Haier

Commercial Air Conditioning

SERVICE MANUAL

Models

AU282FHAIA

AU342FHAIA

AU522FIAKA

AU52NFIAKA

AU60NFIAKA

And its indoor units

- **Features**

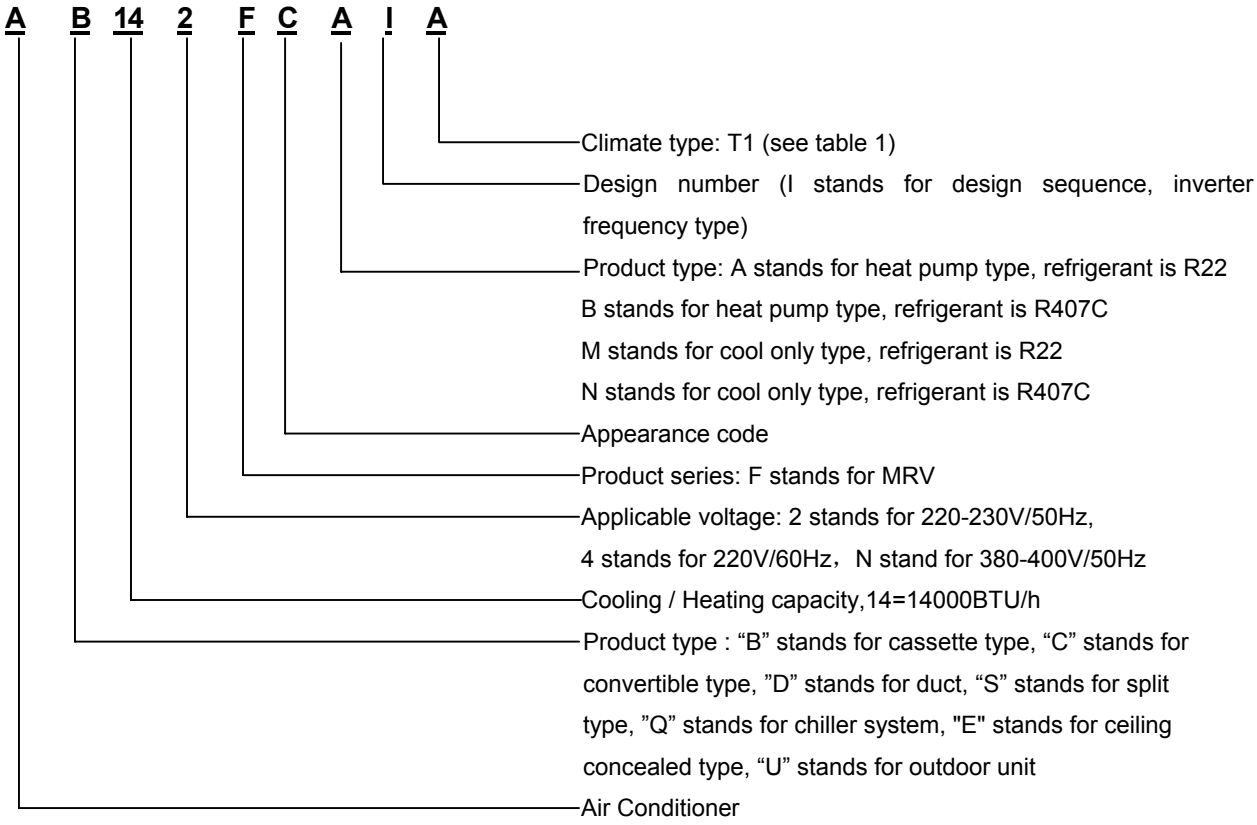
- **New cassette unit, with 700*700 panel and new unit body**
- **New PCB for indoor and outdoor unit, much stabler**
- **Mutiple indoor unit types: cassette type, ceiling concealed type, and wall mounted type**
- **Free combination, total indoor capacity can be 50%~130% of outdoor capacity**
- **Multiple control types, infrared control+wired control**
- **Individual operation for every indoor uint, energy saving**
- **New refrigerant control device: MP2A, MP3A**
- **Auto restart function**
- **Long piping and high drop between indoor and outdoor**
- **Refrigerant: R22**

Manual code: SYJS-020-05REV.1 **Edition: 2007-09**-06

CONTENTS

1.DESCRIPTION OF PRODUCTS & FEATURES

1.1. Products code explanation



1.2 Brief Introduction for T1、T2、T3 working condition

Type of Air Conditioner	Climate type		
	T1	T2	T3
Cooling Only	18 ℃~43℃	10℃~35℃	21℃~52℃
Heat pump	-7℃~43℃	-7℃~35℃	-7℃~52℃
Electricity Heating	~43℃	~35℃	~52℃

1.3 Operating Range of Air Conditioners

Working temperature range					
			Rated	Maximum	Minimum
Cooling	Indoor	DB℃	27	32	18
		WB℃	19	23	14
	outdoor	DB℃	35	43	-5
		WB℃	24	26	--
Heating	Indoor	DB℃	20	27	15
		WB℃	14.5	--	--
	outdoor	DB℃	7	24	-15
		WB℃	6	18	--

1.4 Product features

New designed panel 700*700 with the 600*600 cassette unit

New designed swing louver with the non smooth surface, which can hold back the condensant water.

New designed filter lock, which will fix the filter more firmly than before.

Adopts the stepping motor, give the louver a larger swing angel.

New fan with bigger diameter fan blade, sending out larger air flow.

The cassette indoor unit adopts the panel whose dimension is identical to that of ceiling, after installation, the unit will be accordant with the decoration decor.

Free combination, total indoor capacity can be 50%~130% of that of outdoor capacity

The outdoor unit can match with all types of indoor unit with the allowable capacity, such as the cassette type, the ceiling concealed type, the wall mounted type, etc.

Optional control types: infrared remote controller and wired controller

The unit can be controlled by the smart infrared remote controller YR-H71, which can realize many functions such as heating, cooling, fan, swing, fresh, health, filter up/down, electric heating, etc. Furthermore, the remote controller can be compatible with many old controllers, more convenient for utilizing.

If the unit is with wired controller YR-E06, which can realize remote control type by adding an infrared controller YR-H71.

Auto-check function

The unit can display the malfunction codes on the control board by using advanced auto-check technology, convenient for user find and dwell with the abnormal running.

Auto–restart function (optional)

All indoor units have auto-restart function. When the power supply cut off suddenly, the unit will automatically recover the previous running mode once the power supply is on.

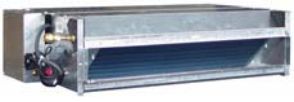
New refrigerant control device: MP2A, MP3A

The new refrigerant control device MP2A and MP3A replace the previous device MP2 and MP3. The new device includes gas pipe and liquid pipe, more convenient for installation than before.

outdoor units

appearance	model	refrigerant
	AU282FHAIA AU342FHAIA	R22
	AU522FIAKA AU52NFIAKA AU60NFIAKA	R22

indoor units

type	appearance	model
Four way cassette		AB092FCAIA
		AB142FCAIA
		AB182FCAIA
Convertible		AC182FCAHA
Ceiling concealed		AE072FLAIA
		AE092FLAIA
		AE122FLAIA
		AE142FLAIA
		AE182FLAIA
		AE242FLAIA
Ceiling concealed	 use MP2A, MP3A	AE072FCAMA
		AE092FCAMA
		AE122FCAMA
		AE142FCAMA
		AE182FCAMA
		AE212FCAMA
		AE242FCAMA
Wall-mounted (colorful screen)		AS072FCAIA
		AS092FCAIA
		AS122FCAIA
		AS142FCAIA
Wall-mounted (wide inlet grille)		AS182FTAHA

2. SPECIFICATION

AU282FHAIA

Item				Model	AU282FHAIA	
Function					cooling	heating
Capacity				BTU/h	28000	32000
Capacity				W	8000	9500
Total power input				W	3050	3050
Max. power input				W	4400	3500
EER or COP				W/W	2.62	3.11
Power cable					$6mm^2$	
Power source				N，V，Hz	1PH,220-230V~,50Hz	
Running /Max.Running current				A / A	cooling: 14.5A/22A heating: 14.5/18A	
Start Current				A	--	
Working frequency range				Hz	30-105	
Fuse				A	3.15A 250V AC	
Outdoor unit	Unit model (color)				AU282FHAIA (white)	
	Compressor	Model / Manufacture			THV310FEEC/MITSUBISHI GUANGZHOU	
		Type			ROTARY	
	Fan	Type × Number			AXIAL*1	
		Speed		r/min	840±30r/min/780±30r/min/550±50r/min	
		Fan motor output power		kW	60*1	
		Air-flow(H-M-L)		m^3/h	3240	
	Heat exchanger	Type / Diameter		mm	inner grooved copper pipe Φ9.52	
		Total area		m^2	2*1.5mm	
		Temp. scope		℃	--	
	Dimension	External	（H×L×W）	mm×mm×mm	948X830X340	
		Package	（H×L×W）	mm×mm×mm	1050X979X440	
	Refrigerant control method			mm/mm	EEV	
	Defrosting				AUTO	
	Volume of Accumulator			L	--	
	Noise level			dB(A)	55	
	material of reduce noise				--	
	crankcase heater power			W	30	
	Weight (Net / Shipping)			kg / kg	74/89	
PIPING	Refrigerant	Type / Charge		g	R22/2200	
		Recharge quantity		g/m	Φ9.52 liquid pipe: 65g/m×actual length	
	Pipe	Liquid		mm	Φ9.52	
		Gas		mm	Φ15.88	
	Connecting Method				flared	
	Between I.D &O.D	MAX.Drop		m	outdoor upper: 30, outdoor lower: 20	
		MAX.Piping length		m	50	

Haier

Commercial Air Conditioner

Model: AU28/342FHAIA, AU522FIAKA, AU52,60NFIAKA

Item					model	AU342FHAIA	
Function						Cooling	Heating
Capacity					W	10000	11000
Total power input					W	3850	4000
Max. power input					W	4200	4200
Working frequency range					Hz	30-105	
Power source					N,V,Hz	1PH 220~ 50HZ	
Power cable		type×core×section				YZW3×4.0mm ^{2}	
Communication wire		core×section				2×1.5mm ^{2}	
Circuit breaker					A	30	
Running current(max. running current)					A / A	cooling: 20/23, heating: 20/23	
Outdoor unit	Unit model (color)					WHITE	
	Compressor	Model / Manufacture				THV310FEEC/HITACHI	
		Type				scroll	
	Fan	Type × Number				Axial-flowX1	
		Speed			r/min	1000 ±40/840±50/590±50	
		Fan motor output power			W	>110	
		Air-flow(H-M-L)			m³/h	3240	
	Heat exchanger	Type / Diameter			mm	TP2M/ϕ9.52	
		Total area			m²	0.92	
		Temp. scope			℃	43-60	
	Dimension	External	（L×W×H）		mm×mm×mm	960×380×830	
		Package	（L×W×H）		mm×mm×mm	1075×445×965	
	Drainage pipe (material , I.D./O.D.)				mm	/	
	Refrigerant control method				mm/mm	capillary +electrionic expansion valve	
	Defrosting					Auto	
	Volume of Accumulator				L	/	
	Noise level				dB(A)	58	
	Type of Four way valve					/	
	material of reduce noise					Rubber bracket	
	crankcase heater power				W	/	
	Weight (Net / Shipping)				kg / kg	80/86	
PIPING	Refrigerant	Type / Charge			g	R22 2500	
		Recharge quantity			g/m	65	
	Pipe	Liquid			mm	9.52	
		Gas			mm	19.05	
	Connecting Method					flared	
	Drop	MAX.Drop between	outdoor is upper		m	30	
			outdoor is lower		m	20	
		MAX.Drop between ID.&ID.			m	10	
	Piping length	total length			m	50	
		longest length			m	35	
		length from the first manifold to the longest indoor			m	15	

AU482FIBIA

Item \ Model					AU522FIAKA	
Function					cooling	heating
Capacity				BTU/h	52000	58000
Capacity				W	15000	17000
Total power input				W	6050	5500
Max. power input				W	7100	7100
EER or COP				W/W	2.48	3.09
Power cable					16mm^2	
Power source				N，V，Hz	1PH,220-230V~,50Hz	
Running /Max.Running current				A / A	cooling: 33A/39A heating: 30/39A	
Start Current				A	--	
Working frequency range				Hz	25-105	
Fuse				A	3.15A 250V AC	
Outdoor unit	Unit model (color)				AU522FIAKA(white)	
	Compressor	Model / Manufacture			AHV60FCLT/MITSUBISHI THAILAND	
		Type			SCROLL	
	Fan	Type × Number			AXIAL*2	
		Speed		r/min	920±30 r/min/840±40r/min/560±50r/min	
		Fan motor output power		kW	65*2	
		Air-flow(H-M-L)		m³/h	7480	
	Heat exchanger	Type / Diameter		mm	inner grooved copper pipe φ9.52	
		Total area		m²	2*1.5mm	
		Temp. scope		℃	43-60	
	Dimension	External	（H×L×W）	mm×mm×mm	1250X948X340	
		Package	（H×L×W）	mm×mm×mm	1375X1050X440	
	Refrigerant control method			mm/mm	EEV	
	Defrosting				AUTO	
	Volume of Accumulator			L	--	
	Noise level			dB(A)	58	
	material of reduce noise				--	
	crankcase heater power			W	40	
	Weight (Net / Shipping)			kg / kg	120/135	
PIPING	Refrigerant	Type / Charge		g	R22/4900	
		Recharge quantity		g/m	φ9.52 liquid pipe: 65g/m×actual length	
	Pipe	Liquid		mm	φ9.52	
		Gas		mm	φ19.05	
	Connecting Method				flared	
	Between I.D &O.D	MAX.Drop		m	outdoor upper: 30, outdoor lower: 20	
		MAX.Piping length		m	100	

AU48NFIBJA

Item				Model	AU52NFIAKA	
Function					cooling	heating
Capacity				BTU/h	52000	58000
Capacity				W	15000	17000
Total power input				W	6050	5000
Max. power input				W	8000	8000
EER or COP				W/W	2.48	3.40
Power cable					4mm^2	
Power source				N，V，Hz	3N~,380-400V,50Hz	
Running /Max.Running current				A / A	cooling: 10.5A/13.5A heating: 9/13.5A	
Start Current				A	--	
Working frequency range				Hz	25-105	
Fuse				A	3.15A 250V AC	
Outdoor unit	Unit model (color)				AU52NFIAKA (white)	
	Compressor	Model / Manufacture			AHV60FCHT/MITSUBISHI THAILAND	
		Type			SCROLL	
	Fan	Type × Number			AXIAL*2	
		Speed		r/min	920±30 r/min/840±40r/min/560±50r/min	
		Fan motor output power		kW	65*2	
		Air-flow(H-M-L)		m³/h	--	
	Heat exchanger	Type / Diameter		mm	inner grooved copper pipe φ9.52	
		Total area		m²	2*1.5mm	
		Temp. scope		℃	43-60	
	Dimension	External	（H×L×W）	mm×mm×mm	1250X948X340	
		Package	（H×L×W）	mm×mm×mm	1375X1050X440	
	Refrigerant control method			mm/mm	EEV	
	Defrosting				AUTO	
	Volume of Accumulator			L	--	
	Noise level			dB(A)	58	
	material of reduce noise				--	
	crankcase heater power			W	40	
	Weight (Net / Shipping)			kg / kg	120/135	
PIPING	Refrigerant	Type / Charge		g	R22/4700	
		Recharge quantity		g/m	φ9.52 liquid pipe: 65g/m×actual length	
	Pipe	Liquid		mm	φ9.52	
		Gas		mm	φ19.05	
	Connecting Method				flared	
	Between I.D &O.D	MAX.Drop		m	outdoor upper: 30, outdoor lower: 20	
		MAX.Piping length		m	100	

Item \ Model				AU60NFIAKA	
Function			——	Cooling	Heating
capacity			BTU/h	60000	68000
capacity			W	18000	20000
Total Power input			W	7100	6300
Max. Power input				8500	8500
EER / COP			W/W	2.5	3.17
Power Cable			Mm	4	
Power source			N, V, Hz	3N～, 380-400V, 50Hz	
Running/Max. Running Current			A / A	Cooling: 12.5/14.5 heating: 11.5/14.5	
Start Current			A	——	
Working frequency range			Hz	20-105	
Fuse			A	3.15A 250V AC	
Outdoor unit	Unit model （color）			AU60NFIAKA（white）	
	Compressor	Model / Manufacture	——	401DHV-64D2/HITACHI GUANGZHOU	
		Type	——	SCROLL	
	Fan	Type × Number	——	Axial × 2	
		Speed	r/min	980 ±40/ 840 ±50/ 590 ±50	
		Fan motor output power	W	120	
		Air-flows (H/M/L)	m³/h	about 5900	
	Heat exchanger	Type / Diameter	mm	TP2M / 8.0	
		Temp. scope	℃	43-60	
		Total area	m²	3*1.7mm	
	Dimension (L×W×H)	External	mm	1250x948x340	
		Package	mm	1375x1050x440	
	Refrigerant control method		——	EEV	
	Defrosting method		——	Automatic by reversible cycle	
	Volume of accumulator		L	——	
	Crankcase heater power		W	40	
	Noise level		dB(A)	60	
	Weight	Net / Shipping	kg / kg	120 / 130	
Piping	Refrigerant	Type / Charge	kg	R22 / 5.3	
		Recharge quantity	g/m	Φ12.7liquid pipe:120g/m*actual length	
	Pipe	Liquid	mm	Φ12.7	
		Gas	mm	Φ22.22（Jointing）	
	Connecting method		——	flared	
	Between I.D &O.D	Max.Drop	m	outdoor upper:30outdoor lower:20	
		Max.Piping length between IU & OU	m	100	

1. Large drop and long piping installation will obviously reduce the total capacity.

Item			model	AB092FCAIA	AB142FCAIA
Cooling capacity			Btu/h	9000	12000
Heating capacity			Btu/h	11000	14000
Cooling capacity			W	2800	3600
Heating capacity			W	3200	4000
Dehumidifying capacity			10 - ³×m³/h	1.6	2.1
Power source			N, V, Hz	1PH 220V-230V~ 50HZ	1PH 220V-230V~ 50HZ
Starting current			A	1	1
Refrigerant				R22	R22
Noise level(H/M/L)			dB(A)	42/--/--	42/--/--
Fan		Type × Number		centrifugal fan×1	centrifugal fan×1
		Air-flow(H-M-L)	m³/h	700/--/--	700/--/--
		Fan motor output	W	55	55
		starting mothod		PG	PG
Heat exchanger				Combination of wave cranny radiation fin and copper	
Refrigerant control method				Capillary + Electronic expansion valve	
Dimension（L×W×H）		External	mm×mm×mm	660×570×260	660×570×260
		Shipping	mm×mm×mm	710×675×360	710×675×360
Panel dimension (L×W×H)		External	mm×mm×mm	700×700×60	700×700×60
		Shipping	mm×mm×mm	740×735×105	740×735×105
Weight(unit/panel)		Net	kg / kg	19.0/2.8	19.0/2.8
		Shipping	kg / kg	23.5/4.8	23.5/4.8
Piping	Liquid		mm (inch)	6.35 (1/4")	6.35 (1/4")
	Gas		mm (inch)	12.7 (1/2")	12.7 (1/2")
	water diameter (mm)			32	32
Suited area			m^2	12~23	17~27
Controller type				remote controller	remote controller

Item			model	AB182FCAIA	AC182FCAHA
Cooling capacity			Btu/h	17000	18000
Heating capacity			Btu/h	19000	21000
Cooling capacity			W	5000	5000
Heating capacity			W	5500	6000
Dehumidifying capacity			10 - ³×m³/h	2.1	2.1
Power source			N, V, Hz	1PH 220V-230V~ 50HZ	1PH 220V-230V 50HZ
Starting current			A	1	1
Refrigerant				R22	R22
Noise level(H/M/L)			dB(A)	42/--/--	48/44/38
Fan		Type × Number		centrifugal fan×1	centrifugal fan×1
		Air-flow(H-M-L)	m³/h	700/--/--	860
		Fan motor output	W	55	/
		starting mothod		PG	Relay control
Heat exchanger				Combination of wave cranny radiation fin and copper pipe	
Refrigerant control method				Capillary + Electronic expansion valve	
Dimension（L×W×H）		External	mm×mm×mm	660×570×260	990×655×199
		Shipping	mm×mm×mm	710×675×360	1150×750×300
Panel dimension (L×W×H)		External	mm×mm×mm	700×700×60	/
		Shipping	mm×mm×mm	740×735×105	/
Weight(unit/panel)		Net	kg / kg	19.0/2.8	30
		Shipping	kg / kg	23.5/4.8	39
Piping	Liquid		mm (inch)	6.35 (1/4")	9.52(3/8")
	Gas		mm (inch)	12.7 (1/2")	15.88(5/8")
	water diameter (mm)			32	32
Suited area			m^2	22~33	22~33
Controller type				remote controller	remote controller

Item			model	AE072FCAMA	AE092FCAMA
Cooling capacity			Btu/h	7000	9000
Heating capacity			Btu/h	8000	10000
Cooling capacity			W	1800	2500
Heating capacity			W	2400	3000
Dehumidifying capacity			10 - ³×m³/h	--	--
Power source			N, V, Hz	1PH 220V-230V~ 50HZ	1PH 220V-230V~ 50HZ
Refrigerant				R22	R22
Noise level(H/M/L)			dB(A)	35/32/30	35/32/30
Fan		Type × Number		centrifugal fan×1	centrifugal fan×2
		Air-flow(H-M-L)	m³/h	420/--/--	520/--/--
		starting mothod		--	--
Heat exchanger				Combination of wave cranny radiation fin and copper	
Refrigerant control method				Electronic expansion valve	
Dimension(L×W×H)		External	mm×mm×mm	640×450×225	783×450×225
Dimension(L×W×H)		shipment	mm×mm×mm	816×526×288	816×526×288
Weight(unit/panel)		Net	kg / kg	11.6/14.6	18/20
Piping	Liquid		mm	6.35	6.35
	Gas		mm	9.52	9.52
	water diameter (mm)			16	16
Suited area			m^2	--	--
Controller type				wired controller	wired controller

Item			model	AE122FCAMA	AE142FCAMA
Cooling capacity			Btu/h	12000	14000
Heating capacity			Btu/h	13000	15000
Cooling capacity			W	3200	4000
Heating capacity			W	4000	4500
Dehumidifying capacity			10 - ³×m³/h	--	--
Power source			N, V, Hz	1PH 220V-230V~ 50HZ	1PH 220V-230V~ 50HZ
Refrigerant				R22	R22
Noise level(H/M/L)			dB(A)	35/32/30	35/32/30
Fan		Type × Number		centrifugal fan×2	centrifugal fan×2
		Air-flow(H-M-L)	m³/h	650/--/--	700/--/--
		starting mothod		--	--
Heat exchanger				Combination of wave cranny radiation fin and copper pipe	
Refrigerant control method				Electronic expansion valve	
Dimension(L×W×H)		External	mm×mm×mm	818×450×225	818×450×225
Dimension(L×W×H)		shipment	mm×mm×mm	925×526×288	925×526×288
Weight(unit/panel)		Net	kg / kg	20/22	20/22
Piping	Liquid		mm	6.35	6.35
	Gas		mm	9.52	9.52
	water diameter (mm)			16	16
Suited area			m^2	--	--
Controller type				wired controller	wired controller

Item			model	AE182FCAMA	AE212FCAMA
Cooling capacity			Btu/h	18000	21000
Heating capacity			Btu/h	20000	24000
Cooling capacity			W	5000	6000
Heating capacity			W	6000	7000
Dehumidifying capacity			10 - ³×m³/h	--	--
Power source			N, V, Hz	1PH 220V-230V~ 50HZ	1PH 220V-230V~ 50HZ
Refrigerant				R22	R22
Noise level(H/M/L)			dB(A)	37/36/34	37/36/34
Fan		Type × Number		centrifugal fan×2	centrifugal fan×2
		Air-flow(H-M-L)	m³/h	1000/--/--	1000/--/--
		starting mothod		--	--
Heat exchanger				Combination of wave cranny radiation fin and	
Refrigerant control method				Electronic expansion valve	
Dimension(L×W×H)		External	mm×mm×mm	1124×450×225	1124×450×225
Dimension(L×W×H)		shipment	mm×mm×mm	1272×526×288	1272×526×288
Weight(unit/panel)		Net	kg / kg	25/27	25/27
Piping	Liquid		mm	9.52	9.52
	Gas		mm	15.88	15.88
	water diameter (mm)			16	16
Suited area			m^2	--	--
Controller type				wired controller	wired controller

Item			model	AE242FCAMA
Cooling capacity			Btu/h	24000
Heating capacity			Btu/h	27000
Cooling capacity			W	7100
Heating capacity			W	8000
Dehumidifying capacity			10 - ³×m³/h	--
Power source			N, V, Hz	1PH 220V-230V~ 50HZ
Refrigerant				R22
Noise level(H/M/L)			dB(A)	39/37/35
Fan		Type × Number		centrifugal fan×3
		Air-flow(H-M-L)	m³/h	1500/1200/900
		starting mothod		--
Heat exchanger				Combination of wave cranny radiation fin and
Refrigerant control method				Capillary + Electronic expansion valve
Dimension(L×W×H)		External	mm×mm×mm	1253×450×225
Dimension(L×W×H)		shipment	mm×mm×mm	1520×526×288
Weight(unit/panel)		Net	kg / kg	42/44
Piping	Liquid		mm	9.52
	Gas		mm	15.88
	water diameter (mm)			16
Suited area			m^2	--
Controller type				wired controller

Haier

Commercial Air Conditioner

Model: AU28/342FHAIA, AU522FIAKA, AU52,60NFIAKA

Item / model				AE072FLAIA	AE092FLAIA
Cooling capacity			KW	2.2	2.8
Heating capacity			KW	2.5	3.2
Power source			N, V, Hz	1PH 220V-230V 50HZ	1PH 220V-230V 50HZ
Running current			A	0.15	0.15
Consumption power			KW	0.03	0.03
Refrigerant				R22	R22
Noise level(H/M/L)			dB(A)	35/32/30	35/32/30
Fan		Type × Number		centrifugal fan×1	centrifugal fan×1
		standard air flow	m^3/h	400	400
		motor output	KW	0.012	0.012
		standard pressure	Pa	0	0
		max. pressure	Pa	20	20
Heat exchanger				Combination of wave cranny radiation fin and copper pipe	
Refrigerant control method				Capillary + EEV	
Dimension （L×W×H）		External	mm×mm×mm	610*483.5*220	610*483.5*220
Dimension （L×W×H）		shipment	mm×mm×mm	695*536*265	695*536*265
Air outlet dimension			mm	418*131	418*131
Air return dimension			mm	480*218	480*218
Weight		Net/gross	kg	13/13.5	13/13.5
Piping	Liquid		mm	6.35	6.35
	Gas		mm	9.52	9.52
	water	diameter	mm	24	24
	Connection method			flared	flared
Controller type				wired controller or remote controller(optional)	

Item / model				AE122FLAIA	AE142FLAIA
Cooling capacity			KW	3.6	4
Heating capacity			KW	4	4.5
Power source			N, V, Hz	1PH 220V-230V 50HZ	1PH 220V-230V 50HZ
Running current			A	0.25	0.27
Consumption power			KW	0.045	0.05
Refrigerant				R22	R22
Noise level(H/M/L)			dB(A)	35/32/30	35/32/30
Fan		Type × Number		centrifugal fan×1	centrifugal fan×2
		standard air flow	m^3/h	500	850
		motor output	KW	0.02	0.025
		standard pressure	Pa	0	0
		max. pressure	Pa	20	20
Heat exchanger				Combination of wave cranny radiation fin and copper pipe	
Refrigerant control method				Capillary + EEV	
Dimension （L×W×H）		External	mm×mm×mm	610*483.5*220	1105*483.5*220
Dimension （L×W×H）		shipment	mm×mm×mm	695*536*265	1161*536*269
Air outlet dimension			mm	418*131	880*131
Air return dimension			mm	480*218	1064*218
Weight		Net/gross	kg	14/14.5	25/26
Piping	Liquid		mm	6.35	6.35
	Gas		mm	12.7	12.7
	water	diameter	mm	24	24
	Connection method			flared	flared
Controller type				wired controller or remote controller(optional)	

Item / model			AE182FLAIA	AE242FLAIA
Cooling capacity		KW	5.6	7.1
Heating capacity		KW	6.3	8
Power source		N, V, Hz	1PH 220V-230V 50HZ	1PH 220V-230V 50HZ
Running current		A	0.55	0.55
Consumption power		KW	0.11	0.11
Refrigerant			R22	R22
Noise level(H/M/L)		dB(A)	39/37/35	39/37/35
Fan	Type × Number		centrifugal fan×2	centrifugal fan×2
	standard air flow	m^3/h	1250	1250
	motor output	KW	0.04	0.1
	standard pressure	Pa	0	0
	max. pressure	Pa	20	20
Heat exchanger			Combination of wave cranny radiation fin and copper pipe	
Refrigerant control method			Capillary + EEV	
Dimension （L×W×H）	External	mm×mm×mm	1105*483.5*220	1105*483.5*220
Dimension （L×W×H）	shipment	mm×mm×mm	1161*536*269	1161*536*269
Air outlet dimension		mm	880*131	880*131
Air return dimension		mm	1064*218	1064*218
Weight	Net/gross	kg	28/29	28/29
Piping	Liquid	mm	9.52	9.52
	Gas	mm	15.88	15.88
	water diameter	mm	24	24
	Connection method		flared	flared
Controller type			wired controller or remote controller(optional)	

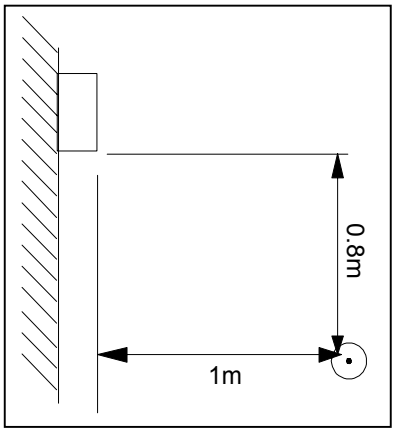
Item			model	AS072FCAIA	AS092FCAIA
Cooling capacity			Btu/h	7000	9000
Heating capacity			Btu/h	9000	11000
Cooling capacity			W	2000	2800
Heating capacity			W	2800	3200
Dehumidifying capacity			10 - ³×m³/h	--	--
Power source				1PH 220V-230V~ 50HZ	1PH 220V-230V~ 50HZ
Refrigerant				R22	R22
Noise level(H/M/L)			dB(A)	34/30/29	34/30/29
Fan		Type × Number		cross-flow fan×1	cross-flow fan×1
		Air-flow(H-M-L)	m³/h	520/410/300	600/--/--
		starting mothod		--	--
Heat exchanger				Combination of wave cranny radiation fin and copper pipe	
Refrigerant control method				Electronic expansion valve(EEV 1/4)	
Dimension（L×W×H）		External	mm×mm×mm	795×265×197	795×265×197
Dimension（L×W×H）		Shipping	mm×mm×mm	880×330×315	880×330×315
Weight(net/gross)			kg / kg	10/13	10/13
Piping	Liquid		mm	6.35	6.35
	Gas		mm	12.7	12.7
	water diameter (mm)			16.5	16.5
Suited area			m2	--	--
Controller type				remote controller	remote controller

Item			model	AS122FCAIA	AS182FTAHA
Cooling capacity			Btu/h	12000	18000
Heating capacity			Btu/h	14000	21000
Cooling capacity			W	3600	5600
Heating capacity			W	4000	6500
Dehumidifying capacity			10 - ³×m³/h	--	2.55
Power source				1PH 220V-230V~ 50HZ	1PH 220V-230V 50HZ
Refrigerant				R22	R22
Noise level(H/M/L)			dB(A)	38/36/32	42/45/47
Fan		Type × Number		cross-flow fan×1	cross fan×1
		Air-flow(H-M-L)	m³/h	630/--/--	800
		starting mothod		--	Relay control
Heat exchanger				Combination of wave cranny radiation fin and copper pipe	
Refrigerant control method				EEV1/4	EEV3/8
Dimension（L×W×H）		External	mm×mm×mm	795×265×197	1100×330×205
Dimension（L×W×H）		Shipping	mm×mm×mm	880×330×315	1177×412×291
Weight(net/gross)			kg / kg	10/13	14/17
Piping	Liquid		mm	6.35	9.52
	Gas		mm	12.7	15.88
	water diameter (mm)			16.5	16 5
Suited area			m2	--	23~36
Controller type				remote controller	remote controller

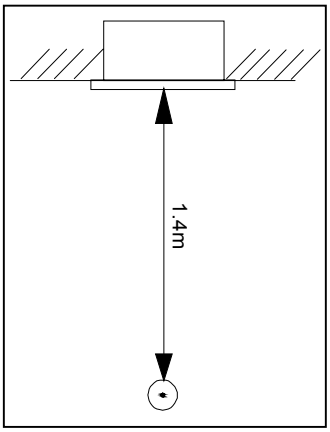
Norminal condition: indoor temperature (cooling): 27 ℃DB/19℃WB, indoor temperature (heating): 20 ℃DB
Outdoor temperature(cooling): 35℃DB/24℃WB, outdoor temperature(heating): 7 ℃DB/6℃WB
The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level. The detailed method please refer to the following information:

Installation state: the unit should be placed on the flat floor or be mounted in horizontal direction.
Testing method:

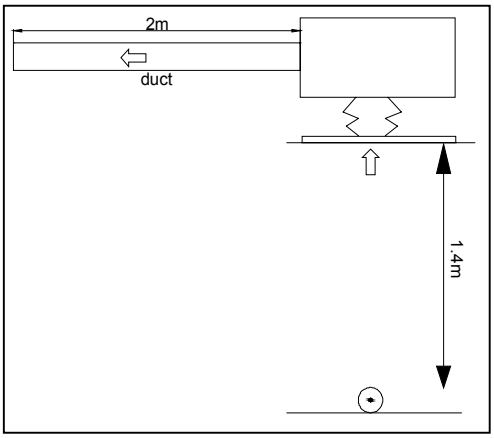
mounting-on-wall unit:



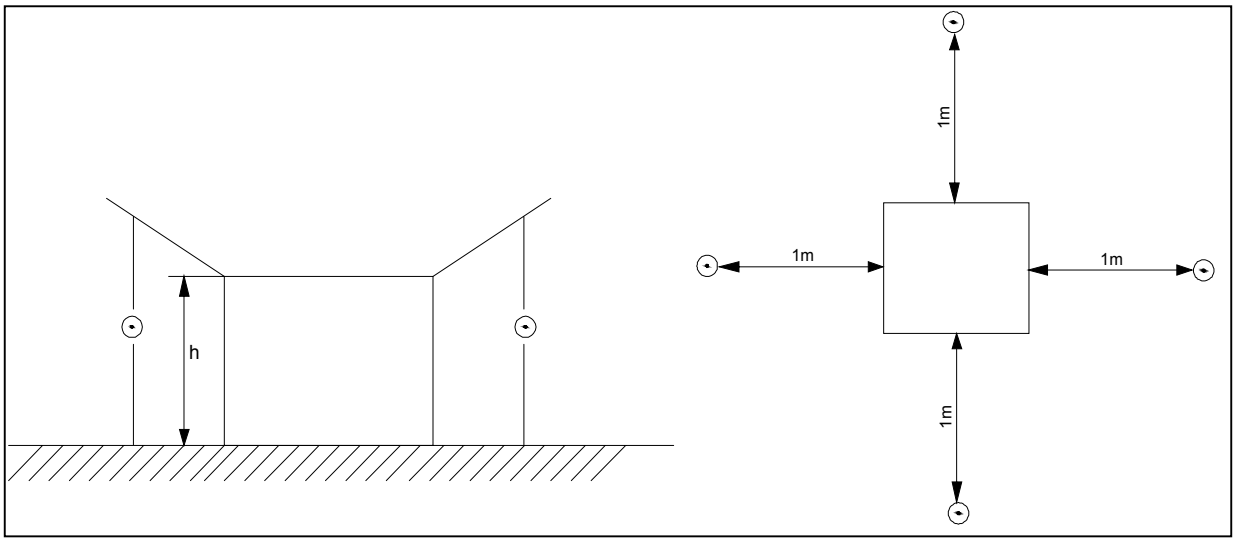
built-in-ceiling unit:



duct unit without auxiliary duct:



outdoor unit:
1.air outlet from side: the noise level is the average sound pressure level measured from front, left, right directions.
2.air outlet from top: the noise level is the average sound pressure level measured from front, back, left, right directions.
measured point:
H (height to the ground) = (h (unit height) + 1m) /2
and, it is 1m to each side.



Note: ⊙ is the real time analyser position

3. Safety precaution

Carefully read the following information in order to operate the airconditioner correctly.

Below are listed three kinds of Safety Cautions and Suggestions.

WARNING! Incorrect operations may result in severe consequences of death or serious injuries.

CAUTION! Incorrect operations may result in injuries or machine damages; in some cases may cause serious consequences.

INSTRUCTIONS: These information can ensure the correct operation of the machine.

Be sure to conform with the following important Safety Cautions.

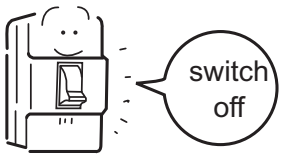
The Safety Cautions should be at hand so that they can be checked at any time when needed.

If the conditioner is transferred to the new user, this manual should be as well transferred to the new user.

WARNING!

- **If any abnormal phenomena is found (e. g.smell of firing), please cut off the power supply immediately, and contact the dealer to find out the handling method.**

  In such case, to continue using the conditioner will damage the conditioner, and may cause electrical shock or fire hazard.



- **After the unit being used for a long time, the base should be checked for any damages.**

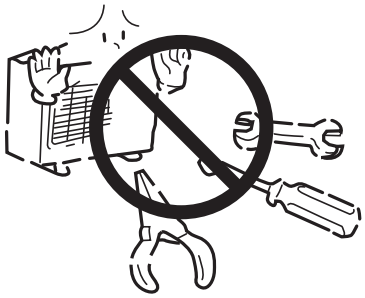
  If the damaged base is not repaired, the unit may fall down and cause accidents.

- **Don't dismantle the outlet of the outdoor unit.**

  The exposed fan is very dangerous which may harm human beings.

- **When the unit needs maintenance and repairment, please call dealer to handle it.**

  Incorrect maintenance and repairment may cause water leak, electrical shock and fire hazard.



WARNING!

- **Installed electrical-leaking circuit breaker.**

  It easily cause electrical shock without circuit breaker.

- **Air-conditioner can't be installed in the environment with inflammable gases because the inflammable gases near to air-conditioner may cause fire hazard.**

- **Please let the dealer be responsible for installing the conditioner.**

  Incorrect installation may cause water leak, electrical shock and fire hazard.

- **Call the dealer to take measures to prevent the refrigerant from leaking.**

  If conditioner is installed in a small room be sure to take every measure in order to prevent suffocation accident even in case of refrigerant leakage.

When conditioner is removed or reinstalled, dealer should be responsible for them.

Incorrect installation may cause water leaking, electrical shock and fire hazard.

- **Connect earthing wire.**

  Earthing wire should not be connected to the gas pipe, water pipe, lightning rod or phone line, in-correct earthing may cause shock.

Earthing

- **Nothing or nobody is permitted to placed on or stand on outdoor unit.**

  The falling of goods and people may cause accidents.

- **Don't operate the air-conditioner with damp hands.**

  Otherwise will be shocked.

- **Only use correctly-typed fuse.**

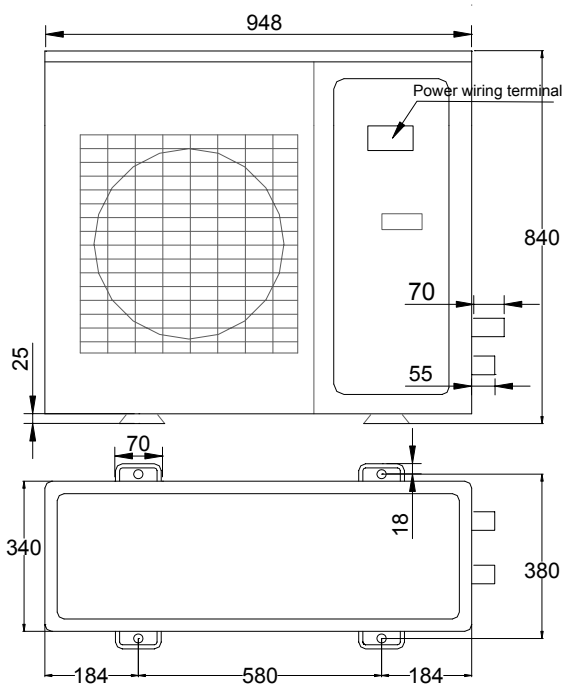
  May not use wire or any other materials replacing fuse, other-wise may cause faults or fire accidents.

- **Use discharge pipe correctly to ensure efficient discharge.**

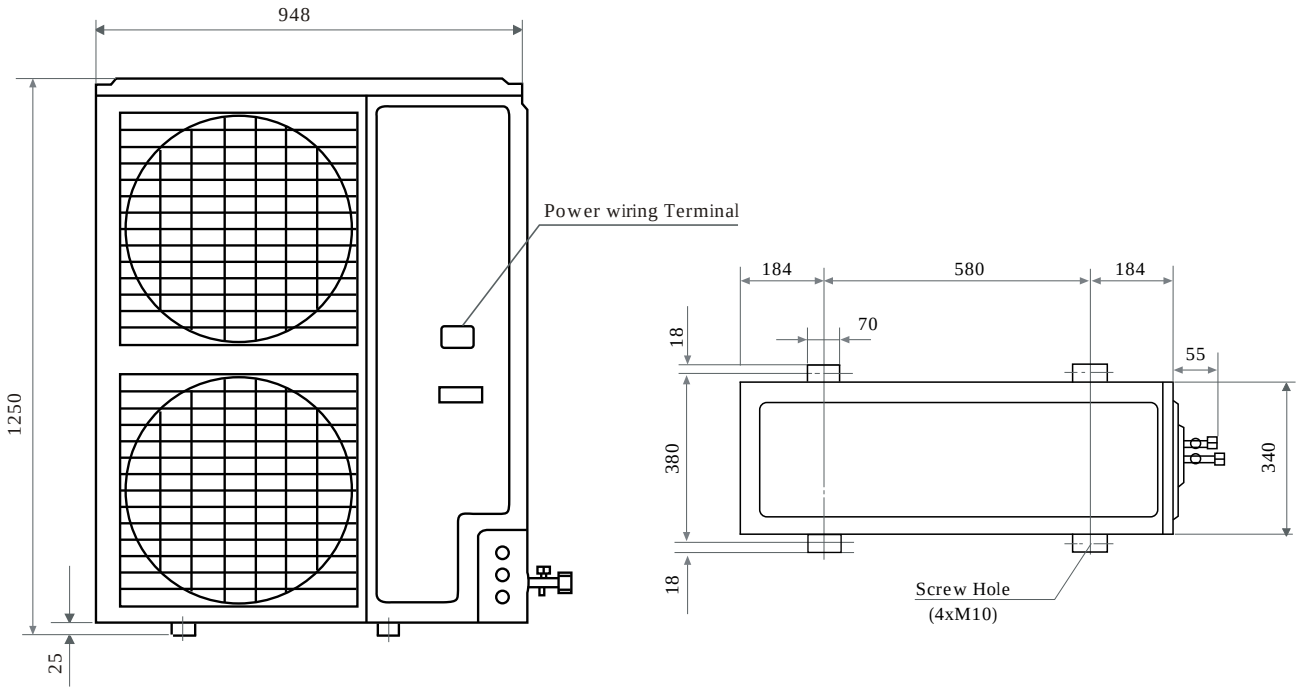
  Incorrect pipe use may cause water leaking.

