filter regularly.

Cooling or heating performance will be degraded if the filter is blocked, resulting in large power consumption, failure, and water dripping at freezing.



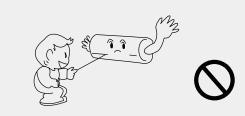
Avoid cold wind from blowing out.

During heating running, the fan of indoor units will not rotate immediately as to prevent cold wind from blowing out.



Regulating Wind Direction:

It is recommended not to make the wind deflector downwards for a long time to avoid condensation at air outlet port during refrigerating or dehumidifying. Water dropping might appear at the air outlet port in refrigerating or dehumidifying mode. Don't touch the outlet while the flap is moving. Don't put anything in the grid in case danger may occur.



Changing Wind Speeds:

In the state of refrigerating, with automatic blowing mode, the wind speed automatically decreases when the room temperature approaches the setting. In the state of heating, when the room temperature reaches the setting temperature the compressor stops working and the fan turns to low wind or stops. Wind speed changes automatically in the dehumidifying mode.

Defrosting:

During heating running, the air conditioner would defrost automatically if there is frost on heat exchanger of outdoor units.

Do not rotate fans of both indoor units and outdoor units during defrosting.

After finishing defrosting, the air conditioner will resume running automatically.

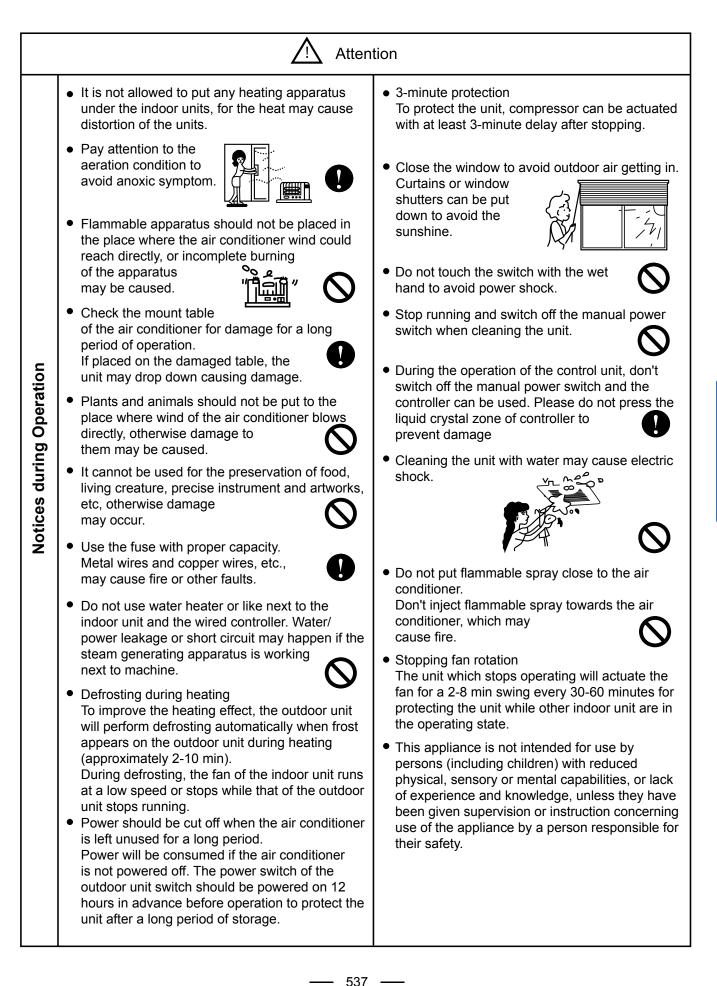
The machine operation must be controlled by the control.



Hints:

As air conditioners absorb heat from the environment and release it to the room, heating effects will be influenced by the temperature in and out of the room.







21.9.3 Emergency running & Test operation

Emergency Running & Test operation:

- Emergency running will help air conditioner operate automatically if your remote control is missing or out of work.
- Test operation is recommended when room temperature is below 16°C but not in normal condition.

Emergency Running

It is recommended to use only when the remote control is missing or damaged.

■Startup

A warning tone could be heard after turning on the Emergency Running switch, which means that the emergency running gets started.

• Air conditioner operates automatically according to the working modes blow:

Set Temp	Wind Speed	Working Mode	
24°C	auto	auto	

Temperature setting values and wind speed cannot be changed in the mode of emergency running. Meanwhile, dehumidification and timing operation cannot be operated simultaneously.

- Shutdown (canceling the emergency running) All the indicator lamps on the conditioner extinguish after pressing the emergency running switch and hearing the warning tone.
- Canceling the emergency running with the remote controller A warning tone is heard after pressing the ON/OFF button on remote controller. The air conditioner works according to the indication of operating state on the remote controller.

Test Operation

It is recommended when the room temperature is below 16 $^{\circ}\mathrm{C}$ but not in normal condition.

■Startup

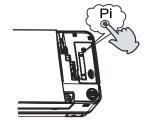
Press it for over 5 seconds till 2 warning tones are heard and then release your finger to start the test operation. The air conditioner is operating at high wind speed. The test operation lasts for 30 minutes before the air conditioner stops automatically.

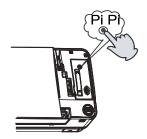
Shutdown (canceling the test operation)

The warning tones are followed after pressing the test operation switch.

Canceling the test operation with the remote controller The warning tone could be heard after pressing the switch on remote controller.

The air conditioner works according to the indication of operating state on the remote controller.







High Wall Type Indoor Unit (N platform)

21.9.4 Maintenance

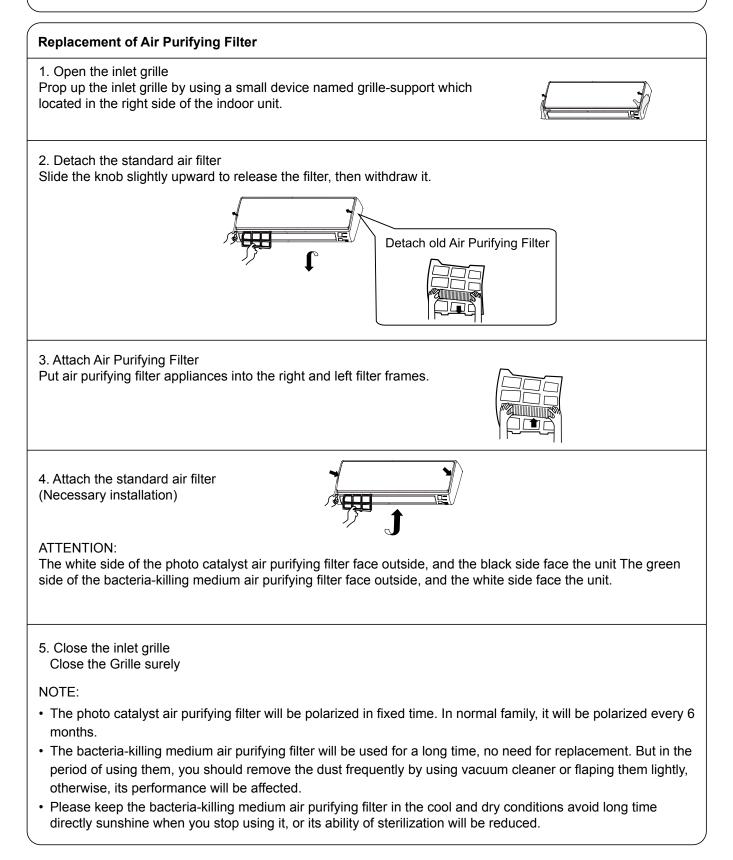
*Only when the air cleaner is switched off and disconnected to the power supply can it be cleaned, or electric shock and injury may appear.

Cleaning the air outlet port and the shel	l:						
	▲ Attention						
 Don't use gasoline, benzene, diluents, polishing powder or liquid insecticide to clean them. Do not clean them with hot water of above 50°C to avoid fading or distorting. 							
 Wipe them with soft dry cloth. Water or neutral dry cleanser is recommer The Wind Deflector can be dismantled to a 							
Cleaning Wind Deflector:							
Do not wipe the wind deflector with water	forcibly to avoid falling off.						
Cleaning Air Cleaner:							
	▲ Attention						
 Don't rinse the air cleaner with hot water of Don't put the air cleaner on the fire to dry to 	U U						
Wipe dust with water or dust collector.							
(A) Wipe dust with dust collector.	(B) Clean it with soft bush in mild detergent if there is too much dust on it						
	Throw off the water and airing it in the cool dry condition.						
Maintenance before and after Operating							
 Before Operating Season: 1. Please make the following checkup. If al There is no blockage in inlet port and o The ground line and the wiring are in the search of	he proper state						
	e performed for half a day to make the inside of machine dry. economize electricity, or the machine will still consume power. Air eaning.						



Clean the machine (Cleaning ways are approximately same, taking AS182MNERA indoor machine as example).

Turn off the air conditioner before cleaning. Do not touch the machine if the hands are wet. Neither hot water nor solvent should be used in cleaning.



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21.9.5 Fault checkup

Please check the following when consigning repair service:

	Symptoms	Reasons
	Water flow sound	Water flow sound can be heard when starting operation, during operation or immediately after stopping operation. When it starts to work for 2-3 minutes, the sound may become louder, which is the flowing sound of refrigerant or the draining sound of condensed water.
	Cracking sound	During operation, the air conditioner may make the cracking sound, which is caused from the temperature changes or the slight dilation of heat exchanger.
	Terrible smell in outletair	The terrible smell, caused from walls, carpet, furniture, clothing, cigarette and cosmetics, attaches on the conditioner.
	Flashing operating indicator	When switching it on again after power failure, turn on the manual power switch and the operating indicator flashes.
All these are not problems	Awaiting indication	It displays the awaiting indication as it fails to perform refrigerating operation while other indoor units are in heating operation. When the operator set it to the refrigerating or heating mode and the operation is opposite to the setting, it displays the awaiting indication.
	 Sound in shutdown indoor unit or white steam or cold air 	To prevent oil and refrigerant from blocking the shutdown indoor units, refrigerant flows in the short time and make the sounds of refrigerant flowing. Otherwise, when other indoor units performs heating operation, white steam may occur; during refrigerating operation, cold air may appear.
	 Clicking sound when switching the air condition on 	When the conditioner is powered on, the sound is made due to the resetting of the expansion valve.
	 Start or stop working automatically 	Check if it is in the state of Timer-ON and Timer-OFF.
Please make	• Failure to work	Check if there is a power failure. Check if the manual power switch is turned off. Check if the supply fuse and breaker are disconnected. Check if the protective unit is working. Check if refrigerating and heating functions are selected simultaneously with the awaiting indication on line control.
another check.	 Bad cooling & heating effects 	Check if air intake port and air outlet port of outdoor units are blocked. Check if the door and windows are open. Check if the filtering screen of air cleaner is blocked with sludge or dust. Check if the setting of wind quantity is at low wind. Check if the setting of operation is at the Fan Operation state. Check if the temperature setting is proper.

• When buttons are inflexible actuated;

- When fuse and breaker have been burnt over and over;
- When there are foreign objects and water in the refrigerator;
 When it cannot still be operated after removing the operation of protective unit;
- When other abnormal conditions occur.



21.9.6 Installation procedures

This manual cannot completely illustrate all the properties of the products you bought. Please contact the local Haier distribution center if you have any question or request.

Please use the standard tool according to the installation requirements.

The standard attached accessories of the units of this series refer to the packing; prepare other accessories according to the requirements of the local installation point of our company.

1. Choose the suitable installation location. Indoor units should be installed in places with the environment of even circulation of cool and warm blows. The following places should be avoided.

Places with high salinity (beach), high sulfureted gas(such as the thermal spring regions where copper tubes and soft soldering are easy to be eroded), much oil(including mechanical oil) and steam; places where organic substance solvent is frequently used; places where machines generate the high frequency electromagnetic wave (abnormal condition will appear in the control system); places where there is high humidity exists near the door or windows (dew is easily formed); and places where the special sprayer is frequently used.

Indoor Units

(1) The distance between wind outlet port and the ground should not be more than 2.7m. The distance to streets should not be less than 2.5m.

(2) Select appropriate places for installation where the outlet air can be spread to places all over the house and arrange proper locations for connecting pipes and lines as well as the drainpipe to the outdoor.

(3) Ceiling construction must be hard enough to hold the weight of the unit.

(4) Make sure that the connecting pipe, drainpipe and connecting guide line can be put into walls to connect the outdoor units.

(5) It is recommended to make the connecting pipe between the outdoor and indoor units and the drainpipe are as short as possible.

(6) Please read the attached installation instruction of outdoor units for regulation of filling amount of refrigerant if necessary.

(7) Select a place close to the supply socket of air conditioner and enough space should be kept near the machine.

(8) Those electrical appliances such as television, instruments, devices, artwork, piano, wireless equipment and other valuables should not be placed under the indoor unit and over 1m away from the daylight lamp as to prevent condensate from dropping into them and causing damage.

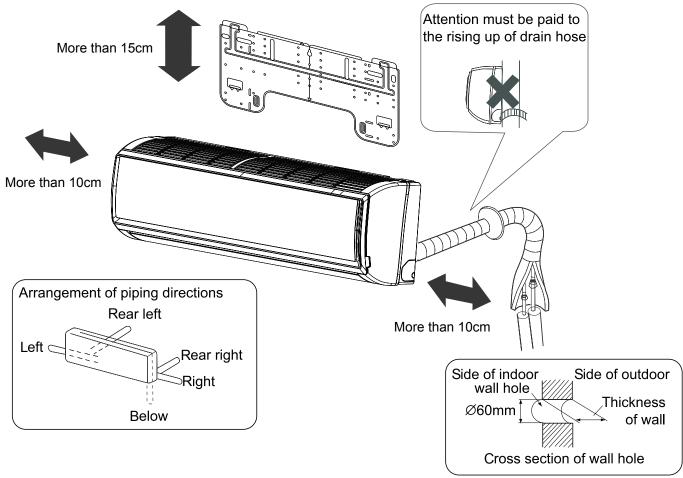
2. The following steps can be taken after selecting the installation place:

Cut a hole on the wall and put the connecting pipe and connecting thread into the PVC, which is purchased at the local shop. With a slight downwards tilt towards the exterior, the gradient should be kept at least 1/100. before cutting the hole, check if there are pipes or reinforcing steel bars at the rear of the hole. Making the hole in the place with wires or pipes should be avoided.

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3. Installation Drawing of Indoor Units:



(1) Positioning Wall Pad & Locating Wall Holes

Fix the pad according to the installation location and the pipe layout of indoor unit (please refer to the installation drawing).

Installation should be done under the crossbeam or on the flat wall near the pillar. First fix the pad with a steel nail on the wall.

Drop a thread with a bolt through the pad center or use a level meter to find the level.

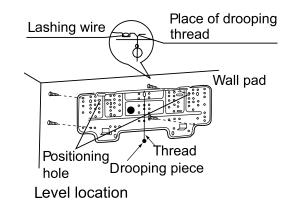
Then fix it with a concrete steel nail, and measure the position of the wall hole A.

(2) Drilling Hole & Mounting Guard Ring

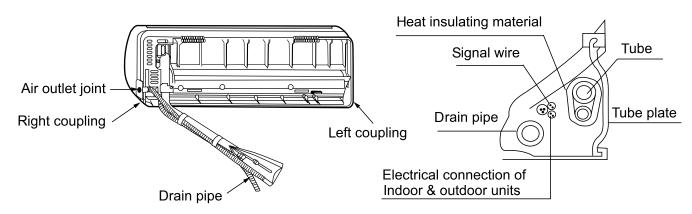
Drill a hole of 60mm bore with a slight tilt downwards to the outside, mount the guard ring, and seal it with gesso or putty after finishing the installation.

(3) Arranging Wiring of Indoor Unit

Arrange the layout of connection pipe, drain pipe, connecting line, signal line and air refreshing pipe according to the locations of your indoor unit, outdoor unit and wall holes, with drainage hose lower, connecting line upper. Intercrossing winding is not allowed between the mains line and the connecting line, and the drain pipe(especially in the indoor unit and the inside of machine) should be winded with heat insulating materials for heat preservation.







(4) Lead the connection tubing(liquid pipe and gas pipe) through the hole into the wall, or connect piping and wiring of indoor unit(check the number of wiring terminals of indoor and outdoor units and connect terminals with the same number and color), and then put the connection tubing and the connecting line through from the inside wall for the connection with outdoor unit.

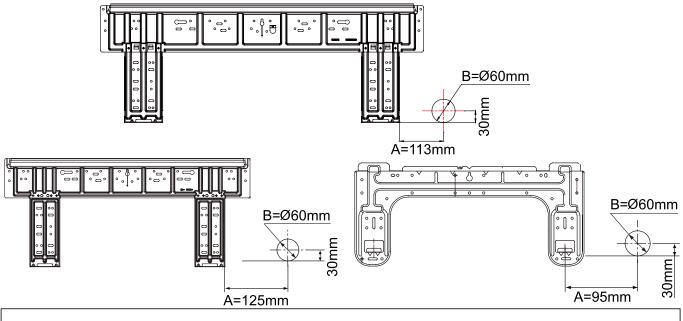
Fitting of the Mounting Plate and Positioning of the wall Hole

When the mounting plate is first fixed

1. Carry out, based on the neighboring pillars or lintels, a proper leveling for the plate to be fixed against the wall, then temporarily fasten the plate with one steel nail.

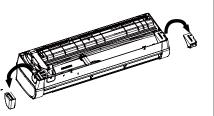
2. Make sure once more the proper level of the plate, by hanging a thread with a weight from the central top of the plate, then fasten securely the plate with the attachment steel nail.

3. Find the wall hole location A using a measuring tape.



Pay attention to the following points before installation of machine:

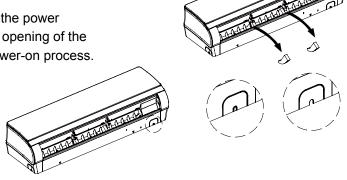
1. Take out cushion blocks on the left and right angle beads as shown in the following Figure.





2. Remove 2 gaskets under the cross-flow fan. (used for AS162/182/242MN/FERA)

3. Clean the burr on the surface of fracture to avoid the power wire from being scratched after removing the virtual opening of the outgoing line slot on the case by hands in indoor power-on process.



When the mounting plate is fixed side bar and lintel

- Fix to side bar and lintel a mounting bar, which is separately sold, and then fasten the plate to the fixed mounting bar.
- Refer to the previous article, "When the mounting plate is first fixed" for the position of wall hole.

Tubing Permissible Length & Height Difference

Please refer to the attached manual of outdoor units.

Tubing Materials & Specifications

Мо	del	AS05~09	AS12~18	AS24~30
Tubing	Gas pipe	φ9.52	φ12.7	φ15.88
Size (mm)	Liquid pipe	φ6.35	φ6.35	φ9.52
Tubing	Dhoonhor dooy	, bronzo ocomio	aa nina (TD2) fa	r oir conditioner
Material	Phosphor deox	y bronze seamle	ss pipe (TPZ) 10	an conditioner

(Refrigerant Filling Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the specified amount or compressor failure can be caused by filling too much or little refrigerant.

Connecting Procedures of Refrigerant Tubing

Proceed the flare tube connecting operation to connect all the refrigerant tubes.

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Joint

- Dual wrenches must be used in the connection of indoor unit tubing.
- Mounting torque refers to the right table

Refrigerant oil

Nut



Outer Diameter of Tubing (mm)	Mounting Torque (N-m)	Increase mounting Torque (N-m)	
φ6.35	11.8(1.2kgf-m)	13.7(1.4kgf-m)	
φ9.52	24.5(2.5kgf-m)	29.4(3.0kgf-m)	
φ12.70	49.0(5.0kgf-m)	53.9(5.5kgf-m)	
φ15.88	78.4(8.0kgf-m)	98.0(10.0kgf-m)	
φ19.05	98.0(10.0kgf-m)	117.7(12.0kgf-m)	

Haier

Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare opening is broken.

Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one main unit.]

Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.

Installing and Dismantling Indoor Unit

1. Installation

During the installation of this series machines, fasten the wall pad on the wall first, hang the machine on the pothook, push it towards the wall pad until the sound of 'pa' 'pa' is heard. At this time, the agraffes of the indoor unit have hitched on the pad, as shown in the Fig.1 with dotted line.

2. Dismantling

During dismantling this series machines, push agraffes at the bottom of indoor unit upwards to release them, as shown in Fig.3, and pull up the bottom of indoor unit outwards gently and then raise the unit upwards in the bevel direction to release the pothook at the upper part of the wall pad, as shown in Fig.3.

Connecting

Connecting circular terminals:

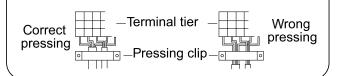
1. Connecting circular terminals: The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it.

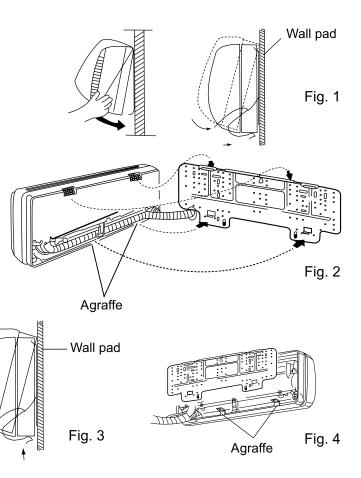
2. Connecting straight terminals:

The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier, tighten the screw and confirm it has been clamped by pulling the line gently.

3. Pressing connecting line

After connecting line is completed, press the connecting line with clips which should press on the protective sleeve of the connecting line.







A

A

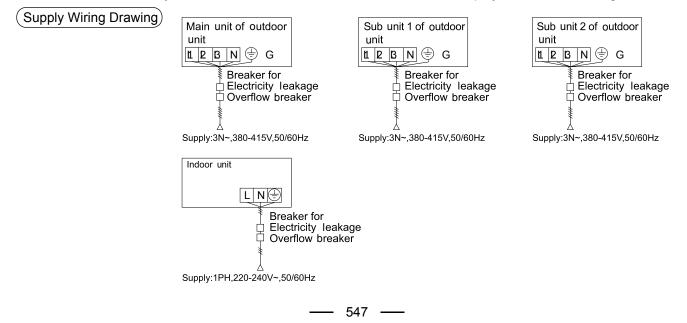
21.9.7 Electrical wiring

∆ Warning

- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

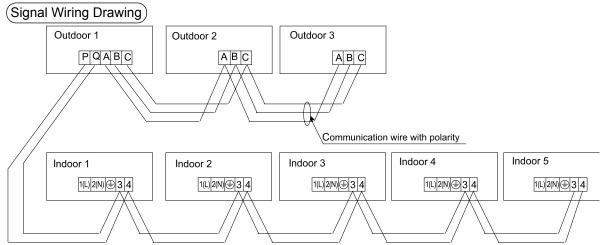
🕂 Warning

- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while
 should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- · Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line, signal line are provided by users. Parameters for power lines are shown as below: 3*(1.0-1.5) mm²; parameters for signal line: 2*(0.75-1.25)mm²(shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.





• Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.



The combination of multiple indoor units can be controlled by remote controller. Note: AS*ERA models are set to remote- controlled type.

The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Total Items Current of Indoor Units(A)	Cross Section (mm2)	Length (m)	Rated Current of Overflow Breaker(A)	Leaking Current(mA)	Cross Sec Area of Sig Outdoor -indoor (mm2)	
(7	2.5	20	10	10 A,30 mA,0.1S or below		
≥7 and <11	4	20	16	16 A,30 mA,0.1S or below	2 cores×0	75.2.0
≥11 and <16	6	25	20	20 A,30 mA,0.1S or below	mm2 shield	
≥16 and <22	8	30	32	32 A,30 mA,0.1S or below	minz shield	
≥22 and <27	10	40	32	32 A,30 mA,0.1S or below		

* The electrical power line and signal lines must be fastened tightly.

* Every indoor unit must have the ground connection.

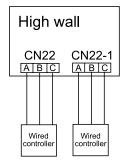
* The power line should be enlarged if it exceeds the permissible length.

* Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.

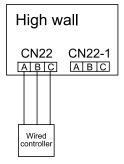
* It is not permissible if the whole length of signal line exceeds 1000m.

(High wall wired controller wiring and instruction)

Two wired controllers control one high wall unit



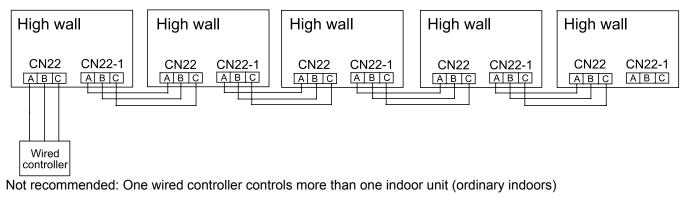
One wired controller controls one high wall unit

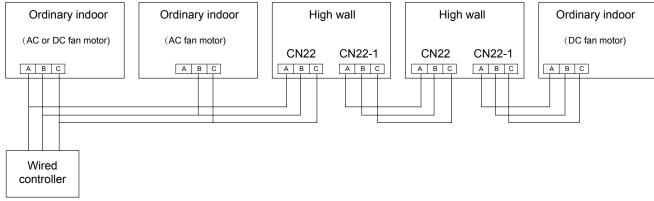


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Recommended: One wired controller controls more than one indoor unit (limited in high walls)





High wall wired controller wiring instruction:

- 1. One wired controller controls one high wall unit (one to one), connect the wires of wired controller to CN22 terminal on PCB directly.
- 2. Two wired controllers control one high wall unit (two to one), connect the wires of wired controller 1 and 2 respectively to CN22 and CN22-1 on PCB.
- 3. One wired controller controls more than one unit (one to more), limited in high wall units is recommended and mixed different type indoor units is not recommended. It's easy to do wrong wiring when there're many different type indoors.

If you choose one to more (mixed different type indoor units), please follow the principles below:

- a. The communication wires of wired controller inlet or outlet high wall units are 3 cores. It means to connect all the wires "ABC".
- b. When one wired controller connects to more indoors, all the wires between terminals are 3 cores. When other indoor units are slave ones of wired controller, for AC fan motor indoor unit connects B,C terminal, for DC fan motor indoor unit connects A,B,C terminal.
- c. When the "A" wire is not connect to indoors which are the slave ones of wired controller, please do some insulation on it and avoid touching other electric circuit.



22. HRV

22.1 Product introduction

Development background:

Under the background of energy getting more and more shortage and the use's request for the life quality getting more and more high, we develop the heat reclaimed ventilation system to meet the needs.

Comparison between the HRV and the old sensible heat exchanger:

HRV is the changeover of sensible heat exchange and latent heat exchange, thus it can avoid the large number of condensate water being caused when the unit operates in the condition of great humidity, furthermore the condensate water needs the special drainage device, also the water always leaks to cause the unnecessary economic loss.

So Haier HRV always is used at the coastal area to reduce the indoor humidity and gives the user a much more comfortable space.

Advantage of using air conditioner with HRV comparing to using air conditioner individually:

- a. The modern people seldom go out for the fresh air because of the busy work, and oppositely we always stay in the airtight office with the unhealthy air. More and more we rely on the air conditioner, less and less we can adapt the surroundings. After installing the HRV system, we can breathe the fresh air directly from outside, and make us more healthier.
- b. HRV needs not run for a long time such as the air conditioner. You can set ON or OFF in time to adjust the indoor air quality.

	No smoke				Less smoke		Much smoke
Room type	Common room	Building	Office	PC room	Restaurant	Advanced room	Meeting room
Necessary fresh air volume for each person (m³/h)	17-42	8.5-21	25-62	40-100	20-50	30-75	50-125
Fresh air exchanging times	1.06-2.65	0.5-2.66	1.56-3.90	2.5-6.25	1.25-3.13	1.88-4.69	3.13-7.81



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22.2 Function description

HRV will make the sufficient heat exchange by air inlet and air discharging, and compensate the energy loss in the course of getting fresh air to the max. limit. Meanwhile the latent heat exchanger will perform good efficiency to control the indoor humidity. The HRV can be used individually, also can be used in combination with the indoor unit of MRVII to reach the effect of air adjustment and get fresh air.

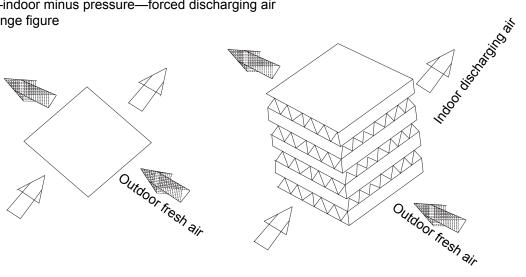
Flow volume selection	Air volume selection	Indoor/outdoor motor state	Remarks
Flow volume to indoor	Low speed	Indoor motor low speed outdoor motor low speed	Default mede
=Flow volume to outdoor	High speed	Indoor motor med speed outdoor motor med speed	Default mode
Flow volume to indoor	Low speed	Indoor motor low speed outdoor motor med speed	
>Flow volume to outdoor	High speed	Indoor motor med speed outdoor motor high speed	The two modes can be set due to the user's request
Flow volume to indoor	Low speed	Indoor motor med speed outdoor motor low speed	before out of factory.
<flow outdoor<="" td="" to="" volume=""><td>High speed</td><td>Indoor motor high speed outdoor motor med speed</td><td></td></flow>	High speed	Indoor motor high speed outdoor motor med speed	

You can select different operation mode according to the different environment, for example, to avoid the funk or humidity from toilet or kitchen into indoor side, select the mode of "flow volume to indoor>flow volume to outdoor"; to avoid the abnormal smell from the sickroom or the air with virus into the lobby, select the mode of "flow volume to indoor<flow volume to outdoor".



22.3 Operation principle

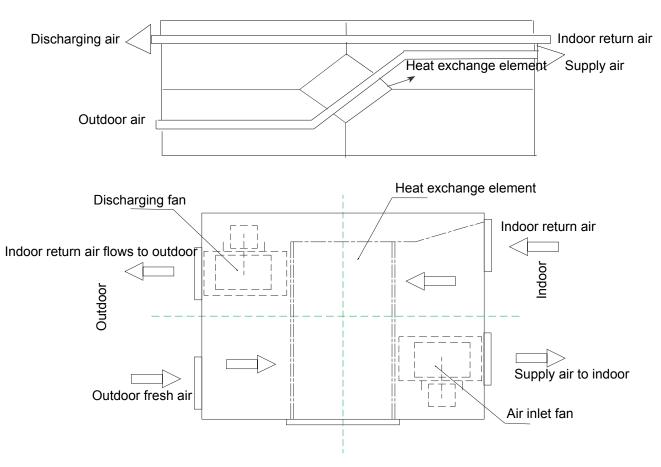
- a. Operation type: forced air inlet-indoor positive pressure-air release
- supply air-indoor minus pressure-forced discharging air
- b. Heat exchange figure



c. Operation sketch map

When the heat exchange element is at the position as the figure, the unit is in heat reclaimed ventilation state; when the heat exchange rotates, indoor return air will not pass the heat exchange element, and flow to outside directly, that is bypass state.

Bypass state:



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22.4 Features

- 1. Automatic ventilation mode changeover: Auto/Heat recovery/ Bypass
- 2. Fan speed changeover by indoor wired controller
- 3. Filter icon display when the filter needs to be cleaned
- 4. Standard HRV wired controller
- 5. Timer function
- 6. HRV can be used individually without outdoor unit
- 7. Auto restart function

Energy saving

Heat recovery mode: Reduce about 20% reduction of heating/cooling load	HRV unit will reclaim the energy in cooling/heating operation of air conditioner. HRV will reduce the cooling/heating load and increase the cooling/heating efficiency.				
	Outdoor air		Supply air		
	When the coolin	he different operation mode og operation is required in v fer to the below table:			
	Operation	Ventilation	Higher officiency mode		
		Difference between indoor temp. and outdoor temp.	Higher efficiency mode		
	Cooling	Indoor temp.>outdoor temp. Indoor temp.>outdoor temp.	Bypass mode Heat recovery mode		
	Heating	Indoor temp.>outdoor temp. Indoor temp.>outdoor temp	Heat recovery mode Bypass mode		
Auto mode: Reduce about 8% reduction of heating/ cooling load	Heat recovery mode: Discharging air Outdoor air Outdoor air				
	Bypass mode: Discharging air Heat exchange element Supply air				
	Outdoor a				
By rerunning mode: Reduce about 2% reduction of heating/ cooling load	When the unit is in the rerunning mode, HRV will be at standby state. After finishing pre-running mode, HRV will turn into normal mode. Thus the cooling/heating load will be reduced and reach the admired temp. quickly.				

HRV



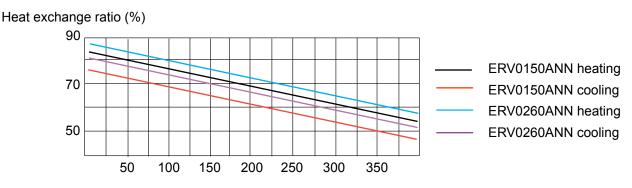
Heat recovery element



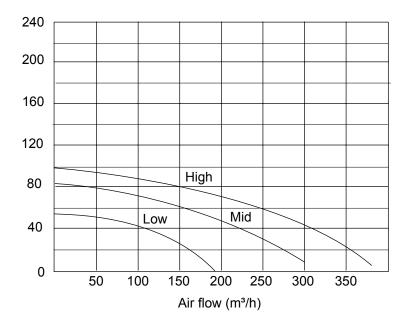
The heat recovery element is composed of flat paper and ripple paper. The thickness of flat paper is 50um. It is non-hole, water permeability but not gas permeability, which will ensure the humidity exchange and prevent the air mixture from indoor and outdoor. Meanwhile the angle between the air discharging passage and the indoor air return passage is 90degree, which can prevent air mixture further.

The ripple paper is with plastic character, and it will not distort even under the great humidity. Therefore it can support the structure firmly.

Heat exchange ratio, static pressure and air flow: ERV0150ANN ERV0260ANN



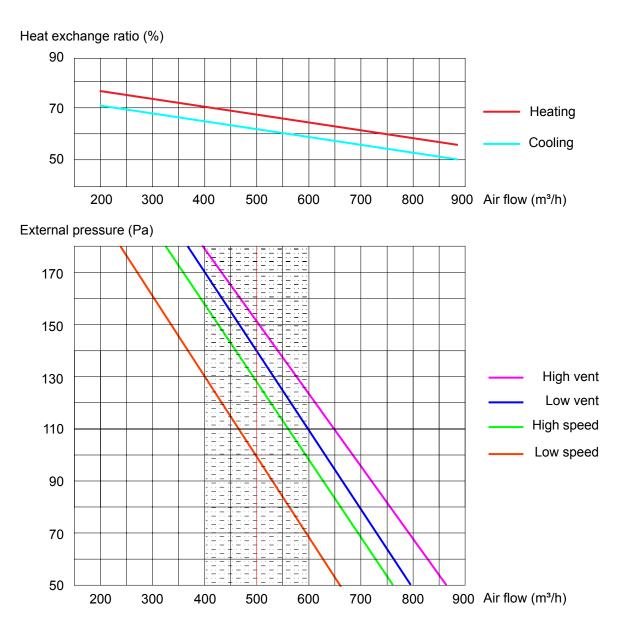
External static pressure (Pa)



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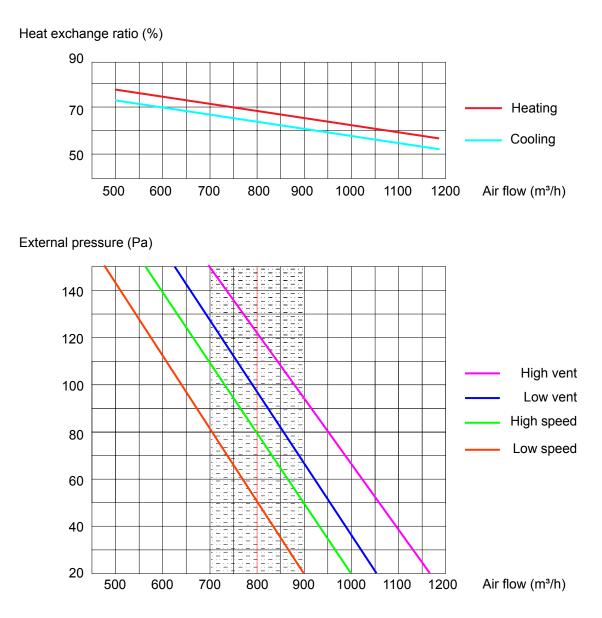


ERV0500ANN



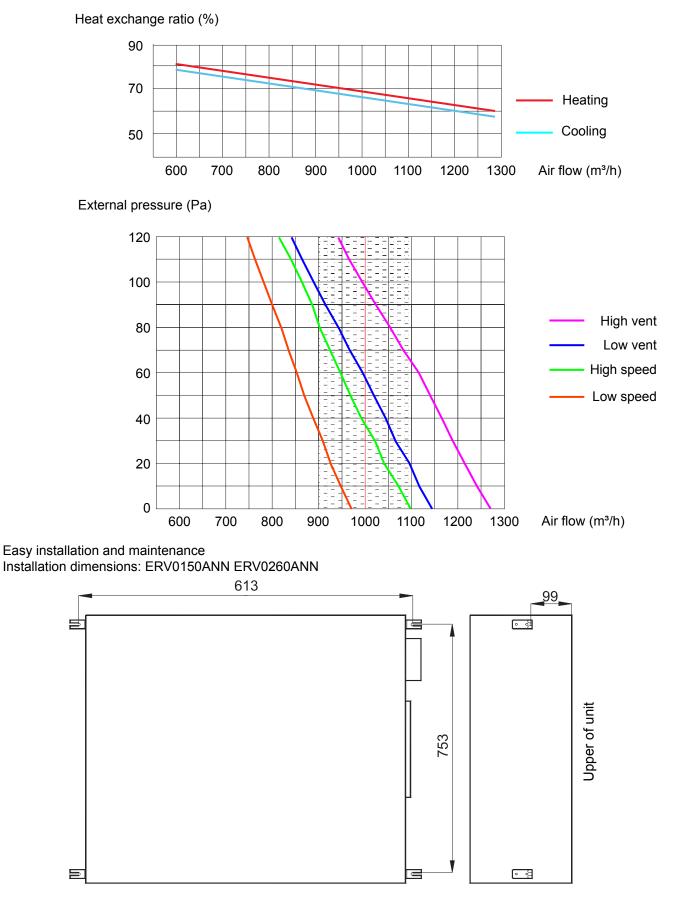


ERV0800ANN





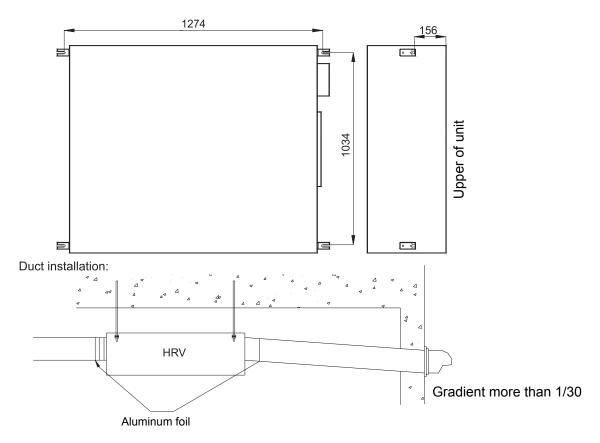
ERV1000ANN



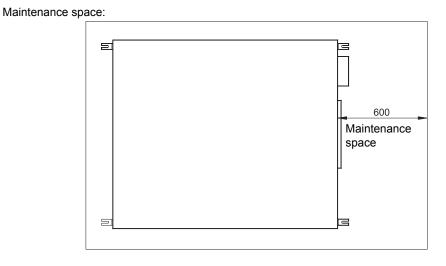
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ERV0500ANN ERV0800ANN ERV1000ANN



Install the two outdoor ducts at a certain gradient (no less than 1/30) to avoid the water flowing backward. Meanwhile the three ducts (two outdoor ducts, one indoor duct) all need the heat insulation material against the dew. Installation distance between air discharging hole and air inlet hole should be 3 times longer than duct.



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22.5 Specification

MODEL				ERV0150ANN	ERV0260ANN
Power supply			Ph-V-Hz	1,220~230,50/60	1,220~230,50/60
Rated power i	nput		kW	0.1	0.12
Rated current			Α	0.55	0.55
	Туре			Centrifugal	Centrifugal
Indoor fan	Air flow rate		m³/h	150	260
	External static pre	ssure	Pa	80	60
	Brand			Guangdong Welling	Guangdong Welling
	Model			YDK35-4F	YDK35-4F
	Туре			AC FAN MOTOR	AC FAN MOTOR
Indoor motor	Power input		W	65	65
	Power output		W	25	25
	Capacitor		μF	2.5	2.5
	Speed (High/Low)		rpm	1040/660	1040/660
Dimension (W	/*H*D)		mm	940*276*685	940*276*685
Packing (W*H	I*D)		mm	1013*345*773	1013*345*773
Net weight			kg	28.7	28.7
Gross weight			kg	31.2	31.2
Sound pressu		High	dB (A)	44	44
		Low	dB (A)	43	43
Sound power	lovol	High	dB (A)	55	55
	level	Low	dB (A)	54	54
Temperature e	efficiency		%	78	76
Enthalpy	Heating		%	72	69
efficiency	Cooling		%	65	63
Heat exchang	e element			Heat exchange element is comp waved paper with glue. The flat p depth. It is airtight and nonwater exchange and at the same time, from indoor and outdoor. The wa characteristic which can keep the heavy humidity. Thus it can supp	baper is nonporous and 0.05mm tight. It ensures the humidify it will avoid the mutual infection aved paper has the plastic e shape even on the condition of
Air filter				The filter core is black nonwoven cloth, its frame is PP materia and it is sticked to the nonwoven cloth with glue.	
Connection du	uct diameter			146	146
Controller	Standard			YR-N07	YR-N07
Operation ran	ge			-15~43	-15~43

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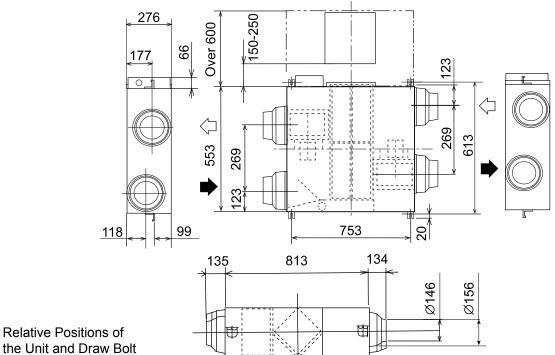


	MODEL			ERV0500ANN	ERV0800ANN	ERV1000ANN	
Power supply			Ph-V-Hz	220~230-1-50/60	1,220~230,50/60	1,220~230,50/60	
Rated power i	input		kW	0.28	0.36	0.36	
Rated current			Α	1.29			
	Туре			Centrifugal	Centrifugal	Centrifugal	
Indoor fan	Air flow rate		m³/h	500	800	1000	
	External static pro	essure	Pa	150	120	100	
	Brand			Z	n		
	Model			Y7S423B07	Y7S423B07	Y7S423B07	
	Туре			AC FAN MOTOR	AC FAN MOTOR	AC FAN MOTOR	
Indoor motor	Power input		W	270	270	270	
	Power output		W	100	100	100	
	Capacitor		μF	5	5	5	
	Speed (High/Low)		rpm	1240/1100	1240/1100	1240/1100	
Dimension (W	/*H*D)		mm	1227*387*1115	1227*387*1115	1227*387*1115	
Packing (W*H*D)			mm	1465*430*1213	1465*430*1213	1465*430*1213	
Net weight			kg	85.5	85.5	85.5	
Gross weight			kg	90.6	90.6	90.6	
Sound pressure level		dB (A)	48	57	57		
Sound pressu		Low	dB (A)	46	55	55	
	Sound power level High		dB (A)	59	68	68	
Sound power			dB (A)	57	66	66	
Temperature efficiency			%	75	76	77	
Enthalpy	Heating		%	67	68	69	
efficiency	Cooling		%	62	64	65	
			Heat exchange element is composed of the flat paper and the waved paper with glue. The flat paper is nonporous and 0.05mm depth. It is airtight and nonwatertight. It ensures the humidify exchange and at the same time, it will avoid the mutual infection from indoor and outdoor. The waved paper has the plastic characteristic which can keep the shape even on the condition of heavy humidity. Thus it can support the element steadily.				
Air filter The filter core is black nonwoven cloth, its frame is F and it is sticked to the nonwoven cloth with glue.							
Connection duct diameter				255*235	255*235	255*235	
Controller Standard				YR-N07	YR-N07	YR-N07	
Operation range				-15~43	-15~43	-15~43	