4. Net dimension

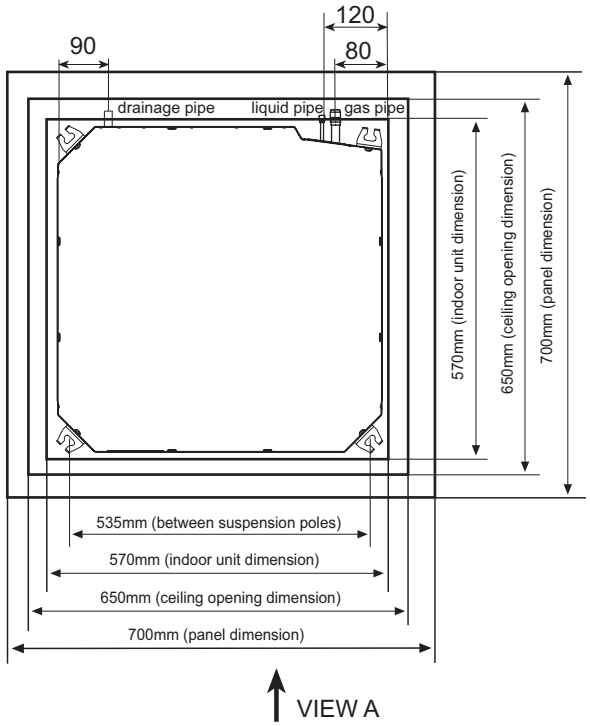
AU282FHAIA, AU342FHAIA:

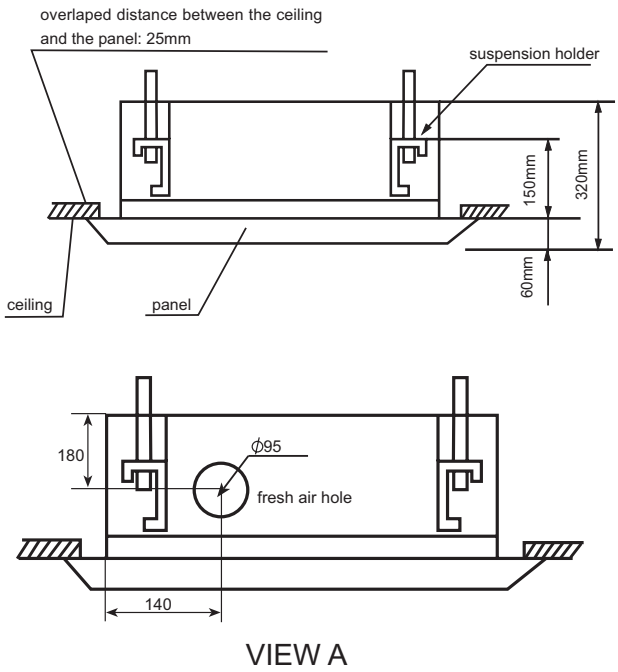


AU52, AU60

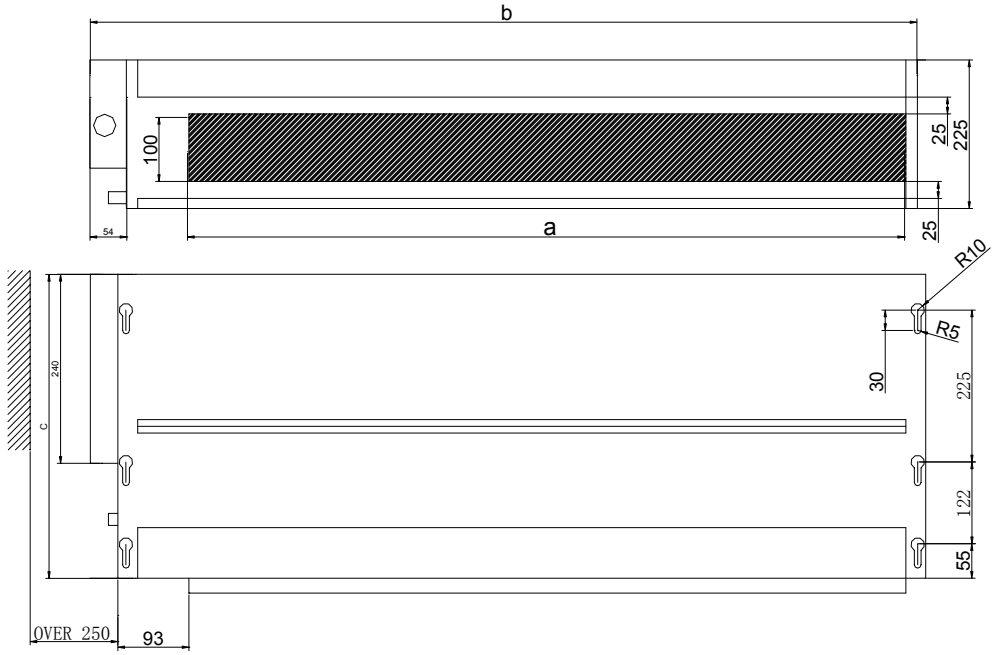


AB** Cassette unit:

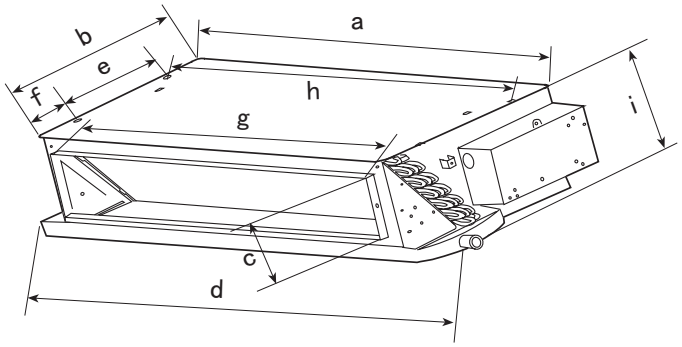




AE** Ceiling concealed unit



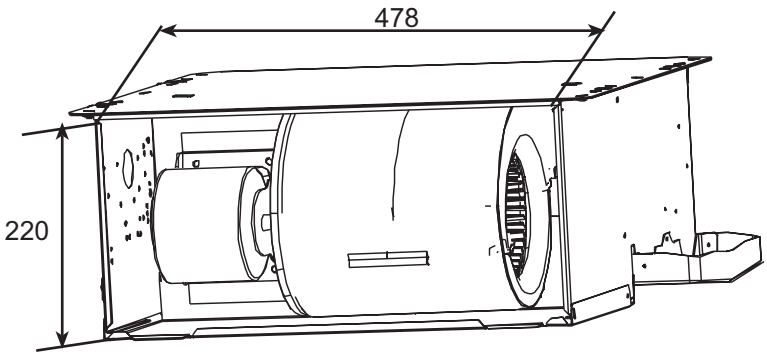
unit model	a	b	c
AE072FCAMA	615	650	452
AE092FCAMA	615	702	452
AE122FCAMA AE142FCAMA	704	800	452
AE182FCAMA AE212FCAMA	858	1020	452
AE242FCAMA	990	1350	452



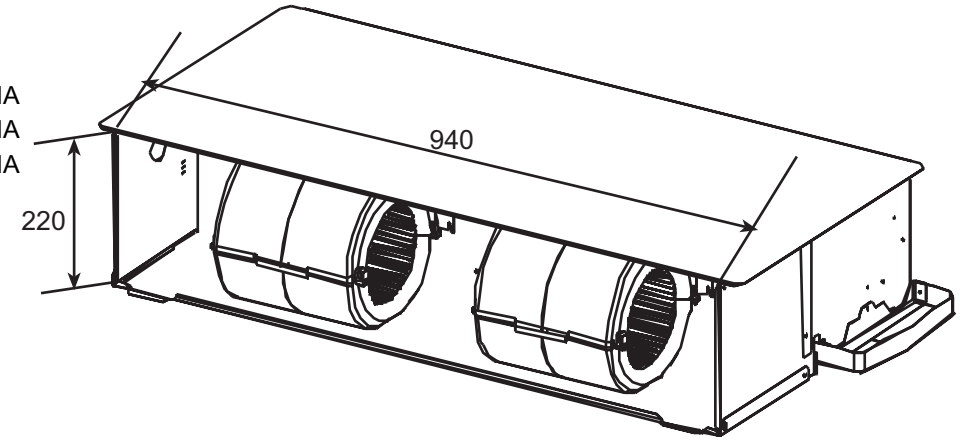
Installation dimension:(mm)

Unit model	a	b	c	d	e	f	g	h	i
AE072FLAIA AE092FLAIA AE122FLAIA	538	483.5	131	610	255	105	418	508	220
AE142FLAIA AE182FLAIA AE242FLAIA	1002	483.5	131	1105	255	105	880	970	220

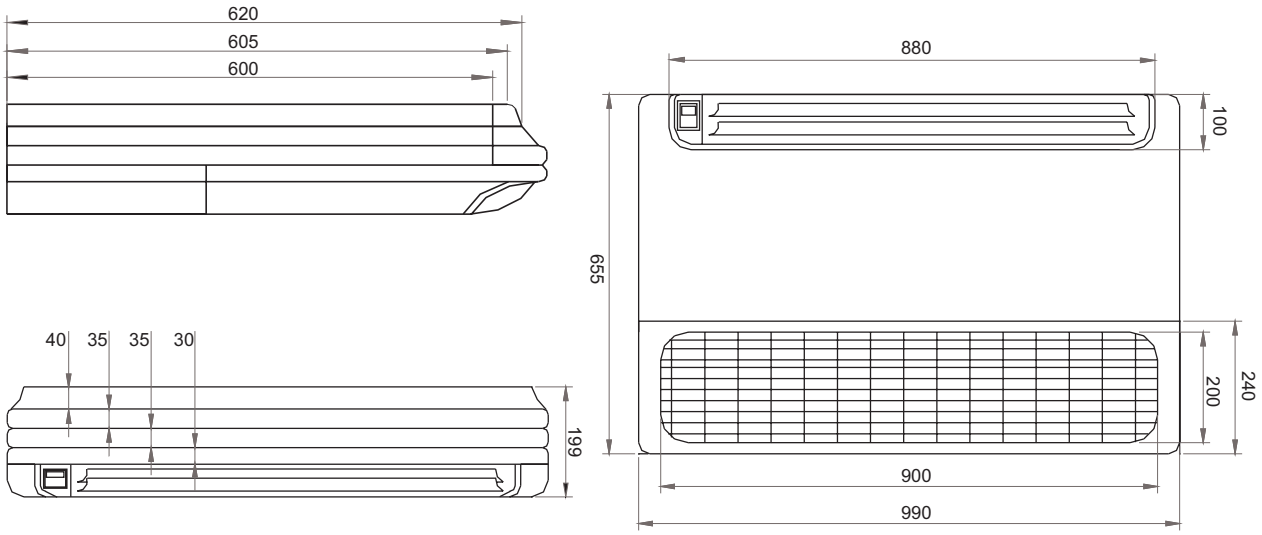
AE072FLAIA
AE092FLAIA
AE122FLAIA



AE142FLAIA
AE182FLAIA
AE242FLAIA

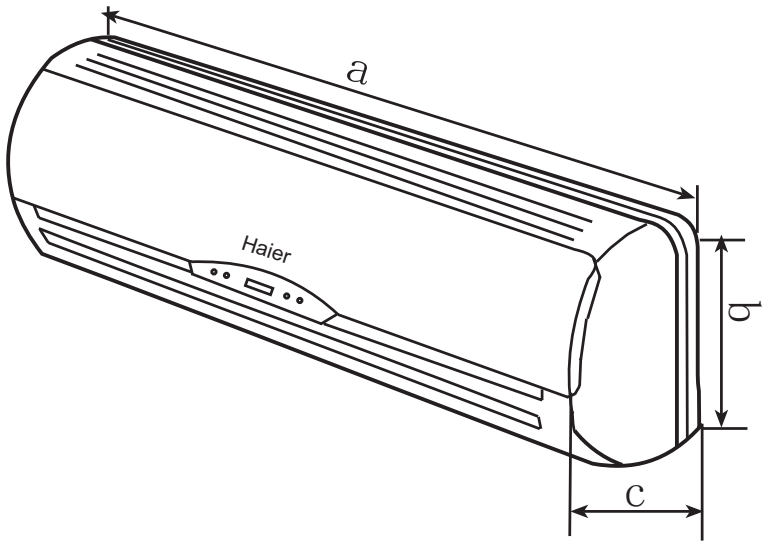


AC** convertible unit:

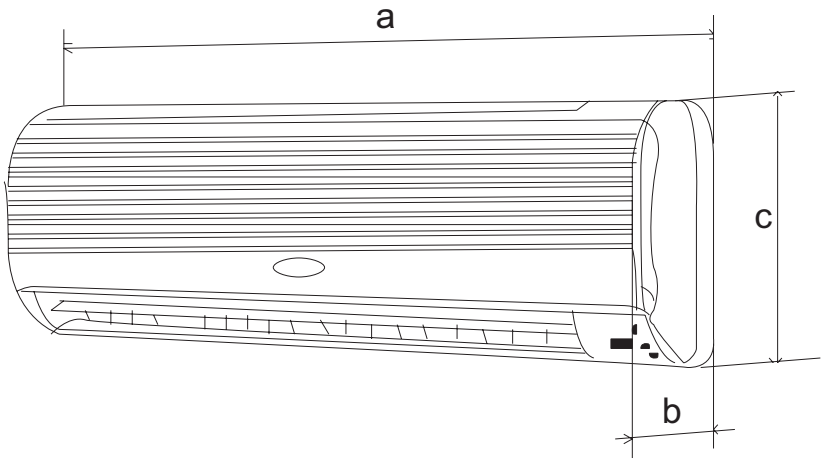


(mm)

AS** series



model	a	b	c
AS072FCAIA AS092FCAIA AS122FCAIA	795	265	182



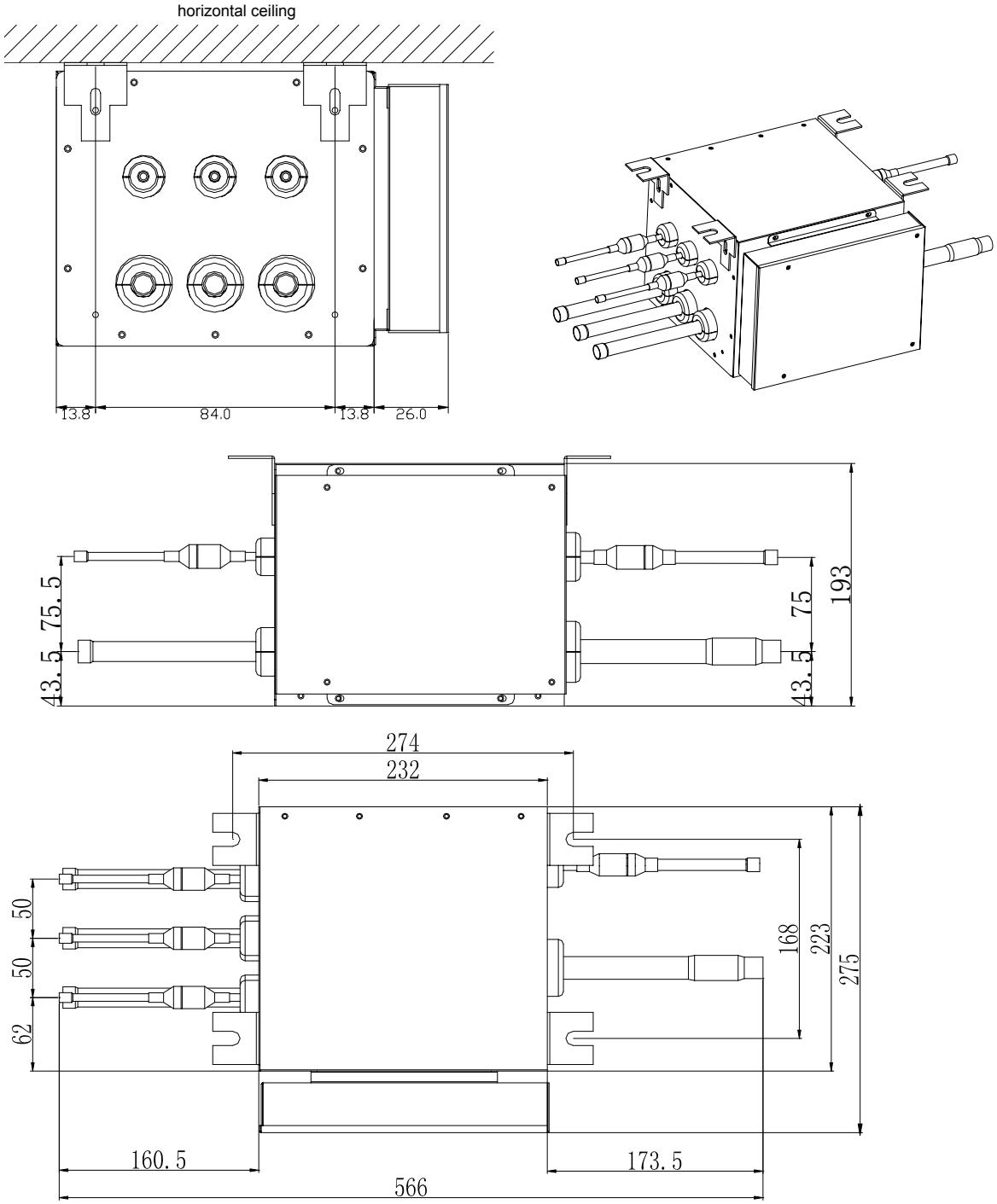
	a	b	c
AS182FTAHA	1100	205	330

Specification for MP2A, MP3A:

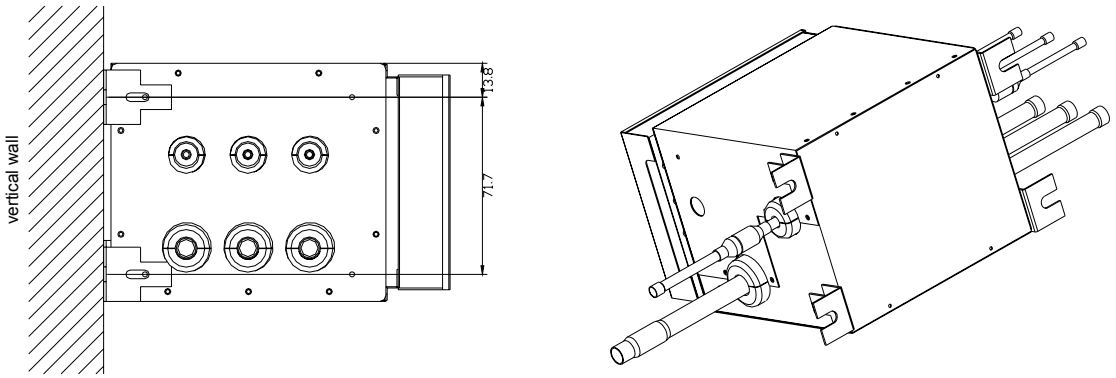
Model			MP3A（for 3 indoors）	MP2A（for 2 indoors）
Power supply			1PH,220V~50Hz	
Power consumption		W	11	
Running current		A	0.05	
Dimension (HxWxD)		mm	199 × 275 × 566	
Net weight		kg	6	5
Wire quantity			4 wires, including power cable	3 wires, including power cable
Connecting liquid pipe(welded)	Main liquid pipe	mm	Φ9.52	Φ9.52
	Branch liquid pipe	mm	Φ6.35, Φ9.52	Φ6.35, Φ9.52
Connecting gas pipe(welded)	Main gas pipe	mm	Φ15.88, Φ19.05	Φ15.88, Φ19.05
	Branch gas pipe	mm	Φ 9.52, Φ 12.7, Φ 15.88 (with changing pipe)	Φ 9.52, Φ 12.7, Φ 15.88 (with changing pipe)
Heat insulation material			PS	
Min. total indoor capacity		KW	1.8	1.8
Max. total indoor capacity		KW	7.1	7.1

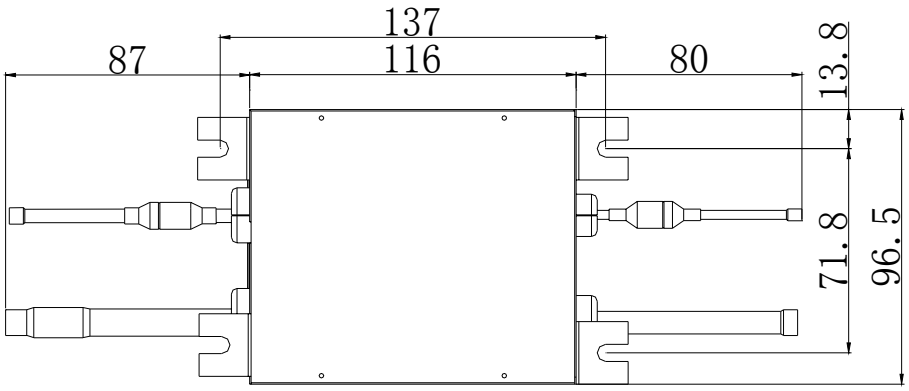
Dimensions for MP2A, MP3A:

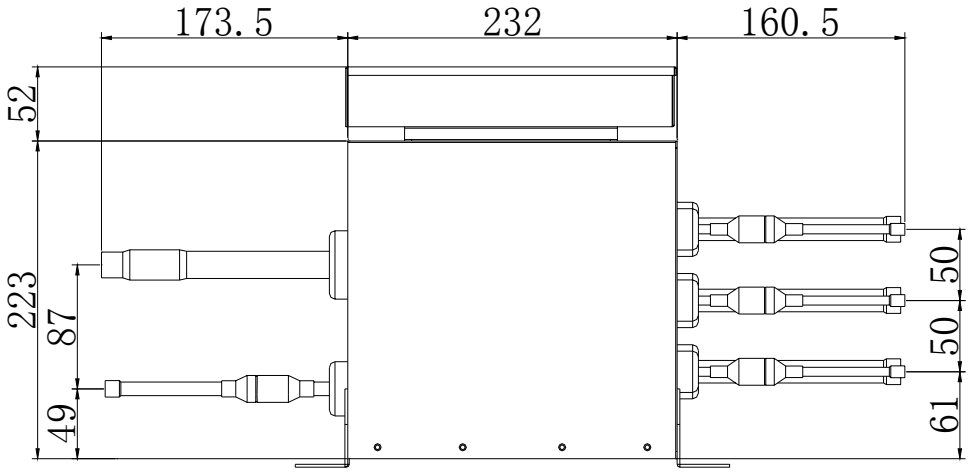
Installation on the horizontal ceiling:



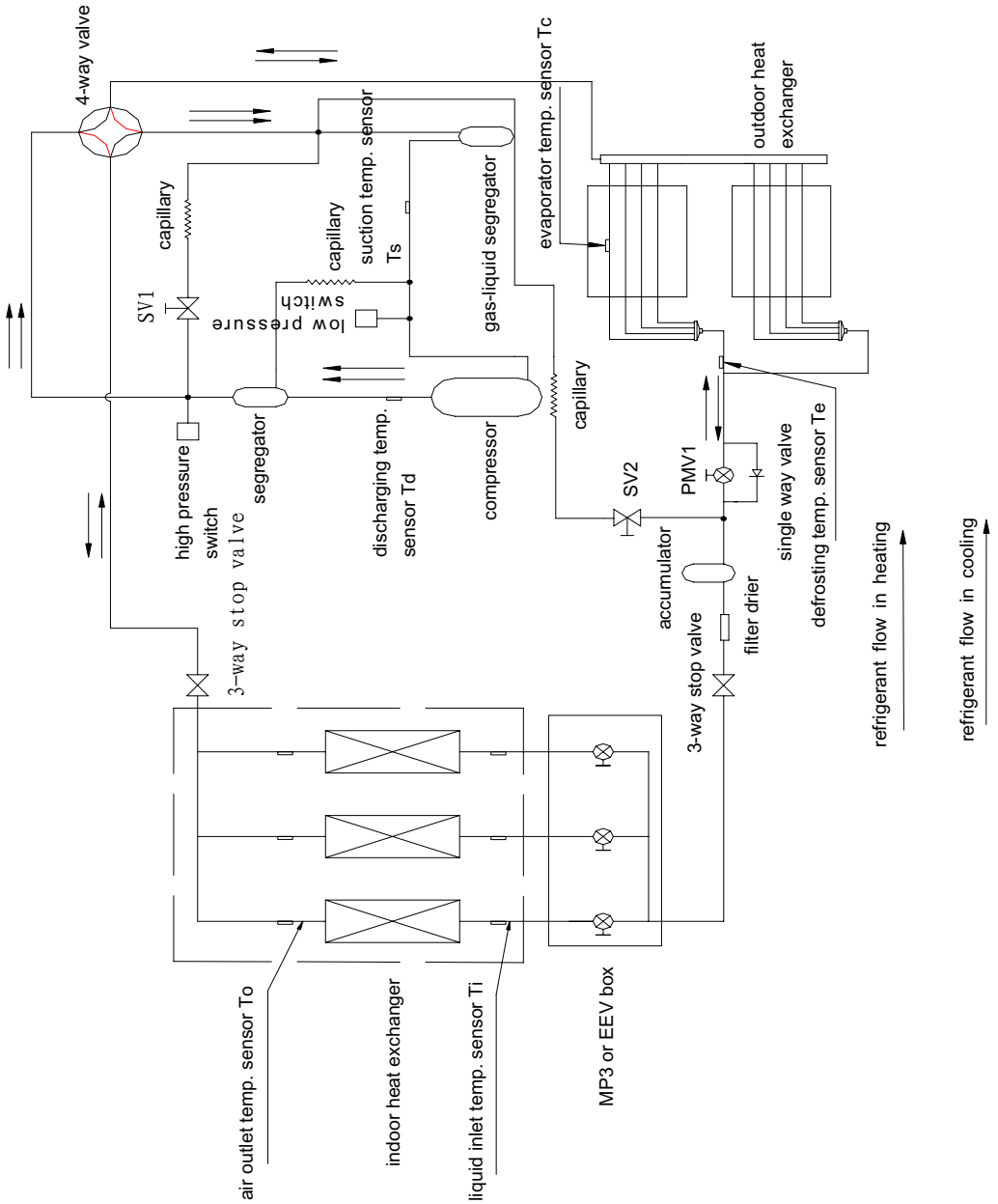
Installation on the vertical wall (adjust the installation position by fixing holder):







AU60NFIAKA refrigerant circuit:



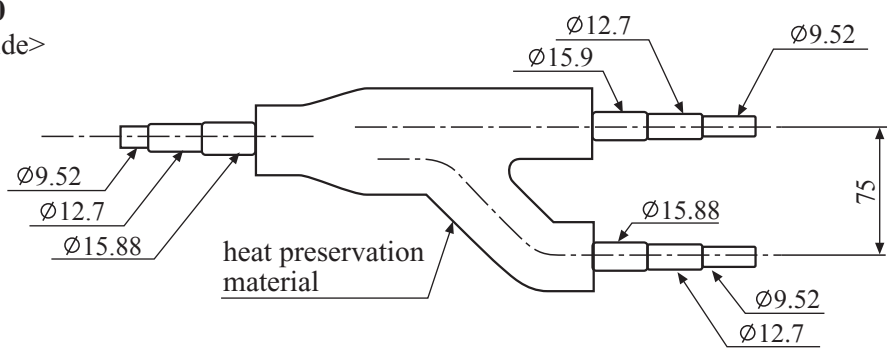
5.1 Piping dimension chart

model	liquid pipe		gas pipe	
	mm	inch	mm	inch
AU28	9.52	3/8"	15.88	5/8"
AU34	9.52	3/8"	15.88	5/8"
AU52	9.52	3/8"	19.05	3/4"
AB09	6.35	1/4"	12.7	1/2"
AB14	6.35	1/4"	12.7	1/2"
AB18	6.35	1/4"	12.7	1/2"
AC18	9.52	3/8"	15.88	5/8"
AE07	6.35	1/4"	9.52	3/8"
AE09	6.35	1/4"	9.52	3/8"
AE12	6.35	1/4"	12.7	1/2"
AE14	6.35	1/4"	12.7	1/2"
AE18	9.52	3/8"	15.88	5/8"
AE21	9.52	3/8"	15.88	5/8"
AE24	9.52	3/8"	15.88	5/8"
AS07	6.35	1/4"	12.7	1/2"
AS09	6.35	1/4"	12.7	1/2"
AS12	6.35	1/4"	12.7	1/2"
AS18	9.52	3/8"	15.88	5/8"

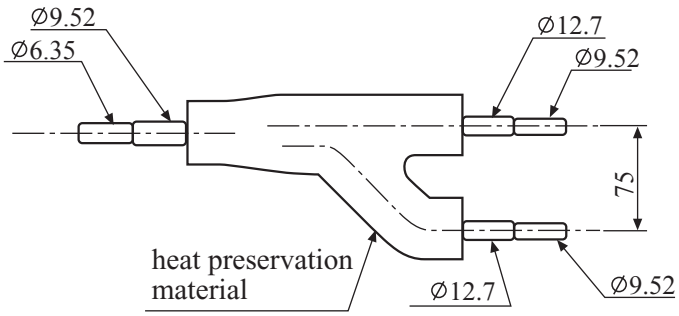
5.2 Y-shape manifold pipe

model: FQG-B120

<gas side>

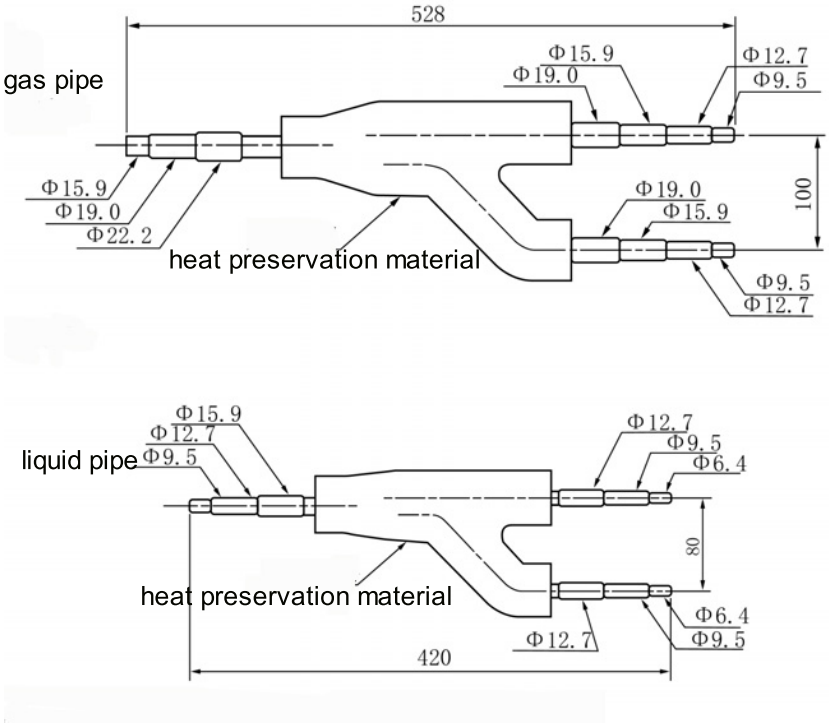


<liquid side>



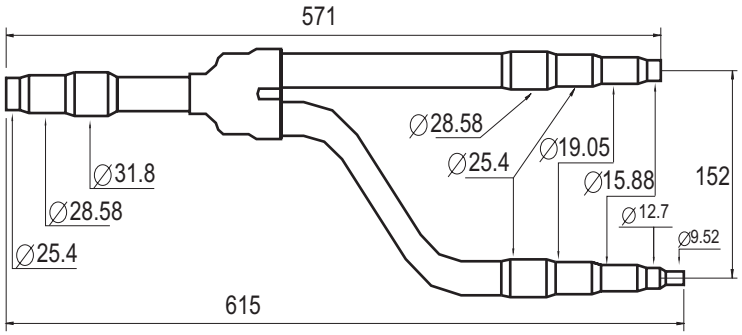
Dimension is the out diameter connecting to the tubing.

FQG-B180

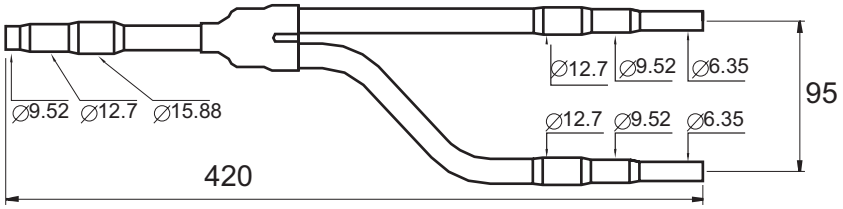


FQG-B370

gas pipe



liquid pipe



Branch pipe selection:

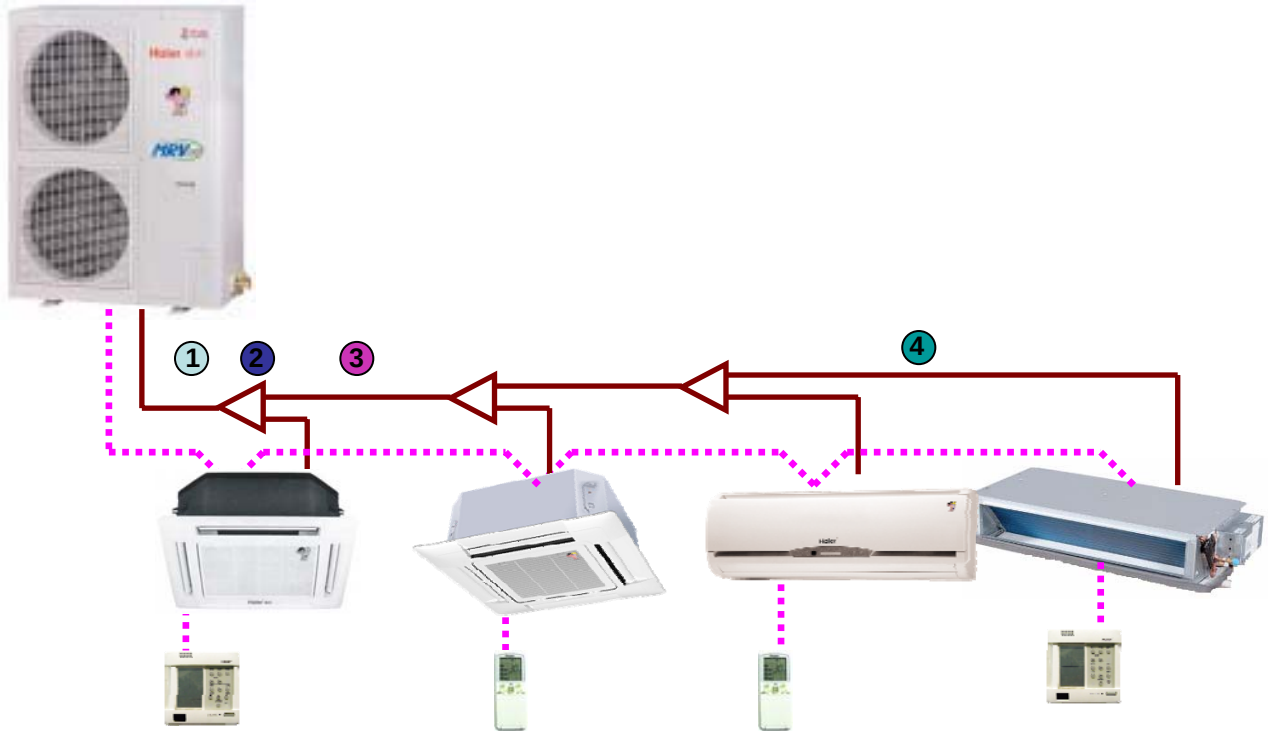
1. The pipe between outdoor to the 1st branch pipe should be identical to the outdoor stop pipe. For example, for AU60, liquid pipe is 12.7; gas pipe is 22.22.
2. The branch pipe should be selected as the indoor capacity:

total capacity after the indoor	capacity	gas pipe	liquid pipe	branch pipe
	～ 9500	φ15.88	φ9.52	FQG-B120
	9500 ～17900	φ19.05	φ9.52	FQG-B180
	17900～	φ22.22	φ12.7	FQG-B370

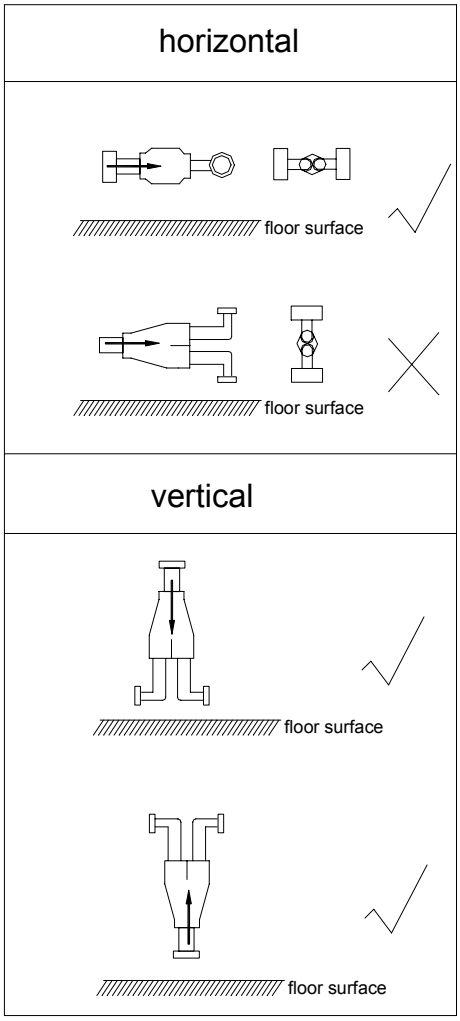
3. The pipe between branch pipe should be confirmed as the total capacity of the indoors after the branch pipe.

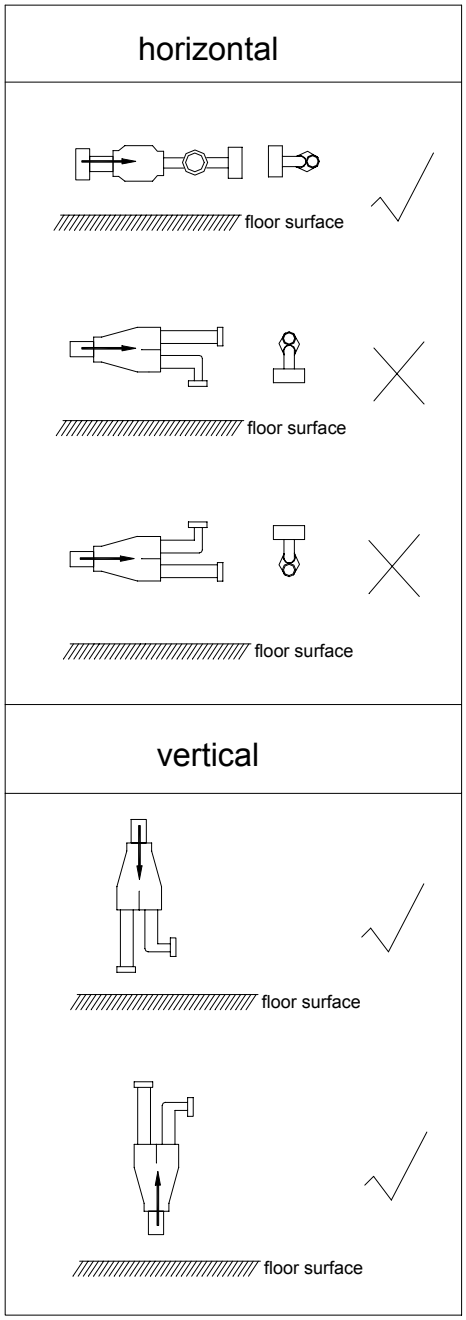
Total indoor capacity (100W）	Gas pipe	Liquid pipe
＜9.5	Φ15.88	Φ9.52
9.5≤～≤17.9	Φ19.05	Φ9.52
17.9≤	Φ22.22	Φ12.7

4. The pipe between branch pipe and indoor should be identical to the indoor pipe. But if the pipe is more than30m from the 1st branch pipe, the gas pipe should be enlarged for a larger specification.



In the file, the figure marked with " √ " is permitted, and the figure marked with "×" is prohibited.
You can confirm the position according to the actual condition.
The refrigerant flow direction is always from the collective side to the divided side.

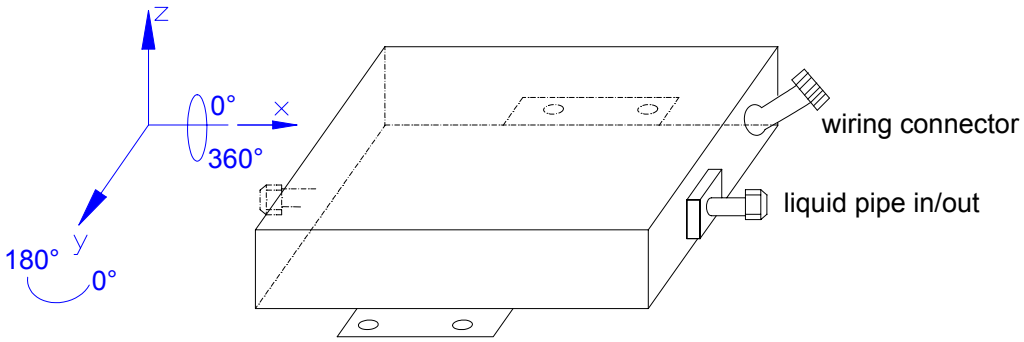




5.3 Instructions for the Electrical Expansion Valve Boxes

The E.E.V.B. general information for the C-MRV and H-MRV indoor units.

1. Installation position



***Z**: vertical direction*

***X, Y**: horizontal direction*

2. Installation place

The box should be installed where the place:

a. do not have vibrations;
b. easy to piping with the indoor and the outdoor unit, and the distance from the box to the indoor unit should not exceed a certain value;
c. do not have a heat or steam source nearby;
d. should be sunless and be dry;
e. should be well ventilated and rainproof;
f. do not have a strict noise restriction, because when working the box may make some noise;

5.4 MP2A, MP3A Installation Requirement

1. Cautions

1.1 The place should be strong enough to support this equipment, no vibrantion;

1.2 The place where is convenient to install the indoor unit, outdoor unit and the refrigerant pipe, and the length of the pipe is in the permitted range;

1.3 No heat source and gas source nearby;

1.4 The place has enough space for installation and maintenance;

1.5 Don’ t installation in the place in the state of high temperature and high humidity for a long time;

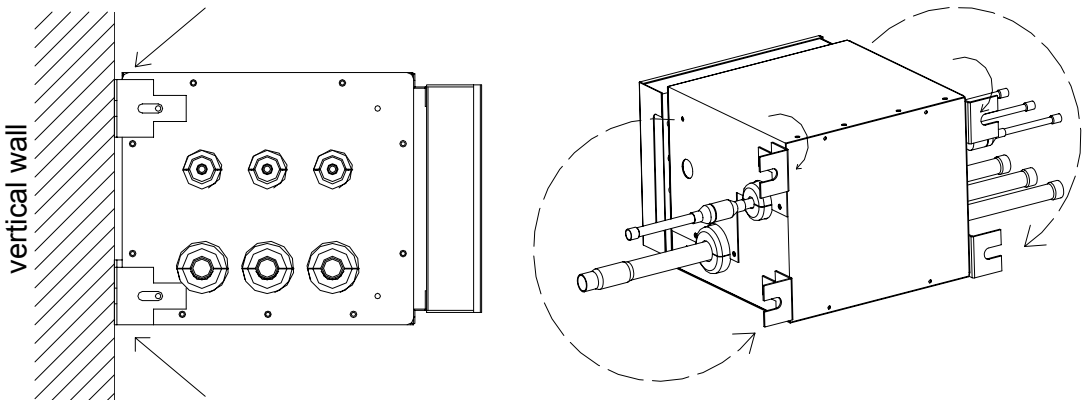
1.6 The place with good ventilation, no direct sunshine and rain;

1.7 Don’ t install the unit near the bedroom because of the refrigerant flow noise;

Please refer to the cautions and warnings in the operation manual about the other safety cautions.

2. Installation Method

2.1 MP2A, MP3A can be installed on the horizontal ceiling or the vertical wall by adjusting the fixing holder. The maintenance plate should be installed on the place easy to maintain and near the place, there should be checking hole with 600mm*600mm (adjust the fixing holder as below figure).



2.2 The equipment has been dealt with the EPS heat insulation material, so the drainage pipe needs not any other treatments.

2.3 The pipe connected to indoor is led from the branch pipe of the equipment. The gas pipe diameter can realize to match with different diameters by the changing pipe according to the indoor pipe diameter request.

2.4 In installation, the equipment gradient should be in the range of ±5° , or it may cause electronic expansion valve body in the equipment leakage or the other bad control failure.

2.5 Bolt, screw cap and gasket to fix the equipment will not be supplied by factory.

3. Wiring Connection

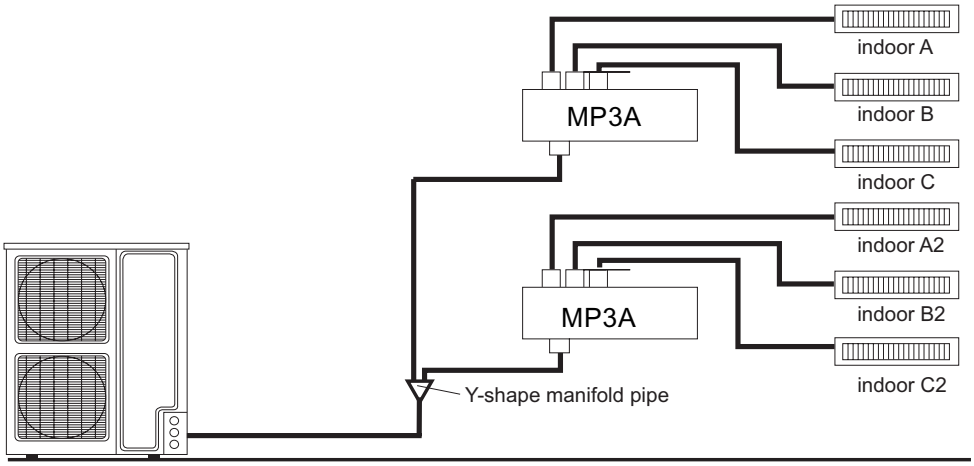
3.1 The wire and refrigerant pipe must be connected to the corresponding place (refer to marks on the equipment and the terminal block as 1,2,3).

3.2 Wiring diagram is sticked on the back of cover plate, and the wiring must be performed according to the wiring diagram, or the control will be bad or indoor and the equipment will be damaged.

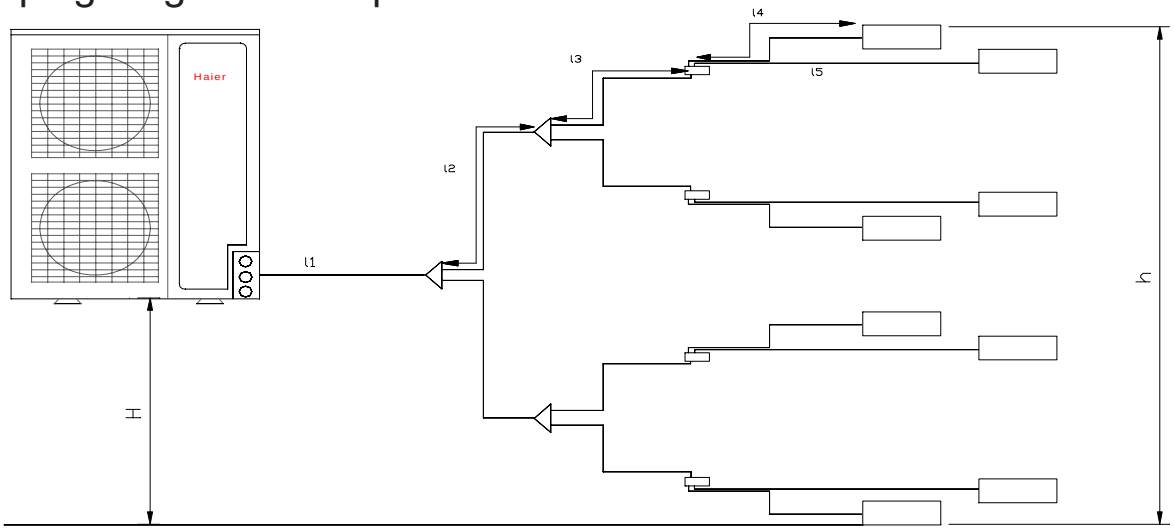
3.3 After wiring, the wires must be fixed with the wire clip firmly, in case that the electric control parts are damaged or occurs person injury.

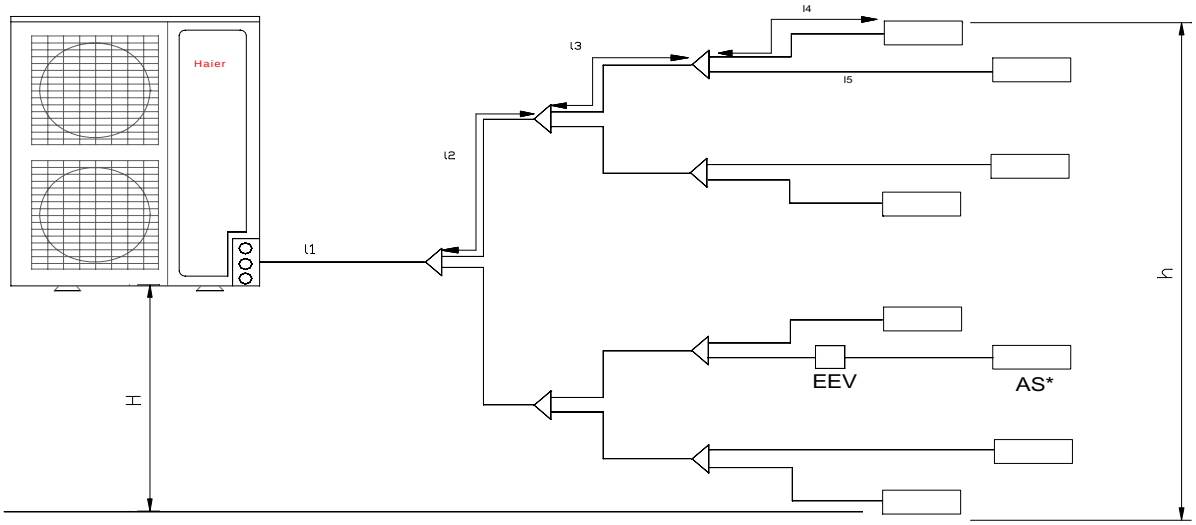
5.5 Connecting figure:

MP2A can be used for two indoor units, please confirm the MP2A quantity according to the actual indoor units.
MP3A can be used for three indoor units, please confirm the MP3A quantity according to the actual indoor units.
Installation method is below, which only takes MP3A as an example. Please pay attention that the gas pipes installation is as the same as the condition without MP2A(MP3A).



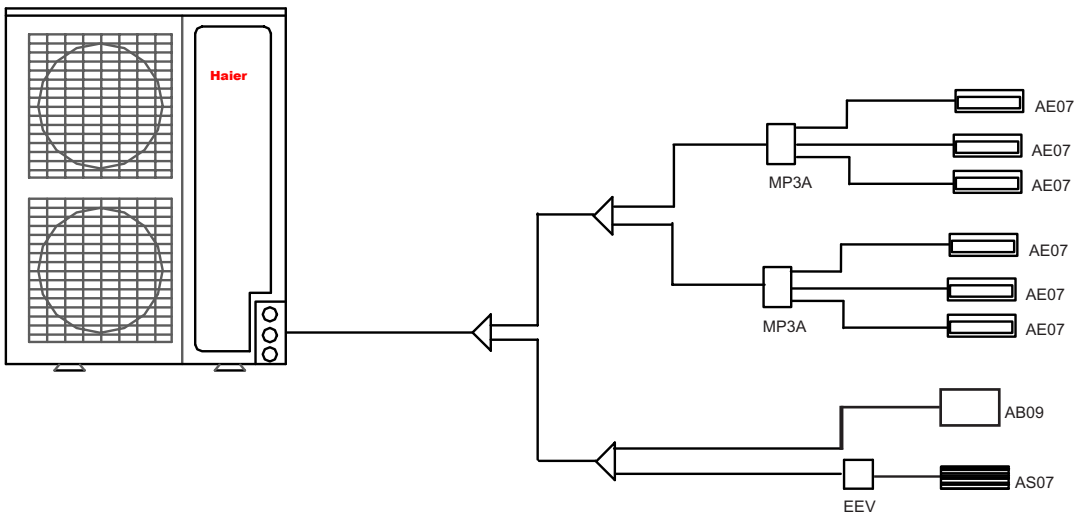
Piping length and drop between units



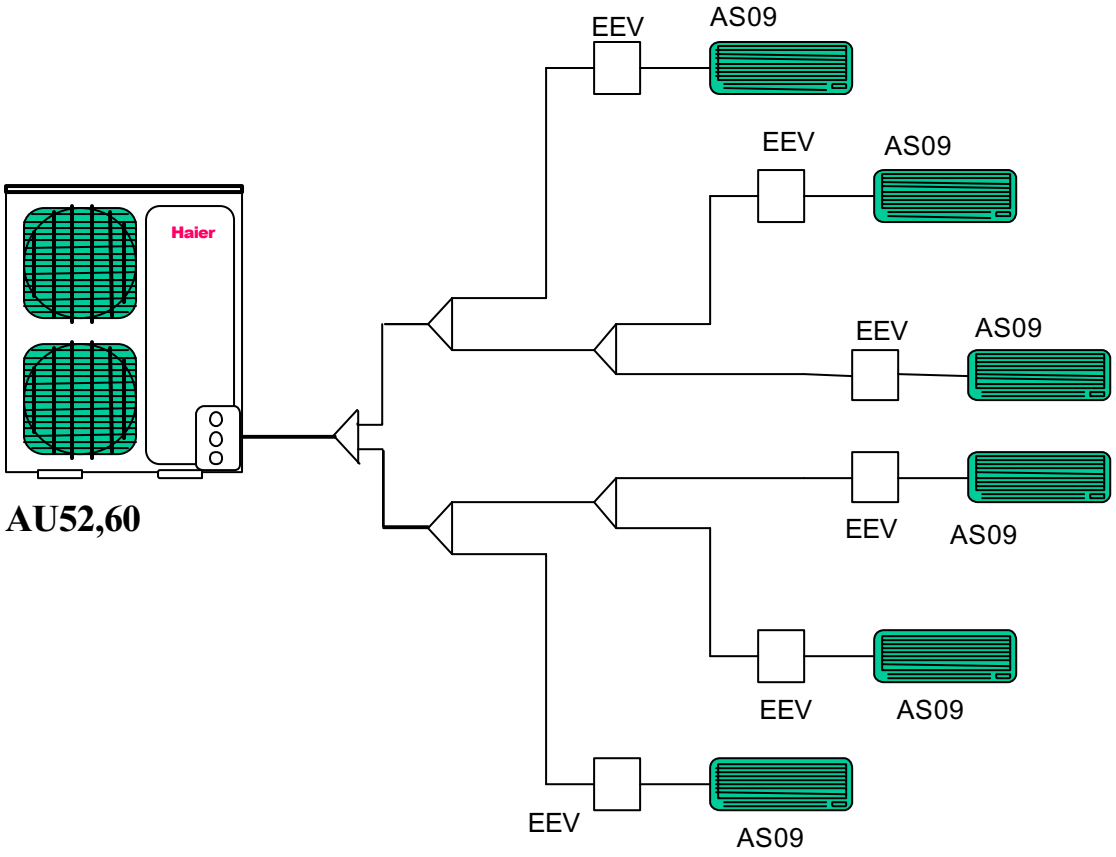


1) When connected with 8 units,indoor units refer to <admissible combination examples>
2) Total length=l1+l2*2+l3*4+l4*4+l5*4<=100m
3) Max. piping length =(l1+l2+l3+l5)<=70m
4) Max. piping length between the indoor unit and the first branch pipe<=30m
5) Max. drop between outdoor unit and indoor unit: H<=20m(indoor above outdoor);H<=30m(indoor below outdoor)
6) Max. drop between the two indoor units : h<=10m
7) Expansion valve is less than 15m to its corresponding indoor unit
8) Only wall mounted types are connected with expansion valves.
9) The expansion valves of different indoor models are different.
10)The first branch pipe must use FQG-180,the others use less than it.

Combination example:
8 by 1:



Note:
1.AU28 can connect with max. 5 indoor units, and AU52 can connect with max. 8 indoor units, but pay attention that the total indoor capacity can not exceed 130% of outdoor cooling capacity.
2. The ceiling concealed unit must connect with the outdoor unit through the MP2A or MP3A; the wall mounted unit must connect with the outdoor unit through the exterior EEV box, and EEV only can be installed on the liquid pipe. While for the cassette unit, because it has the built-in EEV, so it need not anything and it can connect to outdoor directly. But for new ceiling concealed unit AE*FLAIA, it need not MP2A or MP3A, it is with built-in EEV.



5.6 The Order of Installation Work

Item	Work	Main points
Before installation	Work division	-to ascertain the person responsible for installation of pipes and wiring
	Make installation diagram	-to ascertain the pipe installation dimension and position of electronic expansion valve, to make control wiring system diagram
Work	Installation of indoor and outdoor unit	-to prevent the ventilation from short circuit and guarantee repair space
	Refrigerant pipe work	-Pay attention to dry, clean and seal
	Drain pipe work	-Slant downward
	Heat insulation work	-No gaps in the joint of heat insulation material
	Wiring work (control wire, power cord)	-Choose the proper wire and cord
	Set every set switch	-Should be complied with control wiring system diagram
	Airtight test	-Close all the gas, liquid valves
	Vacuum drying	-Should the vacuum pump that can reach 200Pa vacuity
	Additional refrigerant	-Write down the additional refrigerant amount on the outdoor unit body and record table
	Test run adjustment	-Do test run to indoor unit one by one to verify if there is wrong pipes
	Training of use and maintenance	-Explain to user, simultaneously provide all the documents

The above work order is general knowledge, they may be changed to be complied with the specific work site.

5.7 Attentive matters of safety

- Before installing, do read this [Attentive matters of safety] carefully to guarantee the proper installation.
- The below attentive matters are divided into [warning] and [note] two parts. When the wrong installation occur, it is very possible death and severe injury and other serious accidents will happen. For those items are listed in [warning] part. But even the items listed in [note] part can also cause serious accidents. Above all, both the two parts are very important contents related to safety, so they must be obeyed.
- After installation, do test run to verify everything is normal, after that please explains the use method and maintenance method to the user according to the operation manual. Additionally, give the installation manual together with operation manual to the user and ask them to keep them properly.

Warning

- The distributing shop, where you bought the air conditioner, or the specified shops shall do the installation work. If you do the installation work by yourself, the improper installation will cause water leakage, electric shock fire and other accidents.
- The installation work shall be in line with what the installation manual specified. If installation is not proper, water leakage, electric shock, fire and other accidents will occur.
- Install the air conditioner to a place where can definitely stand its weight. Places not firm enough will cause drop down of unit resulting in body hurt.
- The installation work shall be preventive to typhoon and earthquake. If the installation

work is not met with the requirements, overturn of the unit will occur resulting in accidents.

- The wiring work shall be done by a qualified person and referred to the "technical standard of electric equipment", "indoor wiring regulation" and what the manual specified. Do use special circuit. If the capacity of the circuit is not enough or bad work, electric shock, fire and other accidents will happen.
- Using the specified cable to do wiring work and connecting firmly and properly. Fix the connecting part of the terminals to prevent it from the external force. Improper connection and fixing will cause heating and fire etc. accidents.
- Wiring shall be kept in correct shape avoiding extrusion. After installation, the electric box cover and the external panel shall not nip the wire. Improper installation will cause heating and fire etc. accidents.
- When setting or moving the air conditioner do not let the air and things alike get into the refrigeration system except the specified refrigerant. If air and other things enter,abnormal high pressure will occur, which easily cause break and body injuries etc.

- When installing, do use the accessories or specified parts. If not using the parts specified by our company, water leakage, electric shock, fire and refrigerant leakage will occur.
- Do not lead the drainpipe to drain where the sulfur gas may be involved. Otherwise, the poisonous gas will enter into the indoor.
- During installation, if refrigerant leakage occurs, do the ventilation work immediately. As soon as the refrigerant gas meets fire, poisonous gas will be produce. If the refrigerant gas enters into room and meet the air blowing heater, heater or stove etc. fire source, the poisonous gas may be produced. After installation, confirm there is no leakage of refrigerant.
- Do not install the unit in a place where the combustible gas may be leaked. In any case the combustible gas leaks and accumulated around the unit, fire accident will occur.
- Do heat insulation work to the refrigerant gas pipes and liquid pipes to reach the purpose of heat preservation. If the heat insulation measure is not sufficient, water generated by condensing dew will drip leading to wet the floor and indoor articles.
- Do not damage the power line or change it arbitrarily to avoid occurrence of fire or electric shock.
- Do not extend the power line or using other electric appliance in the same power receptacle to avoid fire or electric shock.

Note

- Do grounding work. Do not connect the grounding wire to gas pipe, tap, lighting rod or telephone line. Improper grounding will cause electric shock.
- In some places the electric leakage breaker shall be installed. If do not install the breaker, electric shock may occur.
- After installation, power on to do electric leakage detecting test.

5.8 Special Work and Main Points in Installation

Warning

● During installation, if refrigerant leakage occurs, take ventilation measurement immediately. ● As soon as the leaked refrigerant gas meets fire, poisonous gas will generate.	● After finishing installation, confirm the refrigerant gas does not leak. ● If the refrigerant gas leaks in the room, once it meets heater, burner and gas stove etc. fire source, the poisonous gas will generate.

A. Choosing of pipes

According to the following indoor unit and outdoor unit installation diagram to choose the material and size of pipes and branch pipes.

B. Connection of pipes

1 Method of pipe connection

a. The pipe shall be as short as possible to guarantee efficiency.

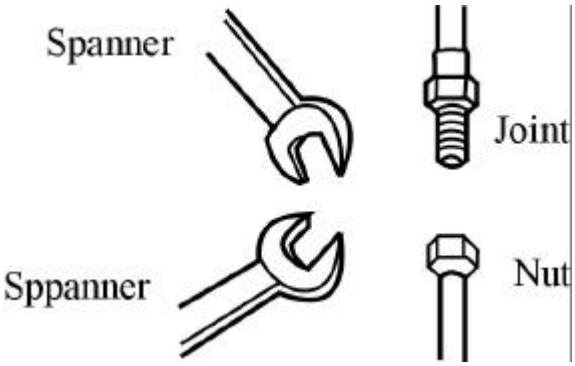
b. Daub the refrigerant oil on the connection and flare nut.

c. When bending the pipes, give the roundness as large as possible, to avoid crashing the pipes.

d. To connect the pipe, fit the center and screw the nut with hand, then use spanner or torque wrench to tighten it. The fastening torque as shown in below table. As shown in figure.

e. Be careful alien matters, such as sands, water etc. shall not enter the pipes.

Forced fastening without careful centering may damage the threads and cause gas



2. Welding of pipes

a. In welding, the nitrogen shall be used to avoid oxidation of the pipe inner part.

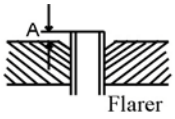
b. The refrigerating pipe shall use clean new pipes. When working, it shall take steps to prevent water and dust from entering.

c. When loosening and tightening the nuts, two spanners shall be used. If using one spanner, it can not reach the desired degree of tightness.

Using the specified fastening torque to fasten nuts.

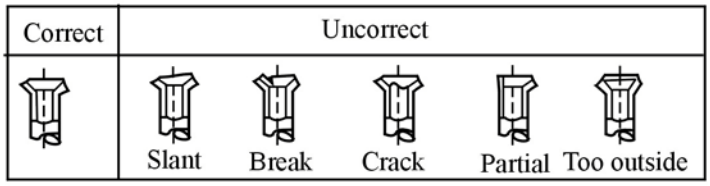
Pipe diameter (mm)	Installation torque (N.M.)	Fastening torque (N.M.)
6.35	11.8 (1.2kgf.m)	13.7 (1.4kgf.m)
9.52	24.5 (2.5kgf.m)	29.4 (3.0kgf.m)
12.7	49.0 (5.0kgf.m)	53.9 (5.5kgf.m)
15.88	78.4 (8.0kgf.m)	98.0 (10.0kgf.m)

3.Method of cutting and flaring pipe

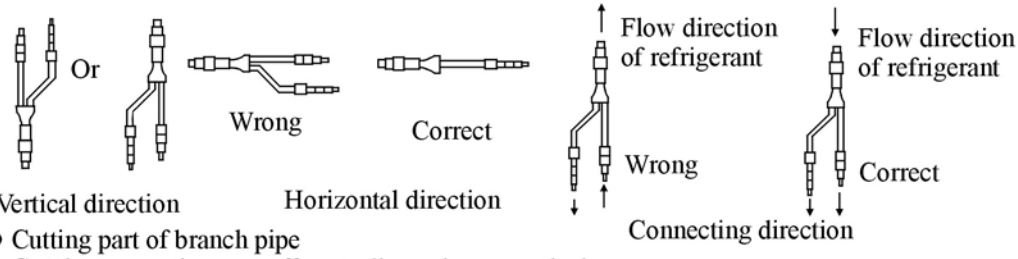


Diameter of pipe	Dimension A (mm)
Ø 6.35mm(1/4")	0.8~1.5
Ø 9.52mm(3/8")	
Ø 12.70mm(1/2")	2.2~2.6
Ø 15.88mm(3/4")	

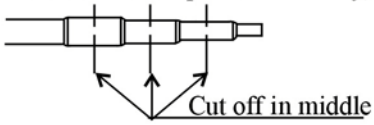
Cutting and flaring pipe
If using pipe cutter, the burs must be removed.
After inserting flaring machine, flare pipe nozzle to be bell-mouthed.
When using branch pipes, do installation work in the directions shown in the below figures.



When using branch pipe, please install it as shown in the following Fig.

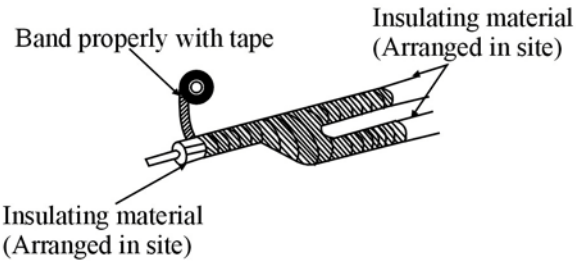


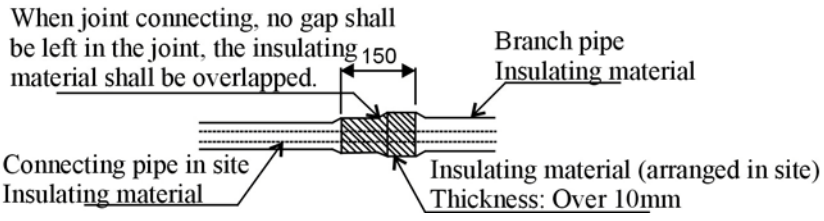
Cutting part of branch pipe
Cut the connection part off centrally, and remove the burs.



For the cutting of branch pipes, it is necessary to use micro-cutter.

Heating insulation of pipes
Insulation of branch pipe part;after connection the attached heat insulation materials of the branch pipe with the site pipes, bind them properly.





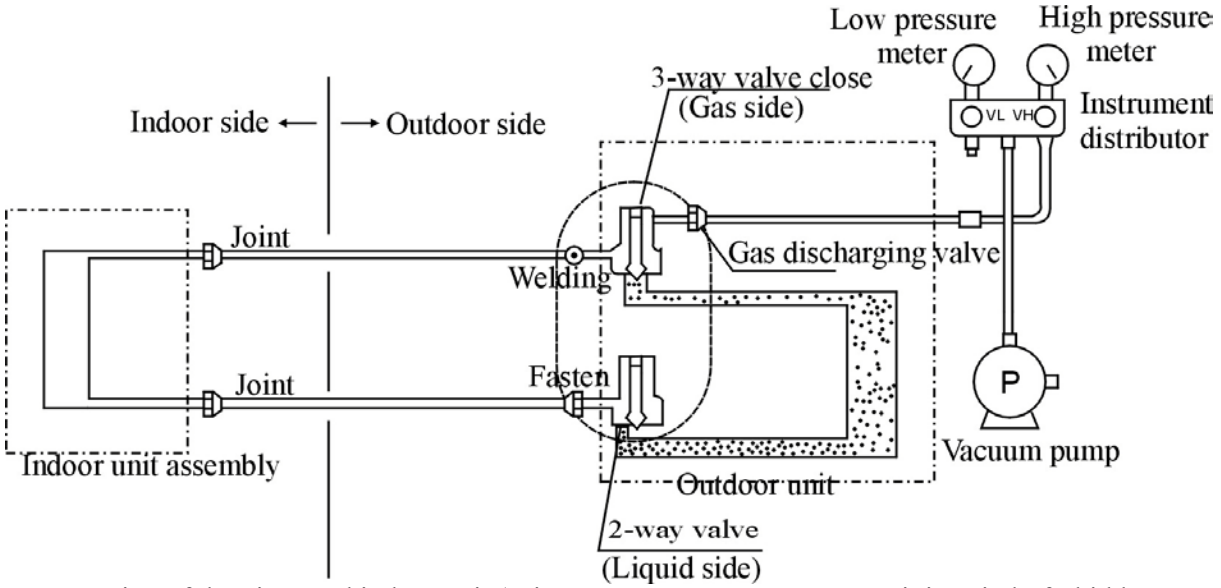
(4) Pipe connection of the outdoor unit

Referring to the installation diagram in previous information, connect the indoor unit, outdoor unit, branch pipe and electronic expansion valve together by using the pipe connection method and welding method.

For AU60NFIAKA indoor and outdoor connection, please weld the low pressure side with hard solder, and weld the high pressure side with flared type.

5.9 Test of leakage after wiring work is finished

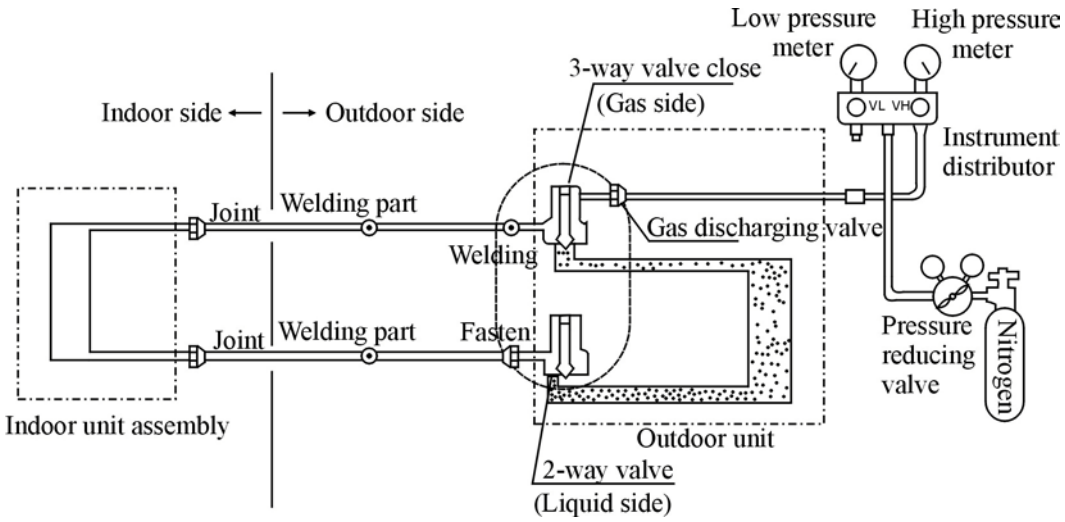
After connection of the refrigerant pipes, carry out leakage test. In this test, pressurize to the pipes as shown in the below figure by using nitrogen tank.
Close the valves of the gas side and liquid side totally.
The nitrogen may enter the cycle system of the outdoor unit, so that, before pressurizing, the valve rods must be fastened. (Both the gas side and liquid side).
For each of the refrigerant system, pressurize from the discharge valve of gas side in procedure.
When doing leakage test, it is absolutely forbidden to use oxygen, flammable gas and poisonous gas. The indoor unit expansion valve must be open.



5 vacuuming of the pipes and indoor unit (using vacuum pump to vacuums, it is strictly forbidden to use refrigerant purging)

a. Choose of vacuum pump: it shall choose those that can reach a good vacuity (over 200Pa)and have a large air discharge amount (over 40L/min).

b. After finishing the airtight quality test and the nitrogen discharging , connect the instrumental diverter to the 3-way discharge valve, then connect the vacuum pump according to the below figure.



c. Vacuumize 2~3 hours according to the length of the pipe. When vacuuming, confirm the gas side and liquid side of the 2-way valve and 3-way valve shall be in full close state.
d. When it is not lower than 200Pa after 2 hours or more vacuuming, vacuums for another 1 hour. If after more than 3 hours vacuuming it is still not lower than 200Pa, the leak part shall be found.
e. When it is lower than 200Pa after more than 2 hours vacuuming, close both the valve VL and VH of the diverter, then close the vacuum pump. Place it there to observe if the vacuity changes. If it changes, it indicates leakage exists, so the leak part shall be found.
f. After finishing the above vacuuming work, replace the vacuum pump with refrigerant tank and turn to the refrigerant charging procedure.

5.10 Charging of refrigerant

1. Calculation of additional charging amount of refrigerant

After finishing vacuuming work, replace the vacuum pump with refrigerant tank and turn to the refrigerant additional charging procedure.

Calculation of additional charging amount of refrigerant

Before the air conditioner leaving factory, the refrigerant-charging amount does not include the refrigerant in the site pipe part. Calculate the refrigerant amount for the site pipe first, then do the additional refrigerant charging work.

Refrigerant charging amount when air conditioner leaves factory refer to the specification.

Calculation method:

According to the liquid pipe dimension of site pipe and actual length to calculate the additional refrigerant-charging amount.

Calculation formula:

Site refrigerant charging amount=Length of liquid pipe x additional refrigerant charging amount/m

For example: additional charging amount

R (kg) = (L1x0.030kg/m)+(L2x0.065kg/m)

L1: Total length of liquid pipe diameter 6.35mm;

L2: Total length of liquid pipe diameter 9.52mm.

2. Charging of refrigerant

Close all valves of outdoor unit, and charge refrigerant from air discharge valve of gas side.

When can not charge the specified amount, firstly, open all the valves, both liquid side and gas side, of outdoor unit, then switch the valve of gas side to close state a little. Under this condition, do cooling operation and charge refrigerant from the discharge valve of gas side. At this time, adjust the valve of the refrigerant tank to make the refrigerant in Gas State when it is absorbed by system.

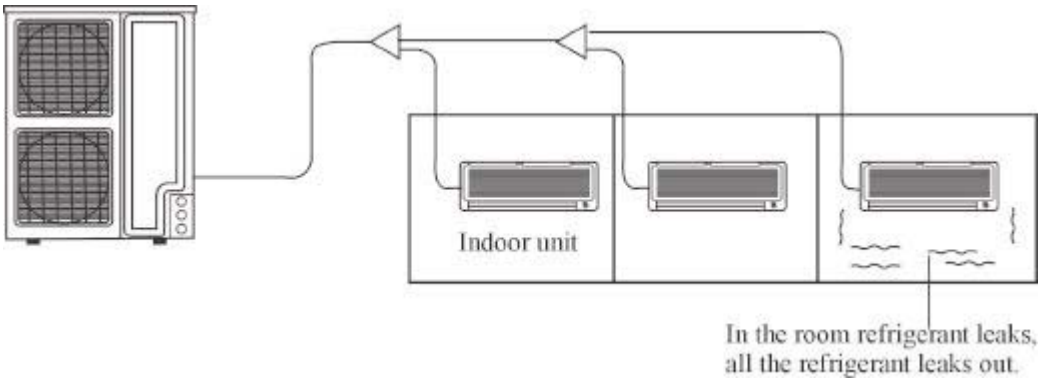
When refrigerant leakage making refrigerant lack in system occurs, the intrinsic refrigerant of the system shall be recovered and recharge it according to specified amount.

3. Opening of the refrigerant pipe

Open all the valves of outdoor unit

5.11 Refrigerant

MRV central air conditioner uses refrigerant R22 . This refrigerant itself is innocuous,non-combustible safety refrigerant. But then, when arranging the air conditioner equipment, it is necessary to take some steps to take recautions against in case of the indoors refrigerant leakage. Such as,the room size shall be taken into account to avoid making the concentration of the refrigerant not exceed the concentration limit and other relevant steps. The concentration limit is the concentration that is not harmful to human body and can take emergency steps to treat the concentration of Freon.



1.Sequence of refrigerant concentration affirmance

Calculate the refrigerant concentration according to the following sequence.

1)Calculate the total refrigerant-charging amount of each of the refrigerating system (kg).

- Refrigerant charging amount of outdoor system + Additional refrigerant charging amount = Total refrigerant charging amount of the refrigerating equipment (kg)
- Refrigerant charging amount of outdoor system: Refrigerant charging amount when air conditioner leaves factory.
- Additional refrigerant charging amount: Additional refrigerant charging amount according to the site pipe length and pipe diameter.

2) Calculate the minimum size of the room suitable for the indoor unit assembly (m3).

Calculate the concentration of refrigerant:

Total refrigerant charging amount of refrigerating equipment/the minimum room size suitable for indoor unit assembly (m3).Refrigerant concentration limit: 0.3kg/ m3

2. Countermeasure when exceeding the concentration limit

1) Set an effective opening for ventilation and fresh air.

- Cut an intake respectively on the upper and lower part of the door which areas are equivalent to 0.15% grounding area, or cut an intake in other part of the room.

2) Reduce the total refrigerant charging amount of the refrigerating equipment

- Shorten the refrigerant pipe length. Reduce the installation place distance between the outdoor unit and the indoor unit to shorten the refrigerant pipe length, so that reduce the total refrigerant charging amount of the refrigerating equipment.

3)Establish ventilation and fresh air system

- Establish a mechanical equipment for fresh air to keep the refrigerant concentration below the concentration limit (normal ventilation)
- When can not ventilate the normally, please set an alarm apparatus linked with the mechanical ventilation equipment.

5.12 Electric cautions:

model	Power supply specs			Connecting wire			
	Power source	Circuit breaker	Power cable	Communication wire		Wired controller wire	
				core	section area	core	section area
AU282FHAIA AU342FHAIA	1PH, 220-230V~, 50Hz	30A	5mm^2	2	1.0-1.5mm^2		
AU522FIAKA	1PH, 220-230V~, 50Hz	50A	10mm^2				
AU52,60NFIAKA	3PH, 380-400V~, 50Hz	20A	4 mm^2				
AE*FCAMA	1PH, 220-230V~, 50Hz	15A	1.5mm^2			3	0.75mm^2
AS*FCAIA						3	
AB*FCAIA						3	

Remark:

1. Must not connect the power cable and communication wire incorrectly. Forbidden to connect the power cable and communication wire with one muti-core cable, and they must be wired separately, keep proper distance between them to ensure the air conditioner run normally.
2. Communication wires among indoor units should be hand in hand type, and decrease the branch, also the shielded layer should be connected together and be earthed on one point.
3. All indoor communication wires will be connected to the communication bus wire (2-core), C1 and C2 are non-polar.
4. Because the indoor unit adopts EEV control method, when a sudden power off occurs, the EEV maybe keep some angle. If indoor unit and outdoor unit connect to power supply separately, when some indoor units running in cooling mode, when powered off, because the EEV does not reset, the indoor units maybe drop water, or ice up. We recommend that the indoor unit connect to power supply from the outdoor unit, or use one power supply with the outdoor unit. If the indoor unit need connect power supply individually, the personnel must explain to the customer that he (she) must switch off the unit with wired controller or remote controller, then he (she) can shut off the indoor unit. If there is accidental power failure, please firstly power on all the indoor units after power on, in order to reset the indoor EEV.
5. When wiring the MP2A or MP3A, please ensure that the power source and the communication wires of MP2A or MP3A must correspond with the relative indoor units.
6. AS*FCAIA and the cassette unit will not be connected with the MP2A or MP3A.
7. If the ceiling concealed indoor unit is with the electric heater, the circuit breaker will vary accordingly.

5.13 Indoor unit number setting:

Indoor unit has two kinds of control type: infrared control and wired contrl, so the corresponding unit address setting will vary as the following: for the infrared control type unit, set with the address setting controller; for the wired control type unit, set with the dip switch, and the unit number is from 1 to 8.

(1) Number setting for wired control type unit:

1	2	3	4	Indoor unit No.
0	0	0	0	1
1	0	0	0	2
0	1	0	0	3
1	1	0	0	4
0	0	1	0	5
1	0	1	0	6
0	1	1	0	7
1	1	1	0	8

Note:

1. Dip switch at ON position shows 0.
2. If there are not only the infrared control type unit also the wired control type unit in the whole system, please set the wired control type unit number firstly and then record the numbers, then set the infrared control type unit number, to avoid the repeated unit number.

(2) Number setting for infrared control type unit:

Please refer to the manual of address setting controller ASC-02.

5.14 The dip switch setting when out of factory:

AE*FCAMA: Unit No.: 3; 3 fan speeds; wired control type; exterior EEV. That is: SW01-1 ON, SW01-2 OFF, SW01-3 ON, SW01-4 OFF; SW02-1 ON, SW02-2 OFF; SW03-1 ON, SW03-2 ON.

AB*FCAIA: Unit No.: 3; 3 fan speeds; infrared control type; built-in EEV. That is: SW01-1 ON, SW01-2 OFF, SW01-3 ON, SW01-4 OFF; SW02-1 OFF, SW02-2 ON; SW03-1 OFF, SW03-2 ON.

When installation, the installer should adjust the setting according to the actual condition.

The ports functions for AB and AE unit (some are optional):

port	Corresponding parts	port	Corresponding parts
CN4	Negative ion generator or high-voltage accumulator	CN5	Gas/liquid pipe temp. sensor
CN6	EEV	CN7	Pump motor
CN10	Indoor motor	CN11	Float switch
CN12	Swing motor	CN13	Remote receiver
CN14	Wired controller	CN18	Neutral line of terminal block
CN19	Auxiliary electric heating	CN20	Live line of terminal block
CN22	Auxiliary electric heating	CN24	Room temp. sensor（AE* unnecessary）
CN25	Communication of EEV box	CN9	Pre-set

Cassette unit installation:

Installation Tools

Installation tools

The installation tools listed in the following sheet can be used as required.

1. Screw driver
2. Hacksaw
3. Drill with a diameter of 60mm
4. Inner hexagon spanner,shifting spanner
5. Spanner (14, 17, 19,24,27mm)
6. Pipe cutter
7. Pipe expander
8. Knife
9. Pincers
10. Leakage detector or soapy water
11. Band tape
12. Scraper
13. Refrigerant oil

The following parts mentioned in this manual are the installation accessories we prepared.

Symbol	Parts Name
A	Adhesive tape
B	Pipe clamp
C	Connecting hose
D	Drainage hose
E	Non-hydroscopic heat insulating material
F	Gypsum powder

Installation Procedures

1.Selection of Installation Place

(1) Place above the ceiling where it is enough space to arrange the unit.

(2) Place where the drainage pipe can be arranged well.

(3) Place where inlet and outlet air of indoor and outdoor unit will not be blocked.

(4) Do not expose the unit to the place with heavy oil or moisture (e.g.kitchen and workshop).

(5) Do not set the unit in the place where destructive gas (such as sulfuric acid gas) or pungent gas (thinner and gasoline) concentrates and retains.

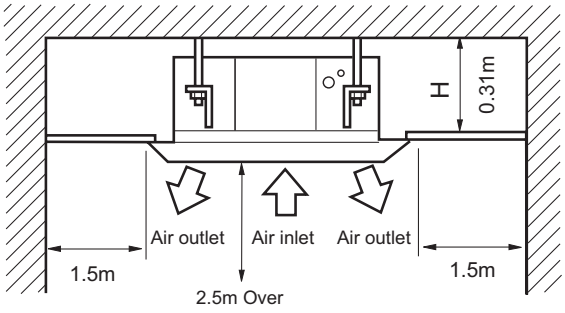
(6) Place strong enough to support the unit .

(7) No expensive articles such as television and piano below indoor unit.

(8) Enough space for maintenance.

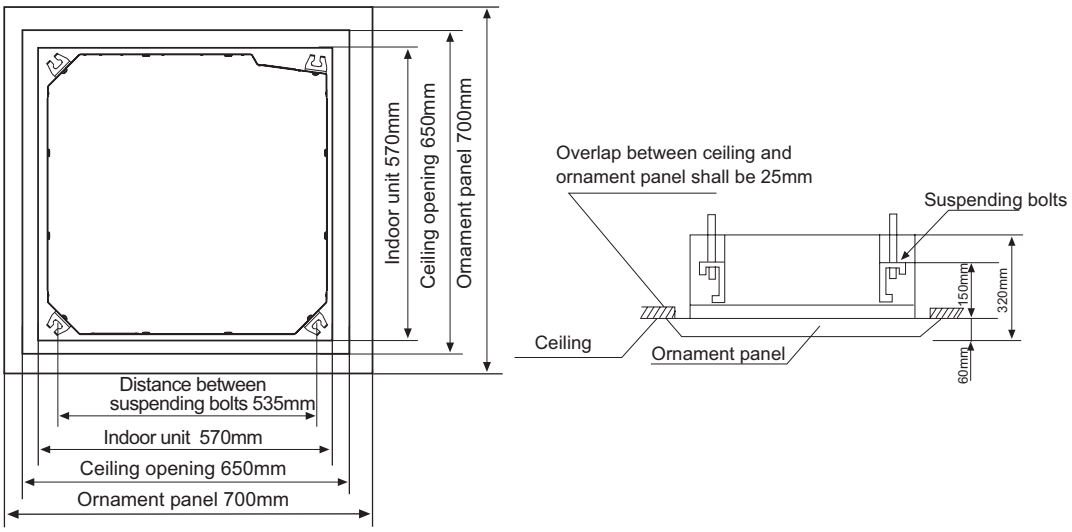
(9) Place more than 1m away from television and radio to avoid disturbing television and radio.

(10) Easy for maintenance.



2.Installation Preparation

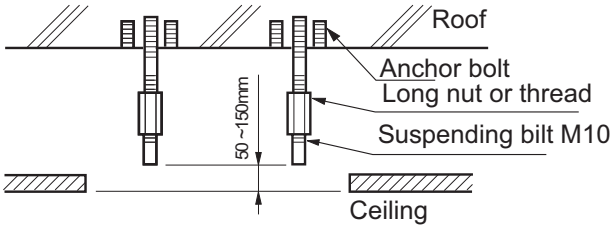
(1) Position of ceiling opening between unit and suspending bolt (front view of unit).



(2) Prepare all piping (refrigerant,water drainage)and wires (connection wire of remote controller, indoor unit connection wires) to the indoor unit before installation in order to connect indoor unit immediately after installation.

(3) Install a suspending bolt

To support the unit weight ,anchor bolt should be used in the case of the existing ceiling. For new ceiling, use flush-in type bolt, built-in type bolt or parts pretared in the field.
Before going on installing, adjust the distance to ceiling.



<Installation Example>

Note: All the above mentioned parts shall be prepared in feild, the diameter of suspending bolt is M10

3. Installation of indoor unit

In case of no ceiling

Install unit temporarily

Put suspending bracket on the suspending bolt to hang the unit up. Be sure to use nut and washer at both end of the breaket to secure firmly.

After installation on the ceiling

(1) Adjust unit to its right position (Refer to preparation for installation-(1))

(2)Check that unit is horizontal.

Water pump and floating switch is installed inside indoor unit,check four corners of the unit for its lever using horizontal comparator or PVC tube with water.(If unit is tilting against the direction of water drainage,problem may occur on floating water leakage.)

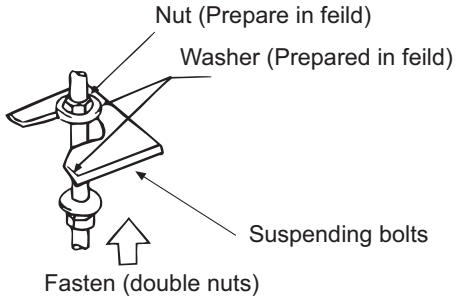
In the case of existing ceiling

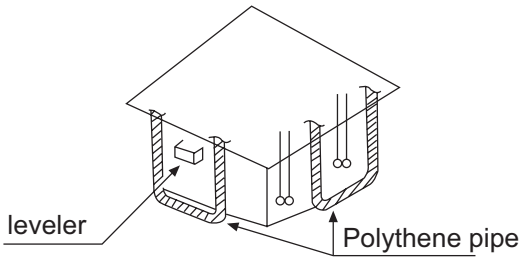
(1)Install unit temporarily

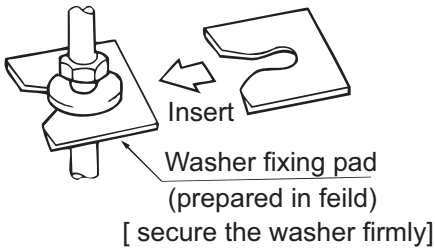
Put suspending bracket on the suspending bolt to hang the unit up.Be sure to use nut and washer at both end of the bracket to secure it firmly.

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

(3)Proceed with procedure (4) of " In the case of no ceiling "







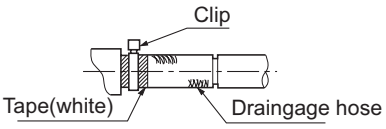
[secure the washer firmly]

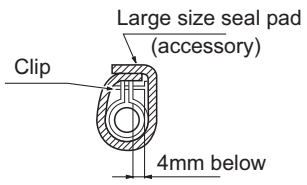
4. Installation of water drainage pipe

(1) Install water drainage pipe

- Pipe diameter shall be equal or larger than that of connecting pipe (Pipe of polythene; size: 25mm; O.D.: 32mm)
- Drainpipe should be short, with a downward slope at least 1/100 to prevent air bag from forming.
- If downward slope of drainpipe cannot be made,lifting pipe shall be installed.
- Keep a distance of 1-1.5m between suspending bolts, to make water hose straight.

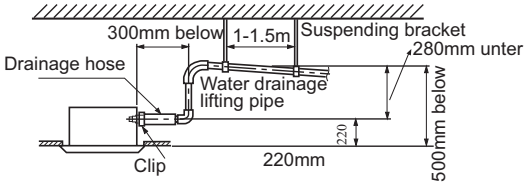
- Use the drainage hose and clip provided with unit.
  Insert water pipe into water plug until it reaches the white tape.
  Tighten the clip until head of the screw is less than 4mm from hose.
- Wind the drainage hose to the clip using seal pad for heat insulation.
- Insulate drainage hose in the room.

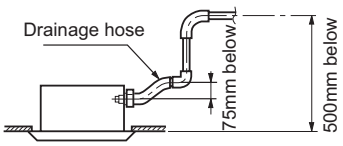




5. Cautions for the water drainage lifting pipe

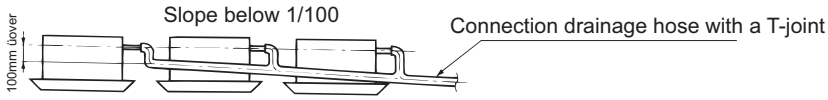
- Installation height of water drainage lifting pipe shall be less than 280mm
- There should be a right angle with unit ,300mm from unit.





< Note >

- The slope of water drainage hose shall be within 75mm , make the drainage plug not to bear excessive force.
- If several water hoses join together, of as per following procedures.



Specifications of the selected drainage hoses shall meet the requirements for the unit running

6. Installation of Ornament Panel

Install ornament panel on indoor unit

(1) Check whether indoor unit is horizontal with leveler or polythene pipe filled with water , and check that the dimension of the ceiling opening is correct. Take off the lever gauge before installing the ornament panel.

(2) Fasten the screws to make the height difference between the two sides of indoor unit less than 5mm.

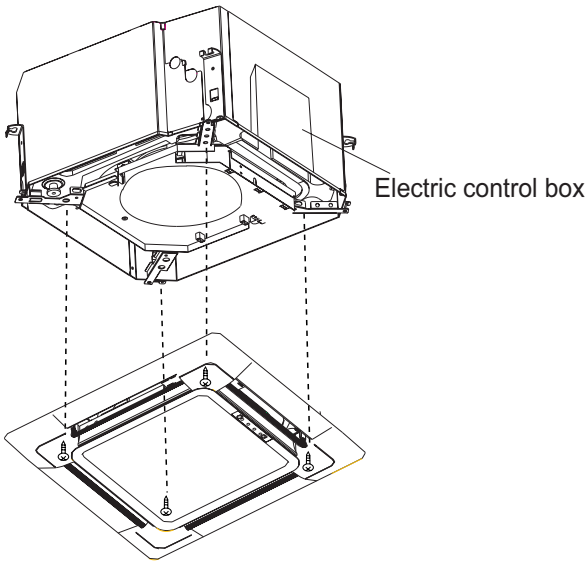
(3) Firstly fix it with screws temporarily.

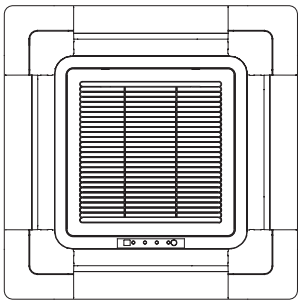
(4) Fasten the two temporarily fixing screws and other two, and tighten the four screws.

(5) Connect the wires of synchro-motor.

(6) Connect the wire of signal.

(7) If no response of remote controller,check whether the wiring is correct,restart remote controller 10 seconds after shut off power supply.



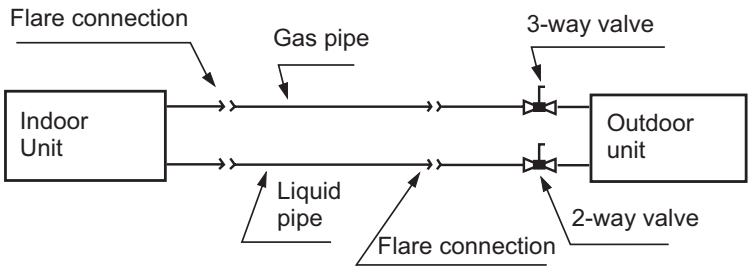


Panel limitation board installation

(1)Install the panel board in the direction shown in the figure.

(2)The incorrect direction will result in water leakage,meanwhile swing and signal receiving are displayed that cannot be connected.

Piping Connection



Installation for wall mounted unit

- Please read these "Safety Precautions" first then accurately execute the installation work.
- The precautionary points indicated herein are divided under two headings: ⚠WARNING and ⚠CAUTION those points which are related to the strong possibility of an installation done in error resulting in death or serious injury are listed in the ⚠WARNING section. However, there is also a possibility of serious consequences in relationship to the points listed in the ⚠CAUTION section as well.
  In either case, important safety related information is indicated, so by all means, properly observe all that is mentioned.
- After completing the installation, along with confirming that no abnormalities were seen from the operation tests, please explain operating methods as well as maintenance methods to the user of this equipment, based on the owner's manual.
  Moreover, ask the customer to keep this sheet together with the owner's manual.

WARNING

- Please entrust installation to either the company which sold you the equipment or to a professional contractor. Defects from improper installations can be the cause of water leakage electric shocks and fires.
- Execute the installation accurately, based on following the installation manual. Again improper installations can result in water leakage, electric shocks and fires.
- Please install your air conditioner on a wall or any place which can holder the weight of the air conditioner. And it cannot be installed on a non-professional metal structure (such as a burglary-resisting net). Otherwise injury would occur due to a falling of the unit.
- Execute the prescribed installation construction to prepare for earthquakes and the strong airs of typhoons and hurricanes, etc. Improper installations can result in accidents due to a violent falling over of the unit.
- Wiring shall be done with the specified cable and the connection shall be firm and reliable. And the terminal connector shall be fixed firmly and reliably not to let external force exercise on the cables. Any improper connection or fixing would cause heat, fire, and other accidents.
- Wiring shall be done in a correct shape not to make any section rise upward, and accurately install the air conditioner. The cable shall not be clamped by the lid or outer plate. Any improper installation would lead to fire, heat, or other accidents.
- When setting up or moving the location of the air conditioner, do not mix air etc, or anything other than the designated refrigerant (R22) within the refrigeration cycle, for such mixing would result in rupture and injury caused by abnormal high pressure.
- Always use accessory parts and authorized parts for installation construction. Using parts not authorized by this company can result in water leakage, electric shock, fire and refrigerant leakage.
- The drain pipe must not be placed or connected into the sewage tank where harmful gas such as sulphurous gas and etc would exist, otherwise the harmful gas would enter the room.
- During installation, if the refrigerant is leaked, please immediately take measures of ventilation, otherwise a harmful gas would be generated whenever the refrigerant meets fire.
- After installation, please ensure that the refrigerant is not leaked, because the leakage of refrigerant would produce a harmful gas if it meets fire or heating stoves.
- Don't install the air conditioner where a flammable gas would be probably produced, otherwise in case the flammable gas is leaked and exists around the unit, fire would be caused.
- For the drain pipe, follow the installation manual to insure that it allows proper drainage and thermally insulate it to prevent condensation. Inadequate plumbing can result in water leakage and water damage to interior items.
- The refrigerant gas pipe and liquid pipe shall all be thermally insulated to preserve the temperature. Any improper insulation would make the unit moist and the water would drop onto the floor or wet the indoor items.

PRECAUTION

- Execute proper grounding. Do not connect the earth wire to a gas pipe, water pipe, lightening rod, or a telephone ground wire.
  Improper placement of earth wires can result in electric shock.
- An electric leakage breaker must be installed, otherwise electric shock or other accidents would occur.
- After completion of the installation, the air conditioner shall be electrified to check for electric leakage.

Preparation for installation

Installation Tools

1. Screw Driver (flat head, wabbler, triangle)
2. Steel Saw
3. 60mm Drill
4. Inner Hexagon Spanner
5. Shifting Spanner
6. Spanner
7. Pipe Cutter
8. Pipe Expander
9. Knives
10. Clippers
11. Leakage Checker or Soap Liquid
12. Measuring Tape
13. Scraper or File
14. Refrigeration Oil

Self-contained Accessories

No.	A	B	C	D	E	F
Name of Parts	Non-adhesive Tape	Adhesive tape	Connecting Hose	Heat insulation material	Gypsum powder	Drain hose

Electrical Requirements

- Power supply voltage: Single Phase 1PH, 220-230V~, 50Hz.
- A specialized power supply wire, which shall be installed by a competent person as per the rules of the national standard.
- Power supply must be grounded effectively.
- An electric leakage breaker shall be installed.
- Layout of power supply wiring shall be Y connection. If the power supply wire is damaged, it must be replaced by the manufacturer or its service center or professional person (the power supply wire shall be self-contained).
- For connection of the power supply plug, L shall be connected with the live wire, N shall be connected with netural line, ⏚ shall be connected with earth wire.
- Power supply wire parameters:H05RN-F,3 G(1.0-1.5)mm^2 ;
  Signal wire parameters:H05RN-F,2×(0.75-1.5)mm^2 . (User shall self-provide signal wire)

Note:The singnal wire and connection wire should be provided for oneself.
The singnal wire must be shielded wire

⚠ WARNING

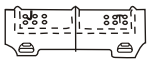
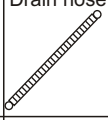
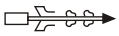
BE SURE TO READ THESE INSTRUCTIONS CAREFULLY BEFORE BEGINNING INSTALLATION. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD CAUSE SERIOUS INJURY OR DEATH, EQUIPMENT MALFUNCTION AND/OR PROPERTY DAMAGE.
BE SURE TO READ INSTALLATION MANUAL FOR INDOOR UNIT WITH THIS MANUAL.

1.Accessories

Confirm accessories shown below are attached in the bag with this Installation manual.

Accessories Delivered with Your Air Conditioner

Please check if your unit is delivered with the following accessories.

No.	1	2	3	4	5	6	7	8	9	10
Name and shape	Remote controller 	Batteries 	Mounting plate 	Drain hose 	4x25 screw 	Expansion bushing 	Cement steel nail 	Piping hole cover 	Screw 	Plastic supporting plate 
Qty	1	2	1	1	6	6	8	1	2	1

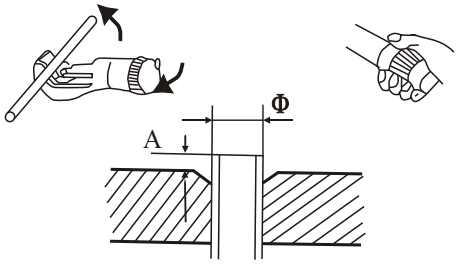
Indoor Unit

- Install the indoor unit where the weight of the unit can be supported.
- Install the indoor unit where the heat source and steam source are not close and the Unit inlet and outlet are not blocked.
- Install the indoor unit where the drainage is easy and the outdoor unit can be Easily connected.
- Install the indoor unit where its cold air and hot air can be easily sent to all the comers of the room.
- Install the indoor unit where the power socket is near and there is sufficient space around the indoor unit.
- Install the indoor unit where there is no T.V set, radio set, and wireless appliance Underneath, and the sunlight lamp is over one meter away.
- If the remote controller is installed on the wall, the indoor unit shall be ensured to receive The signal while the sunlight lamp is on.

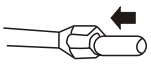
Method for Cutting and Expanding Pipes.

When the pipe is too long or the mouth is damaged, the pipe needs to cut or expanded.