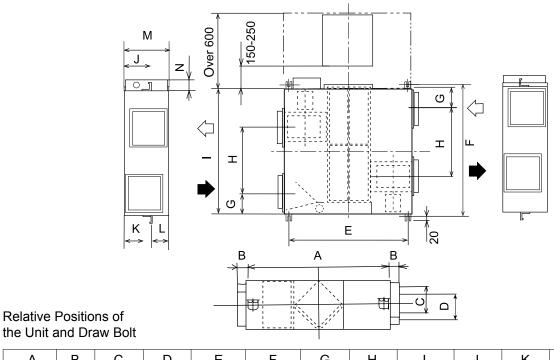
22.6 Dimension





the Unit and Draw Bolt

ERV0500ANN, ERV0800ANN, ERV1000ANN

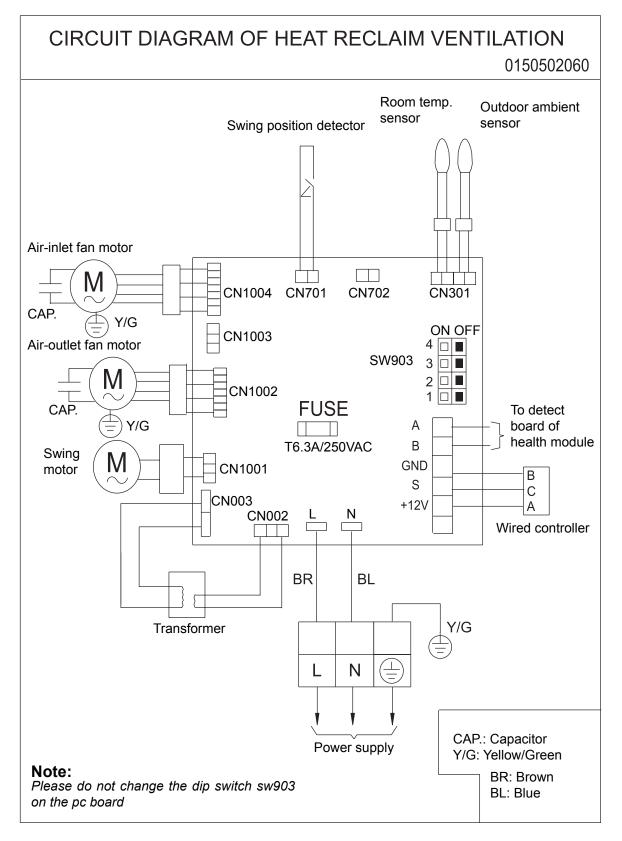


the Unit and Draw Bolt

Α	В	С	D	E	F	G	Н	I	J	К	L	М	Ν
1110	24	235	235	1034	1274	153	622	1216	235	235	155	385	66



22.7 Wiring diagram

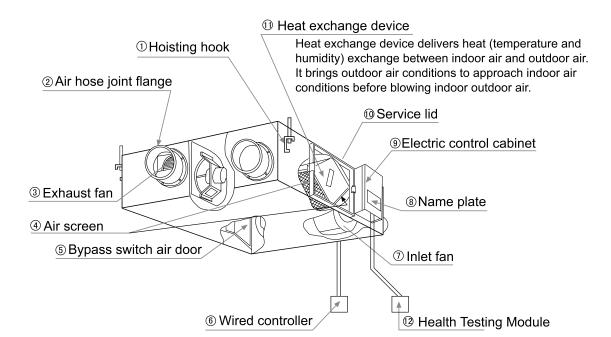


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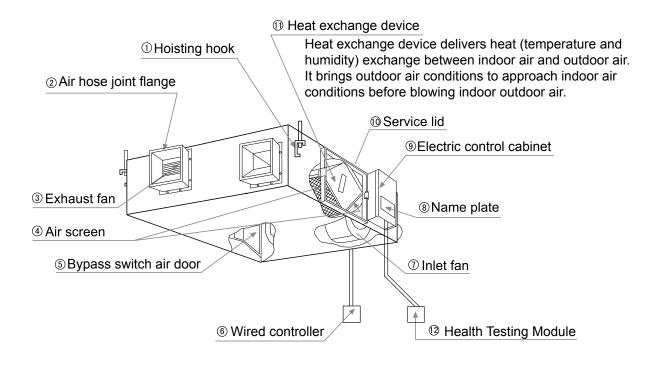


22.8 Installation 22.8.1 Parts and Functions

ERV0150ANN, ERV0260ANN



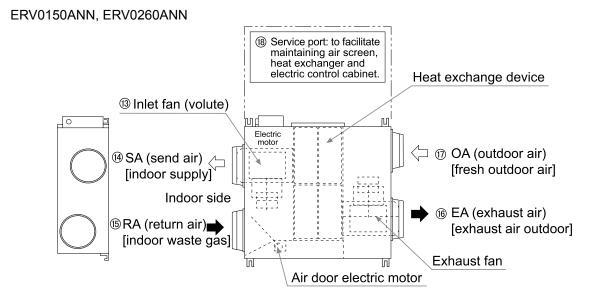
ERV0500ANN, ERV0800ANN, ERV1000ANN



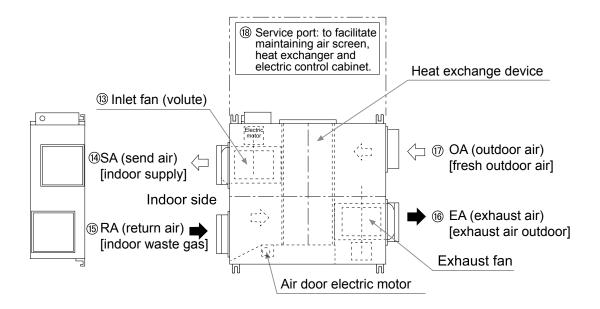
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Conspicuous but innocuous smell may ensue during first run of the unit. The smell will disappear as the unit is more frequently operated.



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Haier

22.8.2 Installing Heat Reclaim Ventilation

Installation Procedures

Do not install the unit in:

- Places close to high temperature locations or naked fires; otherwise, fire accident or overheating may occur.
- Places where oil mist or gasoline exists, such as kitchen; otherwise, fire may occur.
- Places where poisonous gases or corrosive material (acid and alkali solvents) are to be found, such as machine shop and chemical plant. Places where leakage of inflammable gases is possible shall also be avoided.
- Places with high humidity, such as bathroom, where electric shock or creepage and other troubles may take place.
- Places close to machines sending out electromagnetic waves, which may interrupt the operation of control system and cause failure.

Please make sure that temperature and humidity in places where air inlet and outlet grille is installed are controlled within prescribed range under operating conditions. Do not install the grille in refrigerator vehicle, low temperature places or warm water swimming pool; otherwise, short circuit or fire may ensue. Vehicles or vessels shall also be avoided.

Preparation Prior to Installation

Accessories and fittings necessary for installation shall be kept and must not be discarded!

1. Transporting the Unit

Decide on transporting route and do not unpack before arriving at installation site.

When unpacking is compulsory, please use soft rope or adopt the "rope plus angle of protection" approach to lifting devices so that scuffing or damages can be avoided.

When moving unpacked units, lift the unit by hoist hook, and not by any other objects on the unit (air hose joints in particular).

▲ CATUION

Concerned specialists shall teach users how to correctly operate the unit with aid from the manual (especially air screen service and operation procedures).

2. Accessories: Other parts not shown below shall be prepared by users.

Designation	Air hose joint flange	M4 tapping screw	Lace	Manual
Number	4	16	2	1
Appearance		Dan		

3. Special attention shall be given to following issues during installation and following completion of the same a. Check upon Construction Completion

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Item	Possible consequences due to erroneous practices	Results
Unit fixed tight?	Device may fall off, vibrate, or make noises.	
External air hoses tilted downwards and leading outdoor?	Condensed water may enter.	
Adequate heat insulation available for the unit? Valuables placed under air outlet frame?	Heat exchange efficiency may be impaired, and condensed water may occur; in case that condensed water dripping onto valuables, damages may occur.	
Supply voltage conforms to rating on name plate?	Fault may ensue or parts may get burnt out.	
Correct wiring?	Fault may ensue or parts may get burnt out.	
Safe earth connection?	Danger of creepage is possible.	
Air inlet port and outlet port blocked by objects?	Possibly leading to incomplete ventilation or abnormal running noises.	

b. Operating Instruction Essentials

OWARNING, ▲CAUTION and OPROHIBITED in the manual are indications of possible bodily injury and damages to devices, therefore, contents thereof shall be explained to users who shall be asked to read the manual.

Please check against items in "safety Considerations" again.

When moving or unpacking the unit, please hold the hoist hook.

Do not apply force to other parts, joint flange in particular. Please improve heat insulation when temperature and humidity inside ceiling exceed 30°C and RH80%. Glass wool or polyethylene foam shall be used to deliver heat insulation so that insulation thickness does not exceed 10mm, which is fit for the opening space on ceiling.

1. Choose installation site according to installing conditions and users' requirements.

The unit shall be installed in places featuring adequate strength and stability (e.g., crossbeam, ceiling, and other locations capable of bearing unit weight. Insufficient strength is dangerous and may cause vibration and abnormal operating noise).

Do not install the unit directly unto ceiling and wall surface; direct contact may cause vibration.

Install the unit in places where cleaning and service are facilitated.

- The unit, power lines and wires shall be kept at least 1 meter away from TV sets and radios to prevent interruption and noise. Placing of valuables right under the unit is strictly prohibited to prevent condensed water from dripping onto valuables and causing damages.
- Air chest may not be used in certain regions; please consult local authorities and fire department.
- In case that fireproof material is required in certain buildings, common air hose shall be supported with copper tube to exhaust air.



2. Install the unit by hoist hook and check out whether ceiling is strong enough to hold the unit. In case of insufficient strength, reinforce ceiling prior to installation.

Note: All above parts shall be procured in local region.

Preparation Prior to Installation

1. Decide on the relative positions of the unit and hoist hook. (Refer to installation diagram)

Set aside service space, including service port (open a service port beside electrical cabinet on the ceiling to facilitate checking and maintaining of air screen, heat exchange device and fan).

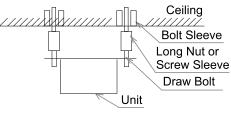
2. Make sure that External Static Pressure does not exceed range limits.

3. Opening installing port: put signal transmission line and wire control cable through the line hole on the unit after opening installing port on the ceiling.

4. Keep ceiling in level position after opening installing port; reinforce ceiling when necessary to prevent vibration.

(Concerned architect or carpenter can be consulted).

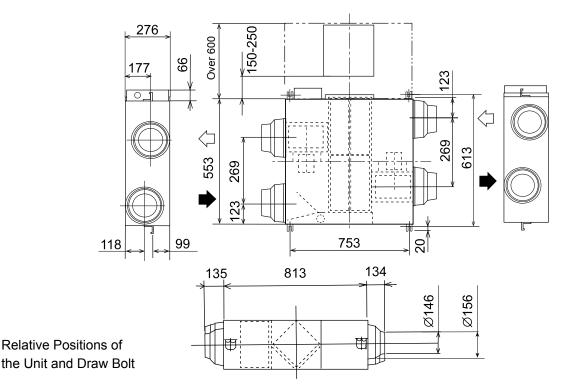
5. Installing Draw Bolt (Choose from the M10-M12 Range)



Installation Position

- Please install in places capable of bearing unit weight. Improper installation is dangerous; it not only causes vibration but produces operating noises.
- Set aside service space and access hole. Please make sure that access hole is preset to check air screen, heat exchange device and fan.
- Do not install the unit directly on roof or wall; otherwise, the unit may directly touch roof or vibration will ensue.

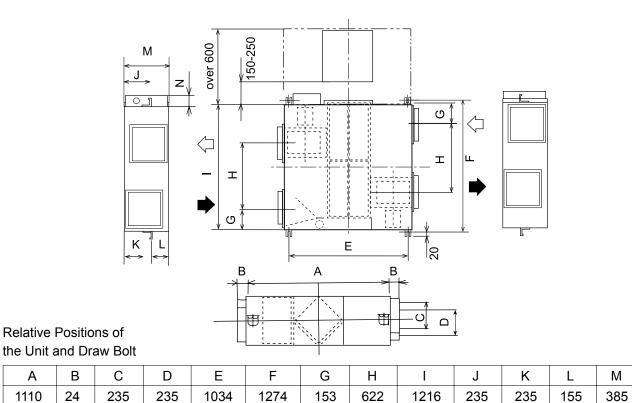
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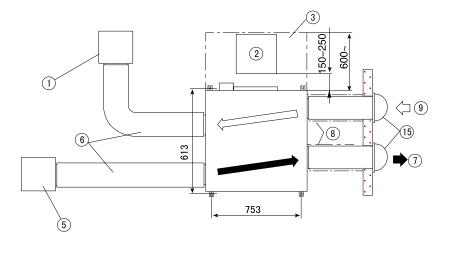
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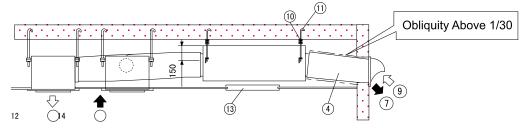
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Installation Diagram





- 1. Outlet Grille—Available on the Site
- 2. Service Lid (dia.450mm)
- 3. Service Space for Maintaining Heat Exchange Device, Air Screen, Control Box and Fan.
- 4. Air Hose (available on the site)
- 5. Inlet Grille (available on the site)
- 6. Air Hose or Bourdon Tube (available on the site)
- 7. EA (exhaust air)

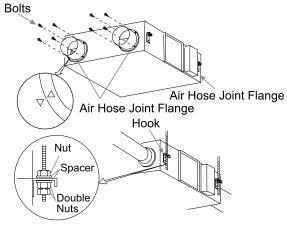
- 8. Heat Insulant-available on the site
- 9. OA (outdoor air: fresh outdoor air)
- 10. Suspending Rack to Reduce Vibration (available on the site)
- 11. Suspending Bolt (available on the site)
- 12. SA (sending air)
- 13. Service Lid (dia.450mm) (available on the site)
- 14. RA (return air)
- 15. Dome Shield (available on the site)

HRV

- <Air Hose Installation Tips>
- Silencing box and soft hose are recommended when installing the unit in noise sensitive places.
- Airflow volume and noise shall be considered for special places when choosing installing material.
- When outdoor air enters ceiling, the ceiling air temperature shall rise. Therefore, heat insulation shall be handled with the metal parts in the ceiling.

- 569 -





Installing air hose joint flange: fix four joint flanges with bolts.

Installing Heat Recovery Ventilation Device

Fix anchor bolts (M10-M12) in the first place, then, put metal suspending rack through anchor bolts and fix it with spacer and nut.

(Check against residual scraps of vinyl foam and paper inside fan chest; check air hose inside through hose holes.)

When installed aloft, inverted suspension of the unit is needed; please take care to fix the unit tight with long foot bolts.

Connecting air hose: when connecting air hose, remember: a. Do not connect air hose as shown by diagram on the right.

- Ex.1: Avoid over bending, e.g., bend angle above 90o.
- Ex.2: Avoid multiple bending.
- Ex.3: Avoid reduced hose diameter,
- E.g., reduced mid-section diameter prohibited.
- Ex.4: Avoid bending close to outlet.

b. Air Hose Minimum Bend Radius. Dia.100mm Hose: 100mm; Dia.150mm Hose: 150mm Dia.200mm Hose: 300mm; Dia.250mm Hose: 375mm

c. To prevent air leakage, joint section between flange and air hose shall be wrapped with aluminum foil.

- d. To prevent short circuit, indoor air inlet shall be installed as far away from air outlet as possible.
- e. Please choose air hoses with specs conforming to unit model.

f. Install two external air hoses with regular obliguity (not below 1/30) to prevent rain water from back-flowing. At the same time, heat insulant shall be available for all three air hoses (two outdoor and one indoor) lest condensed water ensues. (Insulant material: glass wool 25mm thick) (Refer to diagram on the right)

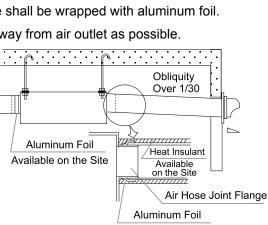
g. In case of constant high temperature and humidity in suspended ceiling, install ventilation device in ceiling.

h. Soft hose and wind softening hose can effectively reduce exhaust noises. Fan strength and operating noise shall be considered when choosing material. Distributors of products shall be entrusted to choose material.

i. Default distance between air outlet EA and air inlet OA shall be two times longer that hose diameter.

j. Do not use bent service lid or dome shield as external shield; otherwise, rain water will directly enter. (Deepened shield is recommended)

k. Make sure that air hose is at least 1 meter away from shield.



Ex.3

Ex.4

Available on the Site



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Installing Wire Control

Removing Top Cover
 Install PC plate on the top cover of wire control.
 Take care not to damage PC plate while removing top cover.

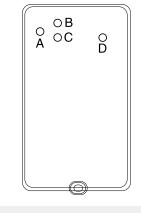
2. Indoor Unit Connection Connect terminals (A, B, C) on bottom of wire control to terminals (+12V, GND, s) on indoor PC panel.

While conducting connection, keep certain distance (over 10mm) between signal line and power line.

Wire Control Circuit Board

Size of Signal Line:

Туре	Shield Line (three cores)
Size	0.33mm ²

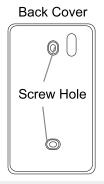


HRV

▲ CATUION

Make sure that terminal joints have been connected tight and no short circuit exists between terminals.

 Installing Wire Control
 Bore two holes on wall according to the positions of two screw holes on the back cover of wire control; fix back cover with bolts and close front cover.



Fix back cover on even wall surface, and do not apply too much force when screwing down bolts lest wire control is damaged.

4. Close top cover and take care not to press on wire.



Do not touch PCB panel with hands

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Health Testing Module: Definition & Installation Defining Health Testing Module

Health testing module, as an optional component of heat reclaim ventilation, matches heat reclaim ventilation to form health module.

Health testing module is available in two specification models, AS-C and AS-I, applied to indoor air quality testing and joint control of indoor air quality with heat reclaim ventilation. Carbon dioxide sensor is available with the AS-C model for precise testing of indoor CO2 concentration.

Installing Health Testing Module

1. Fixing secure health testing module.

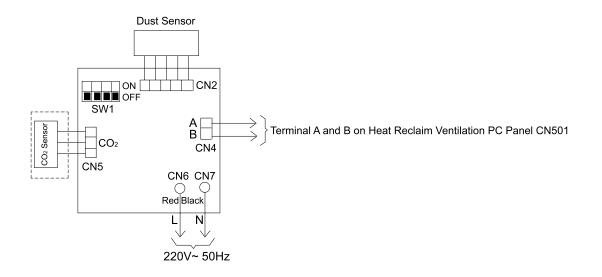
Note:

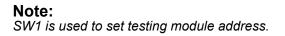
When fixing the module with open wire, wood panel 2-3mm thick shall be padded against shell back to prevent module shell from tilting as a result of wiring movements.

2. Connect the red and black lines on health testing module to power, red line to live wire and black line to null wire. Wire Gauge: $2 \times (0.75 - 1.5 \text{ mm}^2)$

3. CN4 terminal A and B is connected via signal line to CN501 terminal A and B on heat reclaim ventilation PC panel. 2×(0.75-1.5mm²) shield line is available as signal line.

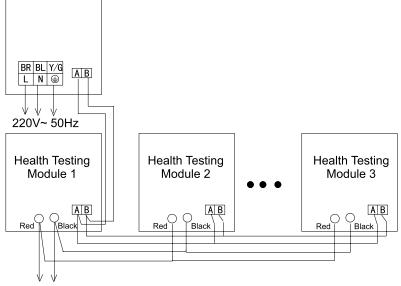
4. Health testing module circuit diagram as follows:







5. Health Testing Module Wiring Diagram



220V~ 50Hz

Note:

RS485 communication is available with heat reclaim ventilation and health testing module. One single heat reclaim ventilation can connect to multiple health testing modules, 8 at most. Every health testing module must have its address preset with 1 as the initial value.

Setting Health Testing Module PC Panel Address

PC panel has its address preset with quadbit dial codes. Dial codes are arranged on PC panel as shown in diagram below:

			ON
SW1-1	SW1-2	SW1-3	SW1-4
			OFF

Dial codes settings correspond to addresses as follows:

SW1-1	SW1-2	SW1-3	SW1-4	Setting Address
OFF	OFF	OFF	OFF	1
<u>ON</u>	OFF	OFF	OFF	2
OFF	<u>ON</u>	OFF	OFF	3
<u>ON</u>	<u>ON</u>	OFF	OFF	4
OFF	OFF	<u>ON</u>	OFF	5
<u>ON</u>	OFF	<u>ON</u>	OFF	6
OFF	<u>ON</u>	<u>ON</u>	OFF	7
<u>ON</u>	<u>ON</u>	<u>ON</u>	OFF	8

Set SW1-4 to OFF



Defining Electric Control System

Air Mode Switch: (delivered only through wire control matched with heat reclaim ventilation)

Airflow volume can switch between "high speed" mode and "low speed" mode, "high air change" mode and "low air change" mode.

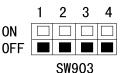
Switch to Outdoor Fresh Air Mode:

When the unit operates in "high speed" mode and "low speed" mode, air coming indoors and air coming outdoors have the same flow volume.

Air change mode is available in two scenarios as follow:

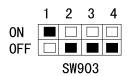
Air volume coming indoors greater that air volume coming outdoors: BC Band Did Code (SW003) Settings Shown as Below:

PC Panel Dial Code (SW903) Settings Shown as Below:



Unit operates in "high air change" mode or "low air change" mode and air volume coming indoors is greater than air volume coming outdoors. This mode prevents humidity or unpleasant smell from coming indoors out of lavatory or kitchen.

Air volume coming outdoors greater than air volume coming indoors: PC Panel Dial Code (SW903) Settings Shown as Below:



Unit operates in "high air change" mode or "low air change" mode, and air volume coming outdoors is greater than air volume coming indoors. This mode stops unusual smell or air-borne bacteria from coming to hall out of sickroom.

Defining Control System:

Control operating heat reclaim ventilation with wired controller.

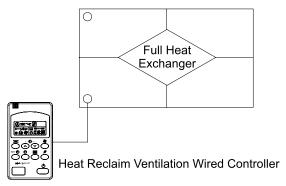
Operating status and parameter settings are displayed in wired controller.

Independent System:

Controlled independently through wired controller:

Users shall procure control cable (500m long at most).

For detailed operating instruction, refer to wired controller operation.