1.cutting hose 2.Removing burr 3.Put on nut 4.Expand Hose



Hose Expander



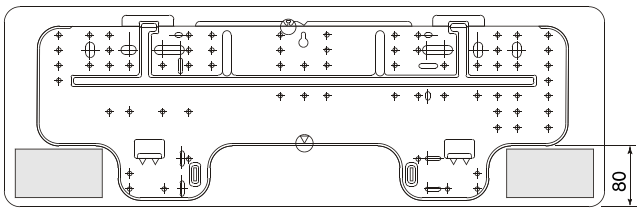
Expansion Size

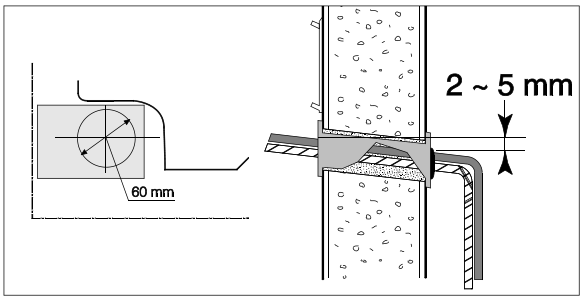
Hose dia.Φ	Size (mm)A
6.35 mm(1/4)	0.8-1.5
12.7 mm(1/2)	1.0-2.0

Correct	Not Correct				
	 Tilting	 cracks on expanded mouth	 burr	 incomplete	 too long

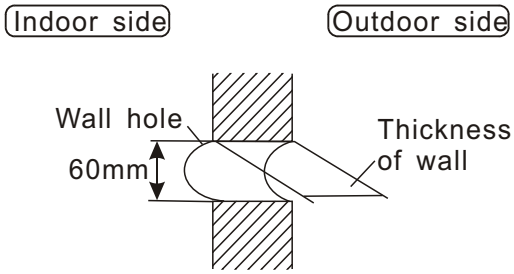
When the mounting plate is firstly fixed

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.





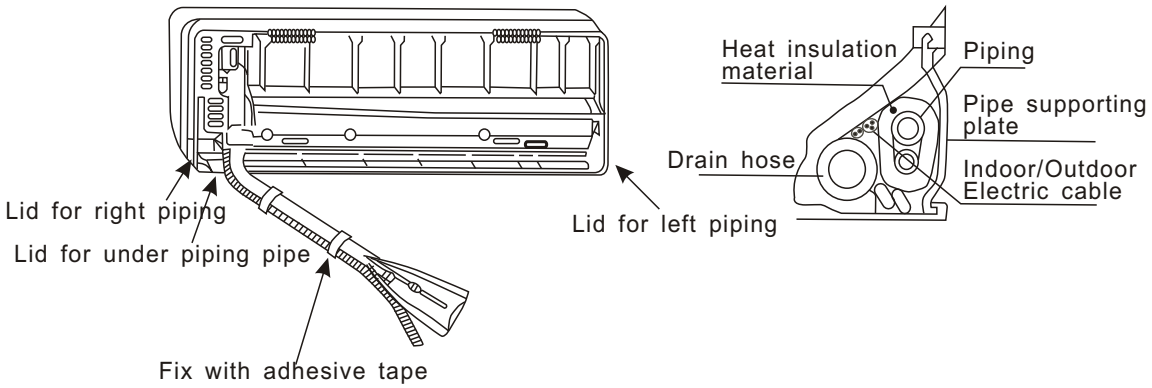
3. Making a Hole on the wall and Fitting the piping Hole cover
- Make a hole of 60mm in diameter, slightly descending to outside the wall.
- Install piping hole cover and seal it off with putty after installation.



(Section of wall hole) Piping hole pipe

4. Drawing of pipe
   Rear piping
   Draw pipes and the drain hose, then fasten them with the adhesive tape.
   Left Left-rear, piping
- In case of left side piping, cut away, with a nipper, the lid for left piping.
- In case of left-rear piping, bend the pipes according to the piping direction to the mark of hole for left-rear piping which is marked on heat insulation materials.

a. Insert the drain hose into the dent of heat insulation materials of indoor unit.
b. Insert the indoor/outdoor electric cord from backside of indoor unit, and pull it out on the front side, then connect them.
c. Coat the flaring seal face with refrigerant oil and connect pipes.
   Cover the connection part with heat insulation materials closely, and make sure fixing with adhesive tape.



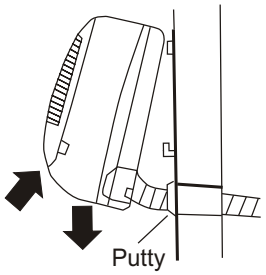
- Indoor/outdoor electric cord and drain hose must be bound with refrigerant piping by Protecting tape.

Other direction piping

- Cut away, with a nipper, the lid for piping according to the piping direction and then bend the pipe according to the position of wall hole. When bending, be careful not to crash pipes.
- Connect beforehand the indoor/outdoor electric cable, and then pull out the connected to the heat insulation of connecting part specially.

5.Fixing the indoor unit body

- Hang surely the unit body onto the upper notches of the mounting plate. Move the body from side to verify its secure fixing.
- In order to fix the body onto the mounting plate, hold up the body aslant from the underside and then put it down perpendicularly.

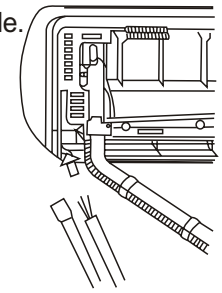


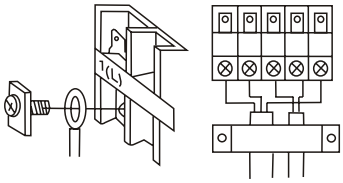
Electric wiring

When connecting the cord before installing the indoor unit

- Insert the cord from the back side of the unit, then pull it out on the front side.
- Loosen the screws and insert the cord ends fully into terminal block, then tighten the screws.
- Pull the cord slightly to make sure the cords have been properly inserted and tightened.
- After the cord connection, never fail to fasten the connected cord with the wiring cover.

Note: when connecting the cord, confirm the terminal number of indoor and outdoor units carefully. If wiring is not correct, proper operation can not be carried out and will cause defect.





⚠ CAUTION

After connecting the piping, check the joints for gas leakage with gas leakage detector.

HOW TO CONNECT WIRING TO THE TERMINALS

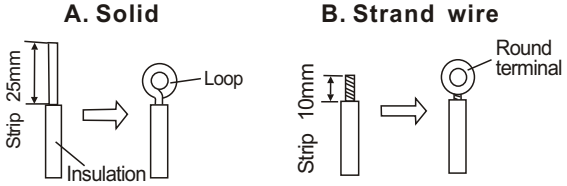
A. For solid core wiring (or F-cable)(Fig.17A)

(1) Cut the wire with a wire cutter or wire-cutting pliers, then strip the insulation to about 25mm of the exposed solid wire.
(2) Using a screwdriver, remove the terminal screw (s) on the terminal board.
(3) Using pliers, bend the solid wire to form a loop suitable for the terminal screw.
(4) Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screw driver.

B. For strand wiring (Fig.17B)

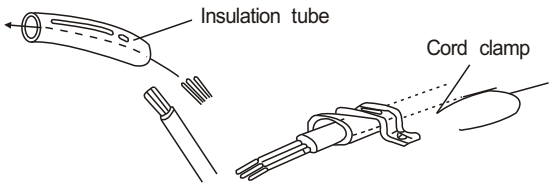
(1) Cut the wire with a wire cutter or wire-cutting pliers, then strip the insulation to about 10mm of the exposed strand wiring.
(2) Using a screwdriver, remove the terminal screw (s) on the terminal board.
(3) Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
(4) Position the round terminal wire, and replace and tighten the terminal screw using a screw driver.

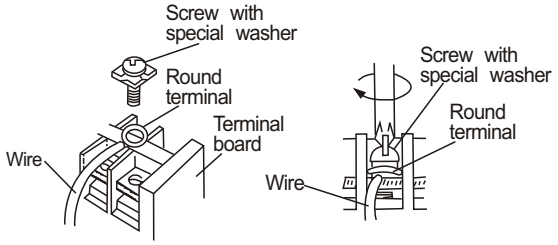
Fig. 17



After passing the connection cord and power cable through the insulation tube, fasten it with the cord clamp, as shown in Fig.18

Fig. 18





Use VW-1, 0.5 to 1.0 mm thick, PVC tube as the insulation tube.

Check the Layout of the Drain Pipe and Connection Wires

The drain pipe should be placed underneath, and the connection wires should be placed upside; and the drain pipe especially the section inside the machine and indoors must be wound up with insulating material to preserve heat. The drain pipe shall be sloped and no concave and convex shall occur along the whole pipe. And the cases as the right figure indicates shall not occur.

Installation check

- Is power supply voltage required?
- Is water completely drained to outdoors?
- Are power wire and connection wires between indoor and outdoor units correctly connected?
- Is any gas leaked from the pipe connectors?
- Are series numbers of the terminals on the indoor and outdoor units corresponding to each other? Is the connection section of the auxiliary pipe insulated? Is the indoor unit fixed firmly?
- Is noise big?

Trial Operation

The person who has completed this installation shall be requested to conduct a test operation for check:

- Is the temperature adjuster working normally?
- Does the location for installation conform to requirements?

Winding up with Protective Plastic Tape

The connection pipes, drain pipe, and the connection wires shall be wound up with PVC tape.

Notes: The connection pipes shall also be wound up with insulating material to preserve the temperature. The airing direction shall be from bottom to top.

EEV 1/4, 3/8 installation

The installation should place the coil of EEV upward, upright to the pipe, and the angle range is 90±15°.

1. Flow direction of EEV: Though EEV can be used at twin directions, the reverse direction will result in valve open because of the high pressure. So the direction should be positive, that is from A to B as the figure.

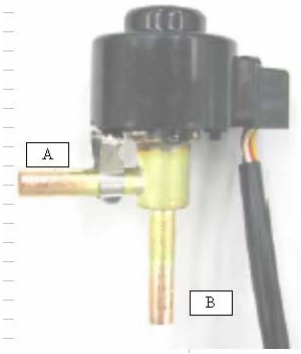


Figure 1

2. Inner instruction of EEV box: The inner instruction is as the below figure, refrigerant direction is positive, and the refrigerant pipe is as the figure.

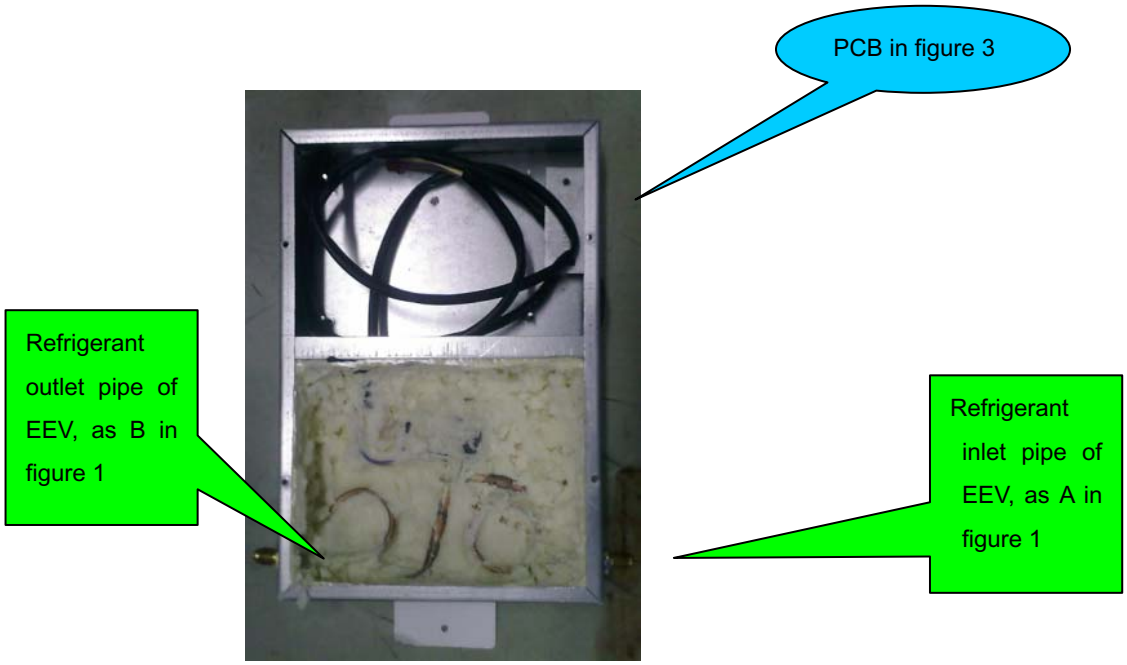


Figure 2

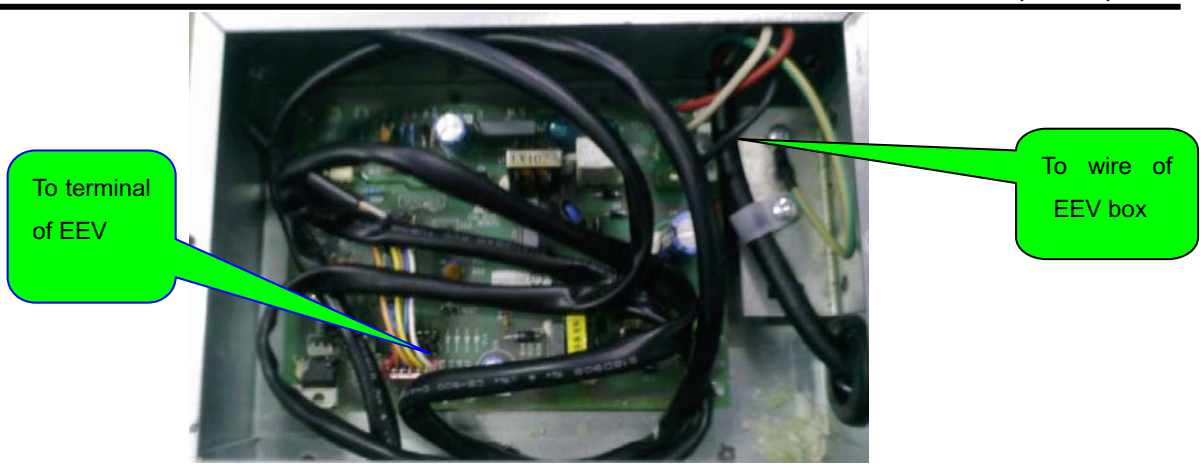


Figure 3

3. Installation procedure

3.1 Place EEV box:

Place the EEV box on the ground horizontally or on the wall vertically, and let the fixing plate of EEV box close to the ground or the wall, fix it with screws. If it is placed on the wall vertically, set the coil of EEV upward, that is the inlet/outlet pipe of EEV box are at the bottom of EEV box (from front view) as the below figure.

3.2 Connection of EEV box and connection pipe:

Ensure the refrigerant direction is from A to B, from the appearance of EEV box, the wiring hole side is A side, that is refrigerant inlet side, the other side is refrigerant outlet side, as the below figure.

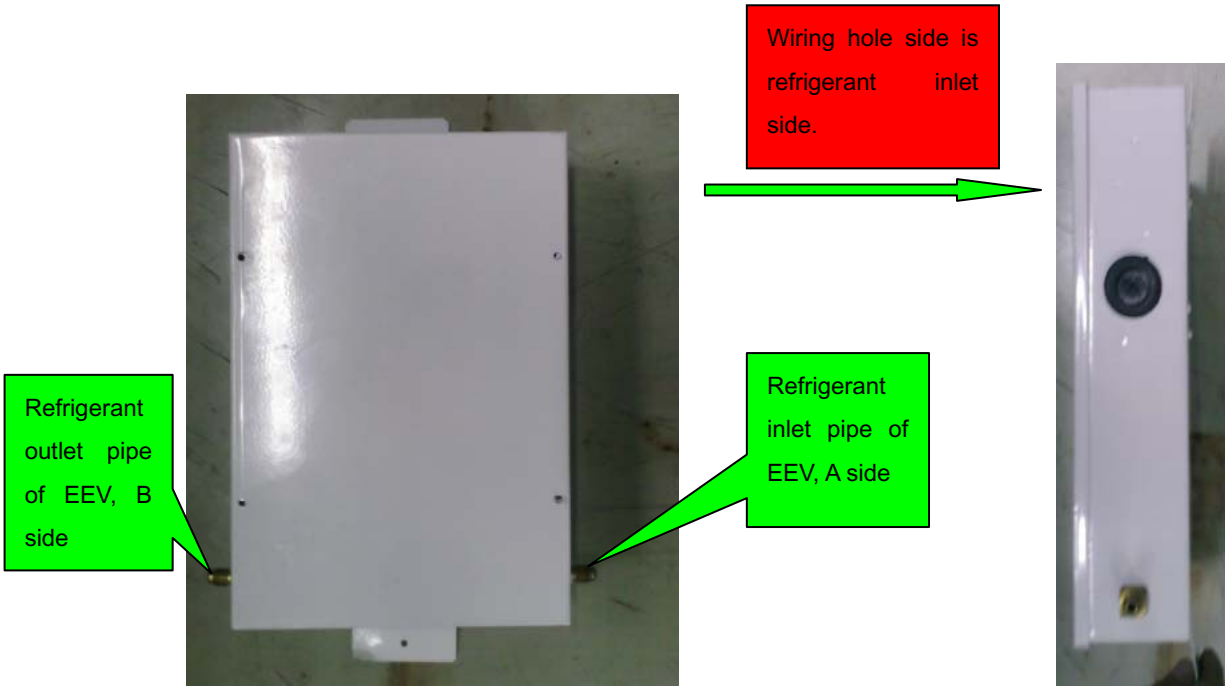


Figure 4

Figure 5

3.3 Wiring between wire of EEV box and indoor unit

Joint the wire of EEV box and the wire of electric control box.

Figure 6

Ceiling concealed unit

Installation space

The indoor unit shall be installed at locations where cold and hot air could evenly circulated.
The following locations should be avoided:

Places with rich salt (seaside area).
Places with plenty of gas sulfides (mainly in warm spring areas where the copper tube and braze weld is easy to corrosion).
Locations with much oil (including mechanical oil) and steam.
Locations using organic solvents.
Places where there are machines generating HF electromagnetic waves.
Positions adjacent to door or window in contact with high-humidity external air. (Easy to generate dew).
Locations frequently using special aerosols.

The following points should be taken care of:

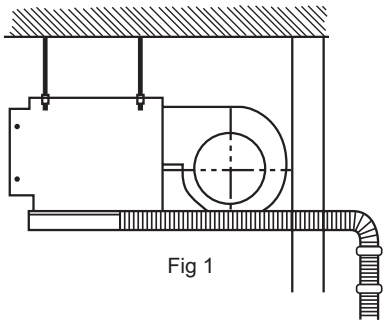


Fig 1

1. Select suitable places the outlet air can be sent to the entire room, and convenient to lay out the connection pipe, connection wire and the drainage pipe to outdoor.
2. The ceiling structure must be strong enough to support the unit weight.
3. The connecting pipe, drain pipe and connection wire shall be able to go though the building wall to connect between the indoor and outdoor units.
4. The connecting pipe between the indoor and outdoor units as well as the drain pipe shall be as short as possible. (See Figure 1)
5. If its necessary to adjust the filling amount of the refrigerant, please refer to the installation manual attached with the outdoor unit.
6. The connecting flange should be provided by the user himself.
7. The indoor unit has two water outlets one of which is obstructed at the factory (with a rubber cap). Only the outlet not obstructed (liquid inlet and outlet side) will be generally used during installation. If applicable, both the outlets should be used together.

Note: The access hole must be provided during installation of indoor unit for maintenance.

After selecting the installation space, proceed the following steps:

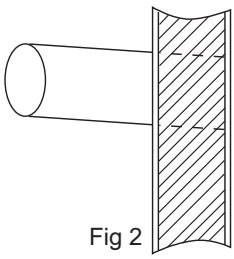
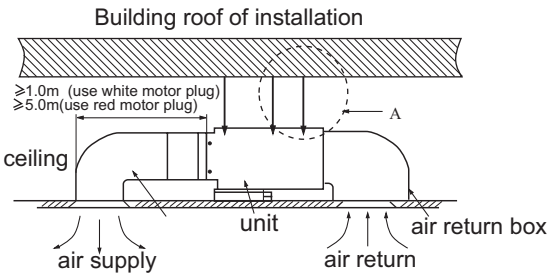
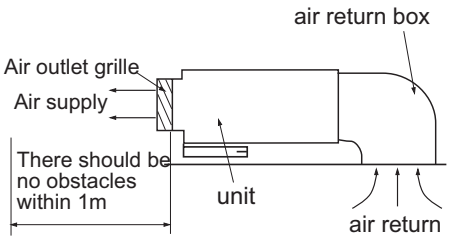


Fig 2

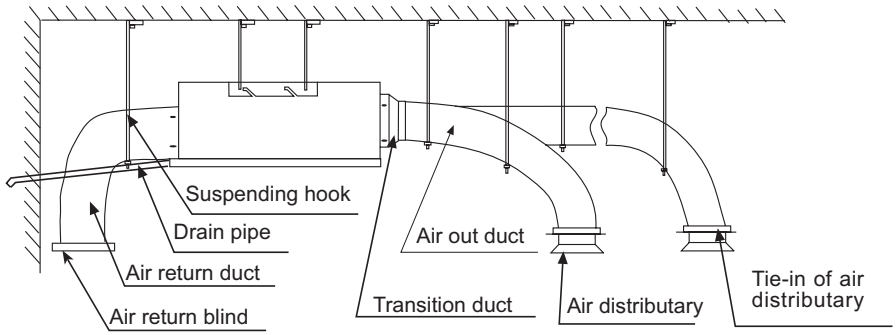
1. Drill a hole in the wall and insert the connecting pipe and wire through a PVC wall-through tube purchased locally. The wall hole shall be with a outward down slope of at least 1/100. (See Figure 2)
2. Before drilling check that there is no pipe or reinforcing bar just behind the drilling position. Drilling shall avoid at positions with electric wire or pipe.
3. Mount the unit on a strong and horizontal building roof. If the base is not firm, it will cause noise, vibration or leakage.
4. Support the unit firmly.
5. Change the form of the connection pipe, connection wire and drain pipe so that they can go through the wall hole easily.

- Each of the air sending duct and air return duct shall be fixed on the prefabricated panel of the floor by the iron bracket.
- The recommended distance between the edge of the air return duct and the wall is over 150mm.
- The gradient of the condensate water pipe shall keep over 1%.
- The condensate water pipe shall be thermal insulated.
- When installing the ceiling Concealed type indoor unit, the air return duct must be designed and installed (as figure shown).



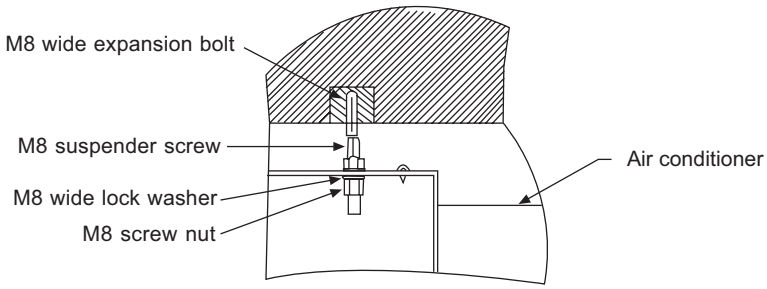


Note: When connecting the short ducts, use the low static terminals, which color is white.
The distance L from the air outlet of the duct to the air outlet of the sir conditioner shall be no more than 1 m.



The sketch map of long duct

Note: When connecting the long ducts, use the middle static terminals, which color is red.
The distance L from the air outlet of the duct to the air outlet of the sir conditioner shal be no more than 5 m.



Installation of indoor unit duct

1. Installation of air sending duct

- This unit uses rounded duct, the diameter of the duct is 180mm.
- The round duct needs to add a transition duct to connect with the air-sending duct of indoor unit,then connect with respective separator. As Fig. 1 shown, all the fan speed of any of the separator's air outlet shall be adjusted approximately the same to meet the requirement for the room air conditioner.

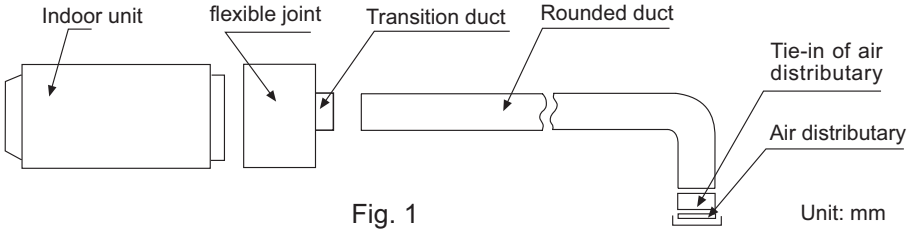


Fig. 1

2. Installation of air return duct

- Use rivet to connect the air return duct on the air return inlet of the indoor unit, then connect the other end with the air return blind. As Fig. 2 shown.

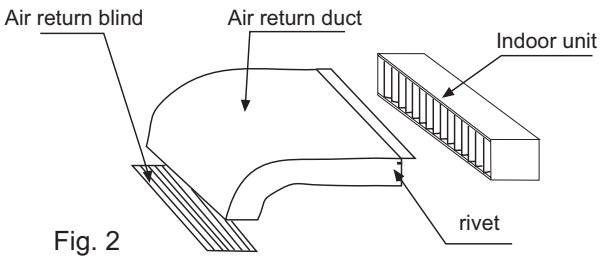


Fig. 2

3 Thermal insulation of duct

- Air-sending duct and air return duct shall be thermally insulated. First stick the gluey nail on the duct, then attach the heat preservation cotton with a layer of tinfoil paper and use the gluey nail cap to fix. Finally use the tinfoil adhesive tape to seal the connected part. As Fig. 3 shown.

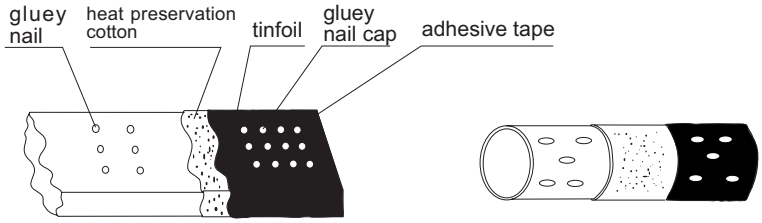


Fig. 3

Installing the suspension screw:

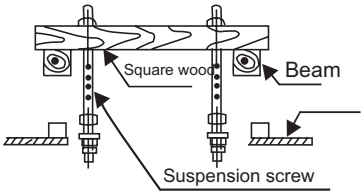
Use M8 or M10 suspension screws (4,prepared in the field)(when the suspension screwheight exceeds 0.9m, M10 size is the only choice).These screws shall be installed as follows with space adapting to air conditioner overall dimensions according to the original building structures.

Wooden structure

A square wood shall be supported by the beams and then set the suspension screws.

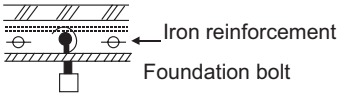
New concrete slab

To set with embedded parts,foundation bolts etc.



Knife embedded part

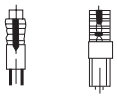
Guide plate embedded part



Pipe suspension foundation bolt

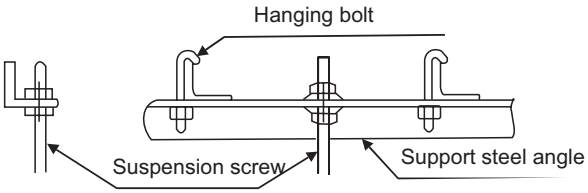
Original concrete slad

Use hole hinge,hole plunger or hole bolt.



Steel reinforcement structure

Use steel angle or new support steel angle directly.



Hanging of the indoor unit

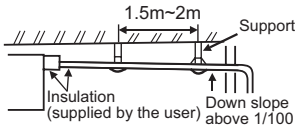
Fasten the nut on the suspension screw and then hang the suspension screw in the T slot of the suspension part of the unit. Aided with a level meter,adjust level of the unit within 5mm.

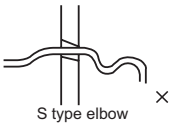
⚠ Caution

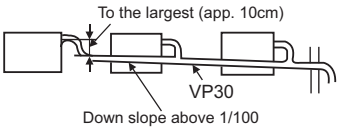
In order to drain water normally, the drain pipe shall be processed as specified in the installation manual and shall be heat insulated to avoid dew generation. Improper hose connection may cause indoor water leakage.

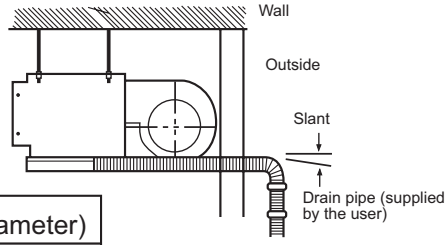
Requirements

- The indoor drain pipe shall be thermal insulated.
- The connection part between the drain pipe and the indoor unit shall be insulated so as to prevent dew generation.
- The drain pipe shall be slant downwards (greater than 1/100). The middle part shall not be of S type elbow, otherwise abnormal sound will be produced.
- The horizontal length of the drain pipe shall be less than 20 m. In case of long pipe, supports shall be provided every 1.5 – 2m to prevent wavy form.
- Central piping shall be laid out according to the following figure.
- Take care not to apply external force onto the drain pipe connection part.









Pipe and insulation material

Pipe	Rigid PVC pipe VP31.5mm (internal diameter)
Insulation	Foamed PE with thickness above 7 mm

Hose

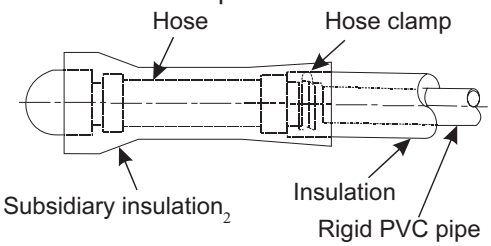
Drain pipe size: (3/4") PVC pipe

The hose is used for adjusting the off-center and angle of the rigid PVC pipe.

- Directly stretch the hose to install without making any deformation.
- The soft end of the hose must be fastened with a hose clamp.
- Please apply the hose on horizontal part

Insulation treatment:

- Wrap the hose and its clamp until to the indoor unit without any clearance with insulating material, as shown in the figure.



Drain confirmation

During trial run, check that there is no leakage at the pipe connection part during water draining even in winter.

Allowable pipe length and drop

These parameters differ according to the outdoor unit. See the instruction manual attached with the outdoor unit for details.

Pipe material and size

Pipe material	Phosphorus deoxidized copper seamless pipe (TP2) for air conditioner	
Pipe size (mm)	Gas side	Ø12.70
	Liquid side	Ø6.35

Recharge of refrigerant

The refrigerant recharge shall be performed as specified in the installation instructions. The adding procedure shall be aided with a measuring meter for a specified amount of supplemented refrigerant.

Requirement

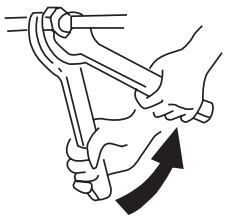
More or less refrigerant will cause compressor fault. The mount of the added refrigerant shall be as specified in the instructions.

Connection of refrigerant pipe

Conduct flared connection work to connect all refrigerant pipes.

- The connection of indoor unit pipes must use double spanners.
- The installing torque shall be as given in the following table.

Connecting pipe O.D.(mm)	Installing torque (N-m)
Ø6.35	11.8 (1.2kgf-m)
Ø12.70	49.0 (5.0 kgf-m)



Double-spanner operation

Vacuum pumping

With a vacuum pump,create vacuum from the stop valve of the outdoor unit.
Emptying with refrigerant sealed in the outdoor unit is absolutely forbidden.

Open all valves

Open all the valves on the outdoor unit.

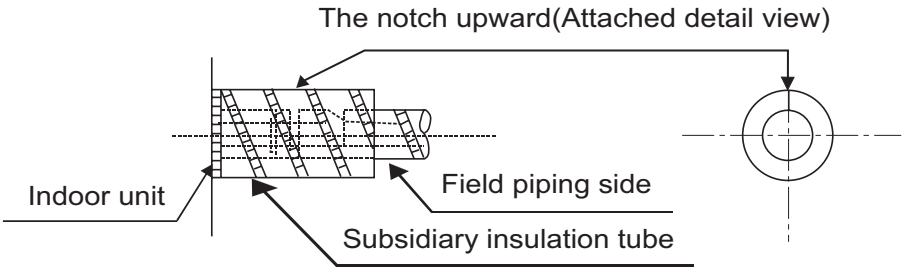
Gas leakage detection

Check with a leakage detector or soap water that if there is gas leakage at the pipe connections and bonnets.

Insulation treatment

Operate insulation treatment on both the gas side and liquid side of pipes respectively.
During cooling operation,both the liquid and gas sides are cold and thus shall be insulated so as to avoid dew generation.

- The insulating material at gas side shall be resistant to a temperature above 120 degree.
- The indoor unit pipe connection part shall be insulated.

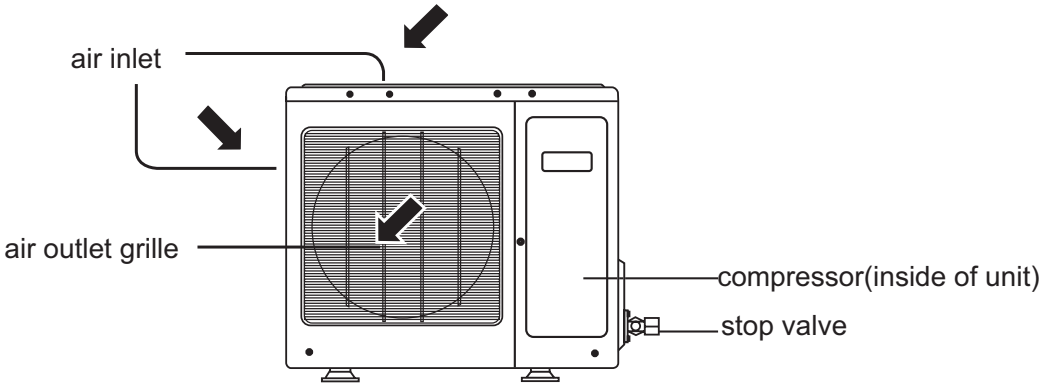


Accessory as follow:

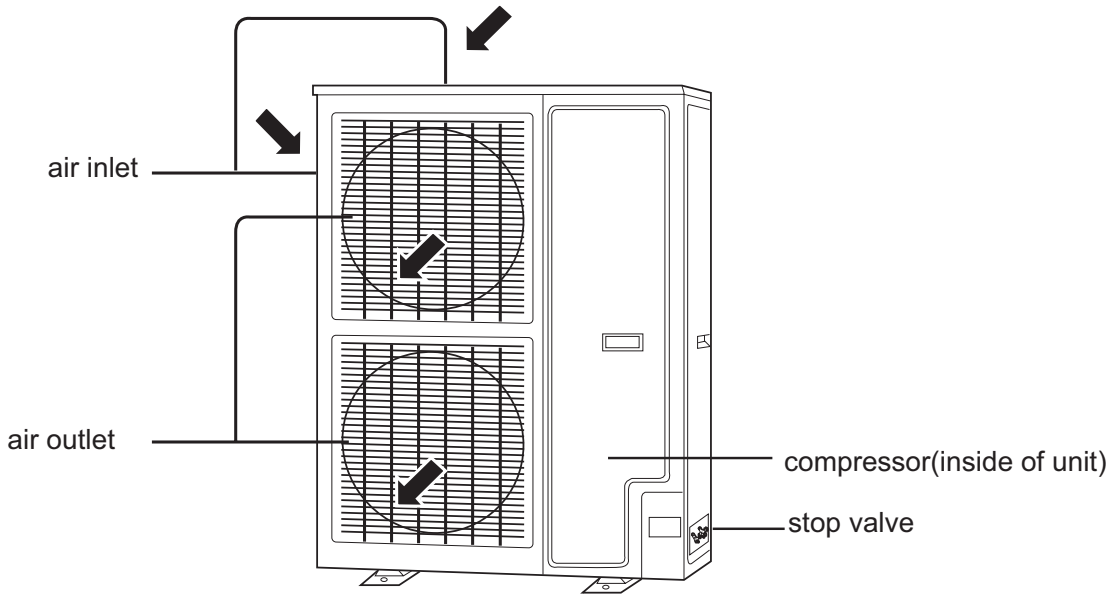
No.	Accessory parts	Qty.
1	Wire clamp	2
2	Heat insulation sheathing	1+1
3	Screw cap	1+1

6. Parts and Functions

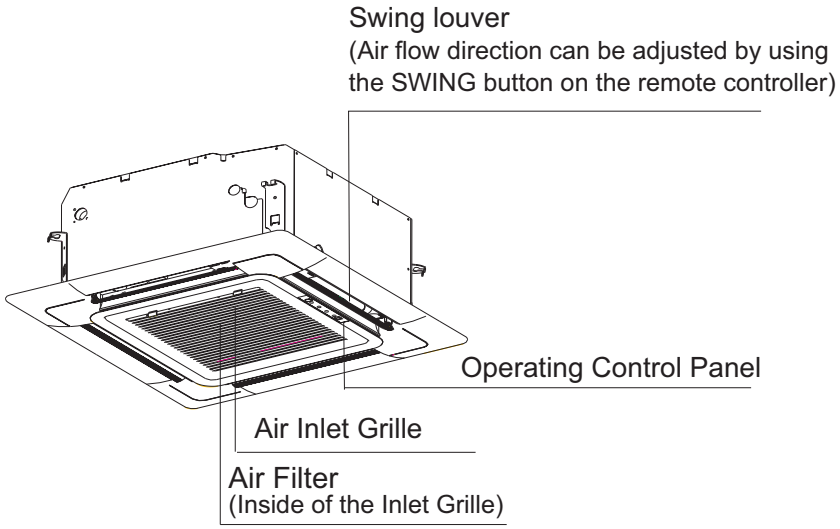
AU282FHAIA, AU342FHAIA:



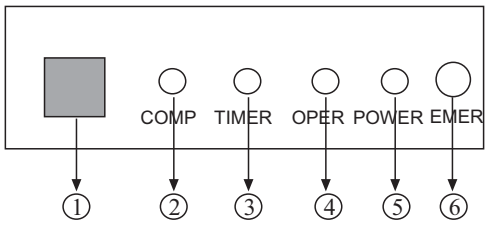
AU52, 60:



Cassette unit:

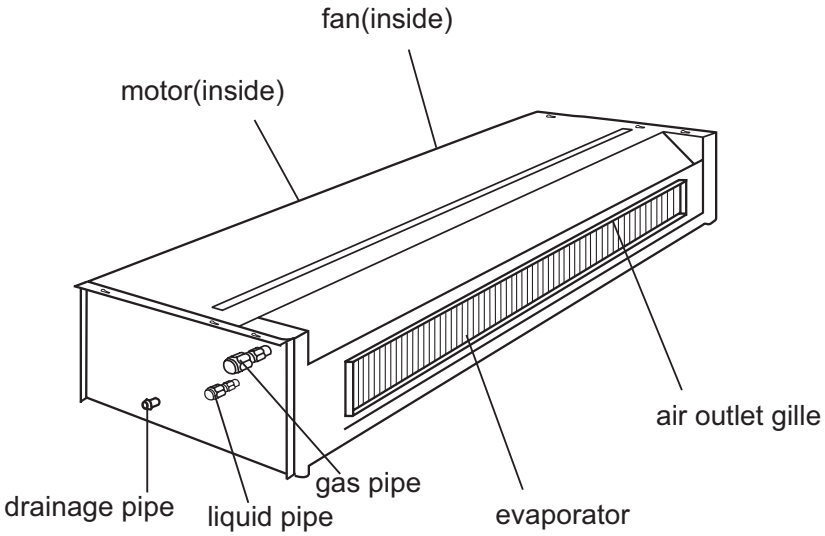


Operating Control Panel

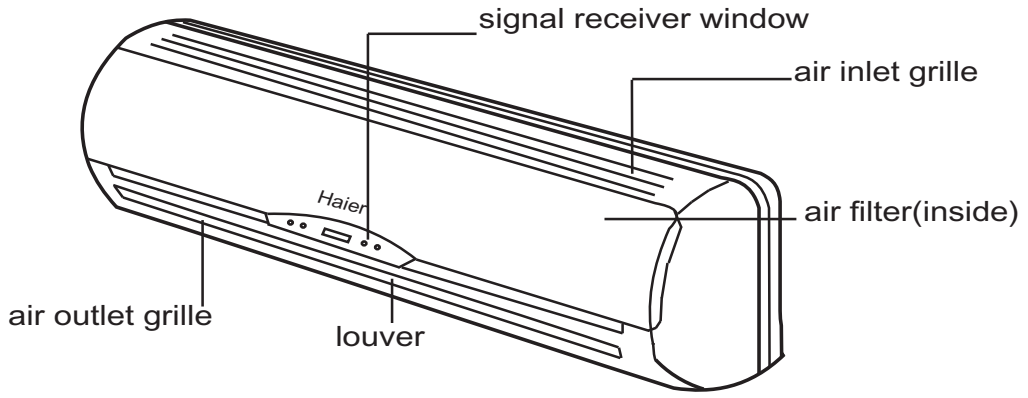


① Remote receiver
② Compressor Lamp
③ TIMER Lamp
④ OPERATION Lamp
⑤ Power Lamp
⑥ Emergency switch

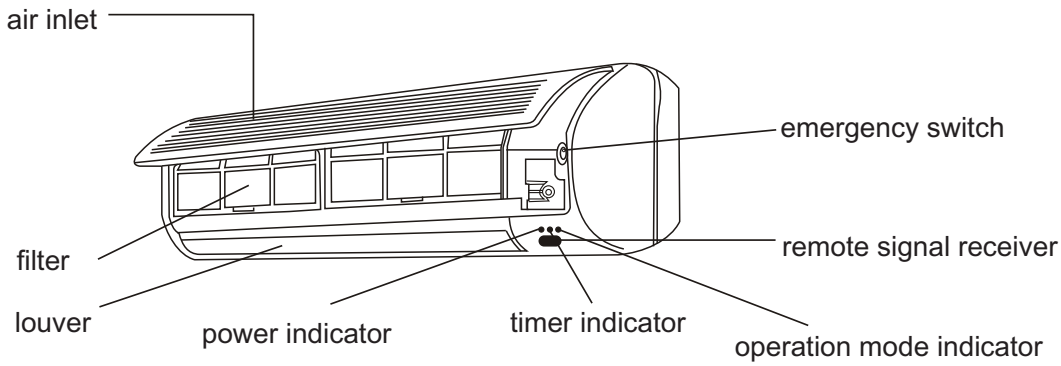
Ceiling concealed unit:



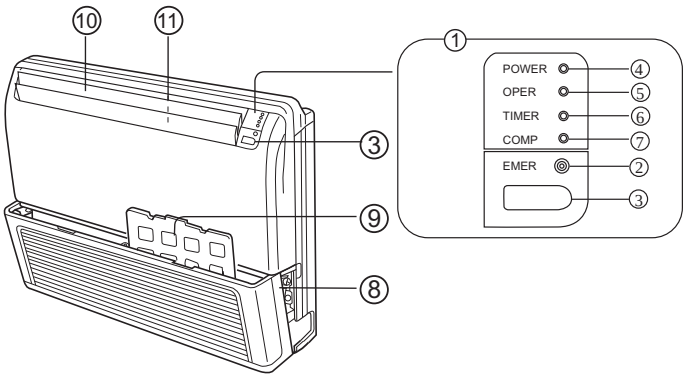
Wall mounted unit(AS07~12):



Wall mounted unit (AS18):



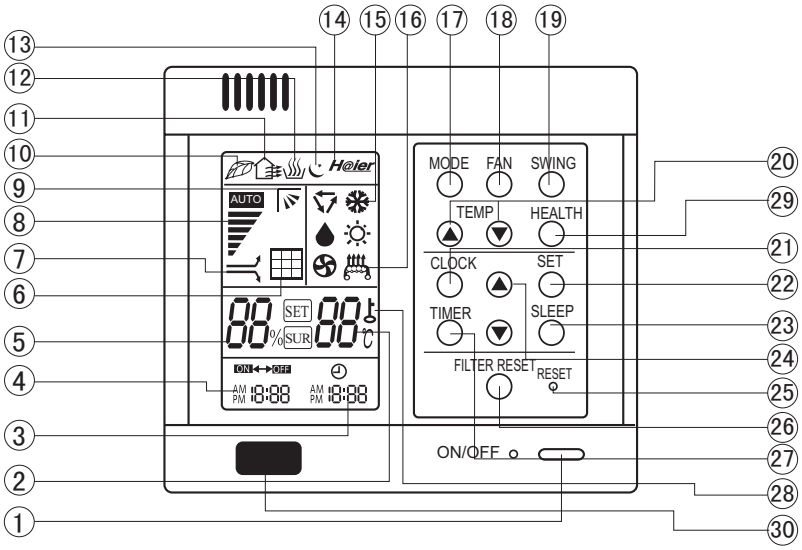
AC142FCBHA, AC182FCBHA



1 Operating Control Panel
2 Emergency switch
3 Remote Control Signal Receiver
4 Power Indicator Lamp
5 OPERATION Indicator Lamp
6 TIMER Indicator Lamp
7 Compressor Run Lamp
8 Intake Grill
9 Air Filter
10 Up/Down Air Direction Flaps
11 Right/Left Air Direction Louvers
(behind Up/Down Air Direction Flaps)

7. Controller functions

7 .1 Wired controller YR-E06



1.ON/OFF button
Used to turn on/off unit

2.Temperature display

3.Clock display

4.Timer ON/OFF display

5.Humidity display

6.Air filter cleaning display
When there is too much dust collected on the air inlet, the wire controller will show this display to remind theuser to clean the air inlet.After cleaning and installation, just press the air filter reset button.

7.Super/Soft operation display

8.Fan speed display

9.Auto Swing display

10.Health state display

11.Fresh air state display

12.Humidifying state display

13.Sleep state display

14.Network control display

15.Working mode display

Working mode	Auto operation	Cooling operation	Dehumidifying operation	Heating operation	Fan operation
Wire controller					

16.Electric heating display

17.Operation mode button
Used to set working mode: Auto, Cooling, Dehumidifying, Heating, Fan

18.Fan speed button
Used to set fan speed: Low Fan, Med Fan, High Fan, Auto

19.Swing button
Used to set Auto Swing or Fixed air sending direction

20.Temperature Setting button
Used to set temperature, ° temperature range: 16 C~30 C

21.Clock button
Used to calibrate the time of timer and clock

22.Setting button
Used to confirm the time of timer and clock

23.Sleep button
Used to set Sleep state

24.Time Adjusting button
Used to adjust the time of timer and clock

25.Reset button
When the wire controller appears abnormal condition, use a sharp-pointed article to press this button to make the wire controller resume normal

26.Air Filter Reset button
After cleaning the air inlet, press this button, the unit can start to operate

27.Timer button
Used to set the mode of timer

28.Lock state display

29.Health
Used to control the generating oxygen function and negative ion-function

30.Remote control window
Used to receive the remote control signal

Note: 1.This model does not have the following related display and function ⑤⑥⑦⑨⑪⑫⑭⑯㉖
2.The outdoor unit no oxygen-bar function or no negative ion unit no ⑩㉙ health function and health display.

Calibration of clock

When turning on the unit for the first time, the clock should be calibrated. The method of calibration is:
1.Press "Clock" button, the Clock display " AM" " PM" will flash.
2.Press ▲ or▼ to adjust time. For each press, the time will increase or decrease 1 minute. If depressing the button, the time will increase or decrease rapidly.
3.After confirming the time, press " Set" button, " AM" or " PM" will stop flashing,the clock will begin to work.

Recommendations

- Use COOL in summer.
- Use HEAT in winter.
- Use DRY in spring,autumn and in damp climate.

(1) Unit start

Press ON/OFF button, unit starts.
Previous operation status appears on display (Not Timer setting). Power indicator lights up.

(2) Select operation mode

Press MODE button. For each press, operation mode changes as follows:

Unit will run in operation mode displayed on LCD.Stop display at your desired mode.

(3) Select temp. setting

Press TEMP button

▲Every time the button is pressed, temp. setting increases 1°C.
If button is kept depressed, temp.setting will increase quickly.

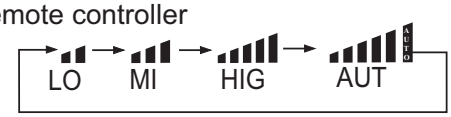
▼Every time the button is pressed, temp. setting decreases 1°C.
If button is kept depressed, temp. setting will decrease quickly.
Unit will start running to reach the temp. setting on LCD.

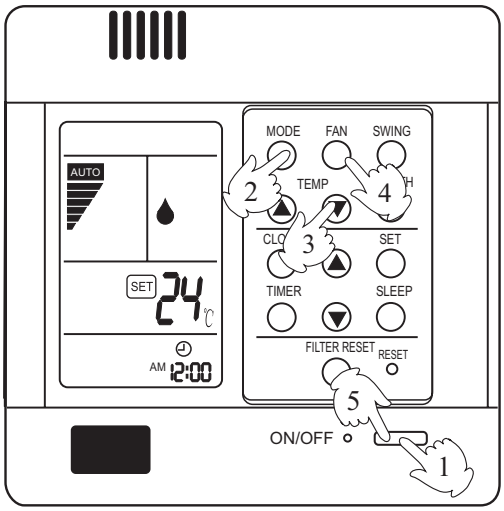
(4) Fan speed selection

Press FAN button. For each press, fan speed changes as follows:

Wired controller

Remote controller





Unit runs at the speed displayed on LCD.In HEAT mode, warm air will blow out after a short period of time due to cold-draft prevention function.
In DRY mode, when room temp. becomes 2 C higher than temp. setting, unit will run intermittently at LOW speed regardless of FAN setting.

(5) Unit stop

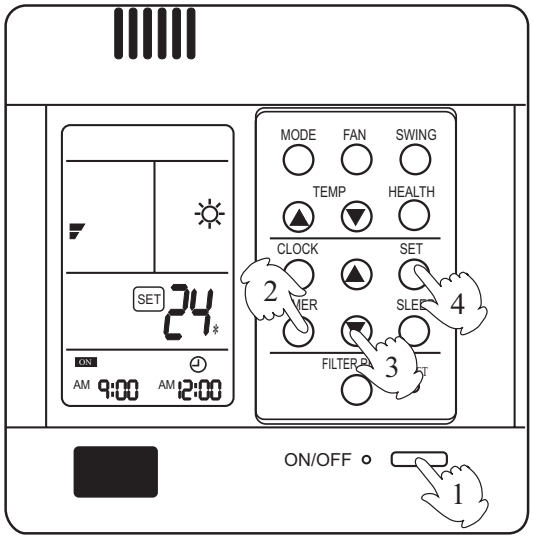
Press ON/OFF button.
Only time and room temp remains on LCD.°
All indicators go out.
Vertical flap closes automatically.

Hints
Wire controller can memorize each operation status.
When starting it next time, just press ON/OFF button and unit will run in previous status.

- Auto running: During the Auto running mode, air conditioning running and can auto-select the cooling,heating, fan mode according to the room temperature.
- Fan running: The AC only have air supply running no cooling and heating running at the condition, AC can't have auto air supply running, and can't display the setting temperature value on the LCD.
- During the heating running, after start the AC, in order to prevent cooled air, AC can stop for a while before send heat air.
- During the dehumification running, when the room temp. setting temp. , not setting condition according to the air speed.

Set Clock correctly before starting Timer operation.

You can let unit start or stop automatically at following time: Before you wake up in the morning, or get back from outside or after you fall asleep at night.



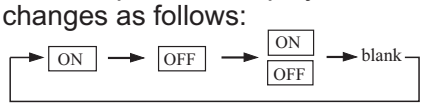
TIMER ON/OFF

(1)After unit start, select your desired operation mode.

Operation mode will be displayed on LCD.Power indicator lights up.

(2)TIMER mode selection

Press TIMER button to change TIMER mode.Every time the button is pressed, display changes as follows:



Select your desired TIMER mode (ON or OFF)

(3)Timer setting

Press TIME ▲/▼button.

▲ Every time the button is pressed, time increases 10min.If button is kept depressed, time will change quickly.

▼ Every time the button is pressed, time decreases 10min.If button is kept depressed, time will change quickly.

Time will be shown on LCD. It can be adjusted within 24hours.

(4)Confirming your setting

After setting correct time, press SET button to confirm "ON" or "OFF" stops flashing.
Time displayed: Unit starts or stops at x hour x min (ON or OFF). Timer mode indicator lights up.

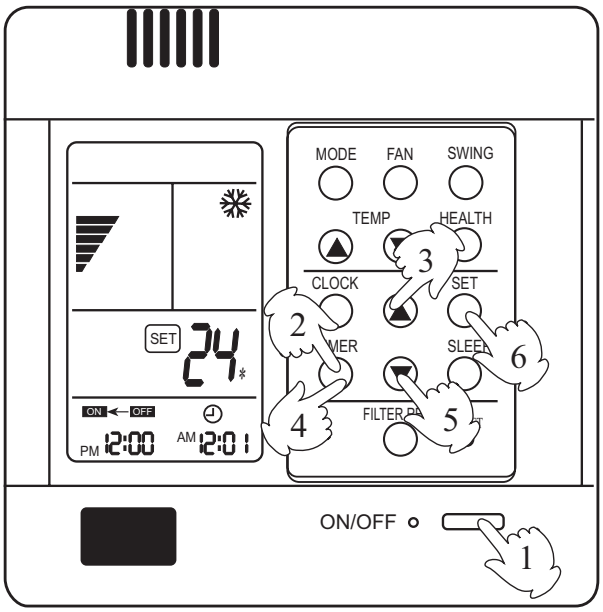
To cancel TIMER mode

Just press TIMER button several times until TIMER mode disappears.

■ According to the seting timing open, close sequence, can realize first open then colse the unit or first close then open the unit.

Hints:

- Wire controller possesses memory function, when use TIMER mode next time, just press SET button after mode selecting if timer setting is the same as previous one.
- Wire remote controller or remote controller can memorize each working condition. Next time open the unit, only need to press the ON/OFF key, the AC can work according to last time working condition.(Timing, Sleeping and Swing mode not included.)
- From Timing close to timing open, can setting sleep mode.
- Please close health function first before setting Timer, then you can do the TIMER ON operation.Please do not use the health function when in TIMER ON state.



TIMER ON-OFF

(1)After unit start, select your desired operation mode

Operation mode will be displayed on LCD. Power indicator lights up.

(2) Press TIMER button to change TIMER mode

Every time the button is pressed, display changes as follows:

Select ON / OFF .

(3)Time setting for TIMER ON

Press TIME button.

▲ Every time the button is pressed, time increases 10min.If button is kept depressed, time will change quickly.

▼ Every time the button is pressed, time decreases 10min.If button is kept depressed, time will change quickly.Time will be shown on LCD.It can be adjusted within 24hours.

AM refers to morning and PM to afternoon.

(4) Time confirming for TIMER

After time setting, press TIMER button to confirm."ON" stops blinking, While "OFF" starts blinking.

Time displayed: Unit starts at Xhour X min.

(5)Time setting for TIMER OFF

Follow the same procedures in "Time setting for TIMER ON".

(6)Time confirming for TIMER OFF

After time setting, press SET button to confirm"OFF" stops flashing.

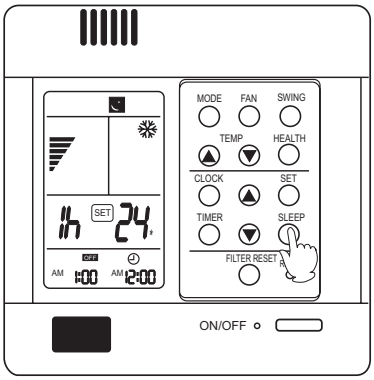
Time displayed: Unit stops at X hour X min.

To cancel TIMER mode

- Just press TIMER button several times until TIMER mode disappears.
- According to the Time setting sequence of TIMER ON or TIMER OFF, either Start-Stop or Stop-Start can be achieved.

SLEEP

Note: Before using this function, must adjust the clock, or the sleep function will be disordered.



Comfortable Sleep

At night, before going to bed you can press down the SLEEP button on the controller and the air-conditioner will run by the comfortable sleeping mode to make you sleep more comfortable.

Press SLEEP button once to make the air conditioner have the pre-set sleep time (first power-on is "1h"), the sleep symbol will appear. Press time button ▲/▼ , you can shoose the time in 1~8 hours. Each press of ▲/▼, the time increases/reduces 1hour and "xh" appear in the humidity setting area, "OFF" appears in "TIMER OFF" display area and timer-off time; press SLEEP button again to cancel sleep function, the sleep symbol disappears.

In cooling, dehumidifying mode

One hour after sleeping operation start, the temp. is 1℃ higher than the setting one. After another hour the temp. rises 1℃ and then run continuously for another 6hrs' and then close. The actual temp. is higher than the setting one which is to prevent from being too cool to your sleep.

In heating mode

One hour after start up, the temp. decrease 2℃ lower than the setting one. After another hour decrease by more 2℃.

The temperature will automatically rise by 1℃ after another 3hrs' operation, and then automatically close after 3hrs' continuous operation. The actral temperature is lower than the setting one which is to prevent from being too hot to your sleep.

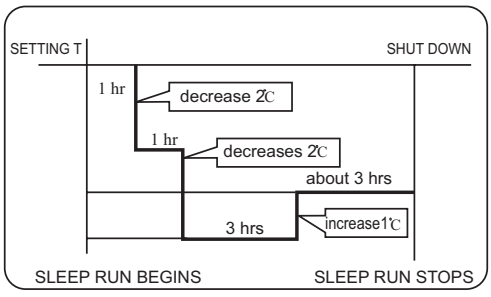
Note: In AUTO mode, unit will run in SLEEP function according to the operation mode.

After setting SLEEP function, it is forbidden to calibrate clock.

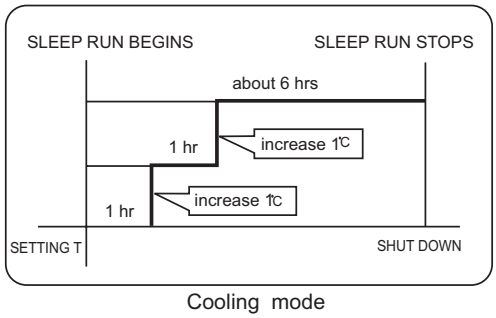
If the set sleep-time does not reach 8 hours, the unit will stop operation automatically after set time is complete.

Set "TIMER-OFF" function first, then set SLEEP, and the sleep-set is performance; set TIMER-ON function first, the sleep function can only be set before TIMER-ON; if set theSLEEP function first, the TIMER function can not be set.

- After setting sleep function, not allowed to adjust the clock. Can't use the remote controller operate the AC. If so, please cancel the sleep function first.
- After setting sleep function, can't set the timing function.



Heat mode



Cooling mode

Auto restart function (to be applied for a necessary situation) :
After the auto-restart function is set, if power failure suddenly occurs while the air conditioner is working, it will resume the previous working state when the power is supplied again.

Setting Method: When the remote controller is on (excluding timer mode and fan mode), press the "SLEEP" button on the remote controller 10 times within 5 seconds, and after the buzzer rings 4 times, the air conditioner will enter the state of auto-restart function.

Cancel Method: Press the "Sleeping" button on the remote controller 10 times within 5 seconds, and after the buzzer rings 2 timer, the power failure compensation mode will be cancelled.

Notes: When a power failure suddenly occurs during the air conditioner is working after the power failure compensation is set, if the air conditioner will not be used for a long time, please cut off the power supply to prevent its operation from being resumed after the power is supplied again, or press the "Switch On/Off" button after the power comes again.If the controller no sleep key ,use the "swing" key instead the "sleeping" on setting the auto restart function.

Concerning MRV Auto Restart function for H-MRV models

Haier Auto Restart function when the unit power drops down suddenly, the unit microprocessor will store the previous working condition and when the power is on again, the unit will run as this memory.

Auto Restart function is designed basically on the MRV whole system, but it is suitable for each indoor unit individually.

If some of indoor units power cut down, but the outdoor unit and the other indoor units still work, maybe problems will happen such as freezing at cooling mode and overload protection at heating mode on those indoor units without power.

Reason

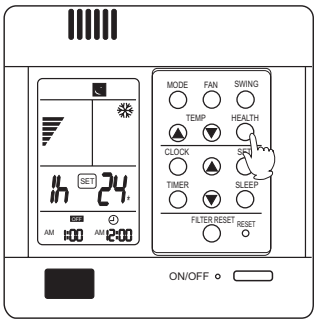
When one or some indoor units power drops down and the other indoor units are still work, the indoor units without the power, will keep the previous working condition before the power is off. And expansion valve keeps open at a kind of opening rate condition as the previous requirement, so there is refrigerant flowing in the exchanger, but the indoor fan stops working. If the units work at cooling mode, the indoor units without the power will maybe make freezing. If the unit works at heating mode, maybe the outdoor unit compressor will stop because of the pressure or temperature protection. This is our design basically on Auto Restart function currently.

Haier, Herewith, solemnly informs our customers, installers, distributors, etc. **when making installation, please make sure when the power is shut down whether artificially or accidentally, the whole system including outdoor unit and all the indoor units must be off. If you do not make the installation as our indication, Haier will not be responsible for any problem resulting from this.**

User Caution

About the remote cnotrol operation, above only take wired remote controller and remote controller as a example about the remote controller and remote receiver use method, it is the same remote controller , please use refer to above method.
No sleep function when use remote and remote receiver.

About health function

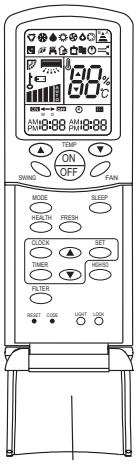


1.How to use the health function (only for units with this function)
After set the right function mode, press health button, remote controller or wire controller displays "🍃",oxygen pump or negative ion generator starts up to apply oxygen or negative ion to indoor unit. Press the button again,the sign "🍃" disappeared and negative ion generator stops working. After all health function of the indoor unit being fully canceled, oxygen pump stopped.

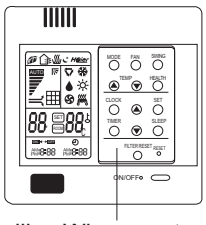
CAUTION:
When the temperature of the outdoor unit is lower than 4℃, oxygen pump is automatically stopped, if press health button just then, oxygen pump could not start up. But if the air conditioner has the negative ion function simultaneous,when press the health button, negative ion function could still be operated. When the temperature of the outdoor unit is higher than 6℃, oxygen pump could automatically resume to oxygen-make function.

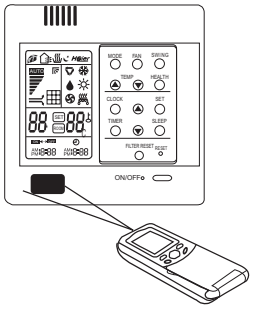
■ On the "Health" mode, if you want to setting timing open mode, should close the health first: On the timing open mode, please don't use health function.

For H-MRV wired type indoor unit, the wired controller can be matched with the remote controller YR-H71 to realize the remote control function.



Left picture is a wired remote controller, which can be used on Series wired control units ,The remote controller can be purchased extrally.
Wired remote Controller using method:
1.Use one wired remote controller. See fig (1)
2.Also can buy a remote controller extrally, realize wired remote control + remote control dual control modes.
3.When the remote controller can be used on series wired remote controller units ,than please press the botton "CODE"to choose the program of code "A"



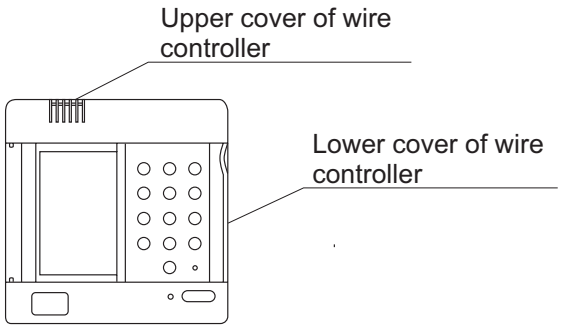


Remote controllller Wire remote controllller
Remote controllller is an accessory, to be ordered extrally

1. Remove upper cover of wire controller

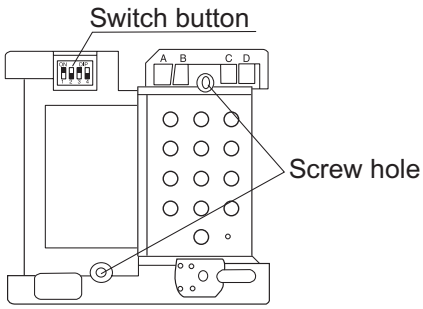
Remove upper part of wire controller by press.

PCB is mounted on lower part of wire controller, be careful not to damage it.



2. Install the wired remote controller

Please drill two holes on the wall according to the back cover screw hole position of the wire remote controller, then strike the wood block to the holes respectively, then align the 2 screw hole of the wire controller back cover to the wood block, fasten the wire reote controller to the wall use wood screws.



3. Switch setting

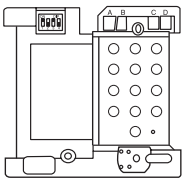
The switchs setting as follows:1.ON 2.OFF 3.ON 4.OFF

Note

Try as far as possible a flat surface for installation. Don't use excessive force when tightening screws, or lower part might got deformed.

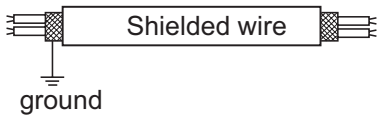
4. Connecting method as the following chart

No	Symbo	colour	contents
1	A	White or Green	12V
2	B	Red	Gnd
3	C	Yellow	COM
4	D	——	——



Back cover of the wire controller

- Use shielede wires for telecommunication between wire controller and indoor unit; indoor unit and outdoor unit. Ground the shield on one side.
- Otherwise misoperation because of noise may occur.
- Signal wire is self-provided by user.



5. Replace the upper cover of wire controller

Be careful not to hold down the wiring.

Hint 1. Power supply switch and signal wire should be prepaired by the user.

2. Don't touch PCB with hand.

7.2 Infrared controller YR-H71

Please press the botton "CODE" to choose the program of code "B". There have some function buttons in the H-MRV system units that they are not use.The detailed information is as follow:

- **About Health functon:**

There is "NEGATIVE ION" function on the WALL MOUNTED type and CABINET type indoor units,the detailed information of this function please see the following.

There is "OXYGEN GENERATING" function on this H-MRV system (it's of an optional part system). The system can generate fresh oxygen to the room space by installing this part system.

About Health functon(If the unit has the function of both "NEGATIVE ION" and "OXYGEN GENERATING")

After set the right function mode,press health button,remote controller displays " ",now the indoor unit power lamp turns form orange color to green color,oxygen pump or negative ion generator starts up to apply oxygen or negative ion to indoor.

Press the button again,the sign" "disappeared and negative ion generator stops working.after all health function of the indoor unit being fully canceled,oxygen pump stopped.

About Health functon(only has oxygen pump fancton):

After set the right function mode,press health button,remote controller displays " ",now the indoor unit power lamp turns form orange color to green color,oxygen pump generator starts up to apply oxygen to indoor.

Press the button again,the sign" "disappeared .after all health function of the indoor unit being fully canceled,oxygen pump stopped.

- **NOTE:For the indoor Wall Mounted and Cabinet units**

Some functions of this controller maybe not available according to the corresponding PCB's functions,such as ⑧⑪⑭⑯⑰㉑㉓㉔㉘㉙㉛㉜㉝ which are optional for different unit.

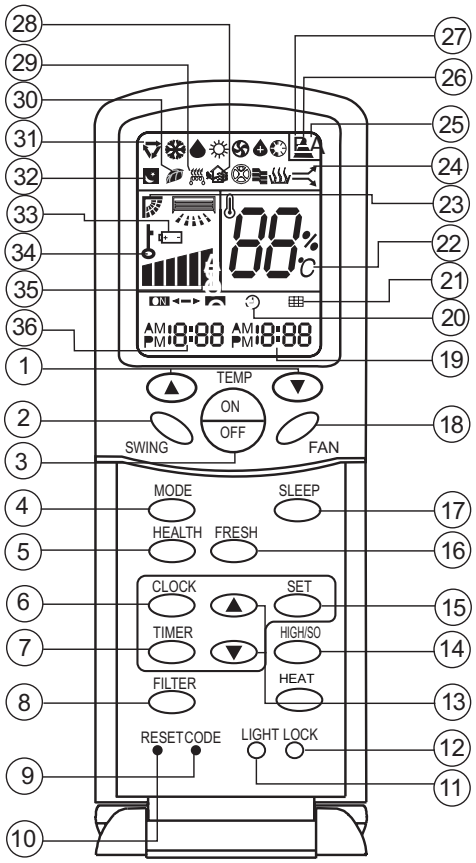
- **NOTE:For the Convertible and Cassette and console indoor units**

Some functions of this controller maybe not available according to the corresponding PCB's functions,such as ⑤⑧⑪⑭⑯⑰㉑㉓㉔㉘㉙㉛㉜㉝ which are optional for different unit.

- **NOTE:For the Duct and Ceiling concealed indoor units**

Some functions of this controller maybe not available according to the corresponding PCB's functions,such as ②⑤⑧⑪⑭⑯⑰㉑㉓㉔㉘㉙㉛㉜㉝ which are optional for different unit.

Remote controller



1.TEMP Setting Button
(Used to set temperature. Setting ranges: 16˚C to 30˚C)
2.SWING Button
If you press this button once, auto swing will be activated.
If you press this button again, the louver will fix in the present position.
3.Power ON/OFF Button
Used for unit start and stop
After power on, the LCD of remote controller will display the previous operation state (except for TIMER,SLEEP and SWING state).
4.Operation MODE
Used to select operation mode.
Every time you press MODE button, operation mode changes according to following sequence:
The function of code B

5.HEALTH Button
6.CLOCK Button
Used to set correct time.
7.TIMER Button
Used to select TIMER mode:TIMER ON,TIMER OFF.
(Note: if time of TIMER ON is the same as TIMER OFF)
8. FILTER Button
Used to set up/down function of filter.
9.CODE Button
Used to select Code A or B, this manual is for code B.
10.RESET Button
Press this button by using a sharp article to resume the correct operation of the remote controller in case of need, i.e. for example in case of malfunctions due to electromagnetic disturbance.
11.LIGHT Button
Used to light the control panel (only for cabinet unit)
12.LOCK Button
Used to lock operation button and LCD display contents: by pressing this button, other buttons comes out of function and lock state display appears; if you press it again, lock state will be no more active and lock state display will disappear.
13.HOUR Adjustment
Used to set clock and timer setting
14.HIGH/SO Button
Used to select HIGH or SOFT operation.
15.SET Button
Used to confirm TIMER and CLOCK settings when or cooling/heating
16.FRESH Button
Used to set fresh mode, the unit will draw in fresh air.
17.SLEEP Button
(The clock must be corrected before setting sleep function)
Used to set sleep mode.
18.FAN Button
Used to select fan speed:LOW,MID,HIGH,AUTO.
19.TIMER OFF Display
20.TIMER Display
21.FILTER Display
When the filter need be cleaned, the sign will appear automatically.
22.TEMPERATURE Display
23.AUTO SWING Display
24.HIGN/SO Run Display
25.Code A display
26.SIGNAL SENDING Display
27.Code B display
28.Fresh Display
29.Auxiliary ELECTRICAL HEATING Display
30.HEALTH Display
Displays when healthy run function is set.
31.Operation MODE Display
32.SLEEP State Display
33.BATTERY Energy Display
Notify the user when it is time to change the batteries.
34.LOCK State Display
35.FAN SPEED Display

36.TIMER ON Display

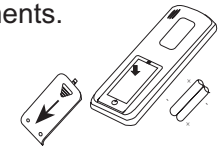
Remote Controller Operation

- When in use, direct signal transmission head to the receiver placed on the indoor unit
- The distance between the remote controller and the receiver should be max 7m and there should be no obstacle between them.
- Do not throw the remote controller; prevent it from being damaged.
- When operating the remote controller in an area where electronically controlled lights are installed or wireless handsets are used, please move closer to the indoor unit as the function of the remote controller might be affected by signals emitted by the above mentioned equipments.

Battery loading

Battery loading

Batteries are fitted as follows:



Remove the battery compartment lid Slightly press and disengage the battery compartment lid marked with "▽" and then hold the remote controller by the upper section and then remove the battery compartment lid by pressing in the direction of the arrow as shown in the figure above.

Loading the battery

Ensure that batteries are correctly placed in the compartment as required for positive and negative terminals.

Replacing the battery compartment lid

The battery compartment lid is reinstalled in the reverse sequence.

Display review

Press the button to see if batteries are properly fitted. If no display appears, refit the batteries.

Confirmation indicator

If no indication is displayed after press ON/OFF button, reload the batteries.

If the remote controller does not operate as designed after fitting new batteries of the same type, press the Reset button (marked⬇) with a pointed article.

Note:

It is recommended that the batteries be removed from the compartment if the remote controller is not used for an extended period.

The remote controller is programmed for automatic test of operation mode after the batteries are replaced. When the test is conducted, all icons will appear on the screen and then disappear if the batteries are properly fitted.

When the display become weak, this display no power in the battery, please change the battery.

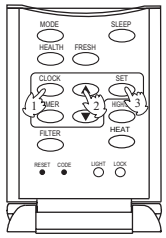
Clock Set

When unit is started for the first time and after replacing batteries in remote controller, clock should be adjusted as follows:

1.Press CLOCK button, clock indication of " AM " or " PM " flashes.

2.Press ▲ or ▼ to set correct time. Each press will increase or decrease 1 min. If the button is kept pressed, time will increase or decrease quickly.

3.After time setting is confirmed, press "SET" : AM or PM stop flashing, while clock starts working.Note:AM means morning and PM means afternoon.



COOL , HEAT and DRY Operation

1. Unit start

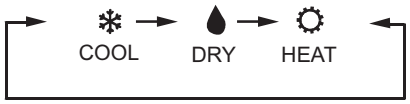
Press ON/OFF button,unit starts.

Previous operation status appears on LCD (except for TIMER, SLEEP and SWING setting)

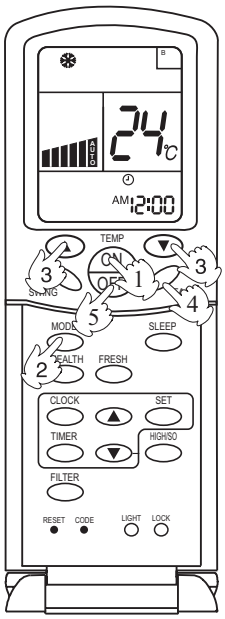
2.Select operation mode

Press MODE button. At each press, operation mode changes as follows:

follows:



Then select COOL operation or select DRY operation or select HEAT operation



3.Temperature setting

Press TEMP button.

▲ Every time the button is pressed, temp. setting increases 1degree. If button is kept depressed, temp. setting will increase quickly.

▼ Every time the button is pressed, temp. setting decreases 1degree. If button is kept depressed, temp. setting will decrease quickly.

Set proper temperature

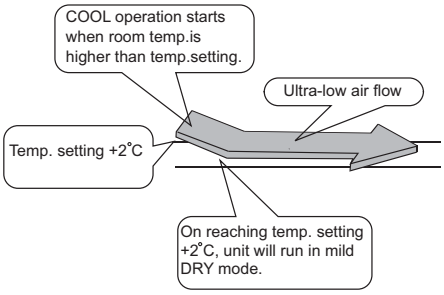
4.Adjust FAN button

Press FAN button. At each press, fan speed changes as follows:

Air conditioner will run at the selected fan speed.

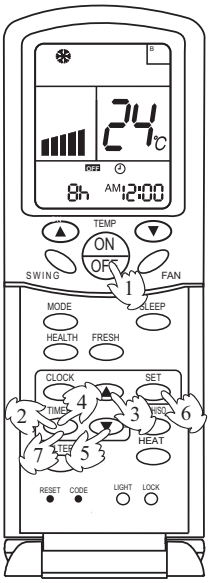
5. Unit stop

Press ON/OFF button, unit stops



In HEAT mode,warm air will blow out after a short period of time due to anti-cold function.

Timer ON/OFF Function,(Set clock correctly before starting TIMER operation)



Timer ON-OFF Function

1.Unit start

After unit starts,select your desired operation mode(Operation mode will be displayed on LCD)

2.TIMER mode selection

Press TIMER button on the remote controller to changeTIMER mode. Every time the button is pressed,display of TIMER mode changes as follows:

Then select TIMER mode as needed

3.Time setting

Press time button▲▼

▲Every time the button is pressed,time increases an hour.If the button is kept pressed,time will changes quickly.

▼Every time the button is pressed,time decreases an hour.If the button is kept pressed,time will changes quickly.It can be adjusted with in 12 hours at will. AM refers to morning and PM refers to afternoon.

4.Timer confirming

After time setting ,press SET button to confirm time.

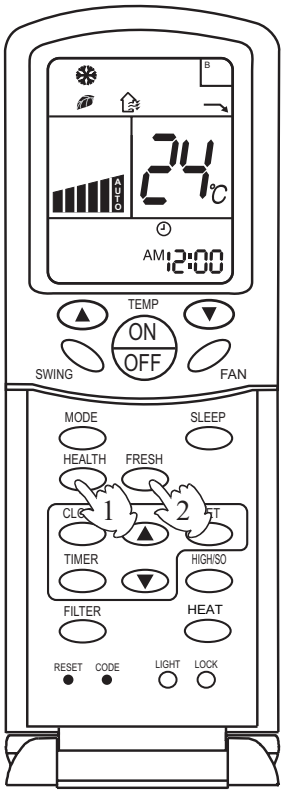
5.Canel TIMER mode

Just press TIMER button several times until TIMER mode disappears. According to the time setting sequence of TIMER ON and TIMER OFF, either start-stops or stops-start can be realized.

After replacing batteries or if apower failure occurs,TIMER setting must be reset.

Remote controller has memory function.When you use TIMER mode next time,just press SET button after mode selection if timer setting is the same as the previous one.

Health & Fresh Air operation



Health operation

After turning on the unit and set the desired working mode. Press the Health button,the LCD will display" " ,the unit begins health operation(start the negative ion generation device).Press the Health button again,the " "displayed on the LCD disappears,health operation is cancelled(turn off the negative ion generation device).

Note:When indoor fan motor does not work,the unit will autom atically turn off negative ion generati on device.

About Health operation

After the start of health operation,the negative ion generator will generate large amount of negative ion,which can effectively balance the amount of positive& negative ion in the air and has the bacteria-killing and accelerating the dust deposition of the room to makethe room air fresh and healthy.

Fresh Air operation

After turning on the unit and set the desired working mode(the remote controller LCD and control panel LCD display the working mode).

Press the Fresh air button of the remote controller,the LCD displays" " ,and the unit begins continuous fresh air operation;press the button again,the" "in " "flashes and begin automatic fresh air operation.press the button for the third time to cancel fresh air function.

Continuous fresh air operation:That is to say,if there is no intervention,the fresh air operation will continuously run and not stop.

Automatic fresh air operation:That is to say,the fresh air operation runs intermittently.After 20 minutes operation,the fresh air operation will stop for 20 minutes;runs for another 20 minutes,it will stop for another 20 minutes,repeatedly runs.

Note:Either in ON or OFF state,the fresh air operation can be independently set to run.

About Fresh air operation

The ventilation device of this air conditioner can discharge the indoor air to outdoors,while the outdoor fresh air supplement to indoors,so that fulfills the fresh air function.

7 .3 Remote receiver RE-02

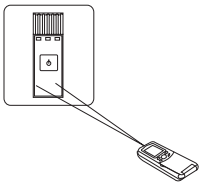
If the unit is wired type and it is without the remote receiver, you can use the remote receiver RE-02 and the remote controller YR-H71 to realize the remote function. The installation of remote receiver and usage function are as follows:

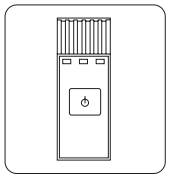
The right figure is a remote controller, which can be used on series remote control units and the matching remote control receiver

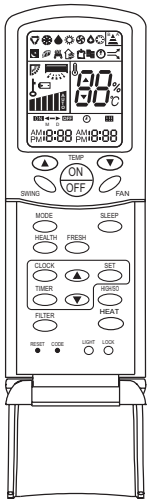
1.Remote control receiver using method :

Use remote controller control the remote control window of the remote control receiver.

2.Series remote controller units please press the botton "CODE"to choose the program of code "B"







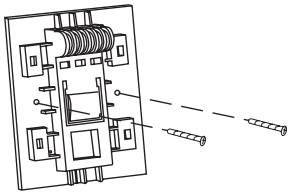
Remote receiver Remote controlller

Installation of receive display

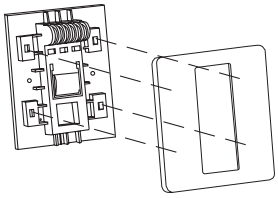
Because of the temperature sensitive device, do not install the receive display at straight sunlight place, either in front of air outlet grill, for it is effected greatly from cool air and heat air, the receive display is at least 20mm distance to the air outlet grill.

Since there is light sensitive device which receives wireless remote signal, so do not installed behind the window curtain or other obstacles, in order not to obstruct the signal.

Must fix the remote control wire far from strong electricity (such as the wiring of electric light, air conditioner, etc.) and weak electricity (such as the wiring of telephone, interphone, etc.).



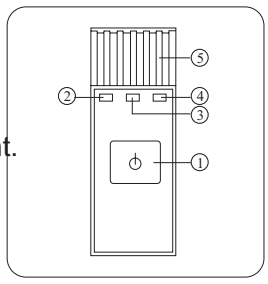
1.Fix the receive display with screws on the selected place



2.Place the panel onto the fixed frame, pay attention that the four claws must be placed into the corresponding four poles on the frame

Connecting wiring method of receiver :

- Refer the indoor unit wiring diagram .
- Safety cautions see the electrical wiring part .



①.Emergency switch

②.Running lamp: When the compressor working, this lamp bright.

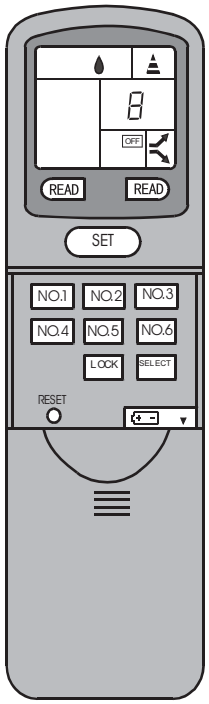
③.Timing lamp: When the unit been setting Timing running, this lamp bright.

④.Power lamp: After open the unit, this lamp bright when the unite enter health running, the lamp change from orange to blue lamp.

⑤.Indoor temp. sensor: Test the room temperature.

7 .4 Address set controller ASC-02

1. Initial connection of power supply
   Three seconds after the remote controller is connected to power supply,default symbol "1" of the unit model will be displayed on the LCD and the new icon "↗" shall be transmitted.
2. Operation of remote controller
   - The "SELECT" Button :The icon "↘" is displayed when the button is first pressed and the function for transmission of previously set code is set. If the same button is pressed again, the icon "↗" appears for setting of new code. The function icon will be switched for display if the button is continuously pressed.
   - The "Read" button: Pressing of this button will result in simultaneous display of dehumidifying and transmission icons (black water drop and pyramid as shown in the figure)
   - The "Lock" button: This button can be pressed after new code transmission is set.When the button is pressed,the icon"Off" appears on the LCD, then except the Reading button,all the buttons will be shielded with the receiver code locked. If the button is pressed again, icon"Off" disappears and the lock-on function is inactivated for all the other buttons.
   - Machine number button (No.1 to No.6 unit): If the button is pressed, a machine serial button is displayed with a flashing frequency of 1Hz.
   - Set machine number 7,8: press button 6,and within 2seconds press button 1, then loose them simultaneously, 7 will display in the screen, which stands for selecting unit 7. And then press button"set", you can set unit 7.Then press "READ" to confirm if the unit number is right. With the same method, set unit No.8.
   - Machine number "set" button: This button can be set when machine number flashes on the LCD. Machine number flashing will be set and transmitted if the button is pressed, the machine number stops flashing and a transmission icon (the black pyramid shown in the figure) will appear on the LCD.
   - The "Reset" button: Inset a pointed tool (∅ 2mm) into the hole of the Reset buttonEvery press of the tool will reset the existing setting, and three seconds later, initial operation mode will appear on the LCD.
3. Test of remote controller (ie. No. 3 unit)
   - Press Unit 3 button,the number 3 flashes with a frequency of 1Hz.
   - Press the machine number"set" button, the selected unit number will be set and transmitted to the receiver of the unit.
   - Press the "Read" button and the selected unit starts read the set machine number.If machine number of selected indoor unit is correctly displayed,(Flash number of the indoor unit power indicator implies machine number) setting of machine number is successful or vice versa.
   - When setting is completed, press the"Lock" button, (for new number remote controller only) and the icon Lock-on appears on the LCD, then the machine number of the indoor unit is locked. Usually machine numbers do not need to be locked.
4. A slight sound may be produced by the indoor unit when the signal from the remote controller is received.



Note: Do not set machine numbers for more than one indoor unit before a lapse of 20 seconds after completion of setting of machine number of a indoor unit.

8. Electrical Control Functions

8.1 Outdoor control principle:

No	Item	AU282FHAIA	AU522FIAKA	AU52NFIAKA
1	Fan motor control	1. Startup period in cooling mode: high 2. Cool, Dry mode: ●Current state is Fan OFF mode: TC＞21℃: low speed ● Current state is low speed: TC＞30℃, med speed TC＜15℃, fan off ● Current state is med speed: TC＞42℃, high speed TC＜22℃, low speed ● Current state is high speed: TC ＜ 39 Current state is med speed:	1. Startup period in cooling mode: high 2. Cool, Dry mode: ● Current state is Fan OFF mode: TC＞37℃: low speed ●Current state is low speed: TC＞50℃, med speed TC＜30℃, fan off ●Current state is med speed: TC＞47℃, high speed TC＜40℃, low speed ●Current state is high speed: TC＜41℃, med speed ●In low speed: TC＜40℃, lower fan off TC＞42℃, lower fan startup	1. Startup period in cooling mode: TA＞16℃, high speed TA≤16℃, low speed 2. Cool, Dry mode: ●TA＞32℃, high speed ●15℃≤TA＜31℃: TC＞45℃, high speed 40 ℃ ＜ TC ＜ 44 ℃ , med speed TC＜39℃, low speed ●TA＜15℃: TC＜30℃, fan off TC＞50℃, low speed ●In low speed: TC＜36℃, lower fan off TC＞38℃, lower fan startup
		1. Startup period in heating: High speed 2. Running state in heating: ●TA＞17℃: running units capacity≤ 1HP, low speed will be ON and OFF in turns. ●Other condition: TE＜7℃, high speed TE＞10℃, low speed	1. Startup period in heating: High speed 2. Running state in heating:●TA＞17℃: running units capacity ≤ 1HP, low speed will be ON and OFF in turns. ●Other condition: TE＜7℃, high speed TE＞10℃, low speed 3. TE＞14℃, lower fan off TE＜12, lower fan startup	1. Startup period in heating: TA≥20℃, low speed TA＜20℃, high speed 2. Running state in heating: ●TA＞17℃: running units capacity≤1 HP, low speed will be ON and OFF in turns. running units capacity＞ 1HP, low speed ● 17 ℃ ＞ TA ＞ 15 ℃ , low speed ● 14 ℃ ＞ TA ＞ 10 ℃ , med speed ●TA＜9℃, high speed
2	EEV	In COOL, DRY, DEFROST state, EEV will open fully with 480 pulse.		

	control	In heating mode, EEV will be adjusted due to the overheating value: SH= TS-TC 1. Adjust range: according to the compressor frequency, min open angle of EEV will be different: high frequency, 120; med frequency, 110; low frequency, 90; the max open angle: 470/350 2. Overheating modification: according to the discharging temperature, modify the overheating value, when Td>100℃, overheating value will decrease 2 at the standard overheating value; when Td≤70℃, overheating value will add 2 at the standard overheating value	
3	4-way valve secure operation	1. Secure operation conditions of 4-way valve: ● After the outdoor receives the heating signal from indoor unit, if the 4-way valve is not electrified before the compressor starts up, the unit will enter the 4-way valve secure operation. ● After defrosting is over, the unit will enter the 4-way valve secure operation. 2. 4-way valve secure operation control: ● In heating mode, After the outdoor receives the startup signal from indoor unit, the compressor will start up, (fan motor shutoff, EEV close) and when the frequency rises up to 50Hz for 10 seconds, 4-way valve will reverse (meanwhile, fan motor will enter the target speed, EEV enters the open angle of soft startup) and the unit enters soft startup period. ● In defrosting, when the defrost condition is met, the compressor frequency will decrease to 50Hz, 4-way valve will reverse (meanwhile, fan motor will enter the target speed) and the unit enters soft startup period. 3. 4-way valve control in OFF state: 4-way valve will close after compressor stops for 30 minutes.	
4	Defrosting control	1. Enter condition: when compressor runs for 45 minutes in all in heating mode, by checking TE and TA, if the below conditions can be met for continuous 5 minutes, the unit will enter defrosting operation: TE≤C×TA－α, herein, ●C：TA＜0℃, C=0.8; TA≥0℃, C=0.6 ●α：set as 12（L）,10（M）,8（H） according to the actual condition. At the easily defrosting place, set as H; at the not-easy-defrosting place, set as L; when out of factory, set as M ●Temperature limitation: -15℃E≤TE≤2℃E	1. Enter condition: when compressor runs for 45 minutes in all in heating mode, by checking TE and TA, if the below conditions can be met for continuous 5 minutes, the unit will enter defrosting operation: ●When Ta＜2℃, TA-TE≥9℃ for continuous 2 minutes; or Te＜-12℃ for continuous 5 minutes; ●When Ta≥2℃, Te＜-5℃ for continuous 5 minutes;

		2. Defrosting control: When defrosting condition is met, compressor frequency will go down to the min. frequency, and 4-way valve will be powered off and turn into cooling mode (fan motor off, EEV in soft startup open angle); compressor frequency rises up to 78Hz and begins to defrosting operation.
		3. Quit condition: ●TE is over 7℃ for 60 seconds in all or is up to 12℃, defrosting is over; ●Defrosting accumulative time is up to 10 minutes, defrosting is over.
5	Electric heater control	1. When TA≤27℃, if the compressor stops running, electric heater will be electrified; 2. When TA≥27℃, or when compressor starts up, electric heater will be off; and temp. difference is 5℃.
6	Unloading valve SV1 control	1. To balance pressure: it will open 1 minute before compressor starts up, and keep open in soft startup period after compressor starts up until the soft startup is over; in the remaining operation and 10 minutes later after shutoff, SV1 will open; 2. Improve low pressure: in heating mode, when (TC、TS、TE)min. value≤-13℃ SV1 open, temp. difference is 3℃.
7	Spray valve SV2 control	Adjust the SV2 according to the discharging temperature: when TD≥115℃, SV2 will open; when TD≤110℃, SV2 will close.
8	Pressure switch control	High pressure switch protection: ●When input level of pressure switch is 1, it shows there is no protection. ●When input level of pressure switch is 0 for a while, it shows high pressure beginning; compressor stops and the unit alarms. The alarm can be resumable, the unit will alarm in 3 minutes when compressor is standby.
		Low pressure switch protection: ●When input level of pressure switch is 1, it shows there is no protection. ● When compressor is running, if low pressure switch has acted for 3 minutes continuously, the unit will alarm. When compressor stops, if low pressure switch has acted for 30 seconds continuously, the unit will alarm. When compressor starts up, low pressure switch will be shielded within 3 minutes. ●In defrosting and in 6 minutes after defrosting is over, low pressure switch will be shielded.

9	Compressor capacity output control	In cooling mode, frequency will be calculated according to the horse power of the running indoor units: 1. Every indoor unit will confirm 8 capacity codes according to the difference between the set temperature and the ambient temperature; then add all the capacity code of the running indoor unit. 2. Divide the outdoor capacity into 13 capacity classes due to the frequency; every capacity class is corresponding with the different indoor capacity code; modify the relative indoor capacity code due to the different ambient temperature; 3. Compressor will confirm its target frequency according to the sum of indoor capacity code;	Cooling target frequency will be confirmed due to the indoor running horse power and the outdoor ambient temperature: F=C1(P-C2)+C3(T-35)+C4 Herein: C1=22, C2=160, C3=64, C4=4200;
		Heating target frequency will be confirmed due to the indoor running horse power and the outdoor ambient temperature: F=C1(P-C2)+C3(7-T)+C4+C5(C6-TZ) Herein: C1=16; C2=160; C3=32; C4=4500; C5=300; C6=45.	

8.2 Indoor electric control functions:

No	Control item	AE*FCAMA	AS*FCAIA	AB*FCAIA
1	EEV control	In cooling mode, the adjustment by the over heating: SH= TC1(gas pipe)-TC2（liquid pipe） 1. Adjust range: min. angle: 60/65, max. angle: 470/350（data will take EEPROM as standard） 2. Overheat modification: according to the discharging temperature, modify the overheat state, if Td > 100 ℃, the overheat value will add 2 degree at the base of standard degree; 3. Open modification: when EEV is at min. angle, the unit will measure the difference between Tliquid and Ta at the interval of 5 minutes, if the difference is within 5 degree, the valve will be back to base open angle and modify the open angle due to the overheat state		
		In heating mode, adjust the open angle according to the conformity of liquid pipe temperature. 1. Adjust range: indoor unit startup, min open angle: 100, max open angle: 470; indoor unit standby: open angle: 60. 2. The indoor EEV open angle will depend on the temperature difference between indoor liquid pipe temp. and average liquid temp. of all running indoor units. (if lower than average temp., the valve will open; if high than average temp., the valve will close.		
2	Fan motor control	Anti-freeze control in cooling mode: ●When liquid pipe temp. is below 7 degree for 40 minutes, or when liquid pipe temp. is below 4 degree for 10 minute, the unit will enter anti-freeze function. At this time, the current indoor EEV will close, and the fan motor will turn into low speed from the current speed. ●After the anti-freeze function has worked for 10 minutes, and liquid pipe temp. is over 7 degree, the unit will quit anti-freeze control (take the data in EEPROM as standard).		
		Anti-cold air control in heating mode: ●When liquid pipe temp. is below 33 degree, indoor fan speed will turn into low speed from the set speed; when liquid pipe temp. is below 25 degree, indoor motor will stop. ●When liquid pipe temp. is over 30 degree, indoor fan speed will turn into low speed from stop; when liquid pipe temp. is over 35 degree, indoor motor will enter the set speed (take the data in EEPROM as standard).		

8.3 Temperature compensation adjustment:

For infrared control type unit, the temperature compensation can be adjusted. But for wired control type unit, there is no temperature compensation.

Set the EEPROM by SWING (or SLEEP) button. For example:

Infrared control—in heating mode, press “ON/OFF” button to switch on the unit. Take the 24 degree set temperature as the base point, press SWING (SLEEP) within 5 seconds, it will sound 2 times, the unit will enter the heating temperature compensation mode, at this time, if you set the temperature to 25 degree and switch off, the temperature compensation will be +1 degree; if you set the temperature to 26 degree and switch off, the temperature compensation will be +2 degree, and so on, the max. compensation can be +6 degree (30 degree); if you want to cancel the compensation, adjust the temperature back to 24 degree.

Infrared control—in cooling mode, press “ON/OFF” button to switch on the unit. Take the 24 degree set temperature as the base point, press SWING (SLEEP) within 5 seconds, the unit will enter the cooling temperature compensation mode, at this time, if you set the temperature to 23 degree and switch off, the temperature compensation will be -1 degree; if you set the temperature to 22 degree and switch off, the temperature compensation will be -2 degree, and so on, the max. compensation can be -8 degree (16 degree); if you want to cancel the compensation, adjust the temperature back to 24 degree.

Read the temperature compensation value:

Infrared control type—change to cooling mode, the set temperature is 30 degree, in high speed. Press SWING (SLEEP) 7 times within 5 seconds, the running LED will flash as the current temp. compensation value.

Infrared control type—change to heating mode, the set temperature is 16 degree, in high speed. Press SWING (SLEEP) 7 times within 5 seconds, the running LED will flash as the current temp. compensation value.

8.4 Unit debugging:

1. Confirm indoor unit quantity

After the unit is electrified, you can check the indoor unit quantity by the outdoor dip switch or the testing board. The display quantity must be in accordance with the actual quantity. If not, please check if there is repeated unit No. or if the dip switch is broken, and if the communication wire is connected correctly.