Power Connection Definition

- 1. Wiring Notice-----Shut off Power Prior to Whatever Job
- Circuit breaker capable of shutting power off the whole system shall be installed. Please make sure that earth connection is available.
- A switch and fuse shall be available for every single power line.
- Circuit or creepage breaker shall be available for whatever wiring job.
- Make sure that ground impedance does not exceed 100 ohms. When creepage breaker is available, ground impeder can be used to accommodate impedance over 500 ohms.
- Power line, connection line, air switch shall be prepared by users.
- Power line model: YZW power line; size must meet local criteria.
- Fuse Spec: 15A.
- Power lines of different specs shall not be connected to the same terminal. Overheating will ensue in case of loose terminal connection.
- Power lines of different specs shall not be connected to the same ground terminal. Protection will be impaired in case of loose connection.
- In case of multiple power connections, please use 2mm² power lines.
- Keep certain distance between power lines and other connection cables to prevent noise.
- For wiring method, refer to circuit diagram. Wiring notice: every cable shall be connected to its corresponding terminal according to its unique polarity, and shall have its sign matched up with terminal sign.
- 2. Open and Close Electrical Cabinet
- Before opening the cabinet cover, make sure that power connections to unit components are shut off.
- Unscrew bolts fixing the cover and open the cabinet.
- Fix power line with clamp and make sure that earth connection is available.
- Connect control and signal lines to corresponding terminal blocks.
- Please use shield wire as signal line.
- Upon completing wiring job, please mount the cabinet cover in good manner.



Failure Definition

1. Failures and Remedies

Check against following symptoms in case that unit does not run normal.

Symptoms	Causes	Remedies
	Power devices fail?	Restart after service
	Fuse burnt out or breaker cut off?	Replace fuse or reset breaker
Total breakdown	Standby indicator activated?	The unit is right in the prewarming or precooling process prior to running status (refer to Wire Control Button Definition).
Low air displacement and high noise level.	Filter or heat exchange components blocked?	Refer to "Maintenance"
High air displacement and high noise level.	Filter or heat exchange components installed in prescribed positions?	Refer to "Maintenance"

2. In case that any of the following failures occur, please take measures below in the first place and then contact concerned distributors.

When unusual conditions (e.g., burnt smell) happen to heat exchanger, please immediately shut off power and contact concerned distributors.

Under such conditions, continued operation may lead to failure, electric shock and fire accident.

When safety devices, such as fuse, breaker or creepage breaker, frequently jump off, or switch cannot work as usual, do not turn on power.

Remedy: Keep Power Off

When control buttons fail, turn off main power switch.

3. Heat Reclaim Ventilation Failure Codes: (indicated only on wired controller matched with heat reclaim ventilation) When failure codes below is indicated on wired controller, please immediately stop operation, shut off manual power switch and contact concerned distributors or contact after service staff.

Name	Code	Definition
Indoor Ambient Temperature Sensor Failure	E1	Indoor ambient temperature sensor fails
Outdoor Ambient Temperature Sensor Failure	E2	Outdoor ambient temperature sensor fails
Limit Switch 1 Failure	E3	Air door adjustor 1 or relevant parts fail
Wired Controller and PC Panel Communication Failure	E8	Communication connections improper or control
	EO	wire control, PC panel damaged

Service job shall be undertaken by specialists. In case of other failures, please stop operation and inform concerned distributors.

Debugging Prior to Operation:

Recheck after completing all installation work. While rechecking, refer to all installing notices in this manual. In case of any inconsistency, please make immediate correction. After normal operation is confirmed, the manual shall be kept carefully by users.

Before operating the unit, users shall carefully read the manual; when the unit is to be resold to other new users, please transfer novice and manual to new users to facilitate future service.

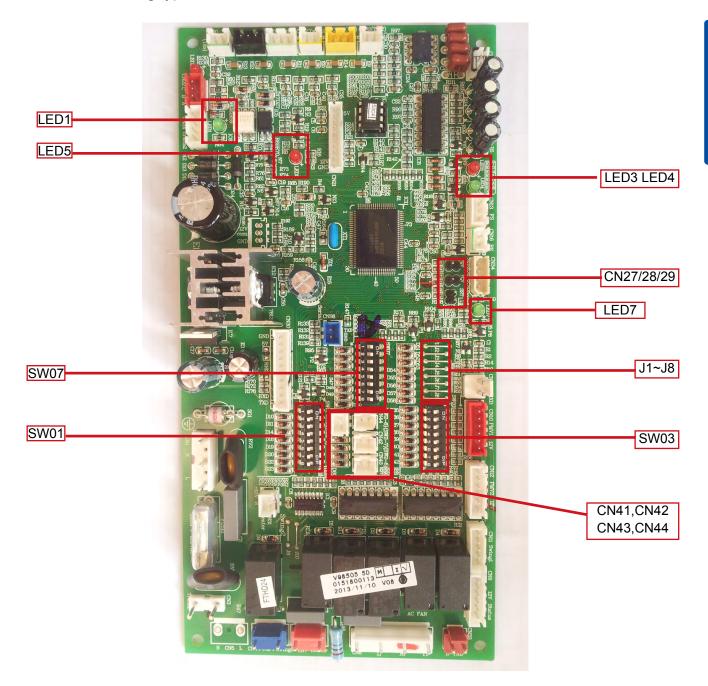


23. Dip Switch Setting

23.1 0151800113 PCB dip switch setting

Used for:

4-way cassette type indoor units: AB*MCERA Convertible type indoor units: AC*MCERA, AC*MFERA Low ESP duct type indoor units: AD*MLERA Med ESP duct type indoor units: AD*MMERA, AD*MZERA, AD*MNERA High ESP duct type indoor units: AD*MHERA Fresh air type indoor units: AD*MPERA Built-in floor standing type indoor units: AE*MLERA





• LED1, LED2: communication lamp between indoor unit and wired controller.

These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.

- LED3, LED4: communication lamp between indoor unit and outdoor unit. These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.
- LED5: malfunction lamp of indoor unit.
- This lamp not light under normal condition; once indoor unit occurs malfunction this lamp will flicker, flicker times indicate the corresponding failure code.
- LED7: forced-open lamp for indoor electronic expansion valve.

This lamp not light under normal condition; during adjusting the electronic expansion valve by hand this lamp will flicker.

Dip switch introduction

SW01 is used for indoor unit group control address setting and capacity selection. CN44, CN42, CN43 are used for indoor unit type selection. CN41 is used for address setting by wired controller. SW03 is used for indoor unit address setting (including physical address and central address). SW07 is used for running mode setting.

	[[4]	[0]	[3]	[4]	Wired control address
		[1]	[2]		[4]	
		OFF	OFF	OFF	OFF	Master unit in group control
SW01_1 SW01_2		OFF	OFF	OFF	<u>ON</u>	Slave unit 1 in group control
SW01_2 SW01_3	Wired control address	OFF	OFF	<u>ON</u>	OFF	Slave unit 2 in group control
SW01_4		OFF	OFF	<u>ON</u>	<u>ON</u>	Slave unit 3 in group control
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	Slave unit 15 in group control
		[5]	[6]	[7]	[8]	Indoor unit capacity
		OFF	OFF	OFF	OFF	0.6HP
		OFF	OFF	OFF	<u>ON</u>	0.8HP
		OFF	OFF	<u>ON</u>	OFF	1.0HP
		OFF	OFF	<u>ON</u>	<u>ON</u>	1.2HP
		OFF	<u>ON</u>	OFF	OFF	1.5HP
		OFF	<u>ON</u>	OFF	<u>ON</u>	1.7HP
SW01_5		OFF	<u>ON</u>	<u>ON</u>	OFF	2.0HP
SW01_6	Indoor unit capacity	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	2.5HP
SW01_8	oupuoity	<u>ON</u>	OFF	OFF	OFF	3.0HP
		<u>ON</u>	OFF	OFF	<u>ON</u>	3.2HP
		<u>ON</u>	OFF	<u>ON</u>	OFF	4.0HP
		<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	5.0HP
		<u>ON</u>	<u>ON</u>	OFF	OFF	6.0HP
		<u>ON</u>	<u>ON</u>	OFF	<u>ON</u>	8.0HP
		<u>ON</u>	<u>ON</u>	<u>ON</u>	OFF	10.0HP
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	15.0HP

(1) Description of SW01



Туре	Model	0.6HP	0.8HP	1.0HP	1.2HP	1.7HP	2.0HP	2.5HP	3.0HP	3.2HP	4HP	5HP	8HP	10HP
4-way cassette type	AB*MCERA AB*MCERA(C)	05	07	09	12	16	18	24	28	30	38	48		
	AC*MCERA			09	12	16	18	24						
Convertible type	AC*MFERA								28	30	38	48		
Low ESP duct type (0/20Pa)	AD*MLERA		07	09	12	16	18	24						
Med ESP duct type(50/96Pa)	AD*MMERA						18	24	28	30	38	48		
Med ESP duct	AD*MZERA						18	24	28					
type(80/120Pa)	AD*MNERA									30	38	48		
High ESP duct type (100/196Pa)	AD*MHERA						18	24	28	30	38	48	72	96
Built-in floor standing type	AE*MLERA		07	09	12	16	18	24						

(2) CN41,CN42,CN43,CN44 plug explanation

	Set address by wired controller	OFF	Allow the wired controller to set the indoor address, after restart, the indoor address need to reset								
CN41	or automatically (when SW03_1 is OFF)	<u>ON</u>		Allow the wired controller to set the indoor address, after restart, the indoor address which is set by wired control is same as before and needn't to reset							
		CN44	CN42	CN43	Indoor type						
		OFF	OFF	OFF	Normal indoor (default)						
		OFF	OFF	OFF ON Wall mounted							
CN42	la de en	OFF	<u>ON</u>	OFF	Fresh air unit						
CN43	Indoor type	OFF	<u>ON</u>	<u>ON</u>	OEM(HRV)						
CN44	iy po	<u>ON</u>	OFF	OFF	Convertible						
		<u>ON</u>	OFF	OFF ON Reserve (general indoor unit)							
	Reserve (general indoor unit)										
	Reserve (general indoor unit)										

Note:

• OFF: the plug is open circuit

• ON: the plug is short circuit

• Using wired controller modifying physical address or central control address, the other corresponding address can change automatically.



(3) Description of SW03

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication address	Central control address
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	OFF	0 (default)	0 (default)
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	1
	Set the communication	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
	and central										
SW03	control address by dip switch	<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
	(*Note 2)	<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
		<u> </u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u> </u>	<u>ON</u>	OFF	OFF	OFF	OFF	<u> </u>	OFF	2	66
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
		OFF								Set the address by or automatically (de	wired controller fault)

Note 2

- The address must be set by dip switch if central control is used.
- SW03-2=OFF, central control address = physical address +0
- SW03-2=ON, central control address=physical address +64
- The address must be set by dip switch if 0151800113 and 0010451181A or 0151800086 are used together.

(4) Description of SW07

		[1]	[2]	Tdiff correction valve in AUTO mode		
	- 1.00 1	OFF	OFF	Tdiff: 0		
SW07_1 SW07_2	Tdiff correction valve in AUTO mode	OFF	<u>ON</u>	Tdiff: 1		
		<u>ON</u>	OFF	Tdiff: 2		
		<u>ON</u>	<u>ON</u>	Tdiff: 3 (default)		
SW07 3	WIFI control mode	<u>0</u>	N	One by one (defaulted)		
3007_3	WIFI CONTOI MODE	OF	÷F	One by multi		
		[4]	[5]	Inlet air temp. Tai correction valve Tcomp2 (EEPROM)		
	In heating, inlet air temp. Tai correction	OFF OFF		Tai correction valve= 12°C		
SW07_4 SW07_5		OFF	<u>ON</u>	Tai correction valve= 5°C		
	valve Tcomp2	ON OFF		Tai correction valve= 8°C		
		<u>ON</u>	<u>ON</u>	Tai correction valve=3°C (default)		
SW07 6	Room card.	0	N	Room card is unavailable, HRV linkage is unavailable (default)		
SW07_6	OEM HRV linkage	OF	F	Room card is available, HRV linkage is available		
		[7]	[8]	Function		
	Operation mode	OFF	OFF	[FAN] [COOL] [DRY] [HEAT]		
SW07_7 SW07_8	changeover of wired controller	OFF	<u>ON</u>	[FAN] [COOL] [DRY]		
		<u>ON</u>	OFF	[FAN] [COOL] [DRY] [HEAT] [ELECTRIC-HEAT]		
		<u>ON</u>	<u>ON</u>	[AUTO] [FAN] [COOL] [DRY] [HEAT](default)		



Room card using method:

1. If the room card available: (the room card is priority)

Insert the room card, the unit on action, the unit can be controlled by remote controller or wired controller.

Take away the room card, the running unit will standby,, the unit can't be controlled by remote controller or wired controller.

2. If the room card unavailable:

Insert the room card, the unit open, the running mode is the last mode, the unit can be controlled by remote controller or wired controller.

Take away the room card, the running unit will standby, the unit can be controlled by remote controller or wired controller.

(5) Description of jump wire:SW08 (1:ON, 2:OFF)

J1	Fix air volume	<u>ON</u>	Normal mode (default)			
51		OFF	Air volume is fixed at high speed(for duct type)			
J2	Run at Mid speed when Hi	<u>ON</u>	Normal mode (default)			
JZ	Speed is selected in heating	OFF	Run at Mid speed when Hi Speed is selected in heating			
J3	Quiet running mode	<u>ON</u>	Normal mode (default)			
55		OFF Quiet running mode				
J4	This indoor has highest	<u>ON</u>	Normal mode (default)			
J4	⁹⁴ priority		This Indoor has highest priority			
J5	Indoor and outdoor 90 meters	<u>ON</u>	Normal mode (default)			
55	drop selection	OFF	High drop			
J6	Reserved	<u>ON</u>	Reserved			
	Indoor installation height		Normal mode (default)			
J7	selection	OFF	Above 2.7m, uses next higher fan speed(indoor fan speed improve 1 grade)			
J8	Dual heat source	<u>ON</u>	No dual heat source control (default)			
10		OFF	Dual heat source control (it doen't apply to oversea products)			

Note:

- Default position:
- SW01: Depend on unit capacity
- CN41, CN42, CN43: open circuit.
- CN44: Open circuit except of floor ceiling unit
- SW07: All ON

• J1-J8: All ON (connection status), cut the jump wire can change it to OFF.

(6) Jumper explanation

a) EEV operation manually (CN27, CN29)

CN27: short circuit CN27 2 seconds continuously, EEV is opened fully.

CN29: short circuit CN29 2 seconds continuously, EEV is closed fully.

b) time-short and self-check (CN28)

Short circuit CN28 2 seconds after power ON, process into time-short (factory use).

Short circuit CN28 before power ON, process into self-check (factory use).

Haier

Note: For fresh air (AD*MPERA) the 0151800113 PCB dip switch setting as follows

(1) Description of SW01

		[1]	[2]	[3]	[4]	Wired control address
		OFF	OFF	OFF	OFF	Master unit in group control
SW01_1		OFF	OFF	OFF	<u>ON</u>	Slave unit 1 in group control
SW01_2 SW01_3	Wired control address	OFF	OFF	<u>ON</u>	OFF	Slave unit 2 in group control
SW01_4		OFF	OFF	<u>ON</u>	<u>ON</u>	Slave unit 3 in group control
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	Slave unit 15 in group control
SW01 5		[5]	[6]	[7]	[8]	Indoor unit capacity
SW01_6	Indoor unit	OFF	OFF	OFF	OFF	5HP (AD482MPERA)
SW01_7 SW01_8	capacity	OFF	OFF	OFF	<u>ON</u>	8HP (AD722MPERA)
		OFF	OFF	<u>ON</u>	OFF	10HP (AD962MPERA)

(2) CN41,CN42,CN43,CN44 plug explanation

	Set address by wired controller				ed controller to set the indoor address, after restart, the indoor to reset			
CN41	or automatically (when SW03_1 is OFF)		Allow the wired controller to set the indoor address, after restart, the indoor address which is set by wired control is same as before and needn't to rese					
CN42	Indoor	CN44	CN42	CN43	Indoor type			
CN43 CN44	type	OFF	<u>ON</u>	OFF	Fresh air unit			

Note:

OFF: the plug is open circuit ON: the plug is short circuit

(3) Description of SW03

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication address	Central control address
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	OFF	0 (default)	0 (default)
	0.14	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	1
	Set the communication	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
	and central										
SW03	control address by dip switch	<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
	(*Note 2)	<u>ON</u>	<u> </u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	66
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
		OFF								Set the address by or automatically (de	

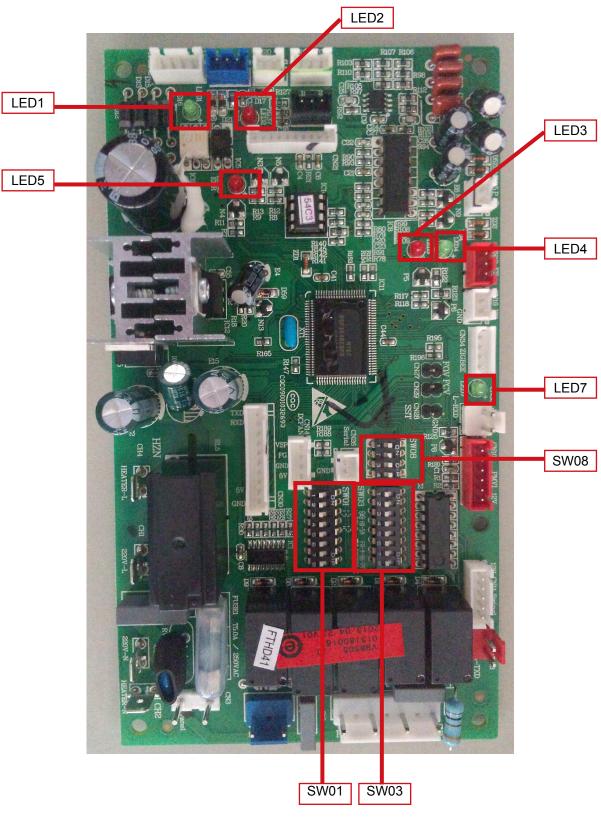
(4) SW07 are reserved functions, factory setting are all ON and cannot be changed at random.

(5) SW08 (J1-J8) are reserved functions, factory setting are all ON and cannot be changed at random.



23.2 0151800161 PCB dip switch setting

Used for slim low ESP duct type indoor units: AD*MSERA





• LED1, LED2: communication lamp between indoor unit and wired controller.

These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.

- LED3, LED4: communication lamp between indoor unit and outdoor unit. These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.
- LED5: malfunction lamp of indoor unit.
- This lamp not light under normal condition; once indoor unit occurs malfunction this lamp will flicker, flicker times indicate the corresponding failure code.
- LED7: forced-open lamp for indoor electronic expansion valve.
 This lamp not light under normal condition; during adjusting the electronic expansion valve by hand this lamp will flicker.

Dip switch introduction

SW01 is used to set capabilities of master and slave indoor units as well as indoor unit; SW03 is used to set indoor unit address (combine original communication address and address of centralized controller);

ON [fan] [cooling] [dehumidification] Operation mode displayed SW01 1 on wired controller OFF [auto] [fan] [cooling] [dehumidification] [heating] Address of wire controlled indoor unit (group [2] [3] [4] address) OFF OFF OFF 1# (wire controlled master unit) (default) OFF OFF <u>ON</u> 2# (wire controlled slave unit) SW01_2 OFF ON OFF 3# (wire controlled slave unit) Address of wire controlled SW01_3 OFF <u>ON</u> 4# (wire controlled slave unit) ON indoor unit (Note 1) SW01⁴ OFF OFF ON 5# (wire controlled slave unit) ON OFF <u>ON</u> 6# (wire controlled slave unit) <u>ON</u> <u>ON</u> OFF 7# (wire controlled slave unit) <u>ON</u> 8# (wire controlled slave unit) <u>ON</u> <u>ON</u> [8] Capability of indoor unit [5] [6] [7] OFF OFF OFF OFF 0.6HP(AD052MSERA) OFF OFF OFF ON 0.8HP(AD072MSERA) OFF OFF ON OFF 1.0HP(AD092MSERA) OFF OFF ON ON 1.2HP(AD122MSERA) OFF ON OFF OFF 1.5HP OFF ON OFF ON 1.7HP(AD162MSERA) SW01 5 OFF ON OFF 2.0HP(AD182MSERA) ON SW01_6 OFF 2.5HP(AD242MSERA) Capability of indoor unit ON <u>ON</u> <u>ON</u> SW01⁷ <u>ON</u> OFF OFF OFF 3.0HP SW01⁸ OFF OFF <u>ON</u> 3.2HP <u>ON</u> ON OFF ON OFF 4.0HP <u>ON</u> OFF <u>ON</u> <u>ON</u> 5.0HP <u>ON</u> OFF OFF 6.0HP <u>ON</u> OFF 8.0HP ON ON ON OFF 10.0HP ON ON ON ON ON ON ON 15.0HP

(1) Definition and description of SW01

Note 1: One wired controller can control Max. eight slim duct indoor units.



(2) Definition and description of SW03

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication address	Central control address
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	OFF	0 (default)	0 (default)
	0	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	1
	Set the communication	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
	and central										
SW03	control address by dip switch(note	<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
	2)	<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
	,	<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	66
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
		OFF								Set the address a	automatically (default)

Note 2:

• Set the address by dip switch when connecting the centralized controller or gateway or charge system.

• Central control address =communication address + 0 or +64.

• SW03_2=OFF, Central control address =communication address+0=communication address.

• SW03_2=ON, Central control address = communication address+64 (applies when

central controller is used and there are more than 64 indoor units).

• When the 0151800161 and 0010451181A PCB in one system, address must be set by dip switch. Set SW03_1=ON and SW03_2=OFF; SW03_3, SW03_4, SW03_5, SW03_6, SW03_7 and SW03_8 are address codes which are set according to actual address.

• Address setting function of wired controller for slim duct is unavailable.

(3) Definition and description of SW08

SW08 1	<u>ON</u>	One by one	WIFI control mode		
5000_1	OFF	One by multi	WIFI CONTOI MODE		
SW08_2	<u>ON</u>	Generally room card is disabled and there is no linkage control in the unit with total heat exchanger	Room card contact, total heat exchanger		
3000_2	OFF	Room card is enabled, there is linkage control in the unit with total heat exchanger	linkage		
SM00 2	<u>ON</u>	General (default)	Selection of indoor unit priority		
SW08_3	OFF	High priority			
SW08_4	<u>ON</u>	Ordinary unit	Isothermal dehumidification type indoor		
0FF		Isothermal dehumidification unit	units selection		

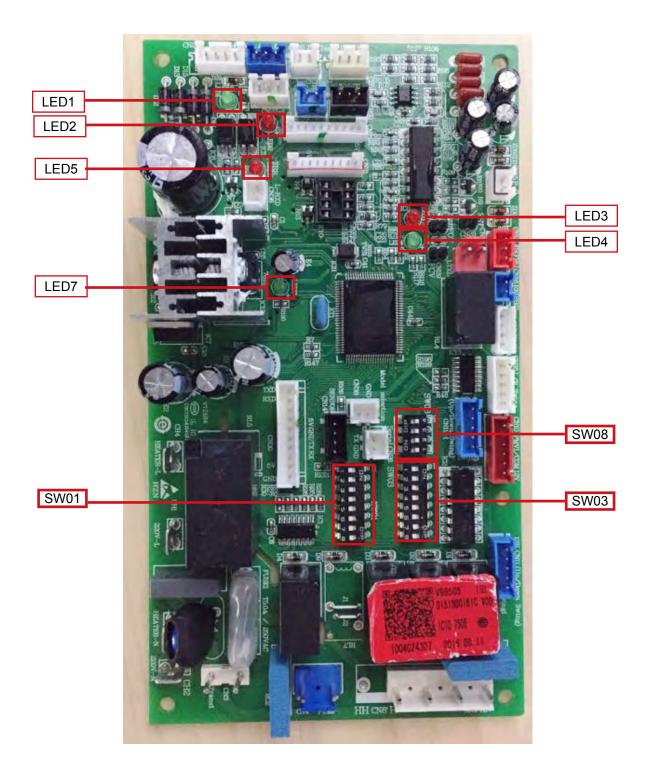


23.3 0151800161C PCB dip switch setting

Used for

Med ESP duct type indoor units: AD*MJERA

Slim low ESP duct type indoor units: AD*MSERA(0151800161C replace 0151800161 PCB)





- LED1, LED2: communication lamp between indoor unit and wired controller.
- These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.
- LED3, LED4: communication lamp between indoor unit and outdoor unit. These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.
- LED5: malfunction lamp of indoor unit. This lamp not light under normal condition; once indoor unit occurs malfunction this lamp will flicker, flicker times indicate the corresponding failure code.
- LED7: forced-open lamp for indoor electronic expansion valve. This lamp not light under normal condition; during adjusting the electronic expansion valve by hand this lamp will flicker.

Dip switch introduction:

SW01

		[1]	[2]	[3]	[4]	Wired control address
SW01_1		OFF	OFF	OFF	OFF	1# (wired control master unit) (default)
SW01_2	Wired control	OFF	OFF	OFF	<u>ON</u>	2# (wired control slave unit)
SW01_3	address	OFF	OFF	<u>ON</u>	OFF	3# (wired control slave unit)
SW01_4						
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	16# (wired control slave unit)
		[5]	[6]	[7]	[8]	Capacity of indoor unit
		OFF	OFF	OFF	OFF	0.6HP(AD052MJERA, AD052MSERA)
		OFF	OFF	OFF	<u>ON</u>	0.8HP(AD072MJERA, AD072MSERA)
SW01_5	Conceity of	OFF	OFF	<u>ON</u>	OFF	1.0HP(AD092MJERA, AD092MSERA)
SW01_6 SW01_7	Capacity of indoor unit	OFF	OFF	<u>ON</u>	<u>ON</u>	1.2HP(AD122MJERA, AD122MSERA)
SW01_7		OFF	<u>ON</u>	OFF	<u>ON</u>	1.7HP(AD162MJERA, AD162MSERA)
0001_0		OFF	<u>ON</u>	<u>ON</u>	OFF	2.0HP(AD182MJERA, AD182MSERA)
		OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	2.5HP(AD242MJERA, AD242MSERA)
		<u>ON</u>	OFF	OFF	OFF	3.0HP(AD282MJERA, AD282MSERA)



SW03 is used to set indoor unit address

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication	Central control
		[1]	[2]	[J]	[4]	[J]	[0]	[']	႞၀]	address	address
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	OFF	0(default)	0(default)
	Set the	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	1
	communication	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
	and central										
SW03		<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
30003	control address	<u>ON</u>	<u> </u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
	by dip switch	<u>ON</u>	<u> </u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	66
		<u>ON</u>	<u> </u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
		OFF								Set the addres	s automatically
		UFF								(defa	ault)

SW08

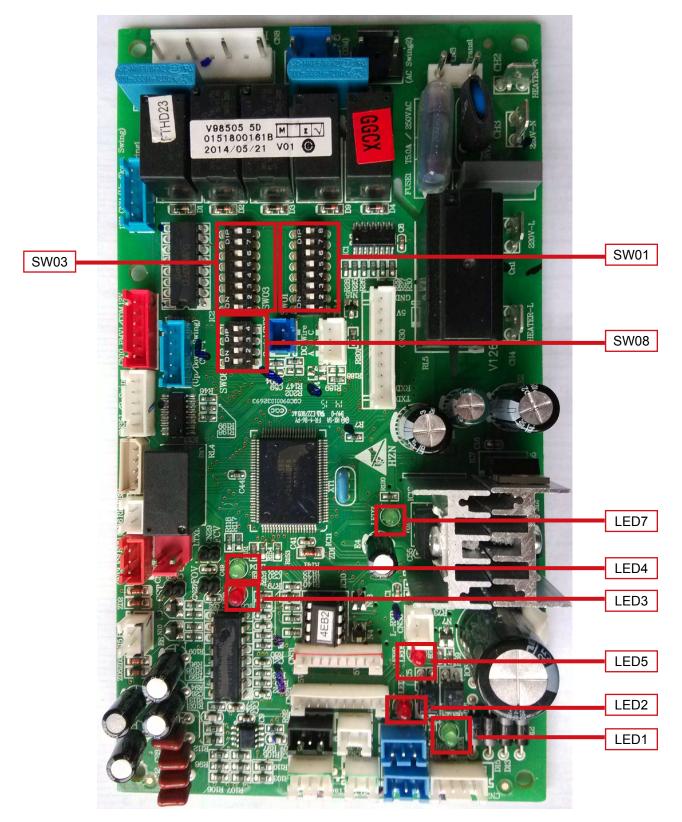
SW08 1	WIFI control mode	<u>ON</u>	One by one (default)
3000_1		OFF	One by multi
SW08 2	Room card	<u>ON</u>	Room card is unavailable (default)
3000_2	Room card	OFF	Room card is available
SW08 3	Dual heat source	<u>ON</u>	No dual heat source control (default)
3000_3		OFF	Dual heat source control
SW08 4	Operation mode displayed on	<u>ON</u>	[auto] [fan] [cooling] [dehumidification] [heating]
3000_4	wired controller	OFF	[fan] [cooling] [dehumidification]

-



23.4 0151800161B PCB dip switch setting

Used for 2-way cassette type indoor units: AB*MBERA 0151800161B replaces the 0010451181A PCB)





- LED1, LED2: communication lamp between indoor unit and wired controller. These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.
- LED3, LED4: communication lamp between indoor unit and outdoor unit. These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.
- LED5: malfunction lamp of indoor unit. This lamp not light under normal condition; once indoor unit occurs malfunction this lamp will flicker, flicker times indicate the corresponding failure code.
- LED7: forced-open lamp for indoor electronic expansion valve.

This lamp not light under normal condition; during adjusting the electronic expansion valve by hand this lamp will flicker.

Dip switch introduction (1) Description of SW01

SW01-1	Mode selection		(OFF		[AUTO][FAN][COOL][DEHUMIDIFY][HEAT]
3001-1				<u>ON</u>		[FAN] [COOL] [DEHUMIDIFY]
		C	DFF	OFF	OFF	0# master unit (default)
		0	DFF	OFF	<u>ON</u>	1# slave unit
			DFF	<u>ON</u>	OFF	2# slave unit
SW01-2~	Wired control		DFF	<u>ON</u>	<u>ON</u>	3# slave unit
SW01-4	address		<u>ON</u>	OFF	OFF	4# slave unit
		9	<u>ON</u>	OFF	<u>ON</u>	5# slave unit
		<u>ON</u>		<u>ON</u>	OFF	6# slave unit
		<u>(</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	7# slave unit
		OFF	OFF	OFF	<u>ON</u>	0.8HP (AB072MBERA)
		OFF	OFF	<u>ON</u>	OFF	1.0HP (AB092MBERA)
SW01-5~ SW01-8	Indoor unit capacity	OFF	OFF	<u>ON</u>	<u>ON</u>	1.2HP (AB122MBERA)
		OFF	<u>ON</u>	OFF	<u>ON</u>	1.7HP (AB162MBERA)
		OFF	<u>ON</u>	<u>ON</u>	OFF	2.0HP (AB182MBERA)



(2) Description of SW03

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication address	Central control address
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	OFF	0 (default)	0 (default)
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	ON	1	1
	Set the	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
	communication and central										
SW03	control address	<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
	by dip switch	<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	66
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u> </u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
		OFF								Set the address at	utomatically (default)

(3) Description of SW08

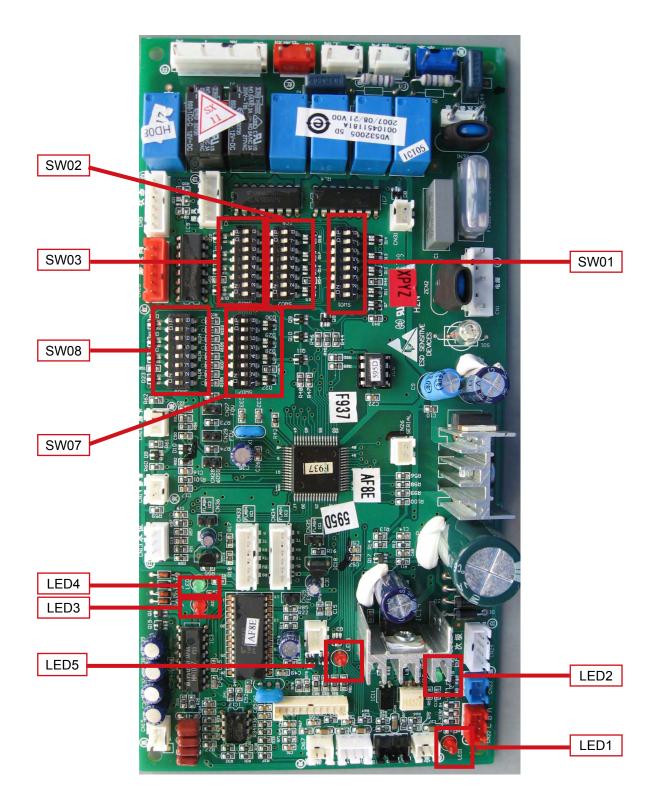
SW08-1	WIFI mode selection	OFF	One by multi
3000-1		<u>ON</u>	One by one
SW08-2	Domo oord	OFF	Available
5000-2	Rome card	<u>ON</u>	Unavailable (default)
SW08-3	Reserved	<u>ON</u>	Default
SW08-4	Reserved	<u>ON</u>	Default

-



23.5 0010451181A PCB dip switch setting

Used for old 2-way cassette type indoor units: AB*MBERA





- LED1, LED2: communication lamp between indoor unit and wired controller.
- These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.
- LED3, LED4: communication lamp between indoor unit and outdoor unit. These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.
- LED5: malfunction lamp of indoor unit.

This lamp not light under normal condition; once indoor unit occurs malfunction this lamp will flicker, flicker times indicate the corresponding failure code.

Dip switch introduction

(1) Indoor address setting when in group control by wired controller: SW01

			SW	/01				Description
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Description
OFF	OFF	OFF	OFF					Wired controller address=1
OFF	OFF	OFF	<u>ON</u>					Wired controller address=2
<u>ON</u>	<u>ON</u>	OFF	<u>ON</u>					Wired controller address=15
<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>					Wired controller address=16
				OFF	OFF	OFF	OFF	Indoor horse power=0.6HP
				OFF	OFF	OFF	<u>ON</u>	Indoor horse power=0.8HP (AB072MBERA)
				OFF	OFF	<u>ON</u>	OFF	Indoor horse power=1.0HP (AB092MBERA)
				OFF	OFF	<u>ON</u>	<u>ON</u>	Indoor horse power=1.2HP(AB122MBERA)
				OFF	<u>ON</u>	OFF	OFF	Indoor horse power=1.5HP
				OFF	<u>ON</u>	OFF	<u>ON</u>	Indoor horse power=1.7HP (AB162MBERA)
				OFF	<u>ON</u>	<u>ON</u>	OFF	Indoor horse power=2.0HP (AB182MBERA)
				OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	Indoor horse power=2.5HP
				<u>ON</u>	OFF	OFF	OFF	Indoor horse power=3.0HP
				<u>ON</u>	OFF	OFF	<u>ON</u>	Indoor horse power=3.2HP
				<u>ON</u>	OFF	<u>ON</u>	OFF	Indoor horse power=4.0HP
				<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	Indoor horse power=5.0HP
				<u>ON</u>	<u>ON</u>	OFF	OFF	Indoor horse power=6.0HP
				<u>ON</u>	<u>ON</u>	OFF	<u>ON</u>	Indoor horse power=8.0HP
				<u>ON</u>	<u>ON</u>	<u>ON</u>	OFF	Indoor horse power=10.0HP
				<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	Indoor horse power=15.0HP

(2) Indoor address setting when in central control by central controller: SW02 (only on the master unit).

			SM	/02		Description		
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Description
	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Central control address=0
	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	Central control address=1
	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	OFF	Central control address=26
	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	Central control address=27
OFF								Set central control address by wired controller
<u>ON</u>								Forbidden to set address by wired controller



(3) Indoor communication address

	SW03						Indoor communication address	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	
<u>ON</u>		OFF	OFF	OFF	OFF	OFF	OFF	0
<u>ON</u>		OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1
<u>ON</u>								
<u>ON</u>		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	OFF	62
<u>ON</u>		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63
	OFF							Set central control address by wired controller
	<u>ON</u>							Forbidden to set address by wired controller
OFF								Set address automatically

There are three kinds of address setting method for indoor units: automatically address setting, manual address setting, and wired controller setting. Any one of them can set the address and wired controller setting type has the highest priority.

(4) TA correction value in AUTO mode and Tdif: SW07-1 SW07-2 (written in EEPROM) When out of factory, SW05 has been set and cannot be changed at random.

SW07-1	Function
<u>ON</u>	TA correction value is available in AUTO mode
OFF	TA correction value is unavailable in AUTO mode
SW07-2	Function
<u>ON</u>	Tdif =3℃
OFF	Tdif =2℃

Note:

• Mode changeover condition: when TA<set temp.-1-Tdif, running mode is HEAT; when TA ≥ set temp.+TA correction value+1+Tdif, running mode is COOL

(5) Indoor temp. sensor selection:SW07-3

SW07-3	Function
OFF	Indoor ambient temp. and heating set temp. correction value be controlled simultaneously
<u>ON</u>	Indoor ambient temp. and heating set temp. correction value be controlled individually

Note:

• "Indoor ambient temp. and heating set temp. correction value be controlled simultaneously" is that when in group control (wired controller: 1 to x), the indoor ambient temp. and heating set temp. correction value of slave unit are as the same as that of the master unit; "indoor ambient temp. and heating set temp. correction value is controlled individually" is that the two values of slave unit and master unit are controlled by the individual indoor unit.

(6) Inlet air temp. TA correction value: (SW07-4,SW07-5, be written in EEPROM)

When out of factory, SW05 has been set and cannot be changed at random.

SW07-5	SW07-4	Function
OFF	OFF	TA correction value=12℃
OFF	<u>ON</u>	TA correction value=8°C
ON	OFF	TA correction value=4°C
<u>ON</u>	<u>ON</u>	TA correction value=0°C



(7) Filter cleaning time selection:SW07-6

SW07-6	Function
<u>ON</u>	2500 hrs
OFF	120 hrs

(8) Operation mode changeover of wired controller (SW07-7, SW07-8)

SW07-8	SW07-7	Function
OFF	OFF	[AUTO] [FAN] [COOL] [DRY] [HEAT]
OFF	<u>ON</u>	[FAN] [COOL] [DRY] [HEAT] [ELECTRIC HEAT]
<u>ON</u>	OFF	[FAN] [COOL] [DRY]
<u>ON</u>	<u>ON</u>	[FAN] [COOL] [DRY] [HEAT]

(9) Air volume: SW08-1

SW08-1	Function
<u>ON</u>	Normal operation
OFF	Air volume is fixed (for duct unit)

(10) In heating, fan speed selection:SW08-2

SW08-2	Function
ON	Normal operation
OFF	Run at mid. speed when in heating high speed
· · · · · · · · · · · · · · · · · · ·	

(11) 26°C lock function (SW08 3): in heating mode, though set temp. exceeds 20°C, count as 20°C; in cooling mode, though set temp. is below 26°C, count as 26°C.

SW08-3	Function
ON	Normal mode
OFF	26 ^o C lock is available

(12) Indoor priority selection (SW08-4)

SW08-4	Function
<u>ON</u>	Normal mode
OFF	Indoor priority is higher

(13) Room card function selection (SW08-5)

SW08-5	Function
<u>ON</u>	Room card is available
OFF	Room card is unavailable

(14) Wired control/remote control selection: SW08-6

SW08-6	Function
ON	Wired control type
OFF	Remote control type



	(15) l	ndoor	installation	height s	selection	(SW08-7)
ł	(10) "	10001	matanation	noight a	Sciection	(01100-7)

SW08-7	Function
<u>ON</u>	normal mode
OFF	When height is over 2.7m, indoor motor speed will be increased one class: in low speed, unit will run at med speed; in med speed, unit will run at high speed; in high speed, unit will run at high speed (not increased)

(16) For twin energy source or not be used (SW08-8)

SW08-8 Function									
ON	TES is not available								
OFF	TES is available								

(17) EEV open angle setting manually (CN27, CN29) When being electrified, short connect CN27, EEV will open fully for 2 minutes; short connect CN29, EEV will open fully for 2 minutes.

(18) Time shorting input (CN28)

	Function
OFF	Normal
ON	 Short connected after being electrified, enter time shorting function Short connected when being electrified and reset, enter auto check function

(19) Float switch input

	Function
<u>ON</u>	Normal
OFF	Float switch is close (full of water)

(20) Room card input

	Function				
<u>ON</u>	Room card is disconnected				
OFF	Room card is connected				

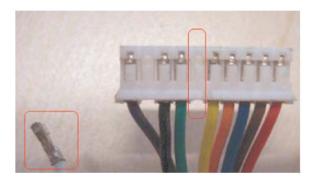


Indoor control type selection (only for 0010451181A PCB)

Indoor PCB	Wired control master unit	Wired control slave unit	Remote control	Remarks			
CN23	Short connected	Disconnected	Disconnected				
CN30	Short connected	Short connected	Disconnected	1. The communication address between master/slave wired controller and the outdoor is			
CN21	Blank	Blank	To remote receiver				
SW08-[6]	ON	ON	OFF	different. 2. If central control is necessary, all indoor central control addresses in one group are identical, while the indoor address in different groups is			
SW01-1 2 3 4	"0"	1-15 (different dialing setting on SW01 for the slave units in one group	"0"				
Signal terminal block	A, B, C to wired controller	B, C to wired controller	A, B, C not to wired controller				

Note:

- 1. In the above figure, the state in the frame is set when out of factory.
- 2. The indoor controlled by master/slave wired controller and the indoor controlled by individual wired controller are all wired controlled master indoor.
- 3. The remote receiver is equipped with a multi-wire which can be inserted in CN21.
- 4. For the indoor unit controlled by wired controller, if indoor unit is with the remote receiver, MU5T pull out the white wire from the remote receiver connector.

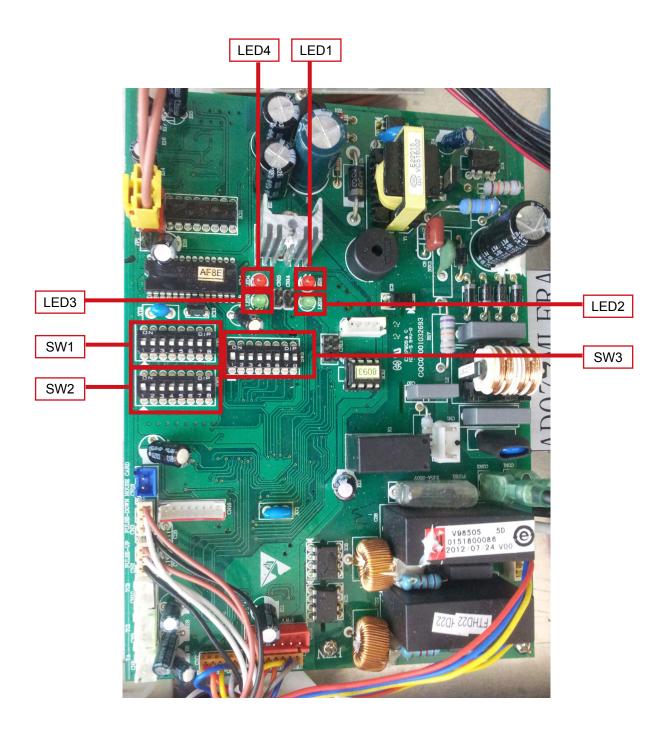


- 5. Correct procedure to shut off the unit: switch off the unit by the controller, then cut off the power source. FORBIDDEN to cut off the power directly!
- 6. All the indoor EEVs are at open state which are set out of factory.



23.6 0151800086 PCB dip switch setting

Used for console type indoor units: AF*MAERA





• LED1: malfunction lamp of indoor unit.

This lamp not light under normal condition; once indoor unit occurs malfunction this lamp will flicker, flicker times indicate the corresponding failure code.

• LED2: 807 chip communication lamp.

It will flicker under normal condition; once occurs the communication faulty, it is not light.

• LED3, LED4: communication lamp between indoor unit and outdoor unit.

These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.

Dip switch introduction

(1) The central control address setting of indoor units: SW2 The setting of SW2 can be done by installation personnel during installation.

			SV	V2			Switching Description		
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]		
<u>ON</u>					OFF	OFF	Central control address = 0		
<u>ON</u>	N OFF OFF OFF OFF OFF OFF <u>ON</u>		Central control address = 1						
<u>ON</u>	<u>NONONIONIONIONION</u> OFF		Central control address = 126						
<u>ON</u>	<u>N ON ON ON ON ON ON ON</u>		<u>ON</u>	Central control address = 127					
OFF	OFF						Set the control address automatically		

(2) Indoor units number and function setting: SW3 The setting of SW3 can be done by installation personnel during installation.