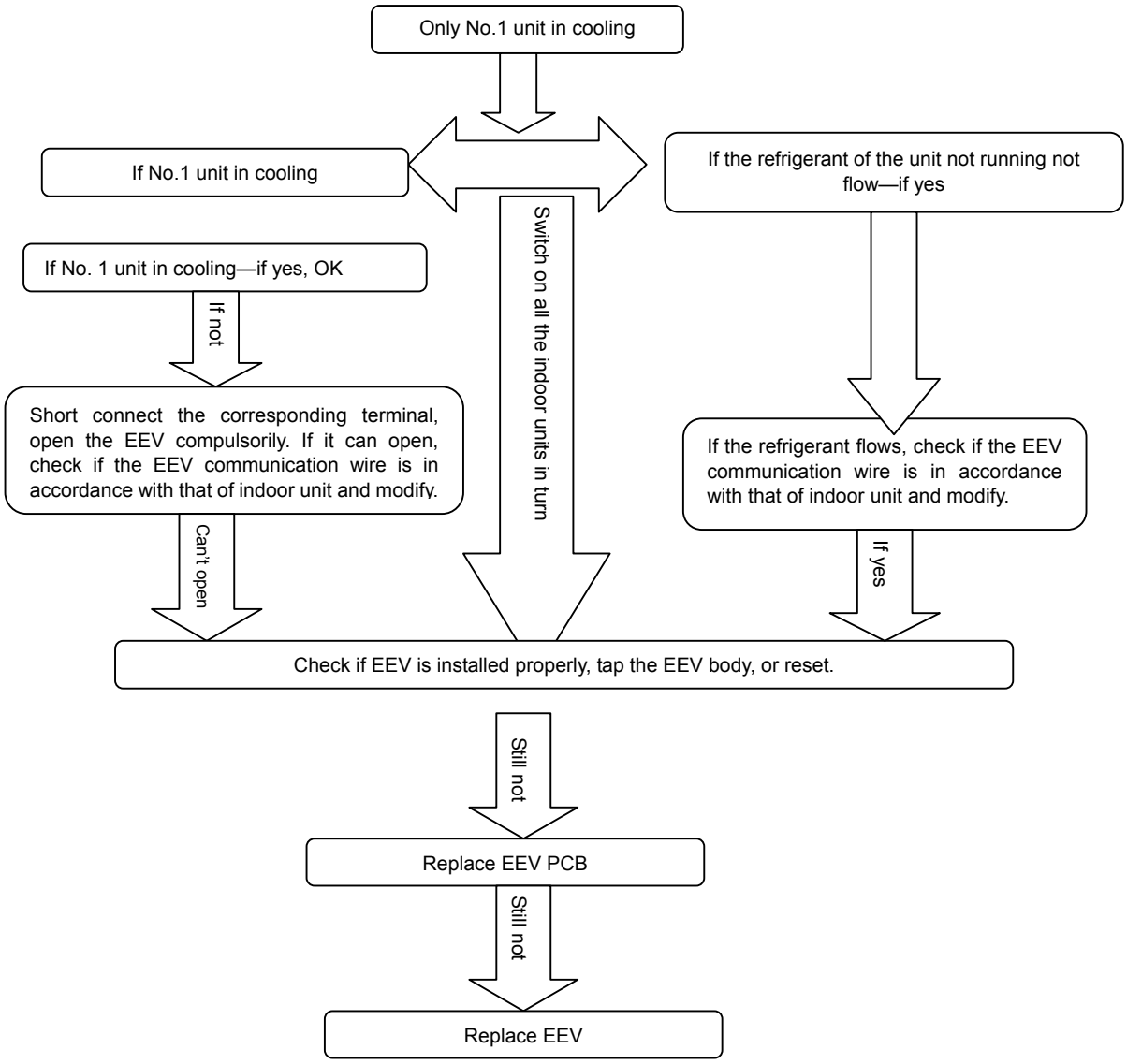
2. Confirm indoor EEV

FAQ:

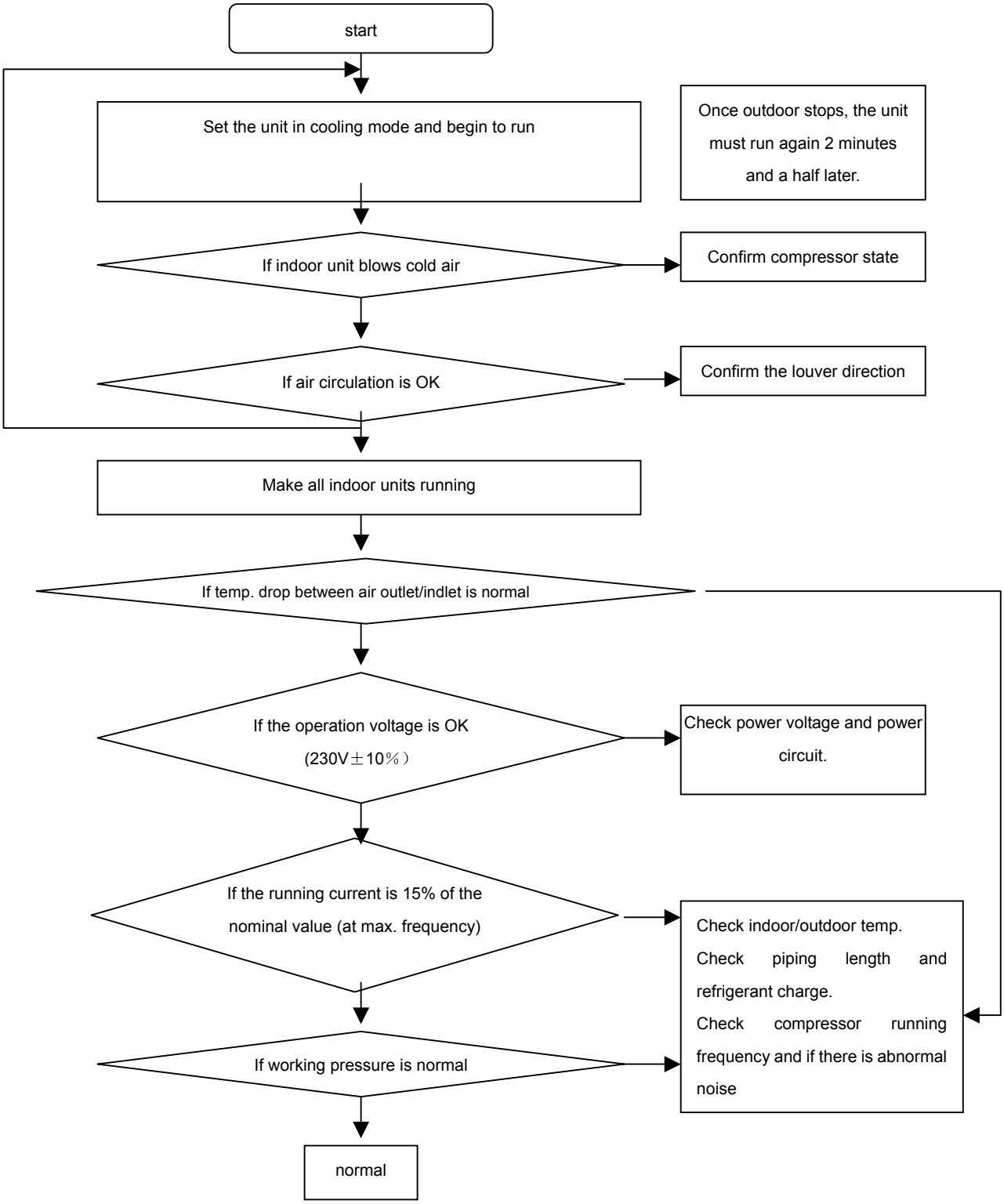
2.1 The EEV communication wire is not in accordance with the indoor unit. If all the indoors are running, the operation will be normal; when the only one indoor unit is running and it can not cool, while the EEV of the unit not running opens.

2.2 The live wire and the neutral wire of the EEV power cable is not in accordance with those of indoor unit power cable, E7 failure occurs.

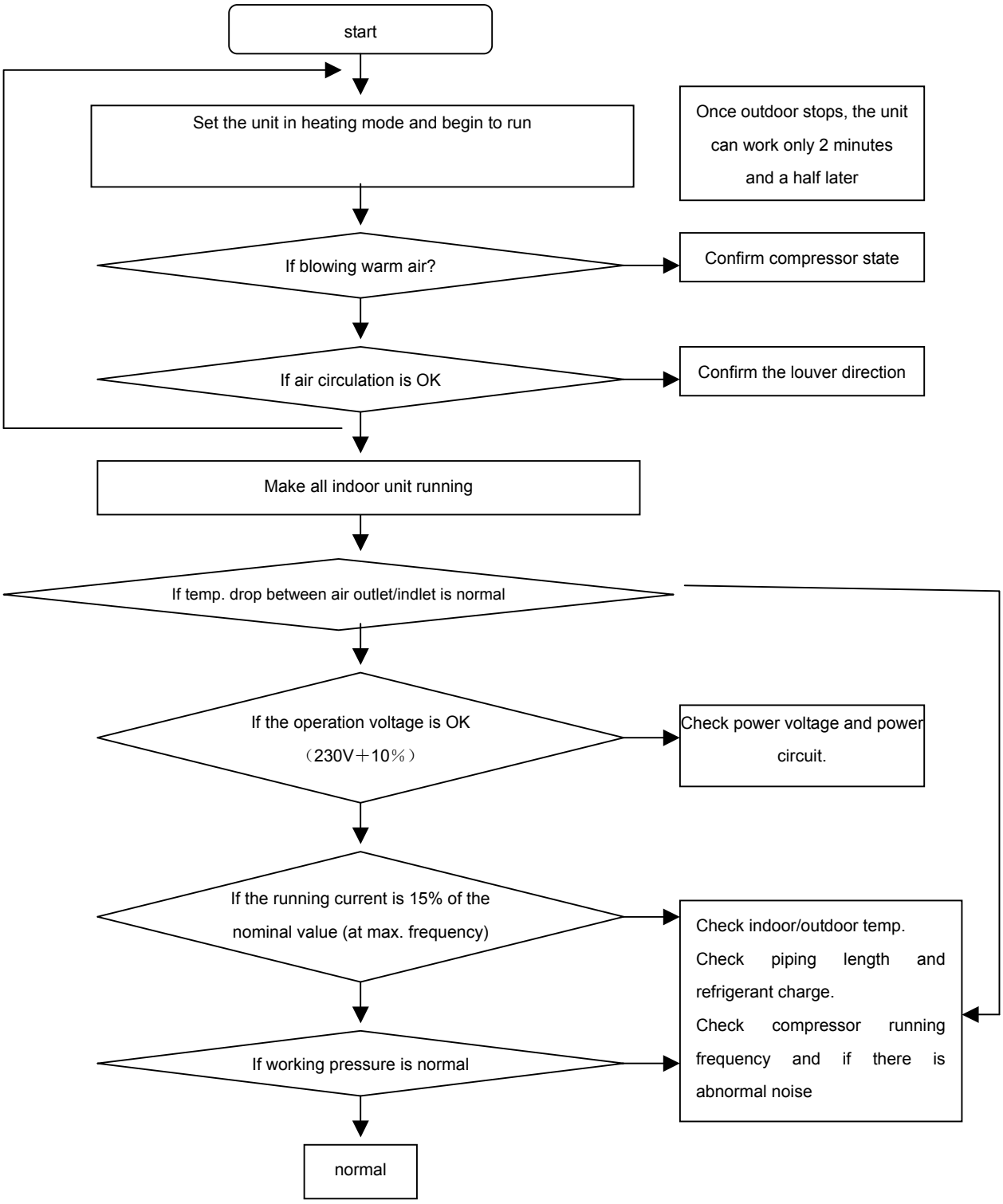
2.3 The coil temperature sensor is not in original place or not fixed well, which cause EEV not work properly. The efficiency will be bad or outdoor unit will be liquid return.



3. Confirm cooling operation

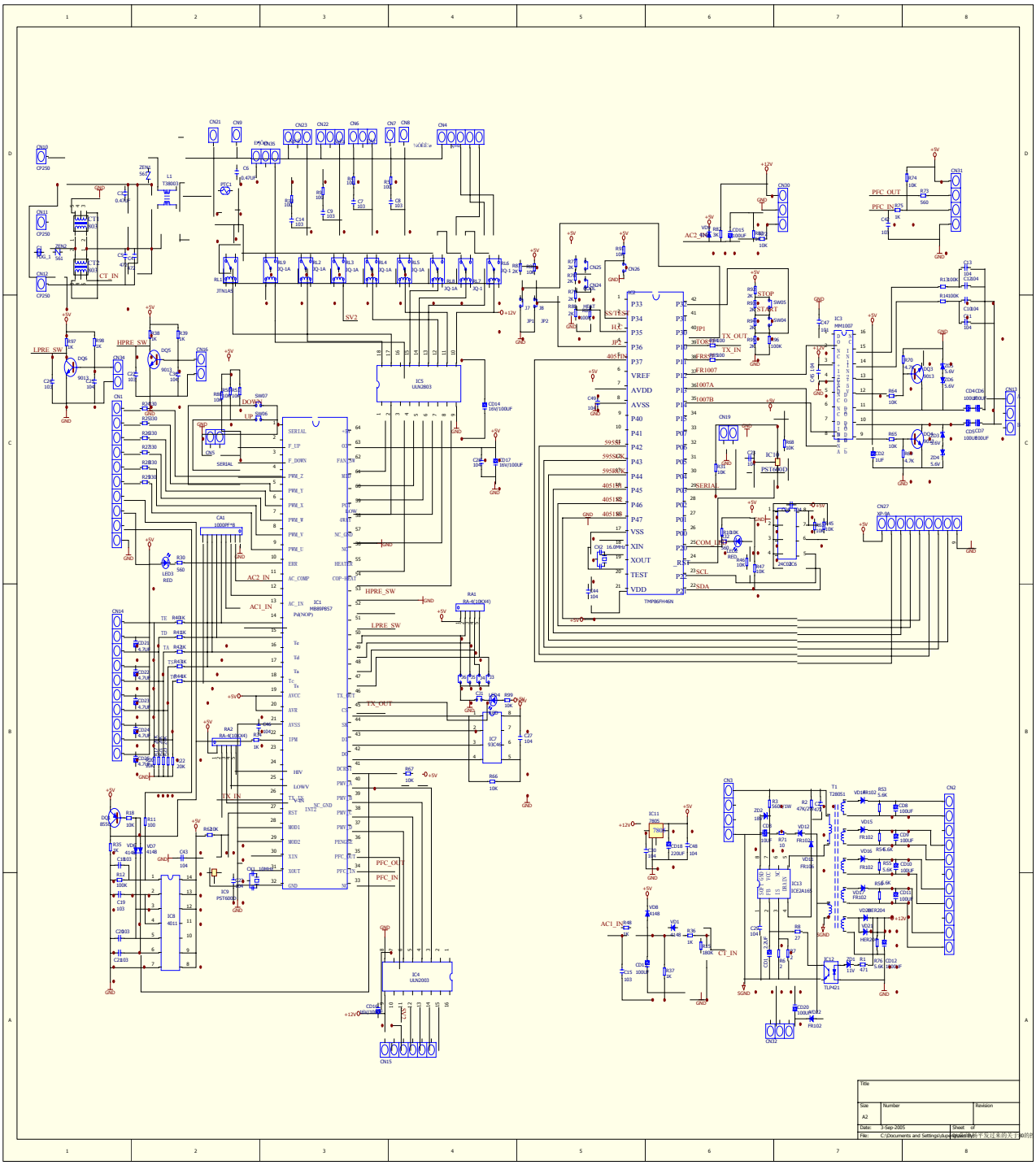


4. Confirm heating operation

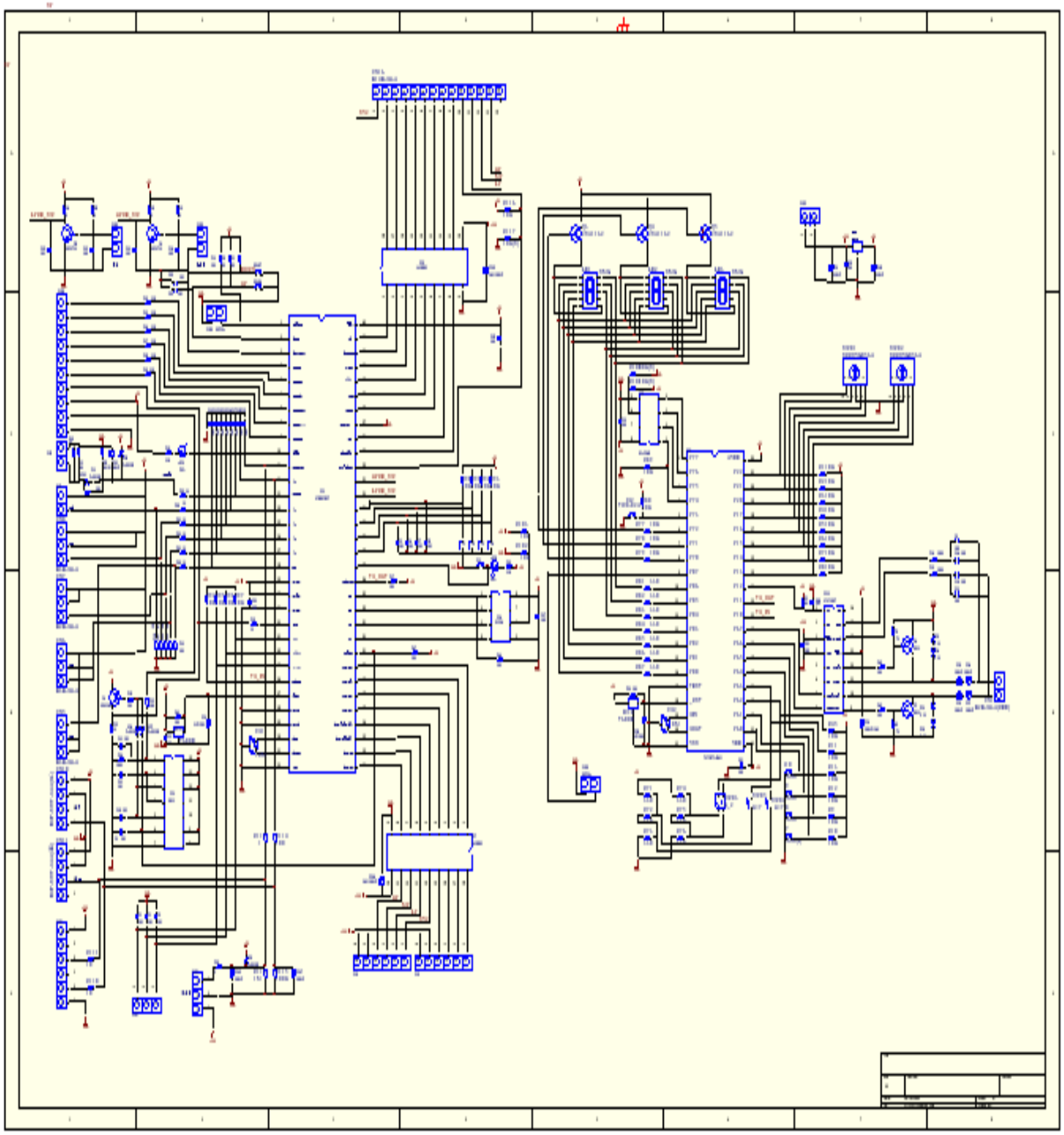


8.5 PCB information

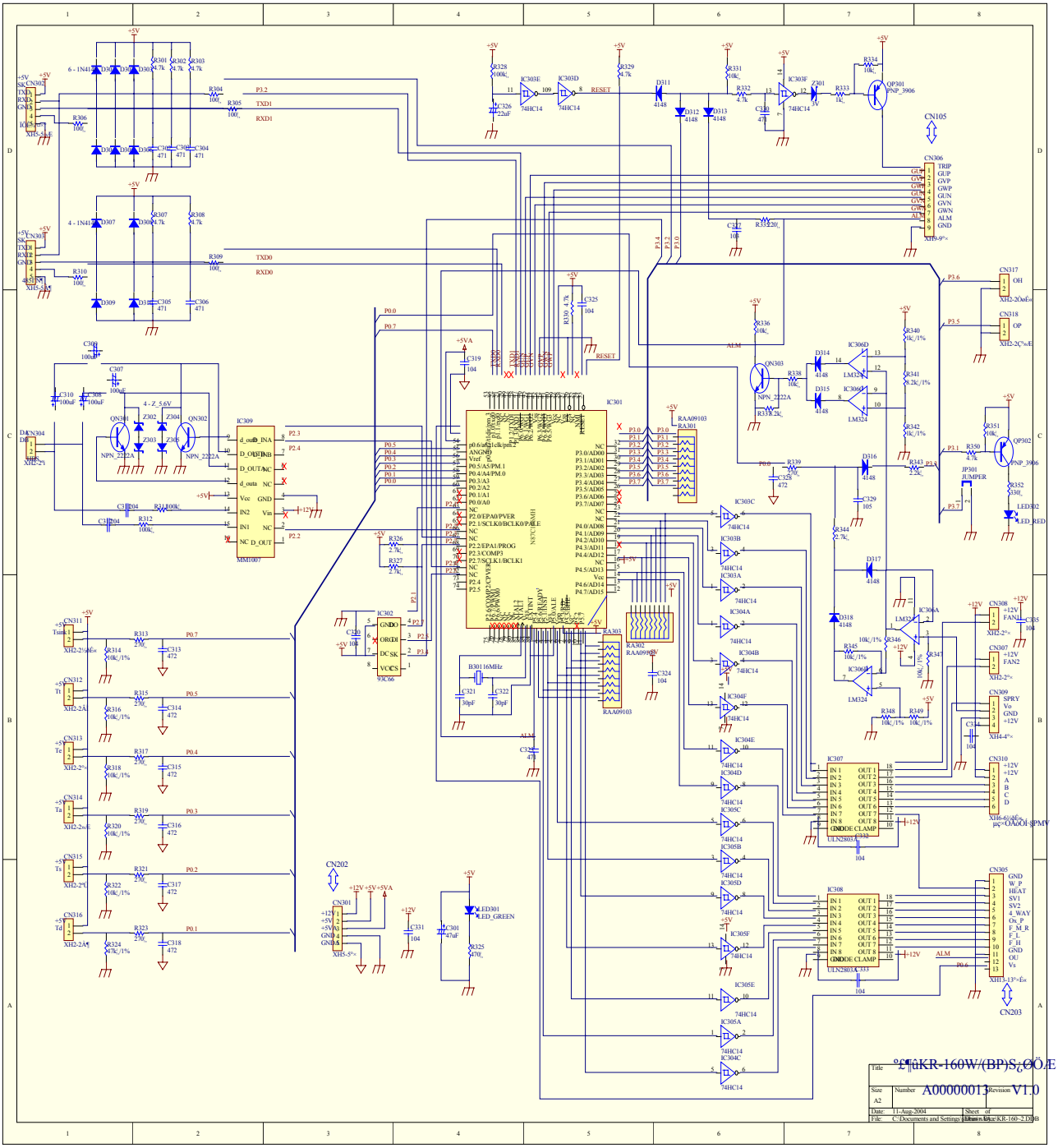
AU282□342FHAIA:



AU522FIAKA PCB circuit diagram:



AU52,60NFIAKA PCB circuit diagram:



8.6 Dip switch and the ports on PCB functions

AU282/342FHAIA ports on PCB:

Ports	Ports name	Wiring method
CN1	IPM-OUT	IPM output control line
CN2	IPM-POWER	To 4-way 15V power source
CN3	+310V ,GND	To 310V DC power source
CN4	Fan motor port	To fan motor
CN5	SERIAL	857 detecting serial port
CN6	Four-way valve port	To four-way valve
CN7	Live line of electric heater	To live line
CN8	Neutral line of electric heater	To neutral line
CN9	Live line of power source	To live line
CN10	Neutral line of power source	To neutral line
CN11	Live line of power source	To live line
CN12	Earthing line	To earthing line
CN13	Communication port	To communication line
CN14	Sensor port	Including defrosting, discharging, ambient, air return, evaporating temp. sensors
CN15	EEV port	To EEV
CN16	High pressure switch port	To high pressure switch
CN19	SERIAL	846 detecting serial port, no used
CN22	Spray valve port	To spray valve
CN23	Oxygen generator port	To oxygen generator (optional)
CN27	Indicator board	To exterior testing device, showing failure code
CN30	Compressor current detecting	To compressor current detecting board
CN32	+15V，GND	————
CN34	Low pressure switch port	To compressor low pressure switch
CN35	Unloading port	To unloading valve

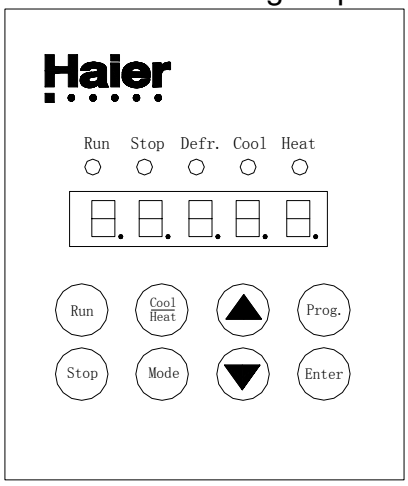
AU52,60NFIAKA PCB ports name and functions

Ports	Ports name	Wiring method
R, S, T	Power supply ports	To power of 3 PH, 380V, 50Hz
U, V, W	Compressor ports	To motor (pay attention to phase sequence)
E	Grounded port	Grounding (less than 10Ω;more than ϕ 1.6mm)
N	Neutral wire port	If 3 phase, it is connected to neutral wire; if 1 phase, it is blank.
L1, L2	Reactance port	To wire of reactance (non-polar)
CN102	Current transducer port	To current transducer
CN211, CN212	Fan motor port	To fan motor
CN205	Water pump port	To water pump (be spare)
CN206	Electric heater port	To electric heater
CN207	Solenoid valve port	To solenoid valve
CN208	Solenoid valve port	To solenoid valve
CN209	Four-way valve port	To four-way valve
CN210	Oxygen generator port	To oxygen generator (blank temporarily)
CN303	Testing board port	To testing board. Used to modify, check data for after sale personnel.
CN304	Communication port	To C1, C2 of communication block
CN307, CN308	Fan motor port for dispersing heat	To fan motor for dispersing heat (be spare)
CN310	EEV port	To outdoor electronic expansion valve
CN311	Radiator temp. sensor port	To radiator temp. sensor (blank temporarily)
CN312	Mid-condenser temp. sensor port	To mid-condenser temp. sensor
CN313	Defrosting temp. sensor port	To defrosting temp. sensor
CN314	Ambient temp. sensor port	To ambient temp. sensor
CN315	Suction temp. sensor port	To compressor suction temp. sensor
CN316	Discharging temp. sensor port	To discharging temp. sensor
CN317	Low pressure switch port	To low pressure switch
CN318	High pressure switch port	To high pressure switch

8.7 Testing board for AU52,60NFIAKA:

Press button “mode”, the display will change over in the following sequence:

State	Display
Frequency	Fxx.xx
Current output	A xx.x
Voltage on DC side	U xxx
Ambient temp	1 xx
Discharging temp	2 xx
Suction temp	3 xx
Defrosting temp	4 xx
Coil temp	5 xx
Indoor unit quantity	6 xx
Open degree of EEV	7 xxx



Note: Please connect the wire on power off. Insert the testing board on the CN302 of the outdoor PCB. The part number is 0010451601.

In addition, we set a testing port CN303 which can be connected to the computer through another testing device (part number: 0010451800). The distributor can get the testing device and the testing software from us.

Testing procedure:

1. After the unit powered off, connect the wire of testing board to CN302 port, and then pull down the communication wire between outdoor and indoor unit.
2. Check if the wiring is right. If yes, power on the outdoor unit.
3. On the operation panel of the testing board, the relative data can be modified.
4. Press “Prog.”, enter data editing mode.
5. Set data “Pr-00” as “0”， then data can be edited. Press “Enter” to confirm.
6. The other data can be set according to the requirement like this way.
7. After all the data be modified, set “Pr-00” as “1”.
8. Press “Prog.”, quit out of data editing mode.
9. Note: Data of the chip is very important, the improper modification will cause the main parts damaged such as compressor. So before modification, please contact with us.
10. After quitting from data editing mode, operation board will display “P r.E” which will flash. After 3 minutes, it will display “b.P.160”. At this time, pressing the ▲ ▼ to reset the program.
11. After reset, power off the outdoor. For 1~2 minutes, the outdoor release all the electricity, plug the communication wire between outdoor and indoor to the original position, the modification is over.

8.8 AU522FIAKA: function specification of SW01, SW02, SW04, SW05, SW06, SW07

Table 1

<table>
<tr><td>SW01</td><td>SW02</td><td>Display of 7 segments LED (LD1,LD2,LD3)</td></tr>
<tr><td rowspan="15">0</td><td>0</td><td>FFF shows capability overloading (if capability overloading function is chose)
Outdoor diagnosis code when without diagnosis code, display: - -</td></tr>
<tr><td>1</td><td>Outdoor running mode cooling: _C heating: _H defrosting: _J</td></tr>
<tr><td>2</td><td>Defrosting area set: display 1------shows that L is set at “12”
display 2------shows that L is set at “10”
display 3------shows that L is set at “8”
When the following condition is available, the unit enters into defrosting running: (TE: defrosting temp., TA: ambient temp.)
TE≤C×TA－α
Note：C：TA＜0℃，C=0.8
TA≥0℃，C=0.6
The value of α can be set according to the selection of jump wiring:
<table>
<tr><td>selection of jump wiring</td><td>L</td><td>M</td><td>H</td></tr>
<tr><td>α(℃)</td><td>12e</td><td>10e</td><td>8e</td></tr>
</table>
</td></tr>
<tr><td>4</td><td>INV command frequency（decimalism） e.g.120 stands for 120HZ</td></tr>
<tr><td>5</td><td>INV receiving frequency（decimalism） e.g. 84 stands for 84HZ</td></tr>
<tr><td>6</td><td>Quantity of indoor units connected（decimalism） e.g. 6 stands for 6 indoor units</td></tr>
<tr><td>7</td><td>Back up running: TS sensor: 1_ _ TE sensor: _1
This function is preset and not available.</td></tr>
<tr><td>8</td><td>Back up running: TA sensor: 1_ _ mid-section temp. sensor: _1
This function is preset and not available.</td></tr>
<tr><td>9</td><td>Back up running: PD sensor: 1_ _ PS sensor: _1
This function is preset and not available.</td></tr>
<tr><td>13</td><td>Display compensation of capacity class: 4------class 4, 6-----class 6
After the start-up of system is over, the frequency of compressor has gotten the target frequency confirmed by the request of indoor unit capacity for 5 minutes, and then the unit will modulate the capacity.
(Note: class 4 and class 6 can be selected. Class 4 is that the capacity class whose range is from 4 classes higher to 3 classes lower than the target frequency. Class 6 is that the capacity class whose range is from 6 classes higher to 4 classes lower than the target frequency. For the unit without pressure sensors, there is no this function.)</td></tr>
<tr><td>14</td><td>Display “U” shows that indefinite capacity is chose
Display “d” shows that definite capacity is chose (indoor total capacity can’t be over 130%）</td></tr>
<tr><td>15</td><td>Display o1-----stands for HP
Display o2-----stands for HP
Display H1-----shows that can be connected with central communication</td></tr>
<tr><td rowspan="11">1</td><td>0</td><td>TD sensor data（decimalism）</td></tr>
<tr><td>1</td><td>TA sensor data（decimalism）</td></tr>
<tr><td>2</td><td>TS sensor data（decimalism）</td></tr>
<tr><td>3</td><td>TE sensor data（decimalism）</td></tr>
<tr><td>4</td><td>Mid-section of coil pipe sensor data (decimalism)</td></tr>
<tr><td>5</td><td>Pd sensor data（display corresponding saturation temperature）</td></tr>
<tr><td>6</td><td>Ps sensor data（display corresponding saturation temperature）</td></tr>
<tr><td>7</td><td>Opening degree of outdoor PMV1（decimalism）</td></tr>
<tr><td>8</td><td>Opening degree of outdoor PMV2（decialism）</td></tr>
<tr><td>9</td><td>2-way valve switched on: SV ON： _1，no switched on: --</td></tr>
<tr><td>10</td><td>Outdoor running current (decimalism)</td></tr>
</table>

	11	Outdoor fan mode :_1（low speed）,_2（med speed）,_3（high speed）
	12	Temperature sensor ON display ON： _1，OFF：--
	13	Four-way valve switched on: ON： _1 | Four-way valve not switched on: OFF：_ _
	14	Running mode selection cooling：_C, heating: _H
2	0	
	1	***Dispatch line check cooling：CC*** --this function is preset
	2	***Dispatch line check heating：HH***--this function is preset
	3	***Cool trial run：_C*** --this function is preset
	4	***Heat trial run: _H*** --this function is preset
	5	***Swing trial run: _F***--this function is preset
	6	***Indoor unit uniform start/stop：run: 11/stop: 00（display -- after 3 minutes）*** --this function is preset
	7	***Clean abnormal function: CL***--this function is preset
	8	Outdoor PMV1fully open、close function: fully open: FF, fully close: 00
	9	Outdoor PMV2 fully open、close function: fully open: FF, fully close: 00
	10	Indoor PMV fully open、close function：fully open: FF
	11	Outdoor rated setting: -F
3	0—7	Indoor communication state: receiving normal：_1 receiving abnormal:__
	8	Display quantity of communicating indoor unit, e.g. : 6 shows that 6 indoor units are working.
4	0—15	Indoor diagnosis code, no diagnosis code:____--this function is preset
5	0—15	Indoor HP new code:0 stands for 0.8HP, 1 stands for 1HP, 2 stands for 1.2HP, 3 stands for 1.5HP, 4 stands for 2HP, 5 stands for 2.5HP, 6 stands for 3HP, 7 stands for 4HP Old code: 1 stands for 1HP,7 stands for 7HP
6	0—15	Indoor required capacity (decimalism) indoor P-CODE
7	0—15	Indoor PMV opening degree (decimalism)
8	0—15	Indoor saturation temperature (decimalism) -26.0—67.0（account according to outdoor suction pressure PS）
9	1—16	Indoor sensor TA temperature（decimalism）-26.0—67.0
10	1—16	Indoor sensor TC2 temperature（indoor gas pipe）（decimalism）-26.0—100.0
11	1—16	Indoor sensor TC1 temperature（indoor liquid pipe）（decimalism）-26.0—100.0
12	***1—16***	***Single cool trial run***--this function is preset
13	***1—16***	***Single heat trial run***--this function is preset

Combination control with outdoor switches

Table 2

function	summary	Method of set, cancel
Cool trial run	Indoor trial run in cooling mode, the function is the same as trial run with remote controller, the indoor unit which trials run fixes the temp. difference as max. temp., and send it to outdoor, the other control is similar with normal.	[set] SW01“2”, SW02“03”, press SW04 for more than 2 seconds, after set of trial run success, LD will always display –C until the function is cancelled. [cancel] in trial run state, SW01“02”, SW02“03”, press SW05
Heat trial run	Indoor trial run in heating mode, the function is the same as trial run with remote controller, the indoor unit which trials run fixes the temp. difference as max.	[set] SW01“2”, SW02“04”, press SW04 for more than 4 seconds, after set of trial run success, LD will always display –H until the function is cancelled. [cancel] in trial run state, SW01“02”, SW02“03”, press

	temperature, and send it to outdoor, the other control is similar with normal.	SW05
Swing trial run	Indoor trial run in swing mode,the control is the same as swing trial run with remote controller.	[set] SW01“02”, SW02“05”, press SW04 for more than 2 seconds, after set of trial run success, LD will always display –F until the function is cancelled. [cancel] in trial run state, SW01“02”, SW02“05”, press SW05
Uniform running	Indoor is uniform running The indoor running mode is corresponding with the setting or memory of remote controller.	[set] SW01“02”, SW02“05”, press SW04 for more than 2 seconds, after set of trial run success, LD will display FF for 5 seconds. [cancel] cancel according to operation of remote controller
Uniform stop	Indoor uniform stops	[set] SW01“02”, SW02“06”, press SW05 for 2 seconds, after set success, LD will display FF for 5 seconds. [cancel] cancel according to operation of remote controller
Indoor PMV fully open compelled	Indoor PMV fully open compelled in 2 minutes	[set] SW01“2”, SW02“10”, press SW04 for more than 2 seconds [confirmation] in 2 minutes, 7-segment LED of base board I/F will display “FF” all the time [cancel] the control software will recover PMV to normal open degree after 2 minutes（after indoor software receives the signal of fully open from outdoor, PMV will fully open only in 2 minutes.）
Rated running	Set the unit rated running	[set] SW01“02”, SW02“11”, press SW05 for more than 2 seconds, after setting success, LD will display –F, shows that the unit may enter rated running mode, afterwards you can set SW06, SW07.SW06 is used for increasing frequency, while SW07 is used for decreasing frequency. [cancel] cancel according to operation of remote controller
Outdoor PMV1 fully open, closed function	Outdoor PMV1 compelled fully open or close in 2 minutes	[set] SW01“3”, SW02“9”, press SW04 for more than 2 seconds [confirmation] in 2 minutes, 7-segment LED of base board I/F will display “FF” all the time [cancel] the control software will recover PMV to normal open degree after 2 minutes（after indoor software receives the signal of fully open from outdoor, PMV will fully open only in 2 minutes.）

Outdoor PMV2 fully open, closed function	Outdoor PMV2 compelled fully open or close in 2 minutes	[set] SW01“3”, SW02“10”, press SW04 for more than 2 seconds [confirmation] in 2 minutes, 7-segment LED of base board I/F will display “FF” all the time [cancel] the control software will recover PMV to normal open degree after 2 minutes（after indoor software receives the signal of fully open from outdoor, PMV will fully open only in 2 minutes.）

2. Specification for SW03

The two switches of SW03 should be ON or OFF at the same time.

8.9 Sensor characteristic

model	sensor number	sensor name	sub-sensor number	characteristic
AU282FHAIA AU342FHAIA	0010452538	discharging temp. sensor		R80=50KΩ±3% B25/80=4450K±3%
		mid-condensor temp. sensor		R25=10KΩ±3% B25/50=3700K±3%
		defrosting temp. sensor		R25=10KΩ±3% B25/50=3700K±3%
		suction temp. sensor		R25=10KΩ±3% B25/50=3700K±3%
		outdoor ambient temp. sensor		R25=10KΩ±3% B25/50=3700K±3%
AU522FIAKA	0010450192	outdoor ambient temp. sensor	001A3800082	R25=10KΩ±3% B25/50=3700K±3%
	0010450193	suction temp. sensor	001A3800093	R25=10KΩ±3% B25/50=3700K±3%
	0010450194	defrosting temp. sensor	001A3800093	R25=10KΩ±3% B25/50=3700K±3%
	0010450199	mid-condenser temp. sensor	001A3800093	R25=10KΩ±3% B25/50=3700K±3%
	0010450196	compressor discharging temp. sensor	001A3800096	R80=50KΩ±3% B25/80=4450K±3%
AU52NFIAKA AU60NFIAKA	0010450194	defrosting temp. sensor	001A3800093	R25=10KΩ±3% B25/50=3700K±3%
	0010451328	pipe temp. sensor	001A3800093	R25=10KΩ±3% B25/50=3700K±4%
	0010450398	discharging temp. sensor	001A3800096	R80=50KΩ±3% B25/80=4450K±3%
	0010451305	suction temp. sensor	001A3800093	R25=10KΩ±3% B25/50=3700K±4%
	0010451514	ambient temp. sensor	001A3800082	R25=10KΩ±3% B25/50=3700K±3%
AB092FCAIA AB142FCAIA AB182FCAIA	0010450699	pipe temp. sensor	001A3900004	R25=10KΩ±3% B25/50=3700K±3%
	0010451327	ambient temp. sensor	001A3900003	R25=23KΩ±2.5% B25/50=4200K±3%
AC182FCAHA	0010400158	coil temperature sensor	001A3900004	R25=10KΩ±3% B25/50=3700K±3%
	0010400884	ambient temperature sensor	001A3900003	R25=23KΩ±2.5% B25/50=4200K±3%
AE072FCAMA AE092FCAMA AE122FCAMA AE142FCAMA AE182FCAMA AE212FCAMA AE242FCAMA	0010450699	pipe temp. sensor	001A3900004	R25=10KΩ±3% B25/50=3700K±3%
AS072FCAIA AS092FCAIA AS122FCAIA AS182FTAHA	001A3800103	liquid pipe temp. sensor	001A3900004	R25=10KΩ±3% B25/50=3700K±3%
	001A3900059	coil temp. sensor	001A3900003 001A3900004	1.R25=10KΩ±3% B25/50=3700K±3% 2.R25=23KΩ±2.5% B25/50=4200K±3%

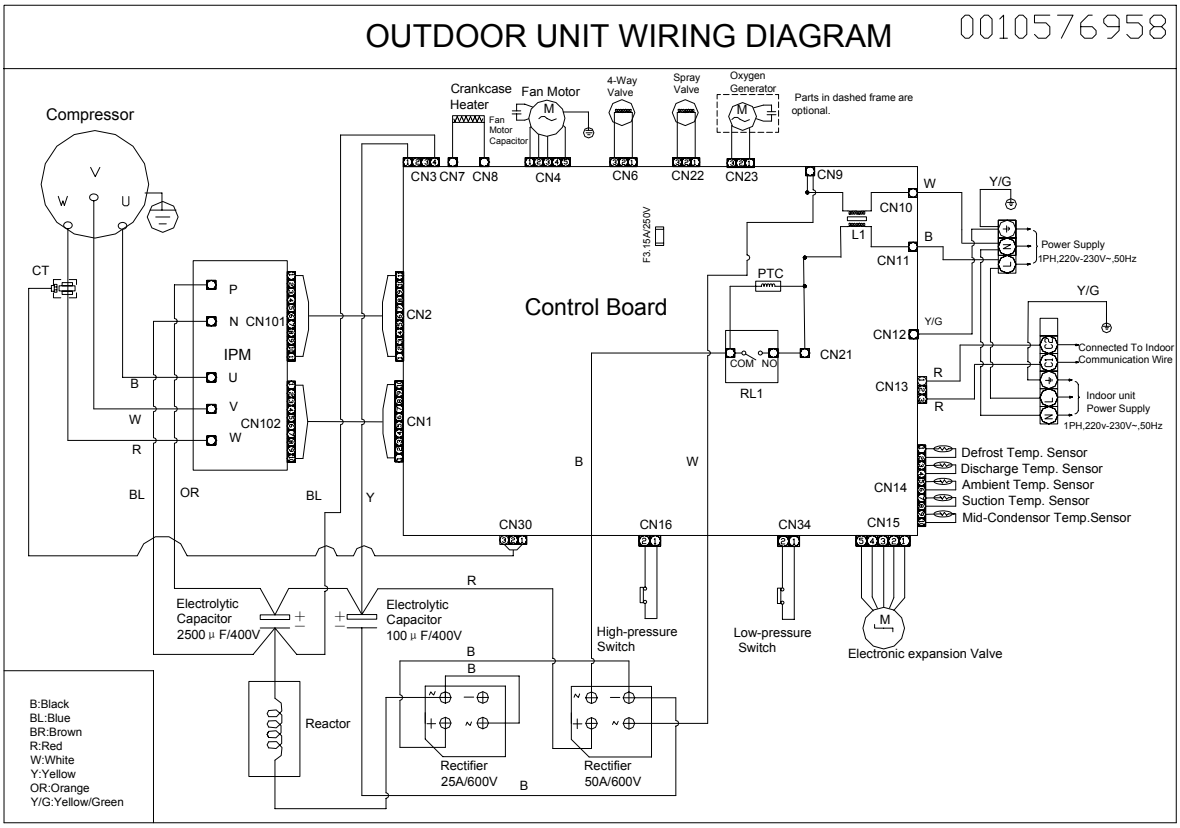
R80=50KΩ±3% B25/80=4450K±3%		R80=50KΩ±3% B25/80=4450K±3%	
T(℃)	Rnom(KΩ)	T(℃)	Rnom(KΩ)
-30	11600	24	536.6
-29	10860	25	511.1
-28	10170	26	486.9
-27	9529	27	464
-26	8932	28	442.3
-25	8375	29	421.7
-24	7856	30	402.1
-23	7372	31	383.6
-22	6920	32	366
-21	6498	33	349.3
-20	6104	34	333.5
-19	5736	35	318.4
-18	5392	36	304.1
-17	5071	37	290.5
-16	4770	38	277.6
-15	4488	39	265.3
-14	4225	40	253.6
-13	3978	41	242.5
-12	3747	42	232
-11	3531	43	221.9
-10	3328	44	212.3
-9	3138	45	203.2
-8	2960	46	194.5
-7	2793	47	186.3
-6	2636	48	178.4
-5	2489	49	170.9
-4	2351	50	163.7
-3	2221	51	155.9
-2	2099	52	150.4
-1	1984	53	144.2
0	1877	54	138.3
1	1775	55	132.7
2	1680	56	127.3
3	1590	57	122.1
4	1506	58	117.2
5	1426	59	112.5
6	1351	60	108
7	1280	61	103.8
8	1214	62	99.68
9	1151		
10	1092		
11	1036		
12	983.2		
13	933.4		
14	886.4		
15	841.9		
16	800		
17	760.8		
18	722.8		
19	687.3		
20	653.8		
21	622		
22	592		
23	553.6		

R25=10KΩ±3% B25/50=3700K±3%		R25=10KΩ±3% B25/50=3700K±3%	
T(℃)	Rnom(KΩ)	T(℃)	Rnom(KΩ)
-20℃	90.79	34	6.95
-19	85.72	35	6.68
-18	80.96	36	5.43
-17	76.51	37	5.6
-16	72.33	38	5.59
-15	68.41	39	5.73
-14	64.73	40	5.52
-13	61.27	41	5.32
-12	58.02	42	5.12
-11	54.97	43	4.93
-10	52.1	44	4.9
-9	49.4	45	4.58
-8	46.86	46	4.42
-7	44.46	47	4.26
-6	42.21	48	4.11
-5	40.08	49	3.97
-4	38.08	50	3.83
-3	36.19	51	3.7
-2	34.41	52	3.57
-1	32.73	53	3.45
0	31.14	54	3.33
1	29.64	55	3.22
2	28.22	56	3.11
3	26.4	57	3.11
4	25.61	58	2.9
5	24.41	59	2.81
6	23.27	60	2.72
7	22.2	61	2.63
8	21.18	62	2.54
9	20.21	63	2.49
10	19.3	64	2.38
11	18.43	65	2.3
12	17.61	66	2.23
13	16.83	67	2.16
14	16.09	68	2.09
15	15.38	69	2.03
16	14.71	70	1.96
17	14.08	71	1.9
18	13.48	72	1.85
19	12.9	73	1.79
20	12.36	74	1.73
21	11.84	75	1.68
22	11.34	76	1.63
23	10.87	77	1.58
24	10.43	78	1.54
25	10	79	1.49
26	9.59	80	1.45
27	9.21		
28	8.84		
29	8.48		
30	8.15		
31	7.83		
32	7.52		
33	7.23		