			SV	V3			Switching Description			
[1]	[2] [3] [4] [5] [6] [7] [8]		[8]							
<u>ON</u>	ON OFF OFF OFF OFF OFF OFF		OFF	Communication address of indoor units = 0						
<u>ON</u>	<u>ON</u> OFF OFF OFF OFF OFF <u>ON</u>		<u>ON</u>	Communication address of indoor units = 1						
<u>ON</u>		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	OFF	Communication address of indoor units = 62		
<u>ON</u>	<u>DN ON ON ON ON ON ON</u>		<u>ON</u>	Communication address of indoor units = 63						
	OFF	FF F			Reserved					
OFF	DFF F			Indoor address setting automatically						

(3) Other function setting: SW1

	SV	V1		Switching Description
[1]	[2]	[3]	[4]	
OFF	OFF			0.8HP (AF05/072MAERA)
OFF	OFF ON ON OFF			1.0HP (AF092MAERA)
<u>ON</u>				1.2HP (AF122MAERA)
<u>ON</u>	<u>ON</u>			1.5HP (AF182MAERA)
		OFF		Room card invalid
		<u>ON</u>		Room card valid
	OFF		OFF	26 °C lock function invalid
			<u>ON</u>	26 $^\circ C$ lock function valid

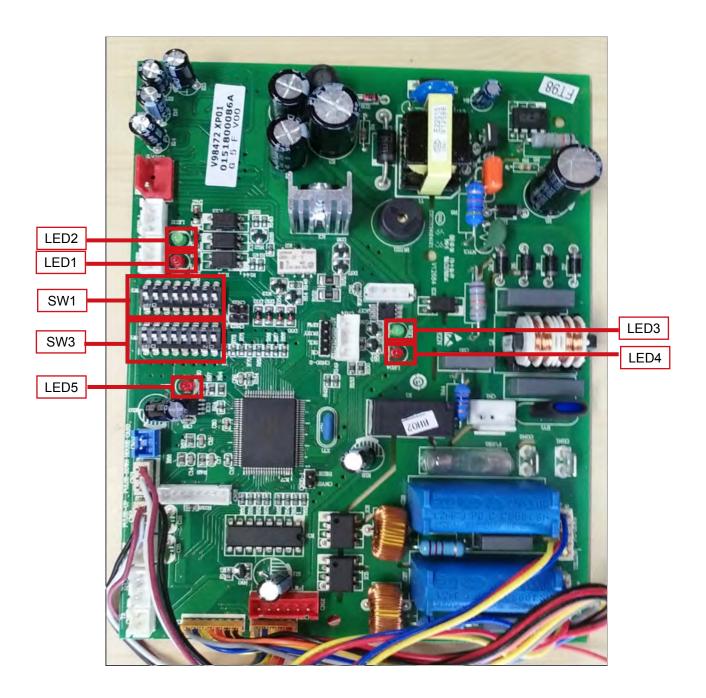
Note:

• SW01-5~SW01-8 are reserved, default all OFF



23.7 0151800086A PCB dip switch setting

Used for console type indoor units: AF*MAERA (0151800086A replace 0151800086 PCB) The unit with 0151800086A PCB can connect with MRVIII-RC outdoor unit, also can connect with wired controller





• LED1, LED2: communication lamp between indoor unit and wired controller.

These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.

- LED3, LED4: communication lamp between indoor unit and outdoor unit. These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.
- LED5: malfunction lamp of indoor unit.

This lamp not light under normal condition; once indoor unit occurs malfunction this lamp will flicker, flicker times indicate the corresponding failure code.

		[1]	[2]	[3]	[4]	Wired control address
		OFF	OFF	OFF	OFF	Master unit in group control
	Wired	OFF	OFF	OFF	<u>ON</u>	Slave unit 1 in group control
SW1-1 SW1-2 SW1-3 SW1-4	control	OFF	OFF	<u>ON</u>	OFF	Slave unit 2 in group control
	address	OFF	OFF	<u>ON</u>	<u>ON</u>	Slave unit 3 in group control
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	Slave unit 15 in group control
		[5]	[6]	[7]	[8]	Indoor unit capacity
		OFF	OFF	OFF	OFF	0.6HP (AF052MAERA)
SW1-5 SW1-6	Indoor	OFF	OFF	OFF	<u>ON</u>	0.8HP (AF072MAERA)
SW1-7 SW1-8	unit capacity	OFF	OFF	<u>ON</u>	OFF	1.0HP (AF092MAERA)
		OFF	OFF	<u>ON</u>	<u>ON</u>	1.2HP (AF122MAERA)
		OFF	<u>ON</u>	<u>ON</u>	OFF	2HP (AF182MAERA)

SW1 is used for setting indoor model and wired control address

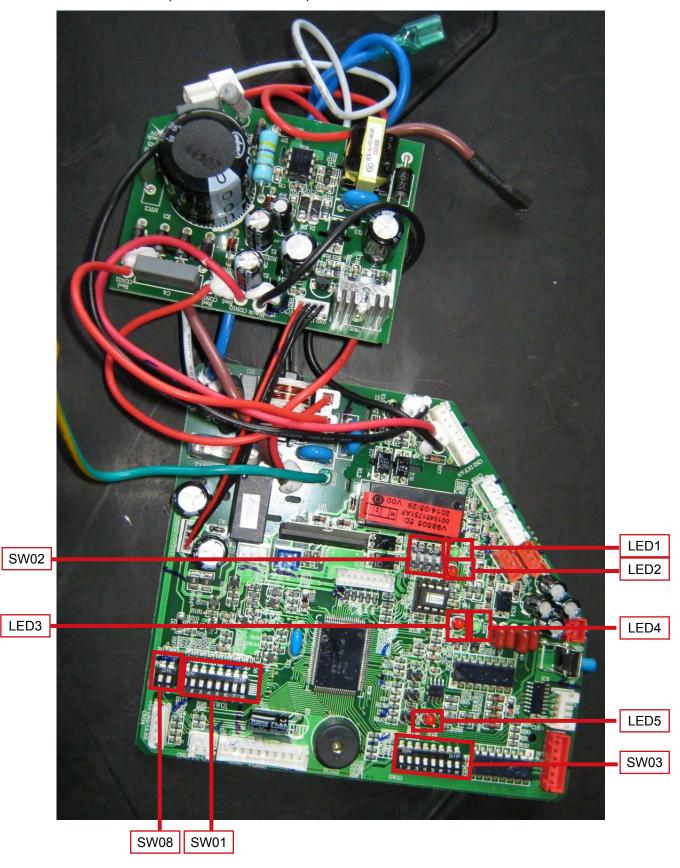
SW3 is used for setting indoor communication address and central control address

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication address	Central control address
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	OFF	0	0
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	1
	Set the indoor	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
	communication address and										
SW3	central control	<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
5005	address by dip	<u> </u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
	switch	<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	66
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
		OFF								Set the address by wired controller automatically (default)	



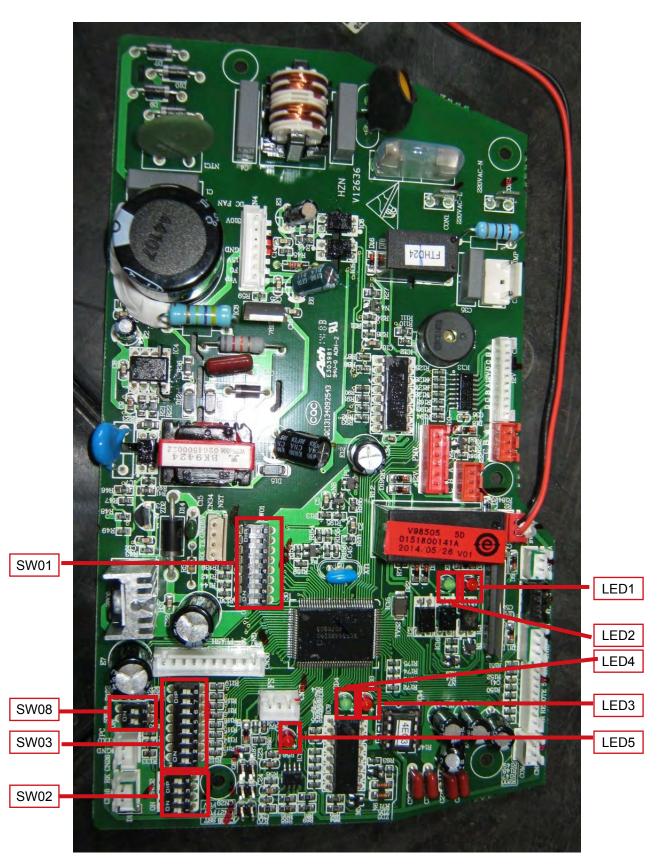
23.8 0010451751AF and 0151800141A PCB dip switch setting

Used for high wall type indoor units: AS*MGERA (wired controller is available) A: 0010451751AF PCB (AS07~162MGERA)





B: 0151800141A PCB picture (AS18/242MGERA)





• LED1, LED2: communication lamp between indoor unit and wired controller.

These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.

- LED3, LED4: communication lamp between indoor unit and outdoor unit. These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.
- LED5: malfunction lamp of indoor unit.

This lamp not light under normal condition; once indoor unit occurs malfunction this lamp will flicker, flicker times indicate the corresponding failure code.

Dip switch introduction

(1) SW01: function selection, WIFI mode control choice, passive element setting and indoor capacity setting.

SW01_1	Wired controller setting address	OFF				Default: Allow the wired controller setting address. If power again, the address conflicts can be automatically set.
		<u>ON</u>				Wired controller is forced to set fixed address. Do not set automatically.
SW01_2	Function selection	OFF				[AUTO] [HEAT] [DRY] [COOL] [FAN]
		<u>ON</u>				[DRY] [COOL] [FAN]
SW01_3	WIFI control mode	<u>ON</u>				One by one
		OFF				One by multi
SW01_4	Passive element setting	OFF				Passive element null
		<u>ON</u>				Passive element valid
SW01_5 SW01_6 SW01_7 SW01_8	Indoor capacity setting	[5]	[6]	[7]	[8]	Indoor capacity setting
		OFF	OFF	OFF	OFF	0.6HP
		OFF	OFF	OFF	<u>ON</u>	0.8HP (AS072MGERA)
		OFF	OFF	<u>ON</u>	OFF	1.0HP (AS092MGERA)
		OFF	OFF	<u>ON</u>	<u>ON</u>	1.2HP (AS122MGERA)
		OFF	<u>ON</u>	OFF	OFF	1.5HP
		OFF	<u>ON</u>	OFF	<u>ON</u>	1.7HP (AS162MGERA)
		OFF	<u>ON</u>	<u>ON</u>	OFF	2.0HP (AS182MGERA)
		OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	2.5HP (AS242MGERA)
		<u>ON</u>	OFF	OFF	OFF	3.0HP
		<u>ON</u>	OFF	OFF	<u>ON</u>	3.2HP
		<u>ON</u>	OFF	<u>ON</u>	OFF	4.0HP
		<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	5.0HP
		<u>ON</u>	<u>ON</u>	OFF	OFF	6.0HP
		<u>ON</u>	<u>ON</u>	OFF	<u>ON</u>	8.0HP
		<u>ON</u>	<u>ON</u>	<u>ON</u>	OFF	10.0HP
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	15.0HP



(2) SW02 dip switch definition

		[1]	[2]	[3]	[4]	Wired controller indoor address (group address)
		OFF	OFF	OFF	OFF	0# (wired controller master) (default)
SW02_1	Wired controller	OFF	OFF	OFF	<u>ON</u>	1# (wired controller slave)
SW02_2 SW02_3	address (group address)	OFF	OFF	<u>ON</u>	OFF	2# (wired controller slave)
SW02_4	2001033)	OFF	OFF	<u>ON</u>	<u>ON</u>	3# (wired controller slave)
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	15# (wired controller slave)

(3) SW08 dip switch definition: temperature compensation selection and quiet function selection

SW08 1	Temperature compensation	OFF	Temperature compensation 3 select (heating) (default)
3000_1	svoo_1 selection	<u>ON</u>	Temperature compensation 3 cancel (heating)
SW08 2	Quiet function selection	OFF	Quiet function valid
3000_2		<u>ON</u>	Quiet function null (default)

(4) SW03 dip switch definition: communication address setting between indoor and outdoor

	Set the communication and central	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication address	Central control address
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	OFF	0 (default)	0 (default)
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	1
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
SW03	control address	<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
	by dip switch	<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	ON	OFF	2	66
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
		OFF									by wired controller or matically

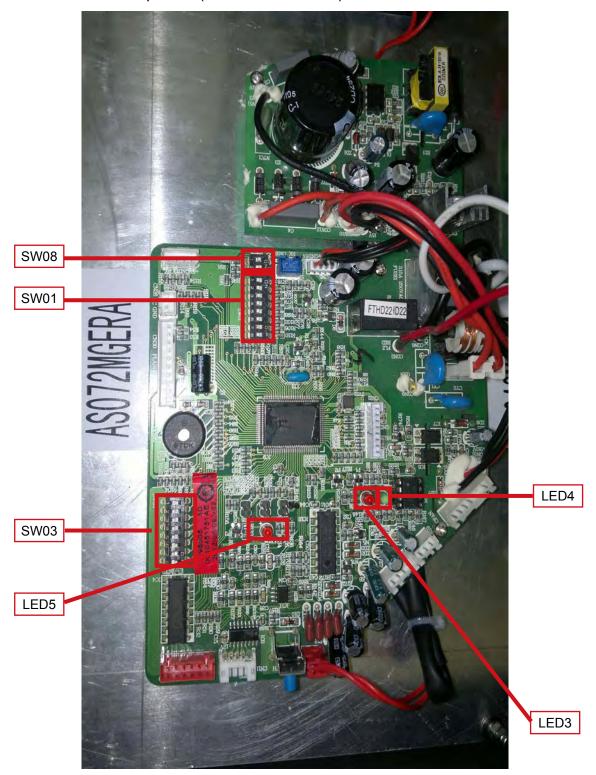
Note:

• When connecting central controller, gateway or counting system, set address by dip switch.



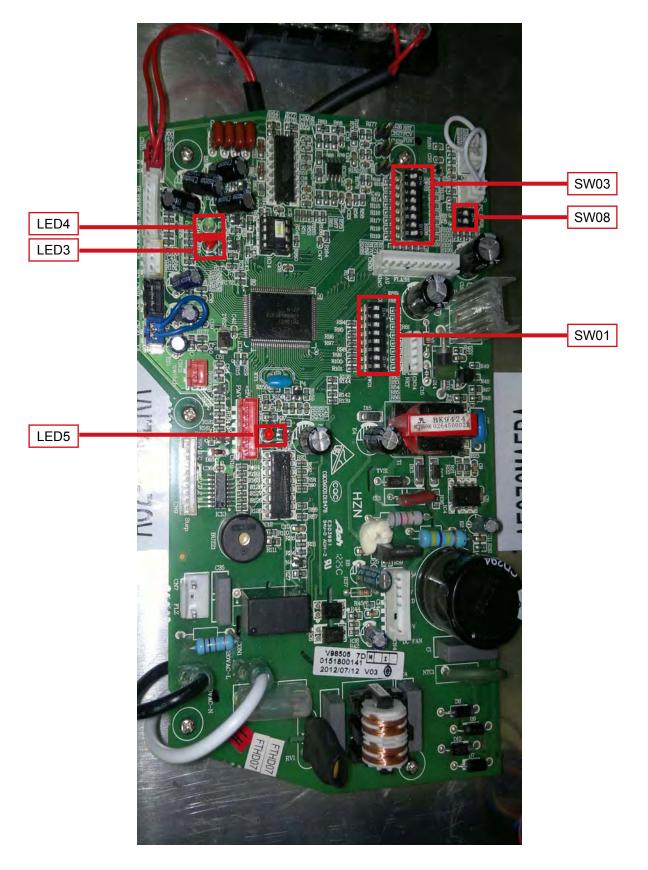
23.9 0010451751AE and 0151800141 PCB dip switch setting

Used for high wall type indoor units: AS*MGERA (wired controller is unavailable) A. 0010451751AE PCB picture (AS07~162MGERA)





B. 0151800141 PCB picture (AS18/242MGERA)





LED light introduction:

• LED3, LED4: communication lamp between indoor unit and outdoor unit.

These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.

• LED5: malfunction lamp of indoor unit.

This lamp not light under normal condition; once indoor unit occurs malfunction this lamp will flicker, flicker times indicate the corresponding failure code.

Dip switch introduction (1) SW01 definition: SW01: function selection, WIFI control setting, room card setting and indoor capacity setting.

SW01_1	Pre-set			Pre-	set	Pre-set		
SW01 2	Function selection			OF	F	[AUTO] [HEAT] [DRY] [COOL] [FAN]		
3001_2				<u>10</u>	<u>N</u>	[DRY] [COOL] [FAN]		
SW/01 3	WIFI control mode			OF	F	One by multi		
3001_3				<u>10</u>	<u>v</u>	One by one		
SW01 4	Room card setting			OF	F	room card invalid		
3001_4	Room card setting			<u>10</u>	<u> </u>	room card valid		
		[5]	[6]	[7]	[8]	Indoor capacity setting		
		OFF	OFF	OFF	<u>ON</u>	0.8HP (AS072MGERA)		
SW01_5		OFF	OFF	<u>ON</u>	OFF	1.0HP (AS092MGERA)		
SW01_6 SW01_7	Indoor capacity setting	OFF	OFF	<u>ON</u>	<u>ON</u>	1.2HP (AS122MGERA)		
SW01_8		OFF	<u>ON</u>	OFF	<u>ON</u>	1.7HP (AS162MGERA)		
		OFF	<u>ON</u>	<u>ON</u>	OFF	2.0HP (AS182MGERA)		
		OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	2.5HP (AS242MGERA)		

(2) SW08 definition:

SW08: temperature compensation selection and quiet function selection

SW08 1	Temperature compensation	OFF	Temp. compensation 3 °Cavailable (heating)
3000_1	selection	<u>ON</u>	Temp. compensation 3 °C unavailable (heating)
SW08 2	Quiet function selection	OFF	Quiet function is available
3000_2		<u>ON</u>	Quiet function is unavailable



(4) SW03 definition:

SW03: communication address setting between indoor and outdoor

	Set the communication and central control address	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication address	Central control address
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	OFF	0 (default)	0 (default)
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	1
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
SW03	control address	<u> </u>	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
	by dip switch	<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	66
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
		OFF								Set the addre	ess automatically

Note:

• When connecting central controller, gateway or counting system, setting address by dip switch.

Central control address = communication address+ 0 or 64

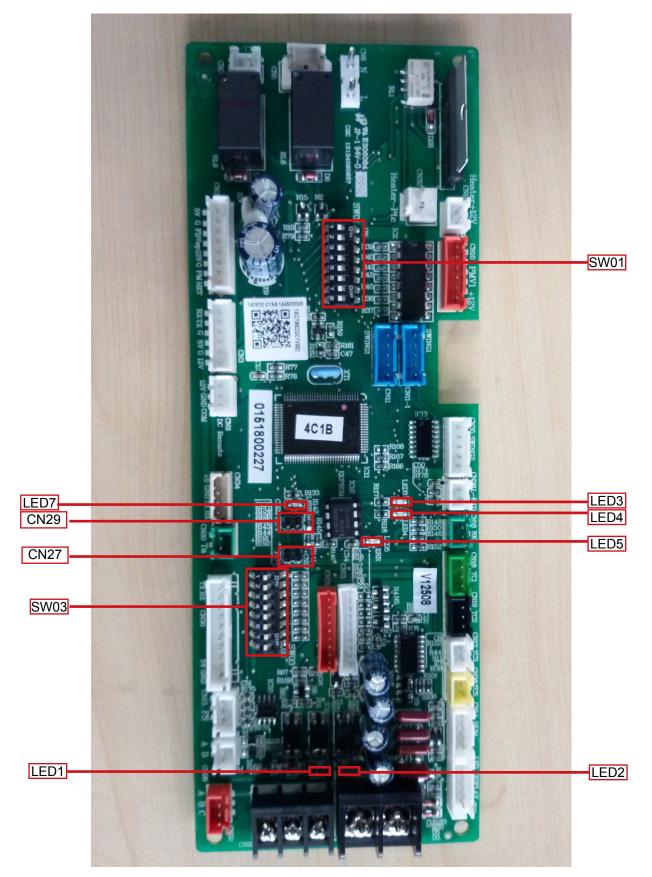
SW03_2 = OFF, central control address = communication address + 0

SW03_2 = ON, central control address = communication address + 64



23.10 0151800227 PCB dip switch setting

Used for round-way smart air flow cassette type indoor units: AB*MRERA





LED light introduction:

• LED1, LED2: communication lamp between indoor unit and wired controller. These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.

- LED3, LED4: communication lamp between indoor unit and outdoor unit. These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.
- LED5: malfunction lamp of indoor unit.

This lamp not light under normal condition; once indoor unit occurs malfunction this lamp will flicker, flicker times indicate the corresponding failure code.

• LED7: for factory testing.

Dip switch introduction

SW01 is used for indoor unit group control address setting and capacity selection. SW03 is used for indoor unit address setting (including physical address and central address).

		[1]	[2]	[3]	[4]	Wired control address
		OFF	OFF	OFF	OFF	Master unit in group control
SW01_1	Wired	OFF	OFF	OFF	<u>ON</u>	Slave unit 1 in group control
SW01_2 SW01_3	control	OFF	OFF	<u>ON</u>	OFF	Slave unit 2 in group control
SW01_4	address	OFF	OFF	<u>ON</u>	<u>ON</u>	Slave unit 3 in group control
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	Slave unit 15 in group control
		[5]	[6]	[7]	[8]	Indoor unit capacity
		OFF	OFF	OFF	OFF	0.6HP
		OFF	OFF	OFF	<u>ON</u>	0.8HP (AB072MRERA)
		OFF	OFF	<u>ON</u>	OFF	1.0HP (AB092MRERA)
		OFF	OFF	<u>ON</u>	<u>ON</u>	1.2HP (AB122MRERA)
		OFF	<u>ON</u>	OFF	OFF	1.5HP
		OFF	<u>ON</u>	OFF	<u>ON</u>	1.7HP (AB162MRERA)
SW01_5	Indoor	OFF	<u>ON</u>	<u>ON</u>	OFF	2.0HP (AB182MRERA)
SW01_6 SW01_7	unit	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	2.5HP (AB242MRERA)
SW01_8	capacity	<u>ON</u>	OFF	OFF	OFF	3.0HP (AB282MRERA)
		<u>ON</u>	OFF	OFF	<u>ON</u>	3.2HP (AB302MRERA)
		<u>ON</u>	OFF	<u>ON</u>	OFF	4.0HP (AB382MRERA)
		<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	5.0HP (AB482MRERA)
		<u>ON</u>	<u>ON</u>	OFF	OFF	6.0HP (AB602MRERA)
		<u>ON</u>	<u>ON</u>	OFF	<u>ON</u>	8.0HP
	-	<u>ON</u>	<u>ON</u>	<u>ON</u>	OFF	10.0HP
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	15.0HP

(1) Description of SW01



(2) Description of SW03

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication address	Central control address
	Set the communication and central	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	OFF	0 (default)	0 (default)
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	1
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
SW03	control address by dip switch	<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
	(*Note 1)	<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
	、	<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	66
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
		OFF								Set the address by or automatically (de	wired controller fault)

Note 1

The address must be set by dip switch if central control is used.

SW03-2=OFF, central control address = physical address+0

SW03-2=ON, central control address=physical address+64

(3) CN27, CN29 plug explanation

a) Electronic expansion valve PMV manual control setting (CN27, CN29)

Manual control open fully CN27: After power on, short CN27 for 2 seconds, PMV open fully;

Manual control close fully CN29: After power on, short CN29 for 2 seconds, PMV close fully.

b) Shorten time running and self-inspection

After power on, short CN27 and CN29 for 2 seconds at the same time, enter shorten time running the running time;

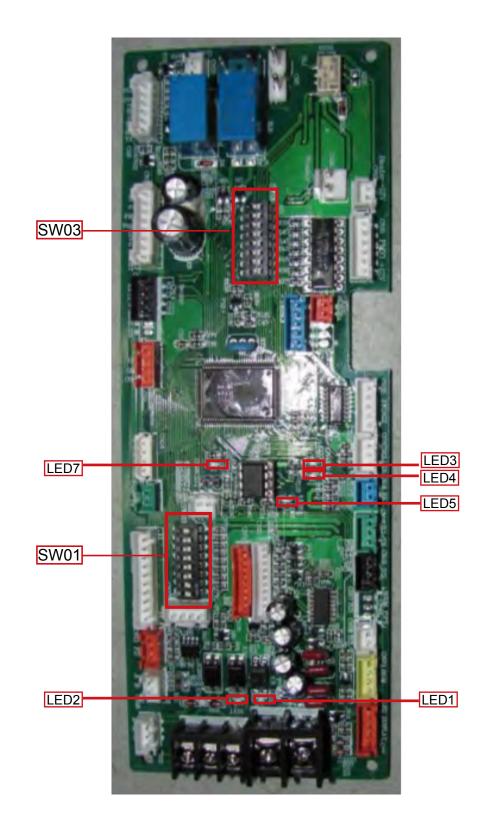
Before power on, short CN27, after power on the unit enter self-inspection;

Before power on, short CN 27 and CN29, enter the production line test.



23.11 0151800227A PCB dip switch setting

PCB code:0151800227A (used for the unit: AD36/42/48/542MQERA)



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LED light introduction:

- LED1, LED2: communication lamp between indoor unit and wired controller.
 These two lamps flicker alternately under normal condition; once occurs the communication faulty, these
- two lamps will light or not light at the same time.
- LED3, LED4: communication lamp between indoor unit and outdoor unit. These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.
- LED5: malfunction lamp of indoor unit.

This lamp not light under normal condition; once indoor unit occurs malfunction this lamp will flicker, flicker times indicate the corresponding failure code.

• LED7: for factory testing.

Dip switch introduction

SW01 is used for indoor unit group control address setting and capacity selection. SW03 is used for indoor unit address setting (including physical address and central address).

		[1]	[2]	[3]	[4]	Address of wire controlled indoor unit (group address)
		OFF	OFF	OFF	OFF	0# (wire controlled master unit) (default)
SW01_1	Address of	OFF	OFF	OFF	<u>ON</u>	1# (wire controlled slave unit)
SW01_2 SW01_3	wire controlled	OFF	OFF	<u>ON</u>	OFF	2# (wire controlled slave unit)
SW01_4	indoor unit	OFF	OFF	<u>ON</u>	<u>ON</u>	3# (wire controlled slave unit)
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	15# (wire controlled slave unit)
SW01 5		[5]	[6]	[7]	[8]	Capability of indoor unit
SW01_5	Capability of	<u>ON</u>	OFF	<u>ON</u>	OFF	4.0HP (AD362MQERA)
SW01_7	indoor unit	<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	5.0HP (AD422MQERA, AD482MQERA)
SW01_8	-	<u>ON</u>	<u>ON</u>	OFF	OFF	6.0HP (AD542MQERA)

(A) Definition and description of SW01



(B) Definition and description of SW03

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication address	Central control address
	Set the communication		OFF	0	0						
										(default)	(default)
		<u> </u>	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	1
		<u> </u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
	and central										
SW03	control address	<u> </u>	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
	by dip switch (*Note 2)	<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u> </u>	<u>ON</u>	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	66
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
		OFF								Set the address by v	
										or automatically (de	fault)

Note 2:

• Set the address by dip switch when connecting the centralized controller or gateway or charge system.

• Address of centralized controller =communication address + 0 or +64.

SW03_2=OFF, address of centralized controller =communication address+0=communication address SW03_2=ON, address of centralized controller=communication address+64 (applies when centralized controller is used and there are more than 64 indoor units)

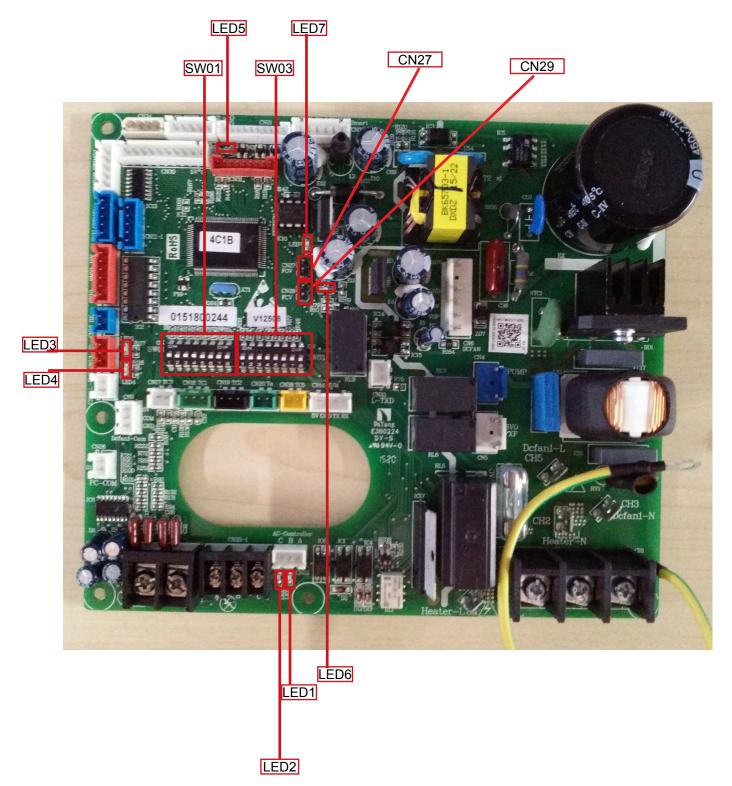


23.12 0151800244 PCB dip switch setting

Used for

DC slim low ESP duct type indoor units: AD*MSERA(D)

Constant air volume duct type indoor units: AD07/09/12/15/18/24/28/302MQERA





LED light introduction:

• LED1, LED2: communication lamp between indoor unit and wired controller.

These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.

- LED3, LED4: communication lamp between indoor unit and outdoor unit. These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.
- LED5: malfunction lamp of indoor unit.

This lamp not light under normal condition; once indoor unit occurs malfunction this lamp will flicker, flicker times indicate the corresponding failure code.

- LED6: power light
- LED7: for factory testing

Dip switch introduction

SW01 is used to set wire controlled address of and set capabilities of master; SW03 is used to set indoor unit address (combine original communication address and address of centralized controller)

		[1]	[2]	[3]	[4]	Address of wire controlled indoor unit (group address)
		OFF	OFF	OFF	OFF	0# (wire controlled master unit) (default)
SW01_1	Address of wire controlled	OFF	OFF	OFF	<u>ON</u>	1# (wire controlled slave unit)
SW01_2 SW01_3	indoor unit	OFF	OFF	<u>ON</u>	<u>ON</u>	2# (wire controlled slave unit)
SW01_4	(group address)	OFF	OFF	<u>ON</u>	<u>ON</u>	3# (wire controlled slave unit)
	address)					
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	15# (wire controlled slave unit)
		[5]	[6]	[7]	[8]	Capability of indoor unit
		OFF	OFF	OFF	OFF	0.6HP(AD052MSERA(D))
		OFF	OFF	OFF	<u>ON</u>	0.8HP (AD072MSERA(D), AD072MQERA)
		OFF	OFF	<u>ON</u>	OFF	1.0HP (AD092MSERA(D), AD092MQERA)
		OFF	OFF	<u>ON</u>	<u>ON</u>	1.2HP(AD122MSERA(D), AD122MQERA)
		OFF	<u>ON</u>	OFF	OFF	1.5HP
		OFF	<u>ON</u>	OFF	<u>ON</u>	1.7HP (AD162MSERA(D), AD152MQERA)
SW01_5		OFF	<u>ON</u>	<u>ON</u>	OFF	2.0HP (AD182MSERA(D), AD182MQERA)
SW01_6 SW01_7	Capability of indoor unit	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	2.5HP (AD242MSERA(D), AD242MQERA)
SW01_8		<u>ON</u>	OFF	OFF	OFF	3.0HP (AD282MQERA)
		<u>ON</u>	OFF	OFF	<u>ON</u>	3.2HP (AD302MQERA)
		<u>ON</u>	OFF	<u>ON</u>	OFF	4.0HP
		<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	5.0HP
		<u>ON</u>	<u>ON</u>	OFF	OFF	6.0HP
		<u>ON</u>	<u>ON</u>	OFF	<u>ON</u>	8.0HP
		<u>ON</u>	<u>ON</u>	<u>ON</u>	OFF	10.0HP
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	15.0HP

(A) Definition and description of SW01



(B) Definition and description of SW03

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication address	Central control address
	Set the communication and central	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	OFF	0 (default)	0 (default)
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	1
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
SW03	control address by dip switch	<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
	(*Note 2)	<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
	、	<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	66
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
										Set the address by or automatically (de	

Note 2:

• Set the address by dip switch when connecting the centralized controller or gateway or charge system.

• Address of centralized controller =communication address + 0 or +64.

SW03_2=OFF, address of centralized controller =communication address+0=communication address SW03_ 2=ON, address of centralized controller=communication address+64 (applies when centralized controller is used and there are more than 64 indoor units)

•To use with 0010451181A in use, it is required to use code for address setting. Set SW03_1=0N and SW03_ 2=OFF; SW03_3, SW03_4, SW03_5, SW03_6, SW03_7 and SW03_8 are address codes which are set according to actual address.

(C) Jumper definition description

Electronic expansion valve PMV manual control settings (CN27, CN29)

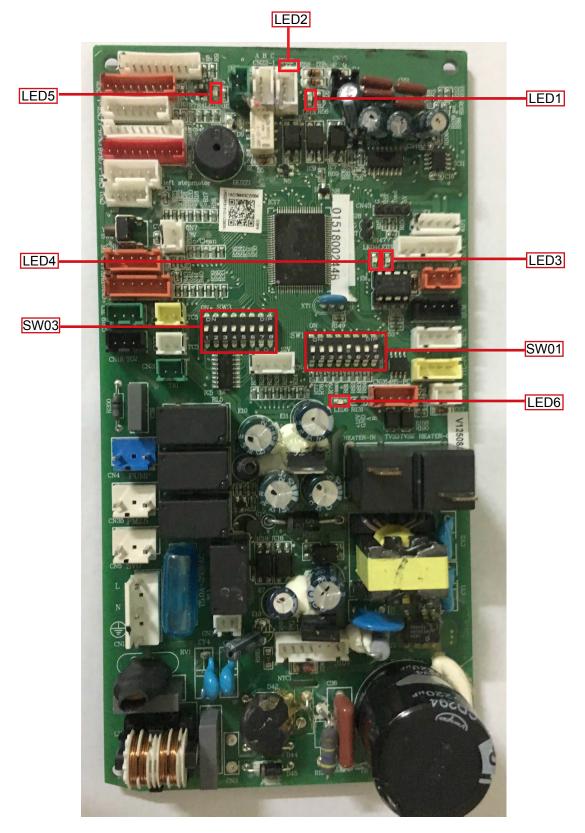
Manually fully open CN27: short circuit CN27 for 2 seconds after power, the PMV fully opened.

Manually fully close CN29: short circuit CN29 for 2 seconds after power, the PMV fully closed.



23.13 0151800244B PCB dip switch setting

Used for N platform high wall type indoor units: AS*MNERA and AS*MFERA





LED light introduction:

• LED1, LED2: communication lamp between indoor unit and wired controller.

These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.

- LED3, LED4: communication lamp between indoor unit and outdoor unit. These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.
- LED5: malfunction lamp of indoor unit.

This lamp not light under normal condition; once indoor unit occurs malfunction this lamp will flicker, flicker times indicate the corresponding failure code.

• LED6: power light

Dip switch instruction:

SW01 is used to set wire controlled address of and set capabilities of master; SW03 is used to set indoor unit address (combine original communication address and address of centralized controller). (A) Definition and description of SW01

		[1]	[2]	[3]	[4]	Address of wire controlled indoor unit (group address)
SW01_1	Address of	OFF	OFF	OFF	OFF	0#(wire controlled master unit)(default)
SW01_1 SW01_2	wire controlled	OFF	OFF	OFF	<u>ON</u>	1#(wire controlled slave unit)
	indoor unit	OFF	OFF	<u>ON</u>	OFF	2#(wire controlled slave unit)
SW01_3	(group	OFF	OFF	<u>ON</u>	<u>ON</u>	3#(wire controlled slave unit)
SW01_4	address)					
	,	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u> </u>	15#(wire controlled slave unit)
		[5]	[6]	[7]	[8]	Capability of indoor unit
		OFF	OFF	OFF	OFF	0.6HP(AS052MN/FERA)
		OFF	OFF	OFF	<u>ON</u>	0.8HP(AS072MN/FERA)
SW01_5		OFF	OFF	<u>ON</u>	OFF	1.0HP(AS092MN/FERA)
SW01_6	Capability of	OFF	OFF	<u>ON</u>	<u> </u>	1.2HP(AS122MN/FERA)
SW01_7	indoor unit	OFF	<u>ON</u>	OFF	ON	1.7HP(AS162MN/FERA)
SW01 8		OFF	<u>ON</u>	<u>ON</u>	OFF	2.0HP(AS182MN/FERA)
-		OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	2.5HP(AS242MN/FERA)
		<u>ON</u>	OFF	OFF	OFF	3.0HP(AS282MNERA)
		<u>ON</u>	OFF	OFF	<u>ON</u>	3.2HP(AS302MNERA)

Note: A wired controller can connected to at most sixteen ultrathin indoor units.



(B)Definition and description of SW03

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication address	Central control address
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	OFF	0 (default)	0 (default)
	0.14	<u> </u>	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	1
	Set the communication	<u> </u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
	and central										
SW03	control address by dip switch	<u> </u>	OFF	<u> </u>	<u>ON</u>	<u> </u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
	(*Note 2)	<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
		<u> </u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u> </u>	<u>ON</u>	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	66
	ſ	<u> </u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u> </u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
		OFF								Set the address by voor automatically (de	wired controller fault)

Note:

• Set the address by code when connecting the centralized controller or gateway or charge system.

• Address of centralized controller =communication address+0 or +64.

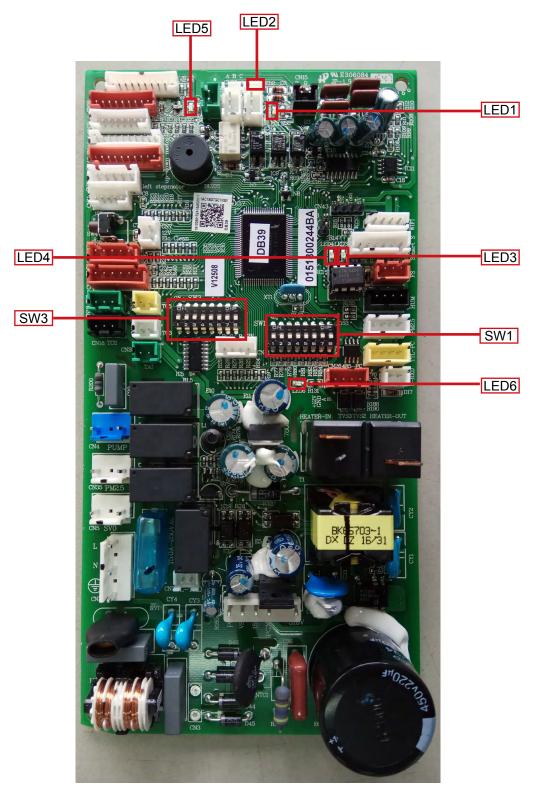
SW03_2=OFF, address of centralized controller =communication address+0=communication address SW03_2=ON, address of centralized controller=communication address+64(applies when centralized controller is used and there are more than 64 indoor units)

- The address must be set by dip switch if 0151800244B and 0010451181A are used together. Set SW03_1=ON and SW03_2=OFF;SW03_3, SW04, SW03_05, SW03_06, SW03_07 and SW03_08 are address codes which are set according to actual address.
- When connecting central controller, gateway or counting system, set address by dip switch.



23.14 0151800244BA PCB dip switch setting

Used for MINI 4-way cassette and one-way cassette type indoor units: AB*MCERA(M) and AB*MAERA



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LED light introduction:

• LED1, LED2: communication lamp between indoor unit and wired controller.

These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.

- LED3, LED4: communication lamp between indoor unit and outdoor unit. These two lamps flicker alternately under normal condition; once occurs the communication faulty, these two lamps will light or not light at the same time.
- LED5: malfunction lamp of indoor unit.

This lamp not light under normal condition; once indoor unit occurs malfunction this lamp will flicker, flicker times indicate the corresponding failure code.

• LED6: power light

Dip switch instruction:

SW1 is used to set wire controlled address of and set capabilities of master; SW03 is used to set indoor unit address (combine original communication address and address of centralized controller). (A) Definition and description of SW1

		[1]	[2]	[2]	[2]	Address of wire controlled indoor unit (group address)
		OFF	OFF	OFF	OFF	0#(wire controlled master unit) (default)
		OFF	OFF	OFF	<u>ON</u>	1# (wire controlled slave unit)
SW1_1	Address of wire	OFF	OFF	<u>ON</u>	OFF	2# (wire controlled slave unit)
SW1_2 SW1_3	controlled indoor	OFF	OFF	<u>ON</u>	<u>ON</u>	3# (wire controlled slave unit)
SW1_3 SW1_4	unit	OFF	<u>ON</u>	OFF	OFF	4# (wire controlled slave unit)
		OFF	<u>ON</u>	OFF	<u>ON</u>	5# (wire controlled slave unit)
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	15# (wire controlled slave unit)
		[5]	[6]	[6]	[6]	Capability of indoor unit
		OFF	OFF	OFF	OFF	0.6HP (AB052MCERA(M) / AB052MAERA)
SW1_5	O an ability of	OFF	OFF	OFF	<u>ON</u>	0.8HP (AB072MCERA(M) / AB072MAERA)
SW1_6 SW1_7	Capability of indoor unit	OFF	OFF	<u>ON</u>	OFF	1.0HP (AB092MCERA(M) / AB092MAERA)
SW1_7 SW1_8		OFF	OFF	<u>ON</u>	<u>ON</u>	1.2HP (AB122MCERA(M) / AB122MAERA)
		OFF	<u>ON</u>	OFF	<u>ON</u>	1.7HP (AB162MCERA(M))
		OFF	<u>ON</u>	<u>ON</u>	OFF	2.0HP (AB182MCERA(M))



(B) Definition and description of SW3

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication address	Central control address
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	OFF	0 (default)	0 (default)
	0.14	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	1
	Set the communication	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
	and central										
SW03	control address by dip switch	<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
	(*Note 2)	<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
	,	<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	66
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
		OFF								Set the address by or automatically (de	wired controller fault)

Note *:

- Set the address by code when connecting the centralized controller or gateway or charge system.
- Address of centralized controller=communication address+0 or+64.
 SW3_2=OFF, address of centralized controller=communication address+0=communication address
 SW3_2=ON, address of centralized controller=communication address+64 (applies when centralized controller is used and there are more than 64 indoor units)
- To use with 0010451181A in use, it is required to use code for address setting. Set SW3_1=0N and SW3_2=OFF; SW3_3, SW3_4, SW3_5, SW3_6, SW3_7 and SW3_8 are address codes which are set according to actual address.
- Address setting function of wired controller for ultrathin card machine is disabled.



24. Indoor Unit Control

24.1 Cooling operation

Set temp. in cooling: Ts=set temp. wired controller;

After startup, indoor unit will send the request to outdoor according to the temp. difference between the set temp. and the room temp.

24.2 Heating operation

Set temp. in heating: Ts=set temp. wired controller+TA correcting value.

After startup, indoor unit will send the request to outdoor according to the temp. difference between the set temp. and the room temp.

24.3 Dry operation

Room temp. - set temp. > 2°C indoor operation is identical with the cooling operation, and send the cooling mode to outdoor:

Room temp. - set temp. $\leq 2^{\circ}$ C indoor will send the dry signal to outdoor, and indoor fan motor will run at low speed compulsorily when compressor is running; when room temp. <16°C indoor stops and sends stop signal to outdoor. In dry operation, the auto mode of indoor fan motor is identical with the cooling mode; EEV control mode is identical with the cooling operation.

24.4 Fan operation

Indoor fan motor will run at the speed set on the wired controller and sends stop signal to outdoor.

24.5 Abnormal operation

When the requested mode collides with the outdoor mode, the entering earlier will be in prior. After indoor receives the startup command from wired controller (remote controller), firstly judge the outdoor current mode. If it is normal mode, the indoor will run as the request of wired controller; if it is abnormal mode, the command can not be executed, and indoor keeps stop; wired controller displays standby mode (if in remote control type, the buzzer will sound twice and the remote controller can not receive the signal). Until the outdoor stops or the outdoor mode is accordant with the requested mode of wired controller (remote controller), the outdoor will work. COOL (including AUTO COOL), DRY, RECOVERY are regarded as the same mode;

HEAT, RECOVERY are as abnormal mode.