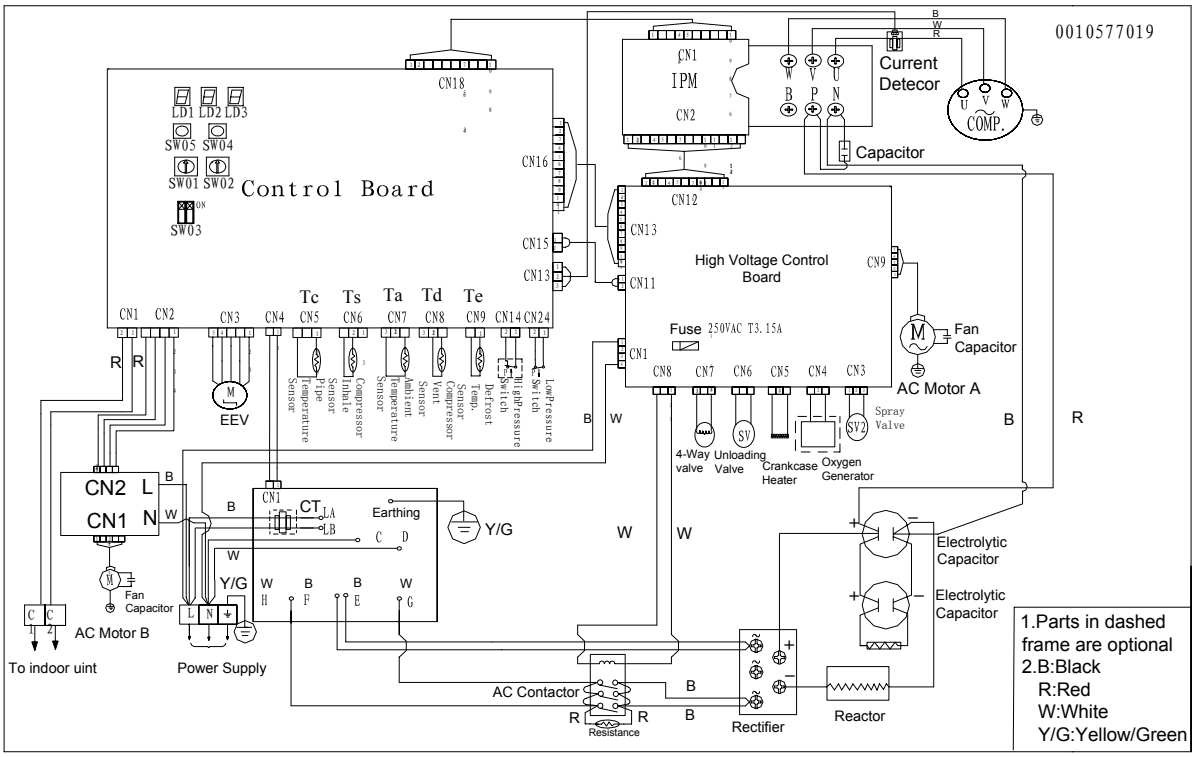
R25=23KΩ±2.5% B25/50=4200K±3%		R25=23KΩ±2.5% B25/50=4200K±3%	
T(℃)	Rnom(KΩ)	T(℃)	Rnom(KΩ)
-20℃	281.34	24℃	24.12
-19℃	263.56	25℃	23
-18℃	247.04	26℃	21.94
-17℃	231.66	27℃	20.94
-16℃	217.35	28℃	19.99
-15℃	204.02	29℃	19.09
-14℃	191.61	30℃	18.23
-13℃	180.04	31℃	17.42
-12℃	169.24	32℃	16.65
-11℃	159.17	33℃	15.92
-10℃	149.77	34℃	15.22
-9℃	140.99	35℃	14.56
-8℃	132.78	36℃	13.93
-7℃	125.11	37℃	13.34
-6℃	117.93	38℃	12.77
-5℃	111.22	39℃	12.23
-4℃	104.93	40℃	11.71
-3℃	99.04	41℃	11.22
-2℃	93.52	42℃	10.76
-1℃	88.35	43℃	10.31
0℃	83.5	44℃	9.89
1℃	78.94	45℃	9.49
2℃	74.67	46℃	9.1
3℃	70.65	47℃	8.74
4℃	66.88	48℃	8.39
5℃	63.33	49℃	8.05
6℃	60	50℃	7.73
7℃	56.86	51℃	7.43
8℃	53.91	52℃	7.14
9℃	51.13	53℃	6.86
10℃	48.51	54℃	6.6
11℃	46.04	55℃	6.34
12℃	43.72	56℃	6.1
13℃	41.52	57℃	5.87
14℃	39.45	58℃	5.65
15℃	37.5	59℃	5.44
16℃	35.66	60℃	5.24
17℃	33.92		
18℃	32.27		
19℃	30.72		
20℃	29.25		
21℃	27.86		
22℃	26.54		
23℃	25.3		

9. Wiring diagram

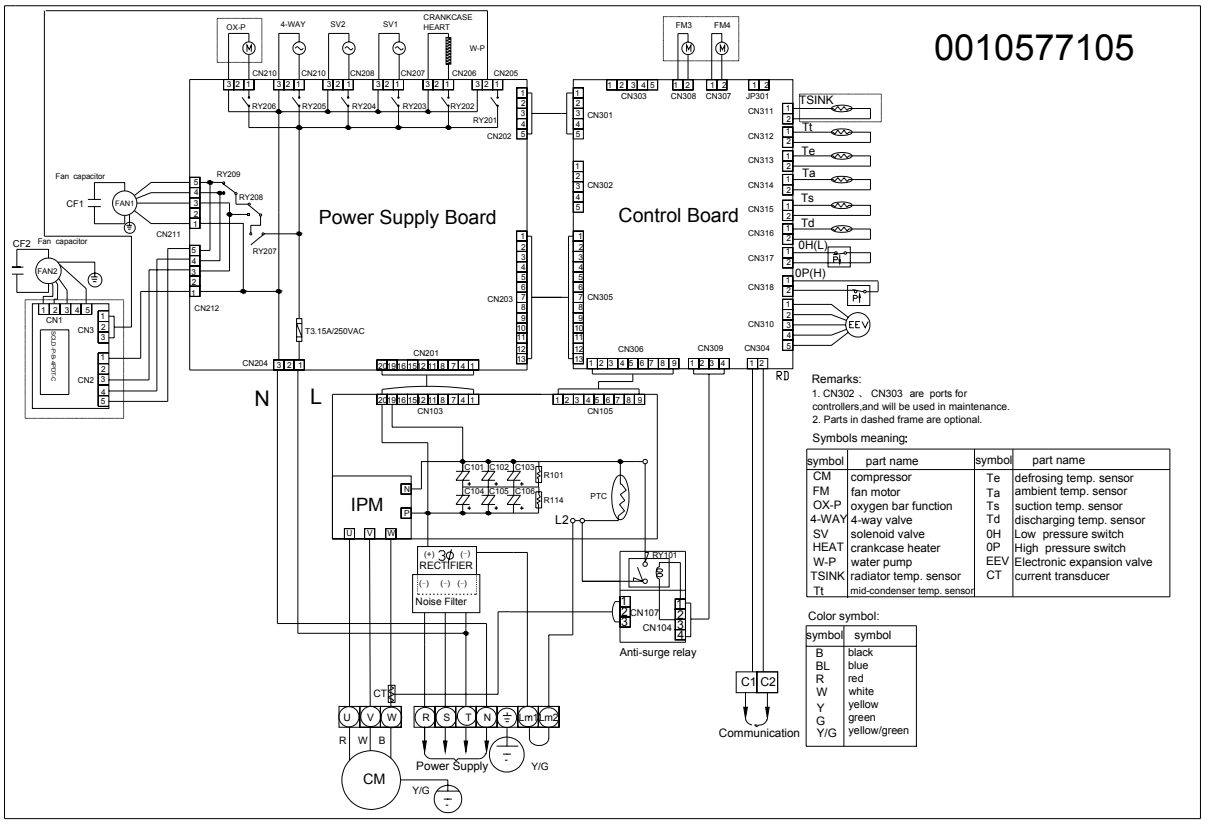
AU282FHAIA, AU342FHAIA Wiring diagram:



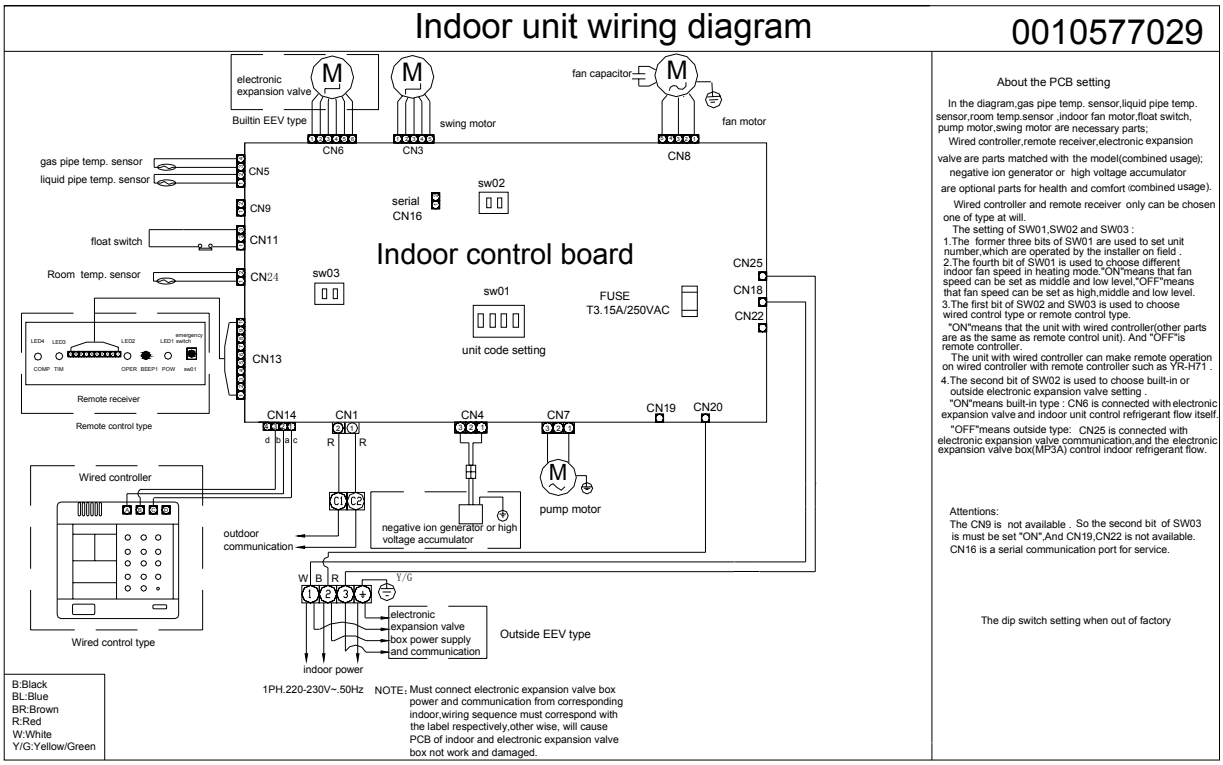
AU522FIAKA Wiring diagram:



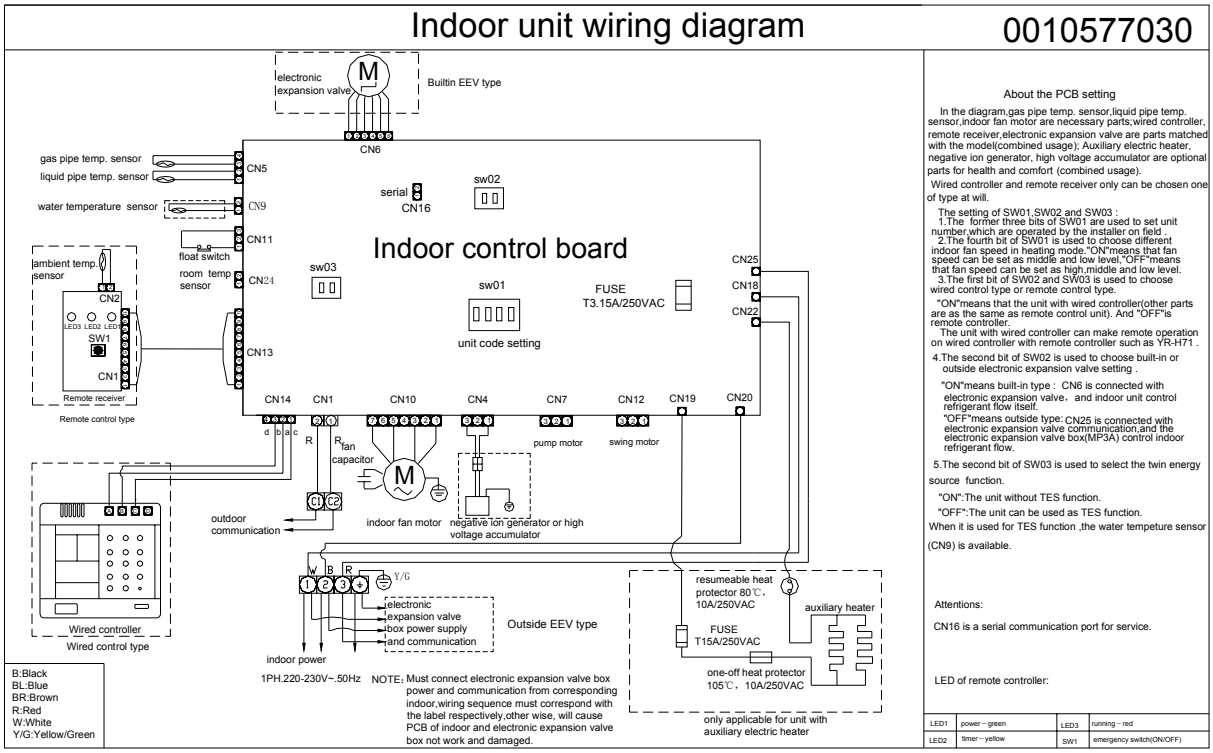
AU52, 60NFIAKA wiring diagram:



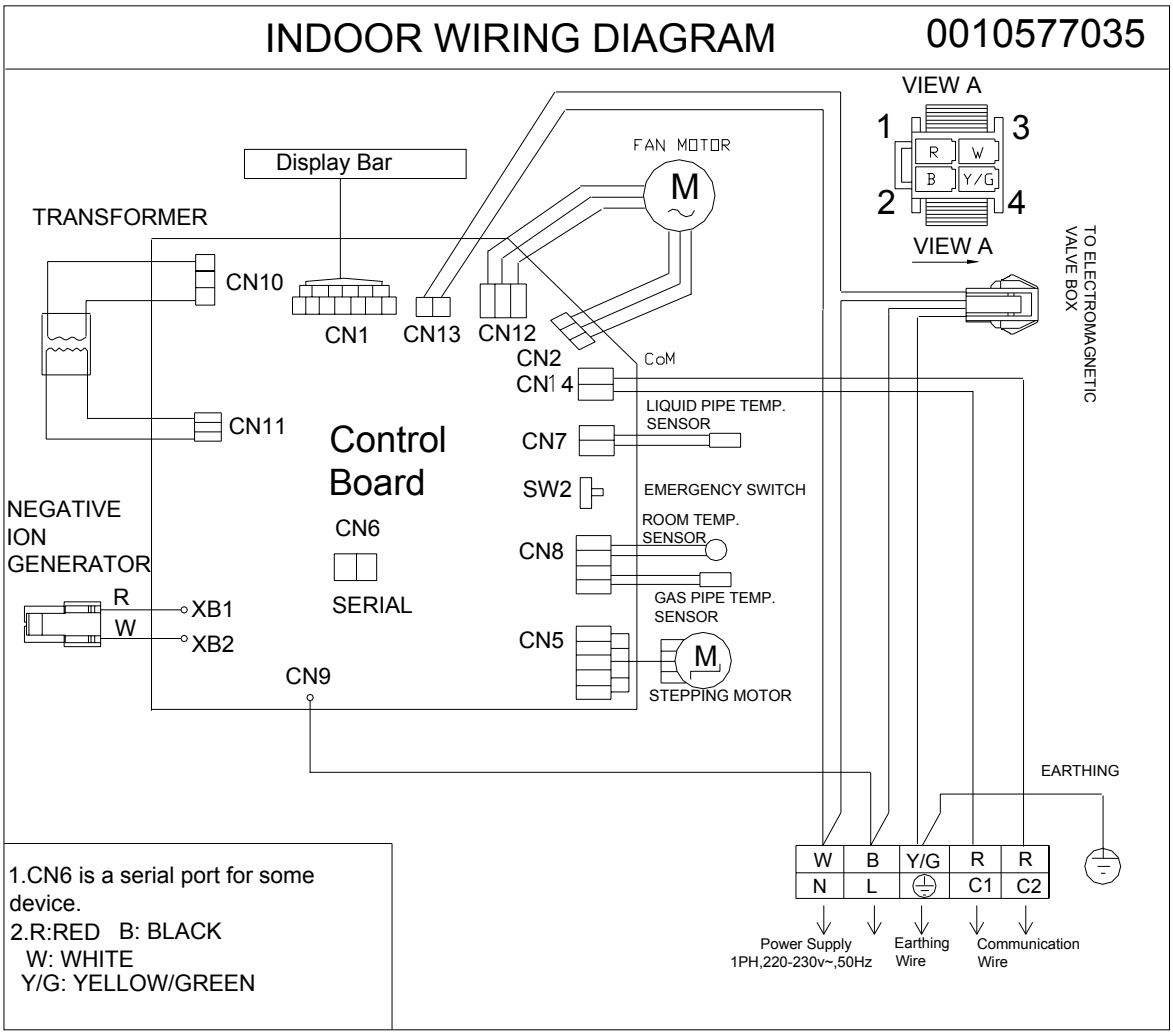
AB**2FCAIA wiring diagram:



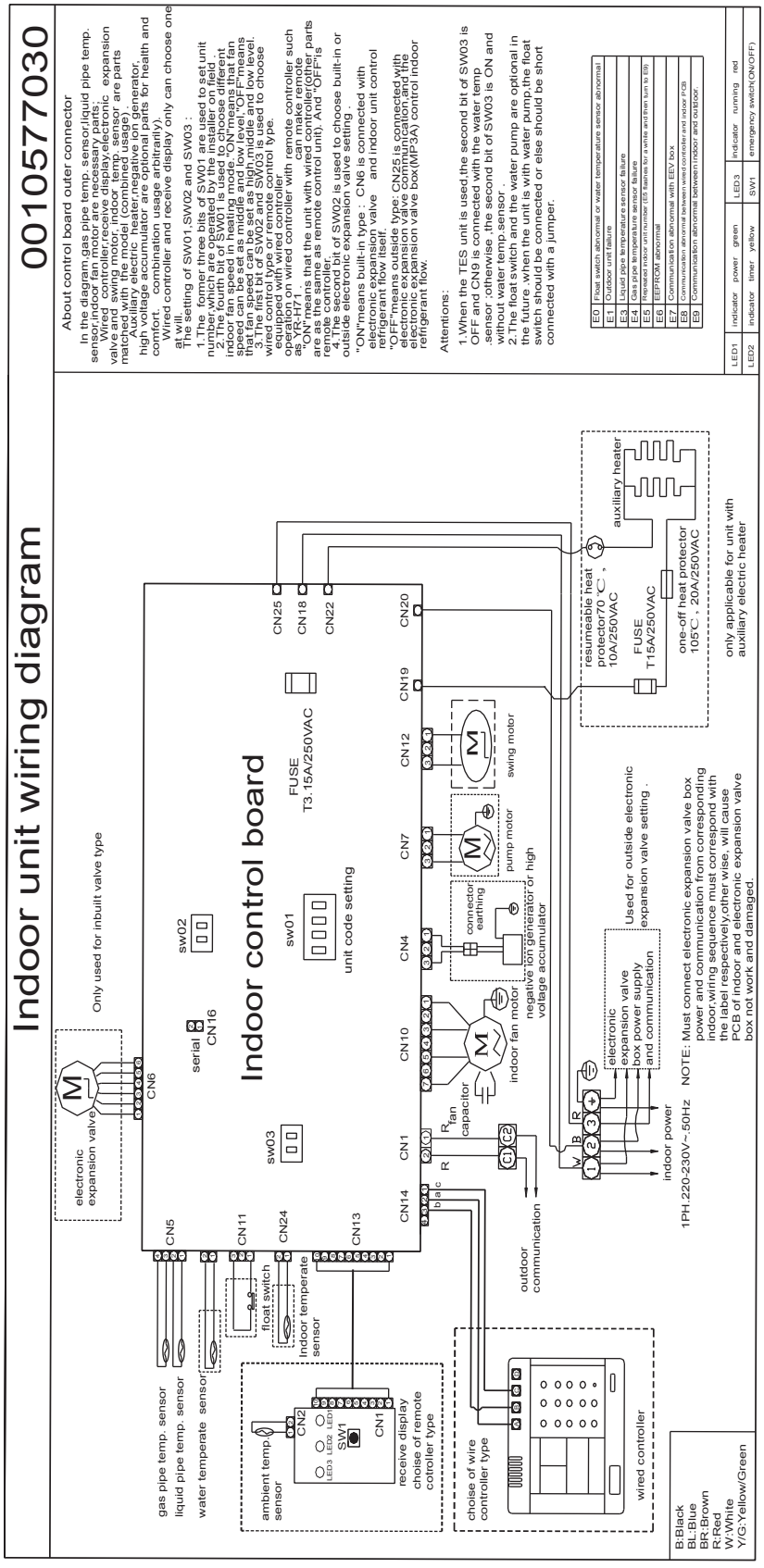
AE**2FCAMA wiring diagram:



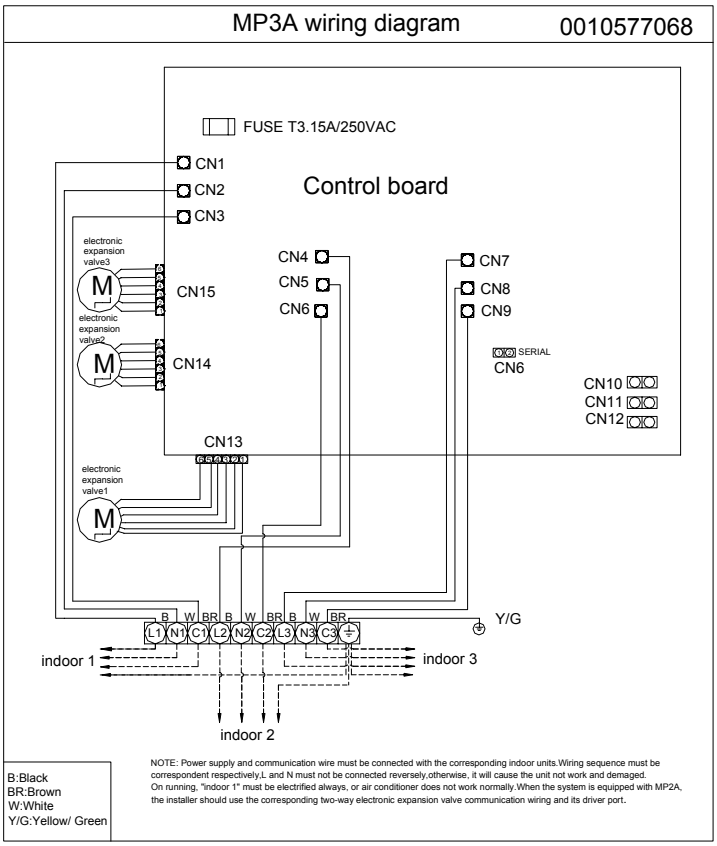
AS**2F*A wiring diagram:



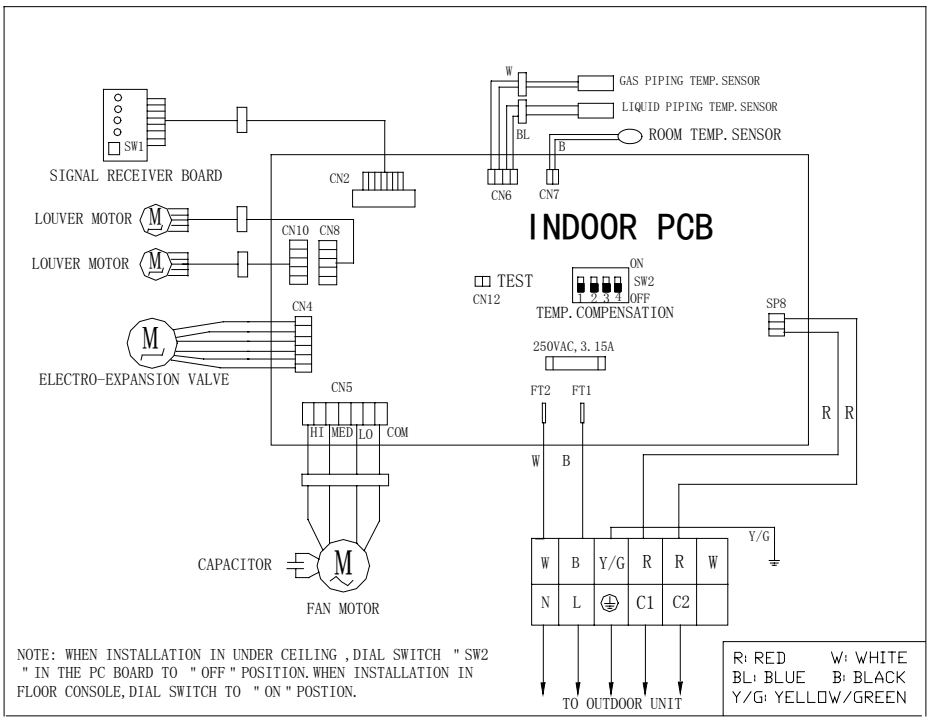
AE**2FLAIA wiring diagram:



MP3A wiring diagram:



AC182FCAHA:



10. Failure code and troubleshooting

10.1 Outdoor failure code:

AU282/342FHAIA, AU522FIAKA: check indoor mainboard LED1 or outdoor mainboard LED1.

Failure code	Failure description
01	Outdoor defrosting temperature sensor TE circuit failure
02	Ambient temperature sensor TA circuit failure
03	Suction temperature sensor TS circuit failure
04	Discharging temperature sensor TD circuit failure
05	Outdoor mid-condenser temperature sensor failure
06	Over current abnormal
07	Current mutual inductor failure
09	IPM protection
10	EEPROM on PCB incorrect
11	Discharging temperature protection action
13	Pressure switch circuit abnormal
14	Pressure switch circuit abnormal
16	Suction temperature protection action
19	Discharging temperature protection action when in low frequency
20	Communication abnormal when chip 857 receives signal from chip 846
21	Compressor over current failure
22	Communication abnormal when chip 846 receives signal from indoor unit
23	Chip 846 EEPROM/chip 857 EEPROM failure

AU52,60NFIAKA malfunction code:

Malfunction description	Code	LED display on the regulating board	If sent to indoor unit?	Remarks
Normal	0	Normal	Yes	
Defrosting temperature sensor abnormal	1	E.4.	Yes	Resumable
Ambient temperature sensor abnormal	2	E.1.	Yes	Resumable
Suction temperature sensor abnormal	3	E.3.	Yes	Resumable
Discharging temperature sensor abnormal	4	E.2.	Yes	Resumable
Coil temperature sensor abnormal	5	E.5.	Yes	Resumable
Over current protection	6	O.C.	Yes	After there are current malfunction for 3 times in 1 hour, the testing board will display the last abnormal reason P X.X. Need powered off and restart
		P O.C.	no	
Current sensor abnormal	7	C.T.	Yes	After trouble shooting, need powered off and restart
Overload protection	8	O.L.	Yes	After there are current malfunction for 3 times in 1 hour, the testing board will display the last abnormal reason P X.X. Need powered off and restart
		P O.L.	no	
IPM protection	9	E.P.	Yes	
		P E.P.	no	
Read EEPROM value wrongly	10	P E.E.	no	Need reset and restart
Discharging temperature over high abnormal	11	O.D.	Yes	After there are current malfunction for 3 times in half an hour, the testing board will display the last abnormal reason P X.X. Need powered off and restart
		P O.D.	no	
High pressure switch abnormal	12	O.P.	Yes	Resumable
Voltage over low protection	13	L.U.	Yes	After there are voltage malfunction for 3 times in 1 hour, the testing board will display the last abnormal reason P X.X. Need powered off and restart
		P L.U.		
Voltage over high protection	14	O.U.	Yes	
		P O.U.		
Compressor overheat protection	15	O.H.	Yes	Resumable
Recover the parameter set when out of factory	16	P I.A.	no	Need reset and restart
Clear the malfunction memory	17	P C.T.	no	Need reset and restart
Need reset	18	P r.E.	no	Need reset and restart
Radiator temperature sensor abnormal	--	--	No use temporarily	

10.2 Indoor failure code

A. Wired control type indoor unit: the dip switch of wired controller is 1 and 3 at ON, 2 and 4 at OFF.

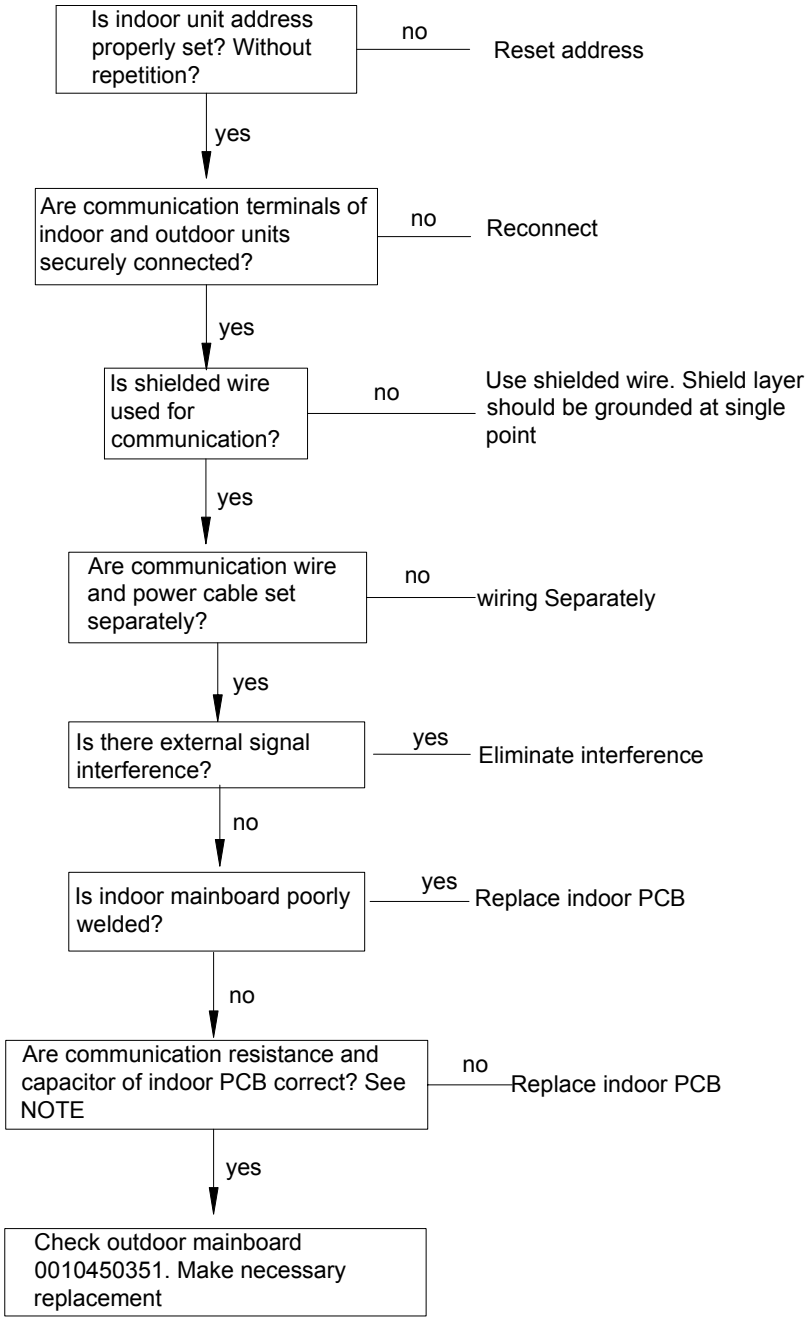
Failure code	Failure description
E0	Float switch abnormal
E1	Outdoor unit failure
E2	Abnormal mode operation
E3	Liquid pipe temperature sensor failure
E4	Gas pipe temperature sensor failure
E5	Repeated indoor unit number or communication failure between indoor 846 chip and 808 chip
E7	Communication abnormal with EEV box
E8	Communication abnormal between wired controller and indoor PCB
E9	Communication abnormal between indoor and outdoor
EB (pre-set, not available)	Water temperature sensor abnormal

B. Infrared control type indoor unit:

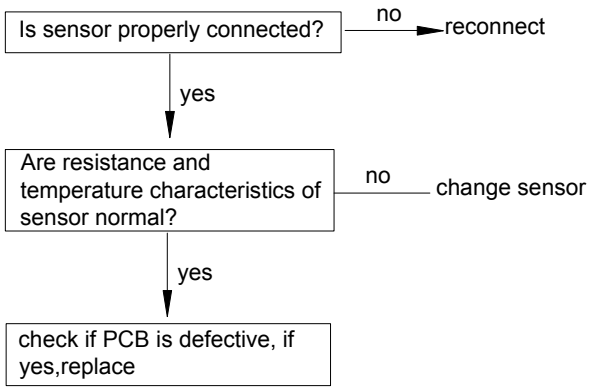
TIMER lamp flash times	Failure description
Once	Liquid pipe temperature sensor failure
twice	Gas pipe temperature sensor failure
3 times	Ambient temperature sensor failure
4 times	Communication abnormal between indoor and outdoor
5 times	Communication abnormal with EEV box
6 times	Repeated indoor unit number or communication failure between indoor 846 chip and 808 chip
10 times	Indoor motor abnormal
11 times	Float switch or pump motor abnormal
12 times	Indoor EEPROM abnormal
13 times	Indoor over heat
Note: if indoor RUN lamp flashes, that shows outdoor abnormal, so no matter how many times it flashes, you should check outdoor indicator flash times and the relative failure code.	

10.3 AU28,342FHAIA, AU522FIAKA troubleshooting:

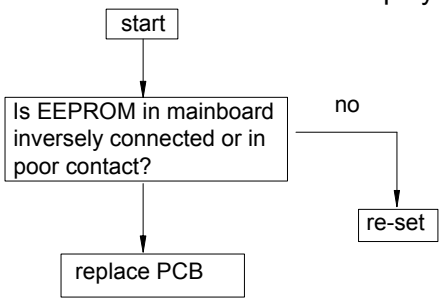
1.Communication failure between indoor and outdoor units
Wired controller: E9; 4 flashes of TIMER lamp



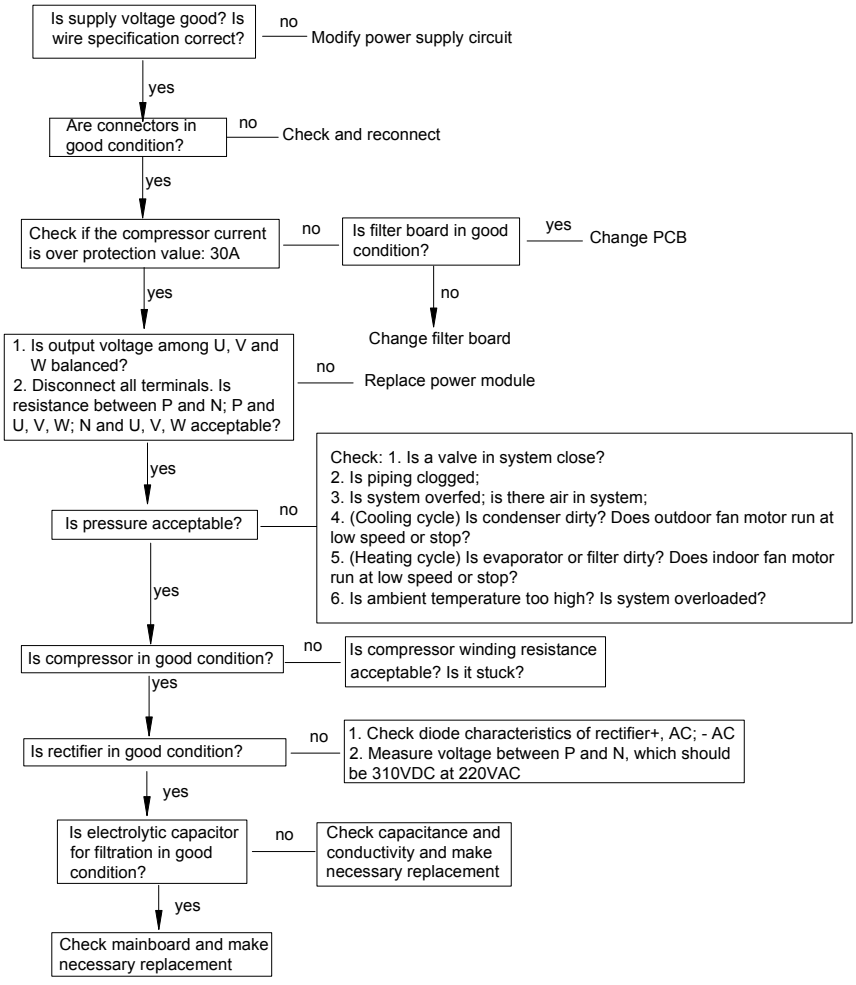
2. Sensor failure



3.EEPROM failure: outdoor displays 10

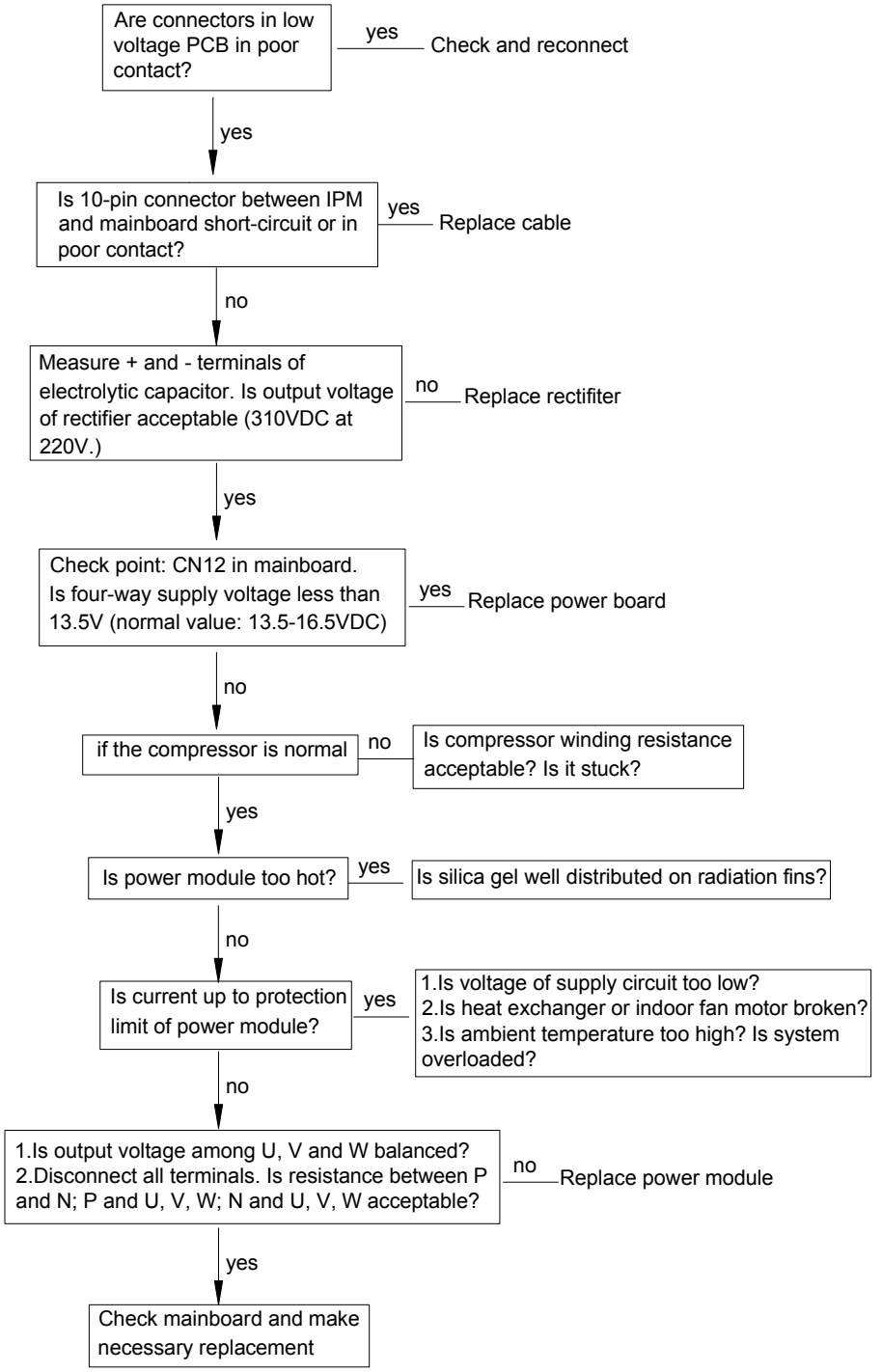


4. Over current protection: 6 flashes of outdoor ALARM lamp, fault readout: 6



5. IPM power module protection

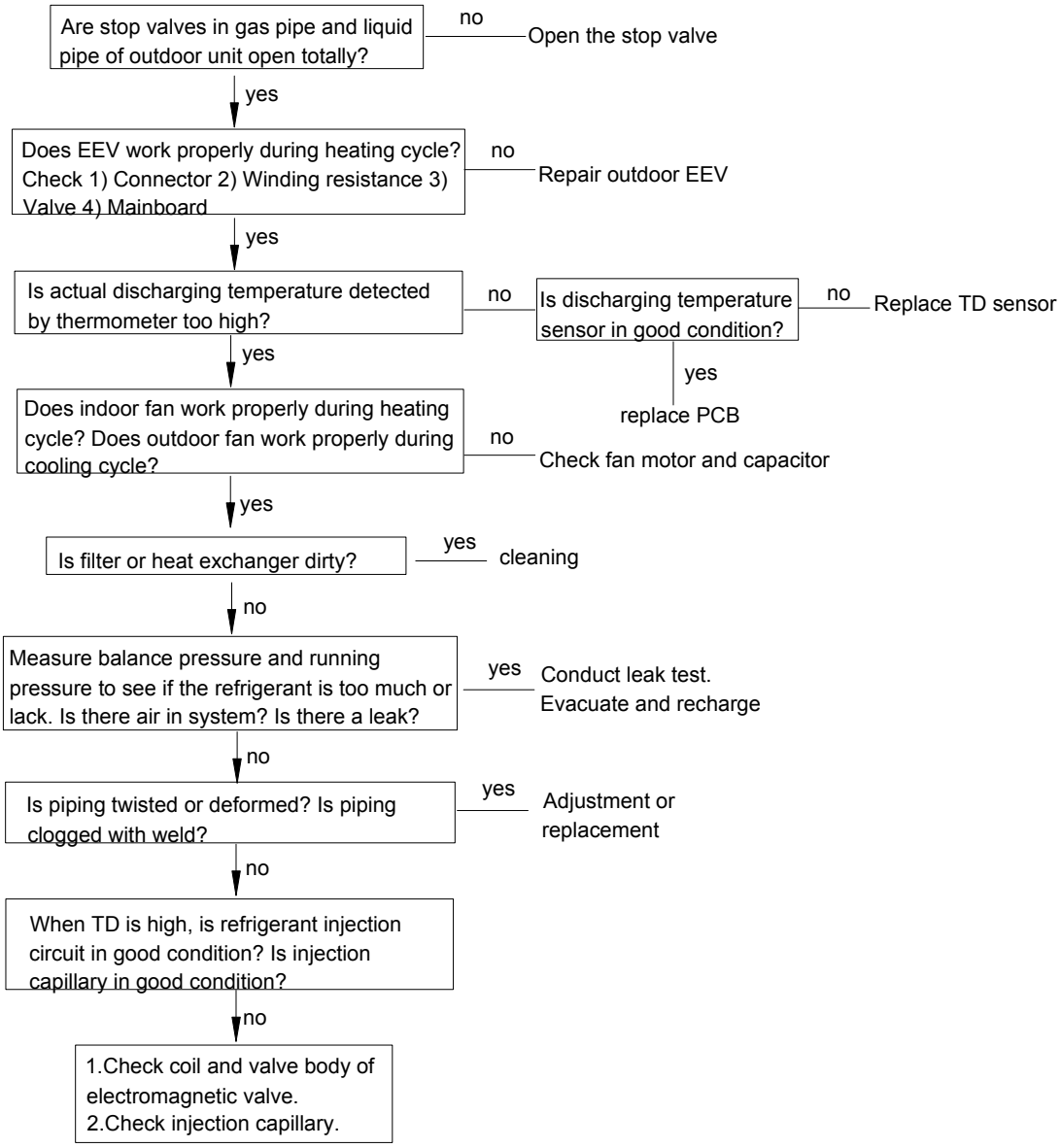
9 flashes of outdoor ALARM light, fault readout:9
Possible causes: 1. Short-circuit or overcurrent
2.Four-way control supply (15VDC) is less than 13.5V.
3.Module is hot with a temperature higher than 145° C.



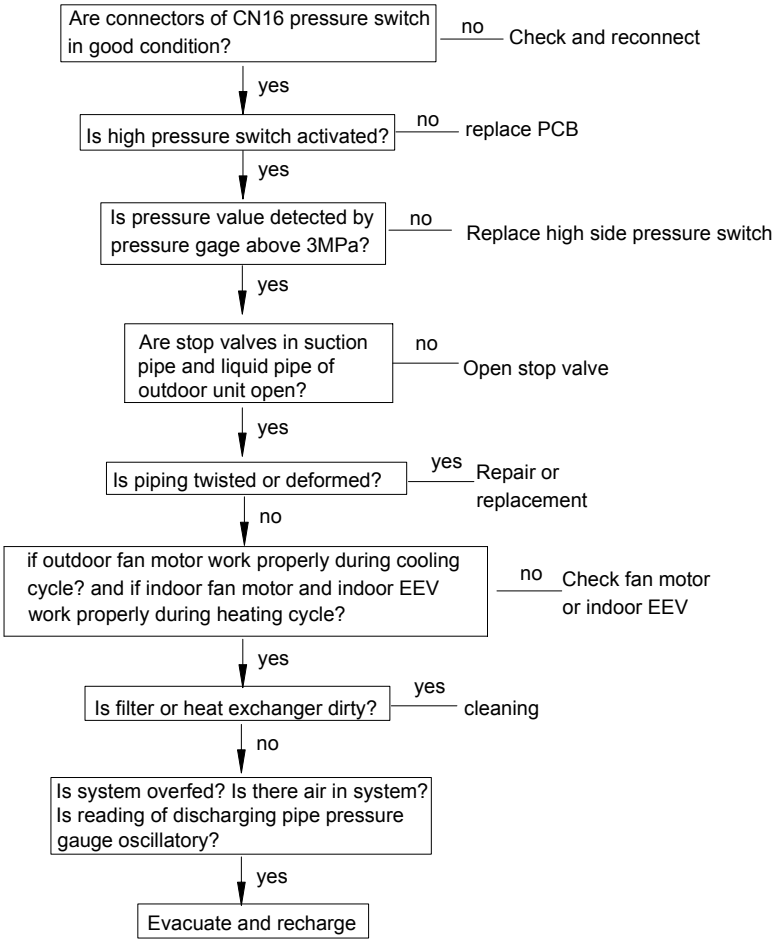
6. Discharging temperature protection

11 flashes of outdoor ALARM light; fault readout: 11

When is temperature protection activated: Temperature of discharge line is above 115° C.