24.6 Fan speed control of indoor fan motor

a. Adjustment by hand

Set high/mid/low fan speed as the request.

b. Auto fan speed

Confirm the fan speed as the temp. difference between room temp. TA and the set temp.

c. Anti-cool air control

In heating mode, after compressor startup, the unit will control indoor fan motor state due to the indoor coil temp. In anti-cool air period, indoor sends pre-heat signal to wired controller; in outdoor defrosting period, indoor fan motor will stop, and sends defrost signal to wired controller;

After being switched off in heating mode, indoor fan motor will run at low speed and 30 seconds later will stop.

24.7 Set EEV open angle by hand

When being switched off, short connect CN27 to open the valve fully compulsorily for 2 minutes; When being switched off, short connect CN29 to close the valve fully compulsorily for 2 minutes.

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24.8 Anti-freezed protection

In cooling mode, execute the anti-freezed protection due to the measured indoor coil temp. to avoid the indoor heat exchanger causing frost or ice.

24.9 Swing motor control

Indoor will control swing motor ON/OFF due to the swing signal from wired controller.

24.10 Filter cleaning

Check and memorize the running time of indoor fan motor, once arriving the requested time (set by SW07-6), indoor will send filter cleaning signal to wired controller; when indoor receives the filter reset signal from wired controller, if the time exceeds the requested time, the filter will reset.

24.11 Compulsory defrosting

After indoor receives the compulsory defrosting signal from wired controller, it will send compulsory defrosting signal to outdoor continuously for 10 times. In the sending period, indoor will execute the normal defrost.

24.12 Trial operation

Set the mode as cooling (heating), press ON/OFF for 5 seconds to enter compulsory cooling (heating). In compulsory cooling, display "LL" and COOL will flash; In compulsory heating, display "HH" and HEAT will flash, fan speed is AUTO. At this time, only ON/OFF, TEMP +/- are valid.

24.13 Autorestart

The autorestart function is apply to all the MRV indoor units and the factory setting it is available.

Memory contents: ON/OFF state, running mode, fan speed, setting temperature, swing position and temperature type displayed on panel.

Note:

(1) Temperature type displayed on panel is only used for slim duct, one way cassette and N plateform high wall.

(2) If the timer and sleeping funciton are set, when the units power-on again, the unit is OFF state.

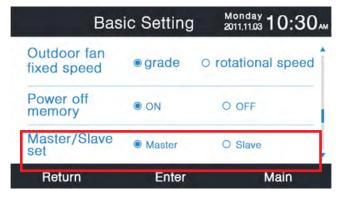
(3) The wired controller setting has the highest prority.

Setting method by controller:

(1) Wired controller cancel method:

For YR-E17 setting the autorestart function by dip switch SW4

For YR-E16A setting the autorestart function by basic setting interface



(2) Remote controller cancel method:

Press the "HEALTH" button 10 times in 5s, buzzer echoes 4 times, the autorestart function is available; repeat above operations, buzzer echoes 2 times, the autorestart function is unavailable.



24.14 26°C lock funciton

Factory default the 26°C lock function is unavailable.

Setting method by remote controller: (apply to all indoor units except Round-way cassette: AB*MRERA) Power on the unit, in cooling mode, low speed, setting the temperature 26°C. Press the "HEALTH" button of the remote controller 8 times in 5s, buzzer echoes 4 times, the 26°C lock function is available; repeat above operations, buzzer echoes 2 times, the 26°C lock function is unavailable.

Setting method for Round-way cassette: AB*MRERA by remote controller:

Power on the unit, press the "LIGHT" button 12 times, buzzer echoes 4 times, the unit panel will display "A", then press the "LIGHT" button again, the unit panel will display "A0", press the temp. adjusting key, until the panel display "Ab", press the "LIGHT" button to confirm, then the panel will display "00" or "01" (00: 26°C lock function is unavailable; 01:26°C lock function is available), press the temp. adjusting key to select the "00" or "01", then press the "LIGHT" button to confirm. After 60s, the unit will exit the setting mode automatically.



25. Failure Code

Indoor unit failure code

Indication on wired controller	Flash times of LED on indoor PCB/ timer LED on remote receiver	Failure code definition	Remark
1	1	Indoor ambient temp. sensor TA failure	
2	2	Indoor coil pipe temp. sensor TC1 failure	Dooumable
3	3	Indoor coil pipe temp. sensor TC2 failure	Resumable
4	4	Dual heat source sensor TW failure	
5	5	Indoor EEPROM failure	Unresumable
6	6	Communication between indoor and outdoor failure	Resumable
7	7	Communication between indoor and wired controller failure	Resumable
8	8	Indoor float switch failure	Resumable
9	9	Indoor address repeated failure	Resumable
0C	12	No 50Hz zero passage signal	Resumable
12	18	The 4-way valve of 3-pipe valve box reversing failure	Unresumable
Outdoor failure code	20	Outdoor failure code	Resumable

High wall (AS*2MGERA) failure code

PCB LED flash times	Indication on wired controller	Failure code definition	Remark
1	E01	Indoor ambient temp. sensor TA failure	
2	E02	Indoor coil pipe temp. sensor TC1 failure	Resumable
3	E03	Indoor coil pipe temp. sensor TC2 failure	
4	E04	Dual heat source sensor TW failure	Unresumable
5	E05	Indoor EEPROM failure	Resumable
6	E06	Communication between indoor and outdoor failure	Resumable
7	E07	Communication between indoor and wired controller failure	Resumable
8	E08	Indoor float switch failure	Resumable
9	E09	Indoor address repeated failure	Resumable
12	E12	No 50Hz zero passage signal or wired controller DCSHORT protect	Resumable
14	E14	DC motor failure	Resumable
18	E18	The 4-way valve of 3-pipe valve box reversing failure	Unresumable
20	E20	Outdoor failure code	Resumable

-



Fresh air (AD*2MPERA) failure code

Wired controller fault code (h	PCB LED5 (indoor units) /receiving window health lamp (remote controller)	Failure code definition	Remark
01	1	Indoor ambient temp. sensor TA (Tas) failure	
02	2	Indoor gas pipe temp. sensor TC1 (1) failure	
03	3	Indoor liquid pipe temp. sensor TC2 (1) failure	Resumable
04	4	Indoor pipe temp. sensor TC22 failure (when it occurs, please check if the capacity dip switch is right and J8 is ON)	
05	5	Indoor EEPROM failure	Unresumable
06	6	Communication between indoor and outdoor failure	Resumable
07	7	Communication between indoor and wired controller failure	Resumable
08	8	Indoor float switch failure	Resumable
08 09	8	Indoor float switch failure Indoor address repeated failure	Resumable Resumable
09	9	Indoor address repeated failure	Resumable

Console (AF*2MAERA) failure code

Failure code on wired controller (hex)	PCB LED1 (Indoor units) / receiver timer lamp flickers times	Fault Descriptions
01	1	Indoor ambient temp. sensor TA failure
02	2	Indoor coil pipe temp. sensor TC1 failure
03	3	Indoor coil pipe temp. sensor TC2 failure
04	4	Down air door failure
05	5	Indoor EEPROM failure
06	6	Communication between indoor and outdoor failure
09	9	Indoor address repeated failure
0A	10	Indoor central control address repeated failure
0B	11	Upper fan motor failure
0C	12	Down fan motor failure
14	20	Outdoor failure code

-



Round-way smart air flow (AB*2MRERA) failure code

Failure code on wired controller (hex)	PCB LED5 (Indoor units) / receiver timer lamp (remote controller)	Panel display	Fault Descriptions
01	1	01	Indoor ambient temp. sensor TA failure
02	2	02	Indoor coil pipe temp. sensor TC1 failure
03	3	03	Indoor coil pipe temp. sensor TC2 failure
04	4	04	Dual heat source sensor TW failure
05	5	05	Indoor EEPROM failure
06	6	06	Communication between indoor and outdoor failure
07	7	07	Communication between indoor and wired controller failure
08	8	08	Indoor float switch failure
09	9	09	Indoor address repeated failure
0A	10	10	Communication between indoor and display board failure
0C	12	12	Indoor unit 50Hz Zero-crossing failure
0E	14	14	DC motor failure
12	18	18	The 4-way valve of 3-pipe valve box reversing failure
14	20	20	Outdoor failure code

DC slim duct (AD*2MSERA(D)) failure code

Failure code on wired controller (hex)		Fault Descriptions
01	1	Indoor ambient temp. sensor TA failure
02	2	Indoor coil pipe temp. sensor TC1 failure
03	3	Indoor coil pipe temp. sensor TC2 failure
04	4	Dual heat source sensor TW failure
05	5	Indoor EEPROM failure
06	6	Communication between indoor and outdoor failure
07	7	Communication between indoor and wired controller failure
08	8	Indoor float switch failure
09	9	Indoor address repeated failure
0C	12	Indoor unit 50Hz Zero-crossing failure
0E	14	DC motor failure
12	18	The 4-way valve of 3-pipe valve box reversing failure
14	20	Outdoor failure code



Failure code on wired controller	PCB LED5(Indoor Units)/ Receiver Timer Lamp(Remote Controller)	Fault Descriptions
01	1	Indoor ambient temp. sensor TA failure
02	2	Indoor coil pipe temp. sensor TC1 failure
03	3	Indoor coil pipe temp. sensor TC2 failure
05	5	Indoor EEPROM failure
06	6	Communication between indoor and outdoor failure
07	7	Communication between indoor and wired controller failure
08	8	Indoor float switch failure
09	9	Indoor address repeated failure
0C	12	Indoor unit 50Hz zero-crossing failure
0D	13	DC motor model is wrong
0E	14	DC motor failure
10	16	Communication between DC motor and PCB
12	18	The 4-way valve of 3-pipe valve box reversing failure
14	20	Outdoor failure code

N platform high wall (AS*2MFERA and AS*2MNERA) failure code

Failure code on wired controller (hex)	Indoor panel display failure code	Indoor PCB LED5 flashes times	Fault Descriptions
01	E01	1	Indoor ambient temp. sensor TA failure
02	E02	2	Indoor gas pipe temp. sensor TC1 failure
03	E03	3	Indoor liquid pipe temp. sensor TC2 failure
04	E04	4	Dual heat source sensor TW failure
05	E05	5	Indoor EEPROM failure
06	E06	6	Communication between indoor and outdoor failure
07	E07	7	Communication between indoor and wired controller failure
08	E08	8	Indoor float switch failure
09	E09	9	Indoor address repeated failure
0C	E12	12	Indoor unit 50Hz Zero-crossing failure
0E	E14	14	DC motor failure
12	E18	18	The 4-way valve of 3-pipe valve box reversing failure
14	E20	20	Outdoor failure code



One-way cassette (AB*2MAERA) failure code

Failure code on wired controller (hex)	PCB LED5(Indoor Units)/ Receiver Timer Lamp(Remote Controller)	Panel display	Fault Descriptions			
01	1	01	Fault of indoor unit ambient temp. transducer TA			
02	2	02	Fault of indoor unit pipe temp. transducer TC1			
03	3	03	Fault of indoor unit pipe temp. transducer TC2			
04	4	04	Fault of indoor unit dual heat source temp. transducer			
05	5	05	Fault of indoor unit EEPROM			
06	6	06	Fault of communication between indoor & outdoor units			
07	7	07	Fault of communication between indoor unit and wired control			
08	8	08	Fault of indoor unit water drainage			
09	9	09	Fault of duplicate indoor unit address			
0C	12	12	Indoor unit 50Hz Zero-crossing failure			
0E	14	14	Fault of DC fan			
12	18	18	The 4-way valve of 3-pipe valve box reversing failure			
14	20	20	Outdoor failure code			



MINI 4-way cassette (AB*2MCERA(M)) failure code

Failure code on wired controller (hex)	PCB LED5(Indoor Units)/ Receiver Timer Lamp(Remote Controller)	Panel display (yellow light flash times)	Fault Descriptions		
01	1	1	Fault of indoor unit ambient temp. transducer TA		
02	2	2	Fault of indoor unit pipe temp. transducer TC1		
03	3	3	Fault of indoor unit pipe temp. transducer TC2		
04	4	4	Fault of indoor unit dual heat source temp. transducer		
05	5	5	Fault of indoor unit EEPROM		
06	6	6	Fault of communication between indoor & outdoor units		
07	7	7	Fault of communication between indoor unit and wired control		
08	8	8	Fault of indoor unit water drainage		
09	9	9	Fault of duplicate indoor unit address		
0C	12	12	Fault of zero cross sing		
0E	14	14	Fault of DC fan		
12	18	18	The 4-way valve of 3-pipe valve box reversing failure		
14	20	20	Corresponding faults of outdoor units		

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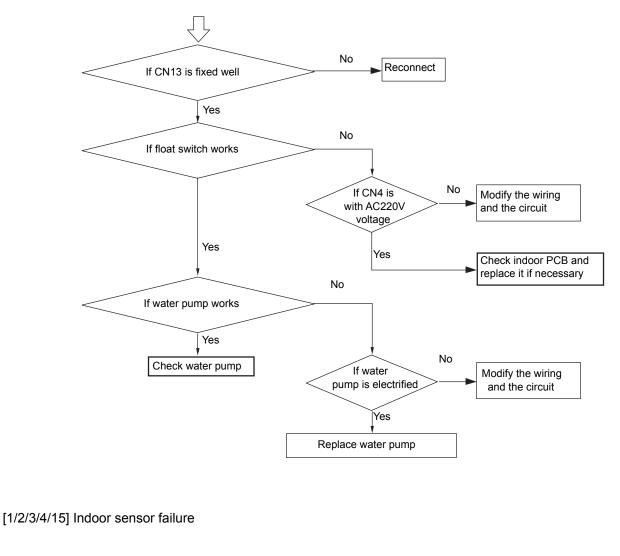
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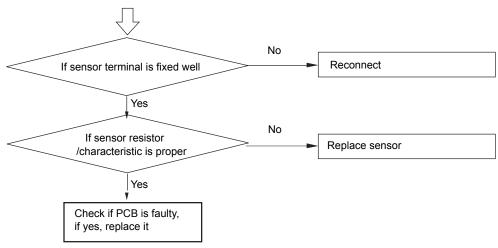


26. Troubleshooting

Indoor failure diagnose

[08] Indoor drainage system failure/float switch circuit on indoor PCB failure

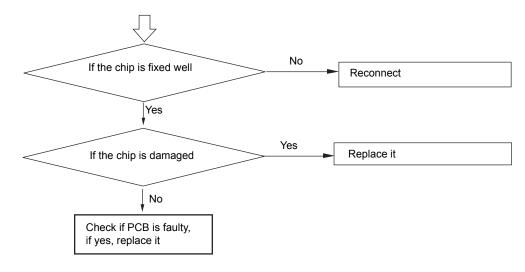




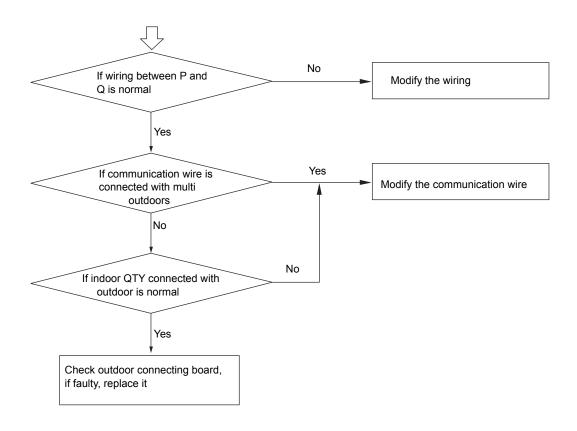
- 634 —



[05] EEPROM failure

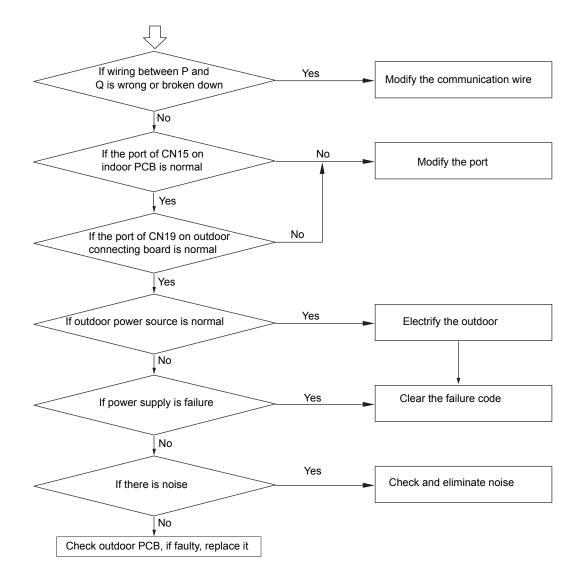


[09] Indoor address repeated





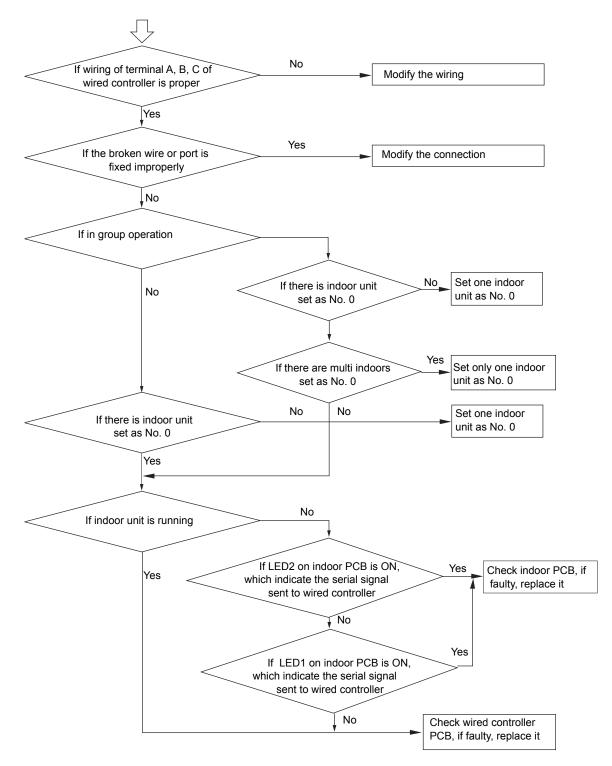
[06] Communication circuit between indoor and outdoor



- 636 -



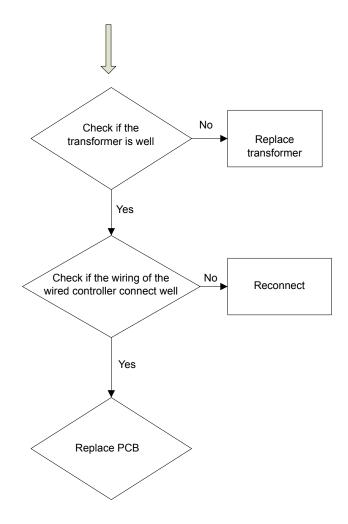
[07] Communication abnormal between indoor and wired controller



Troubleshooting



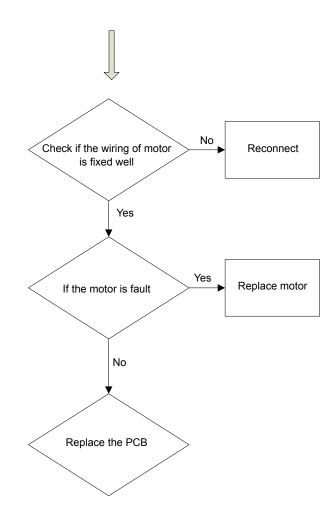
[12] No 50Hz zero passage signal



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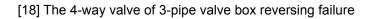


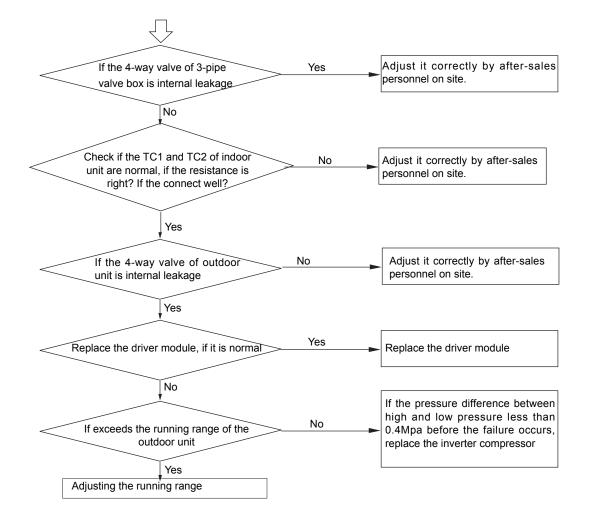
[14] DC motor failure



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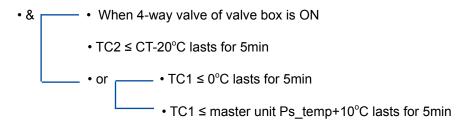






Note: abnomity confirmation conditions

For MRVIII-RC system, the outdoor unit is running normally, when the 4-way valve of valve box is power on and its connected heating indoor unit's parameter satisfy following conditions



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27. Controller match table

No.	Series	Model				O 16 13 O 1	Handr Overset and Constants Constants Constant and Constants Cons
			YR-HD	YR-HBS01	HW-BA116ABK	YR-E17	YR-E16A
1	Round-way Cassette	AB**2MRERA					
2	Four-way Cassette	AB**2MCERA AB**2MCERA(C)			•		A
3	MINI Four-way Cassette	AB**2MCERA(M)			▲		A
4	Two-way Cassette	AB**2MBERA			▲		
5	Convertible	AC**2MCERA AC**2MFERA					
6	Duct Slim Low ESP (DC)	AD**2MSERA(D)					
7	Duct Slim Low ESP (AC)	AD**2MSERA			A		
8	Duct Low ESP (0/20 Pa)	AD**2MLERA					
9	Duct Medium ESP (50/96 Pa)	AD**2MMERA					
10	Duct Medium ESP (50/100 Pa)	AD**2MJERA					
11	Duct Medium ESP (80/120 Pa)	AD**2MNERA AD**2MZERA					
12	Duct High ESP (100/196 Pa)	AD**2MHERA			•		
13	Constant Air Volume	AD**2MQERA					
14	High Wall (EK platform)	AS**2MGERA					

No.	Series	Model				G C C C C C C C C C C C C C	HOLDY CONTRACTOR
			YR-HD	YR-HBS01	HW-BA116ABK	YR-E17	YR-E16A
15	High Wall (N platform)	AS**2MNERA AS**2MFERA			A		
16	Console	AF**2MAERA					
17	Built-in Floor Standing	AE**2MLERA					
18	Duct Fresh Air	AD**2MPERA					
19	HRV	ERV****ANN			▲ Linkage control	▲ Linkage control	▲ Linkage control
	Controllers can match with	the indoor unit					

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