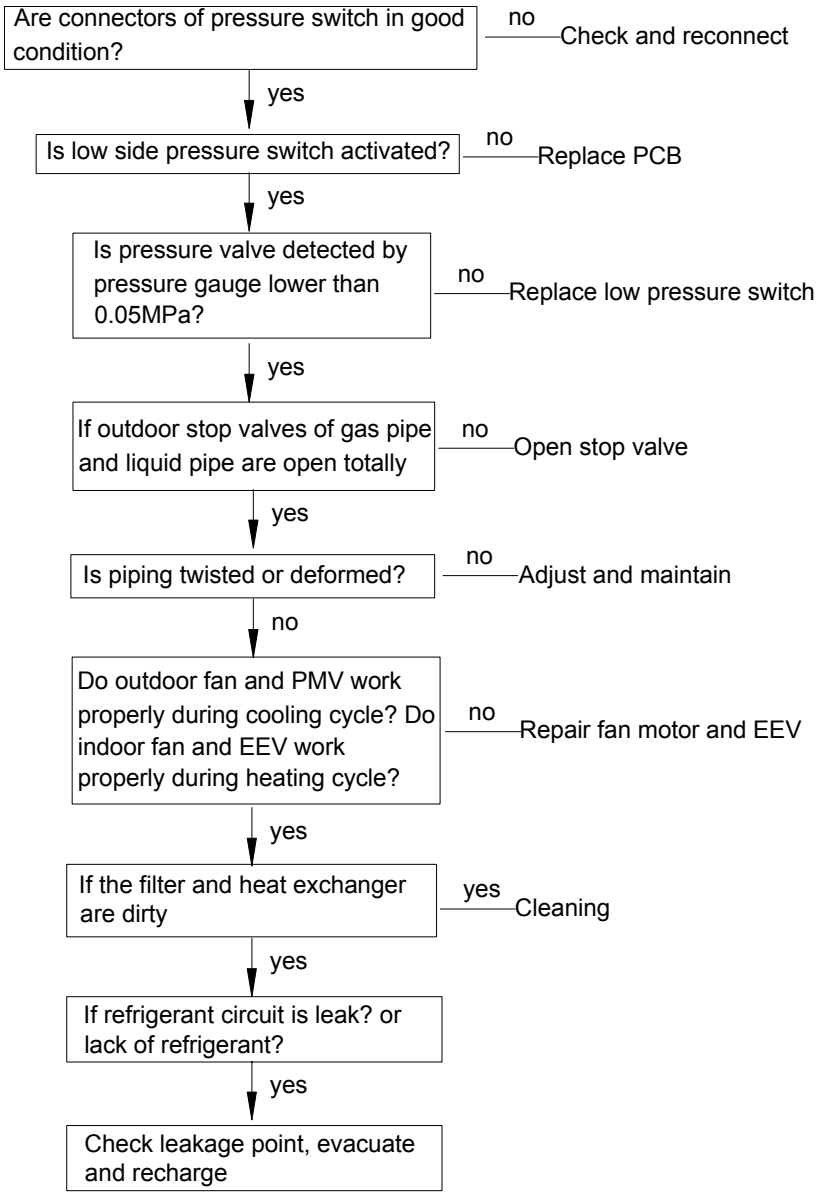


7. High pressure overhigh protection:
When high pressure switch is activated: Pressure is above 3.0 MPa.

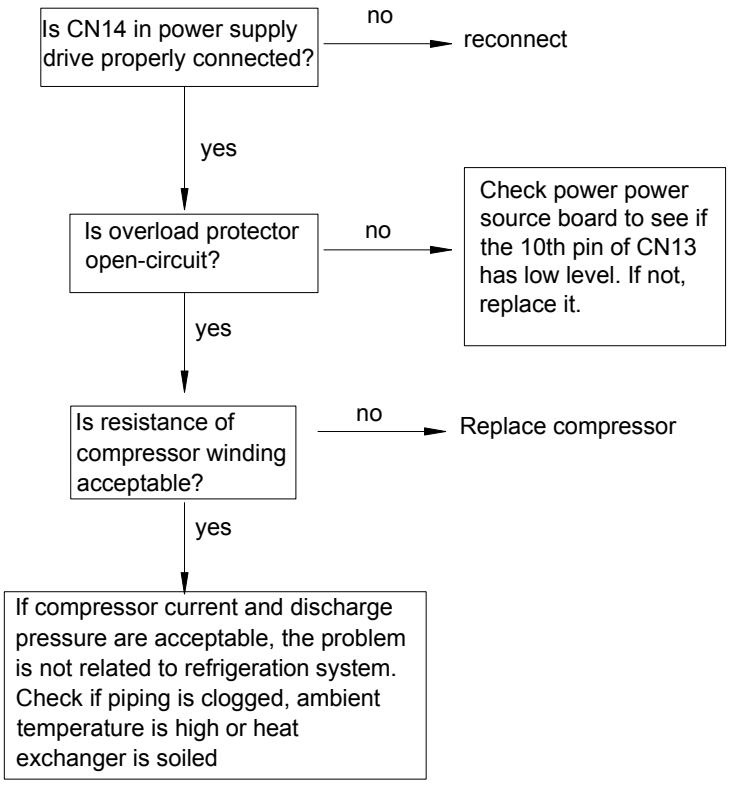


8. Low pressure too low protection

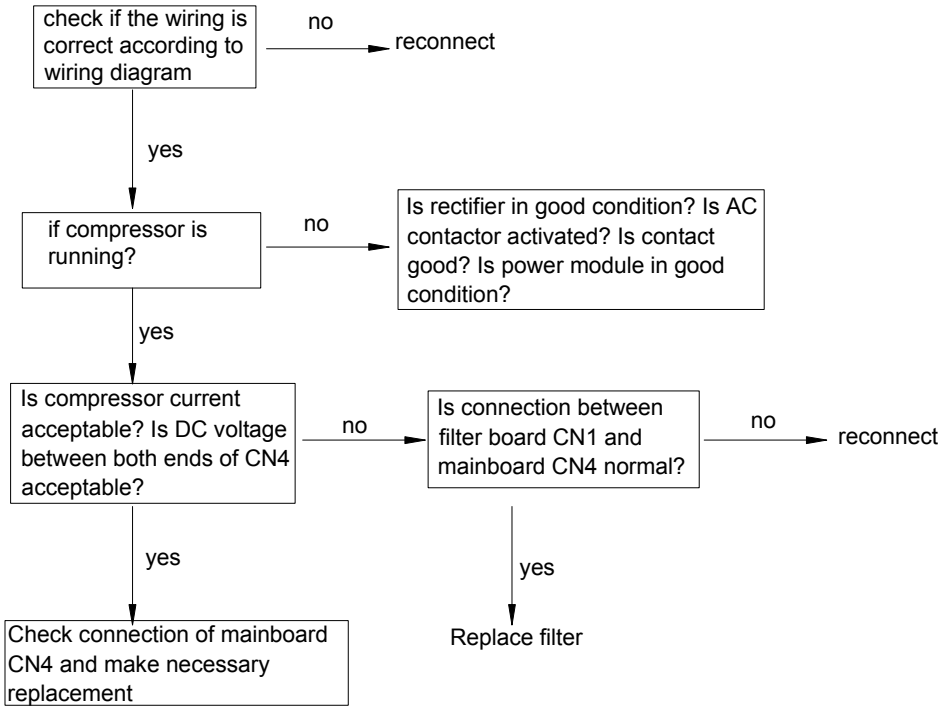
Low pressure is lower than 0.05MPa for 3 minutes; or lower than 0.05MPa for 30 seconds during halt time



9. Fault in built-in overload protection of compressor
Normally closed; open in the event of a fault.
Fault readout: 8; 8 flashes of ALARM light



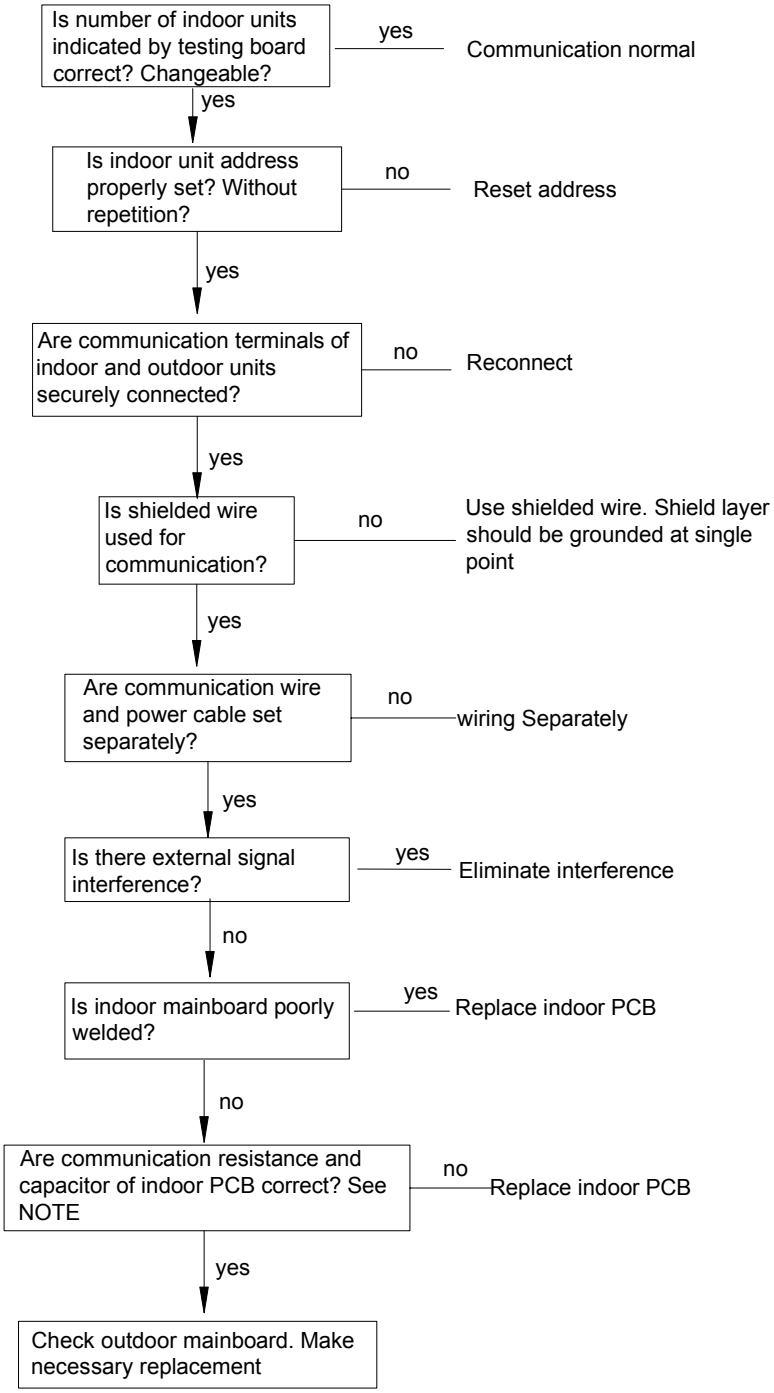
10. Current transducer failure
Display 7, ALARM lamp flashes 7 times



10.4 AU52, 60NFIAKA troubleshooting:

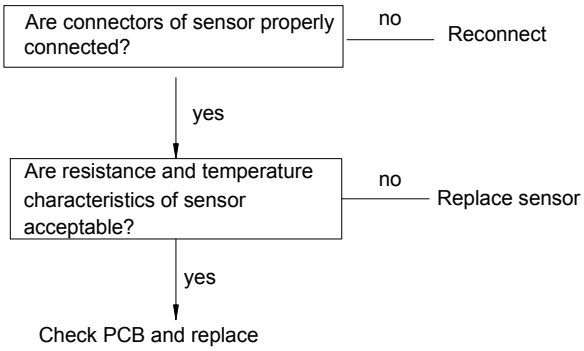
1.Communication failure

Note: For outdoor units before December 2004, in the event of 3 IPM or high current faults, outdoor unit will stop signal transmission to indoor unit. Indoor unit will display communication fault.
Normally, testing board will indicate number of indoor units. The number is fixed.
Wired controller display: E9; 4 flashes of indoor TIMER light of models with remote control

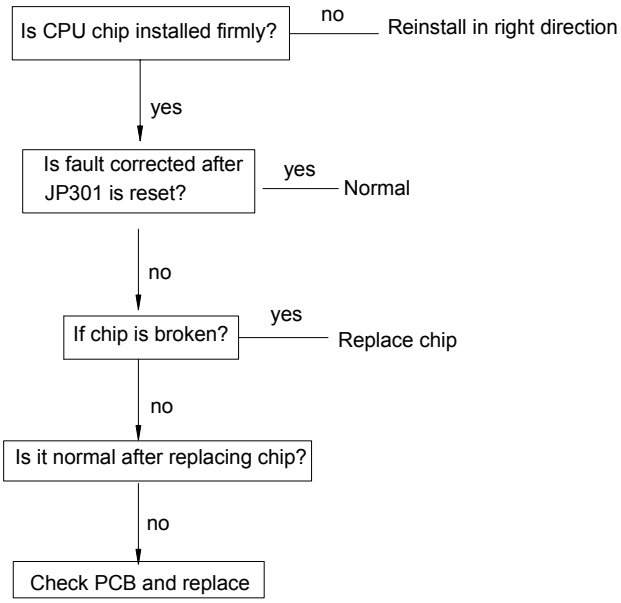


NOTE: 1. R49.R50 resistor in wall mounted unit circuit and R40.R41 resistor in ceiling concealed unit circuit have a resistance of 100 K instead of 47K AS models and C28~C30 of AE models use 104 polyester resistors.

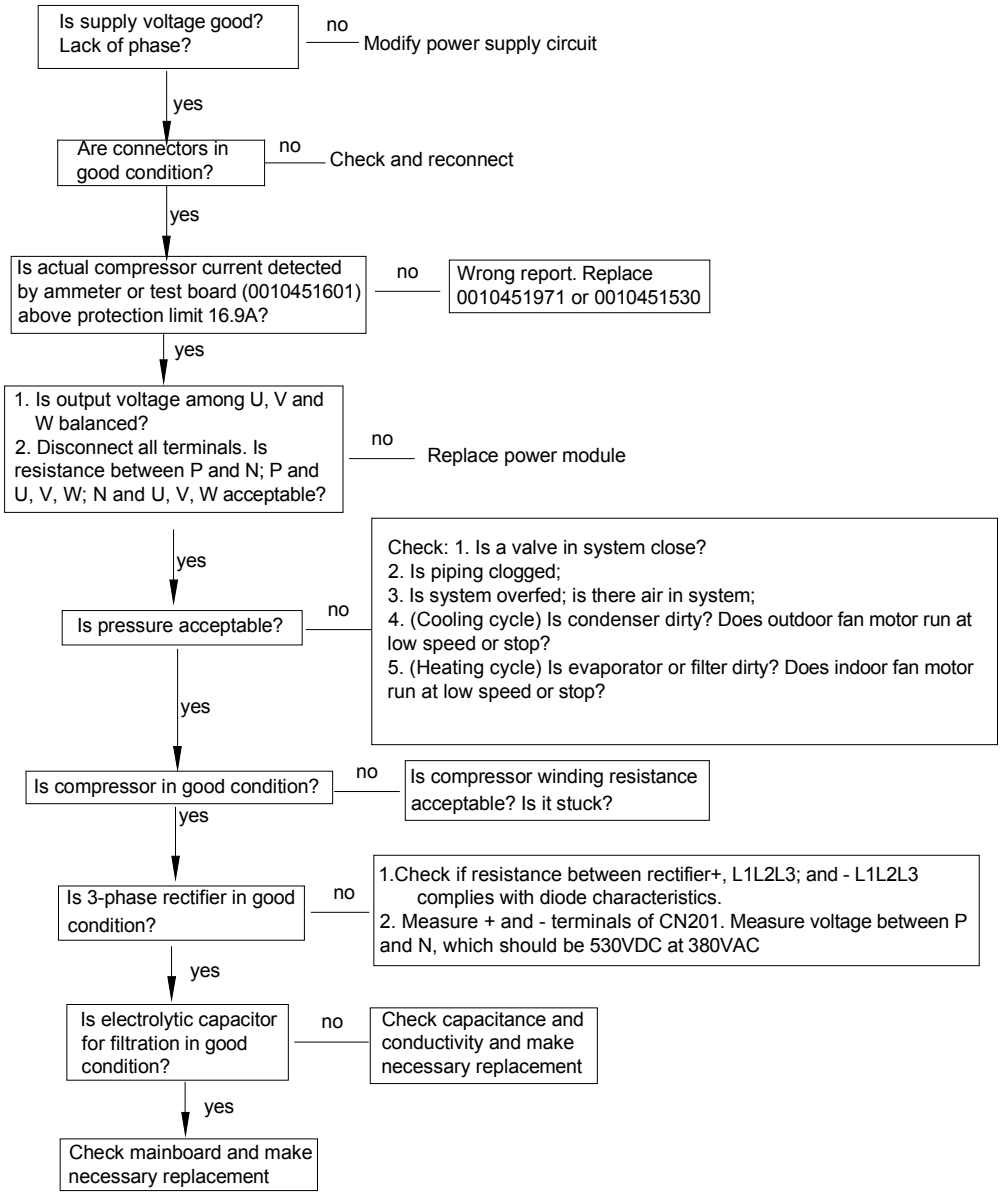
2.Sensor failure



3.EEPROM failure

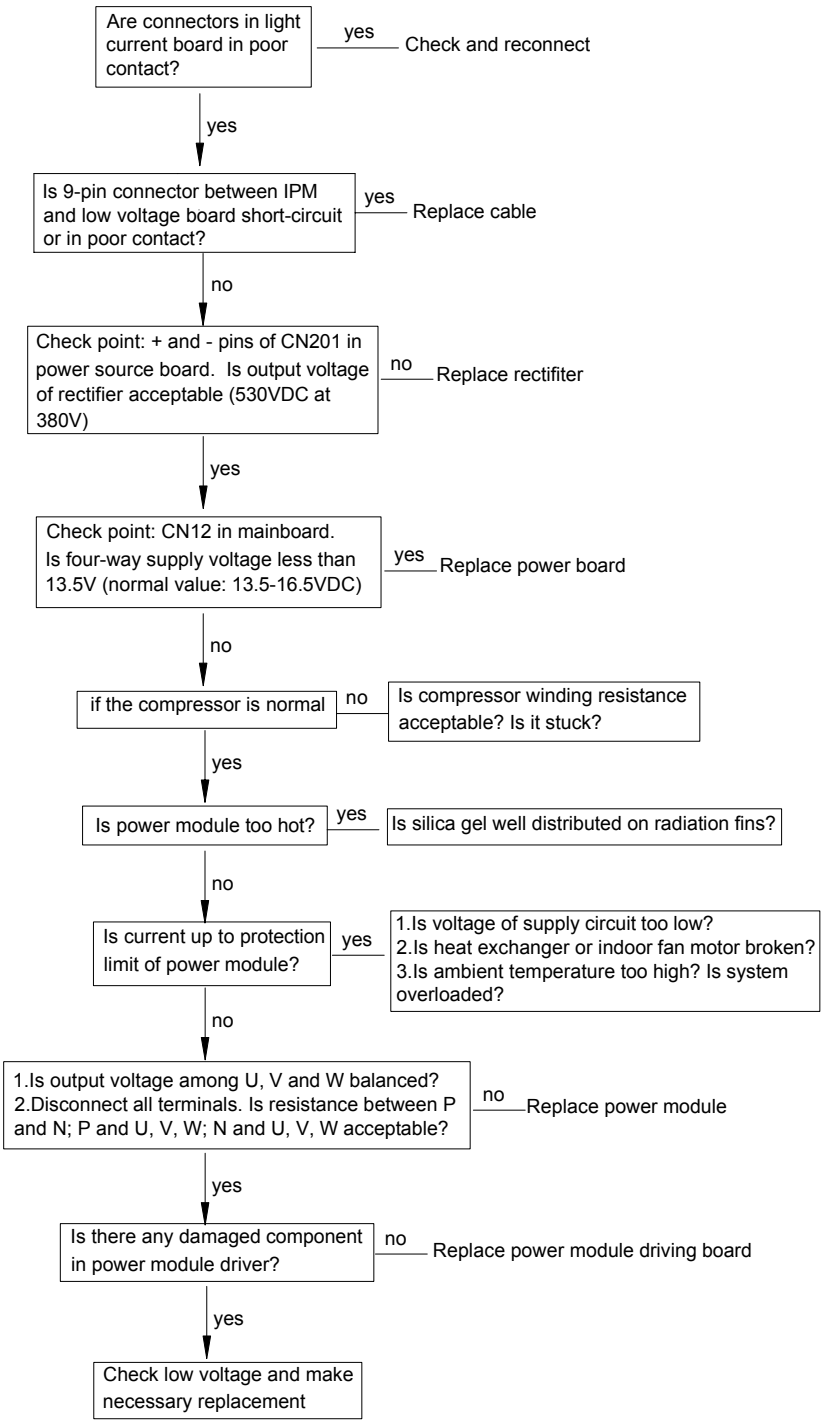


4. Over current protection: outdoor LED302 flashes 6 times



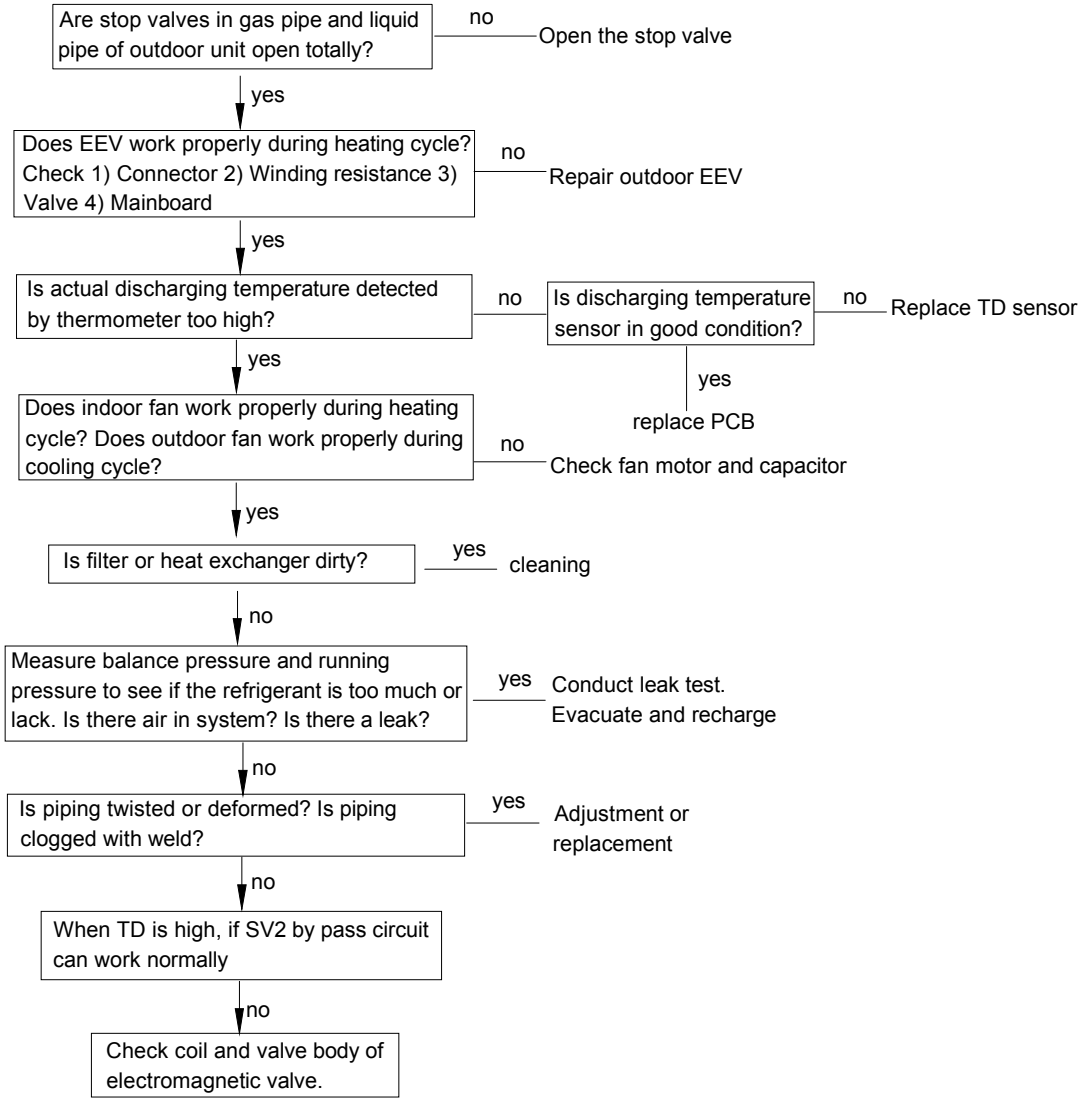
5. IPM power module protection

9 flashes of outdoor LED302 light.
Possible causes: 1. Short-circuit or overcurrent
2. Control supply is less than 13.5V.
3.Module is hot with a temperature higher than 145° C

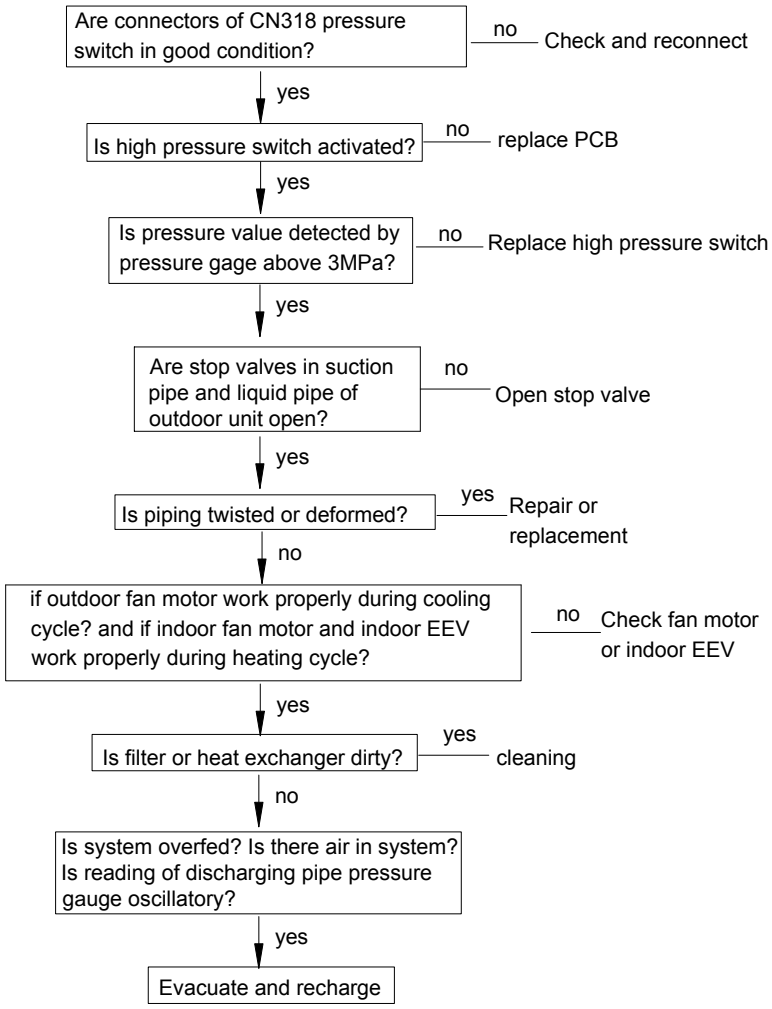


6. Discharging temperature protection

11 flashes of outdoor LED302
When is temperature protection activated: Temperature of discharge line is above 115° C

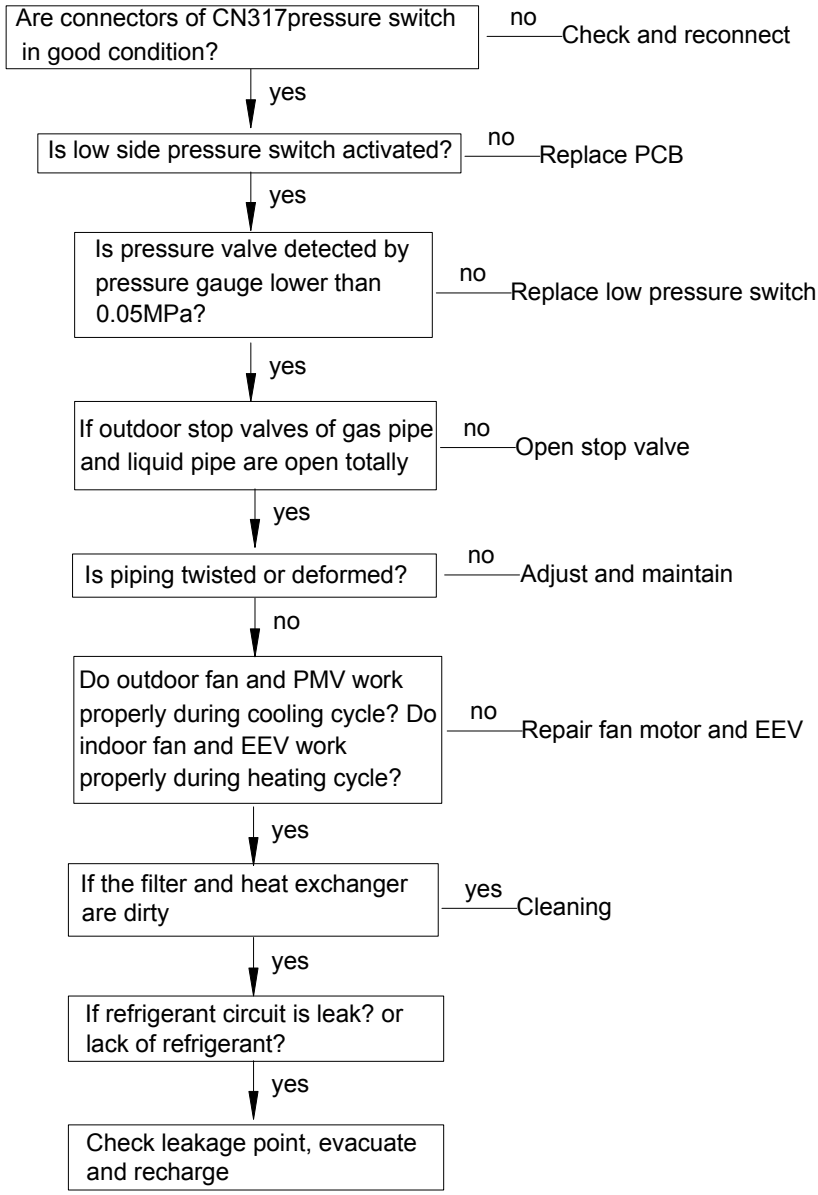


7. High pressure overhigh protection: 12 flashes of outdoor LED302 When is high pressure switch activated: Pressure is above 3.0 MPa.



8. Low pressure too low protection

Outdoor LED flashes 15 times. Low pressure is lower than 0.05MPa for 3 minutes; or lower than 0.05MPa for 30 seconds during halt time



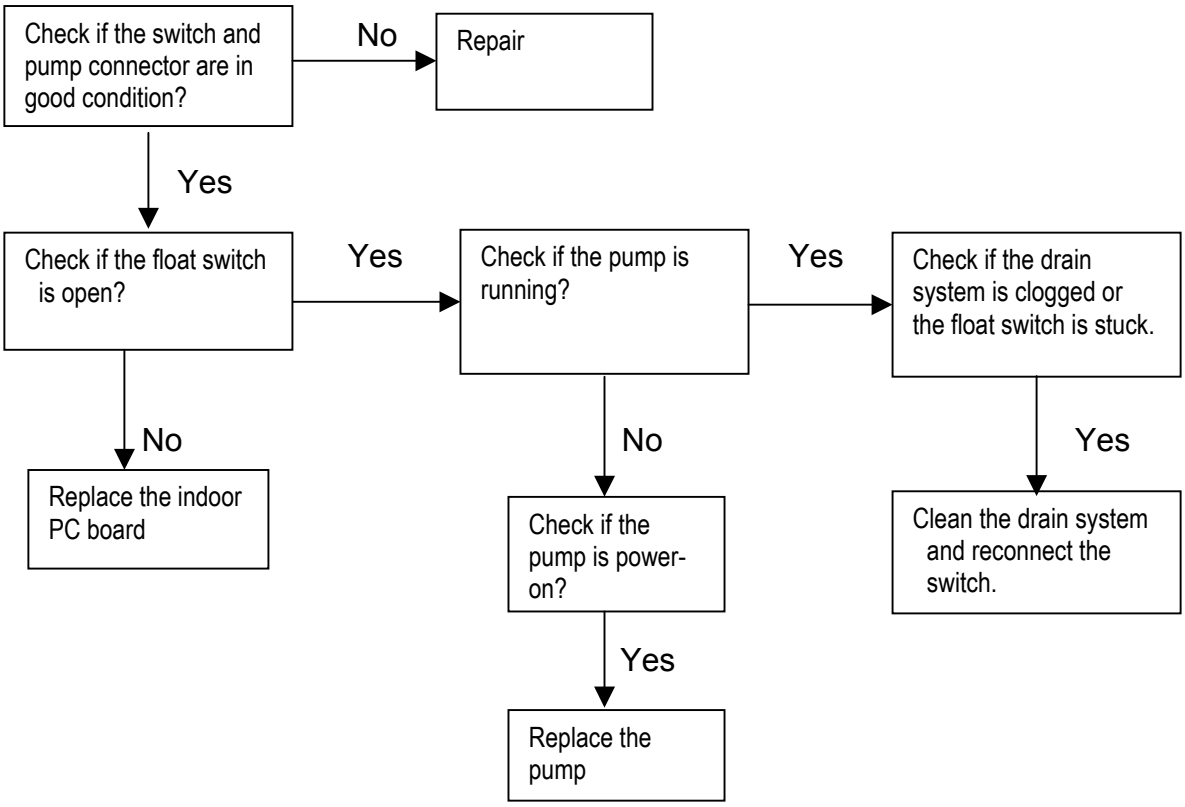
9. Voltage too low protection: high viltage PCB is broken down.

10.5 H-MRV indoor unit troubleshooting:

1.

Models with wired controller	Models with wireless remote controller
Fault code readout: E0	11 flashes of Timer light.

Fault description: The float switch or pump motor is broken.



2.

Models with wired controller	Models with wireless remote controller
Fault code readout: E1	The Operation light flashes. Check in accordance with the list of outdoor fault codes.

Fault description: Failure in outdoor unit

Faults in models with remote controller can be identified by the number of flashes made by fault indicator of outdoor unit. Check in accordance with the list of fault codes.

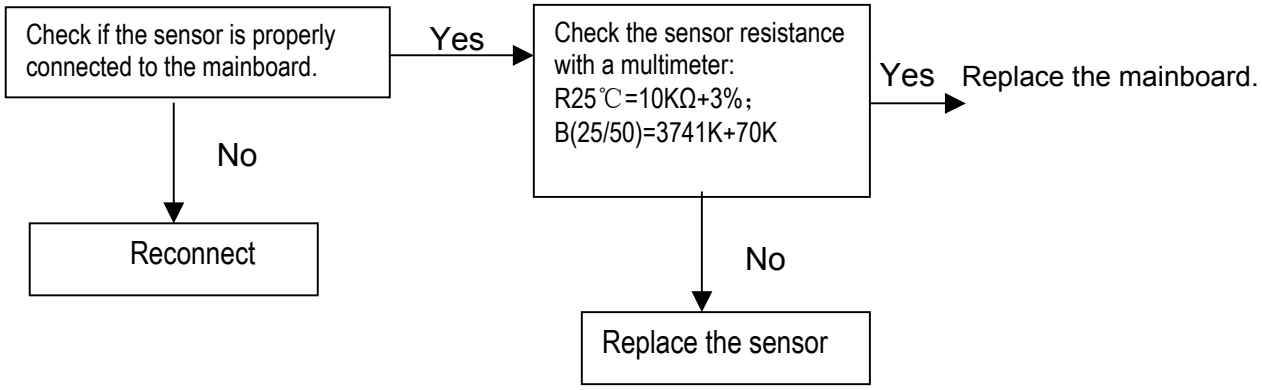
3.

No.	Models with wired controller	Models with wireless remote controller
1	Readout: E3	1 flash of Timer light.
2	Readout: E4	2 flashes of Timer light.
3	N/A	3 flashes of Timer light.

1 Description: Liquid line temperature sensor (Ti) is short-circuit or open-circuit.

2 Description: Suction line temperature sensor (T0) is short-circuit or open-circuit.

3 Description: Ambient temperature sensor is short-circuit or open-circuit.



4.

Models with wired controller	Models with wireless remote controller
Readout: E5	6 flashes of Timer light.

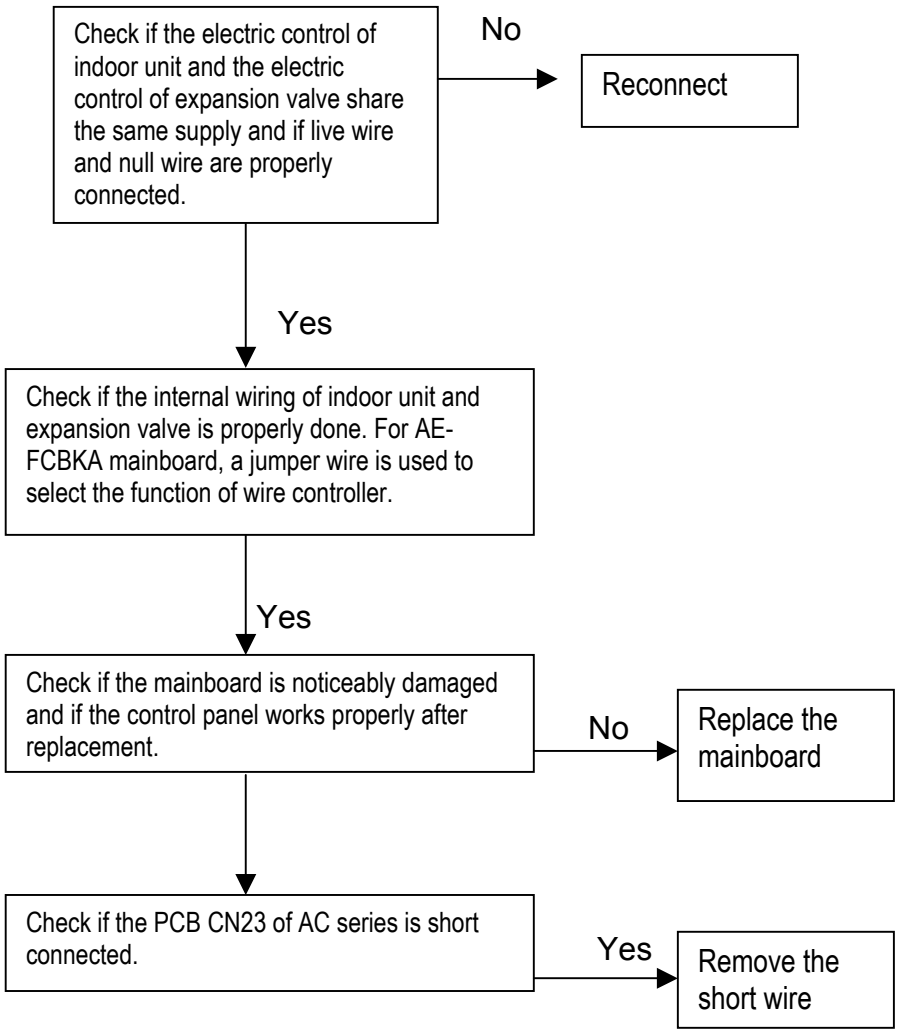
Description: repeated indoor address or transmission error between indoor unit 846 chip and 808 chip.

What to do: Firstly correct the indoor unit address, if failure still exists, replace the mainboard.

5.

Models with wired controller	Models with wireless remote controller
Readout: E7	5 flashes of Timer light.

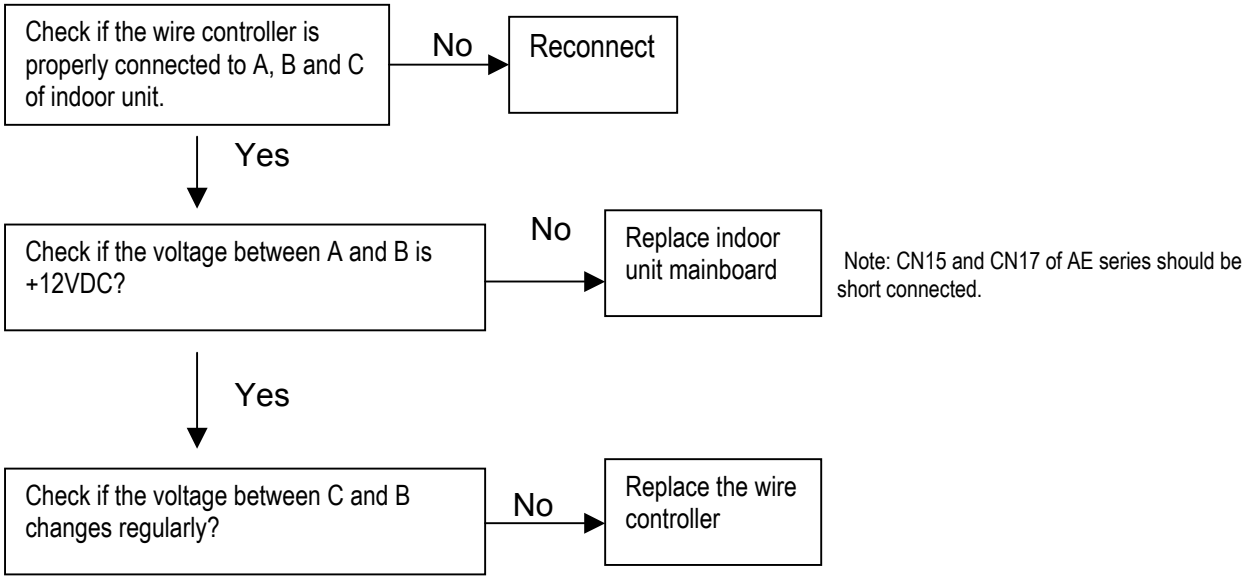
Description: Transmission error with electronic expansion valve driver.



6.

Models with wired controller	Models with wireless remote controller
Readout: E8	/

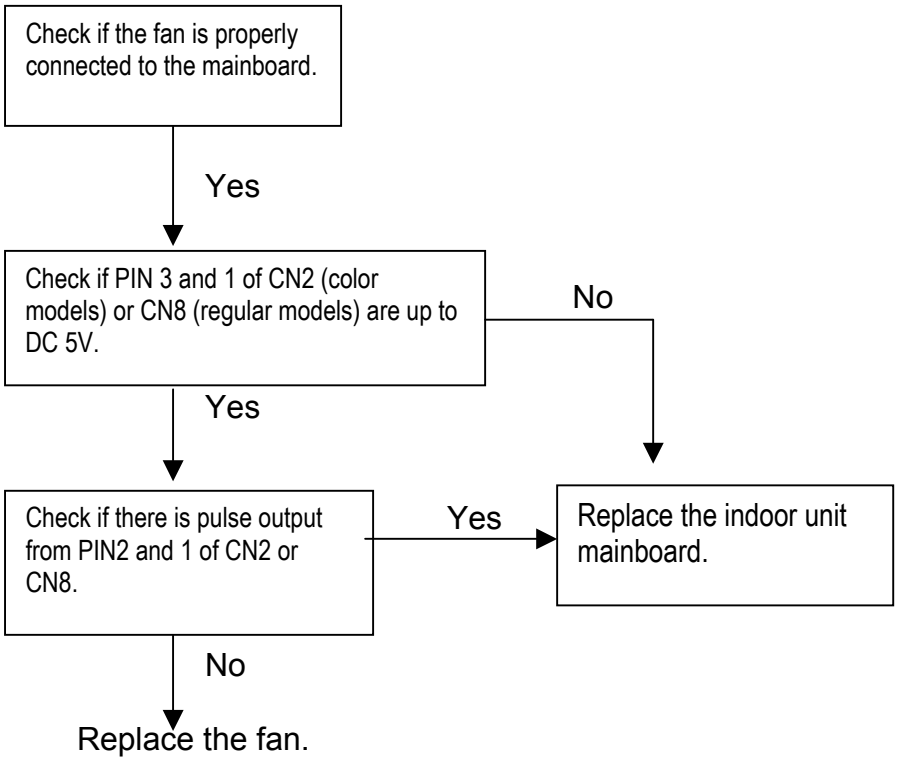
Description: Transmission error between wire controller and indoor unit mainboard



7.

Models with wired controller	Models with wireless remote controller
Readout: N/A	10 flashes

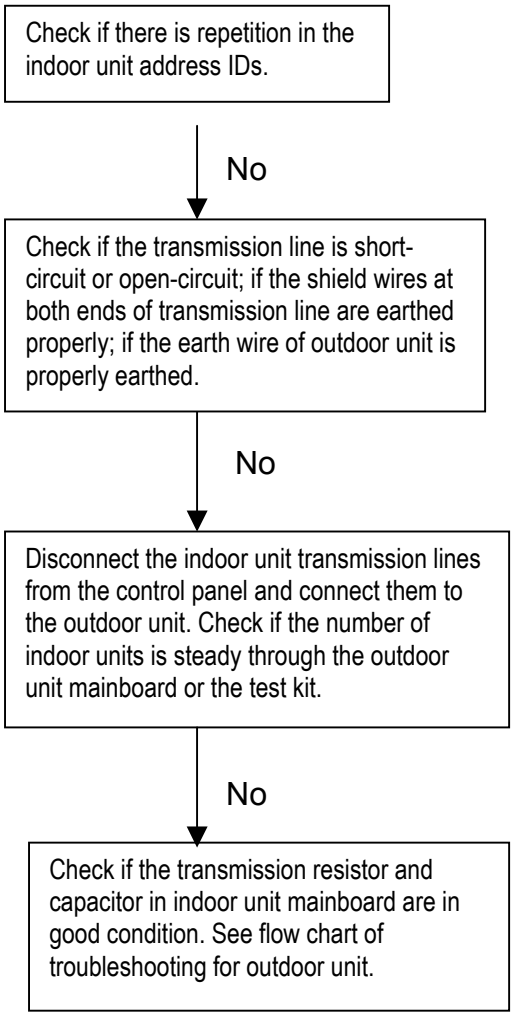
Description: PG failure in the fan of indoor unit



8.

Models with wired controller	Models with wireless remote controller
Readout: E9	4 flashes of Timer light

Description: Transmission error with outdoor unit (an alarm will be given 4 minutes after the appliance is started.)



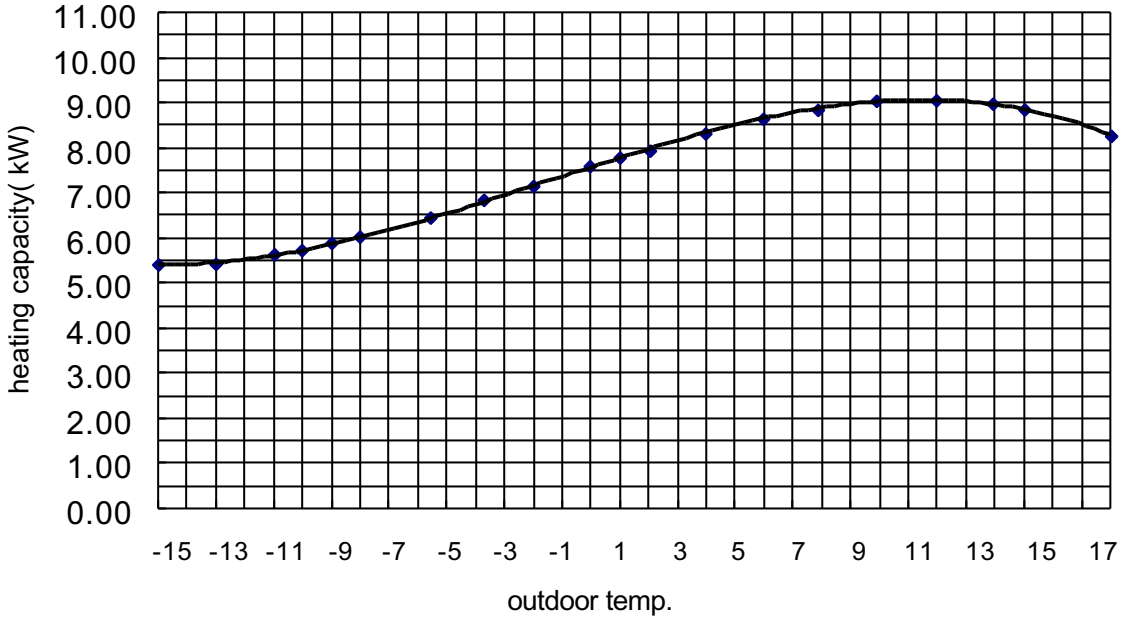
9. E2: Abnormal mode operation
Check all indoor running modes, set them in the same.

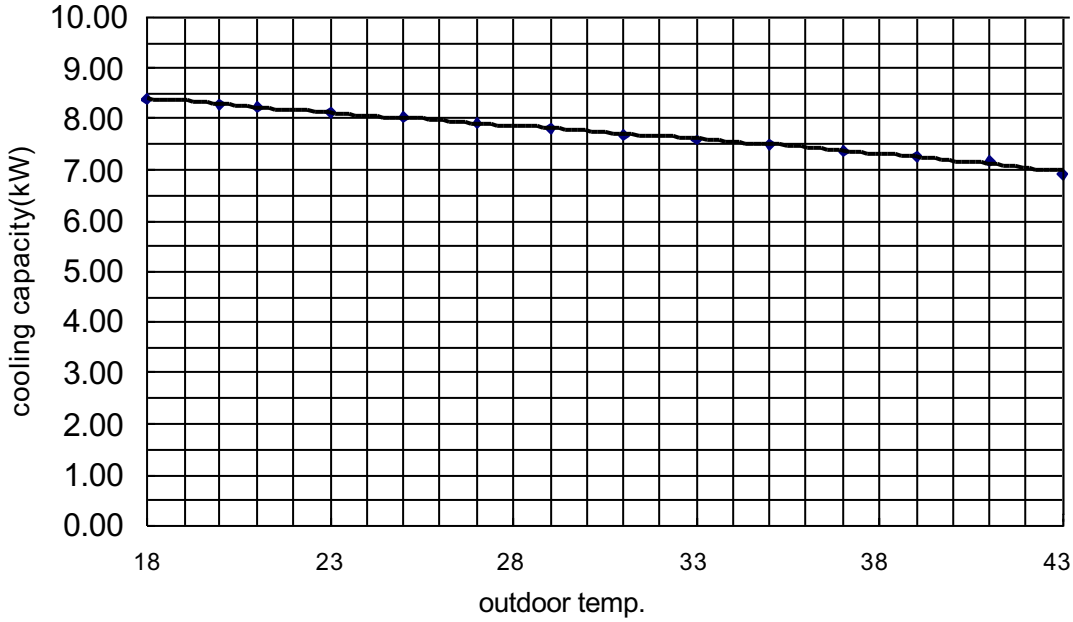
10. Timer LED flash 12 times: check if the EEPROM chip is welded badly, modify it. If it is welded well, please replace indoor PCB.

11. Timer LED flash 13 times: check if the dip switch setting of SW02, SW03 is correct. Refer to the wiring diagram to set it correctly.

11. Performance curves

■AU28, 342FHAIA



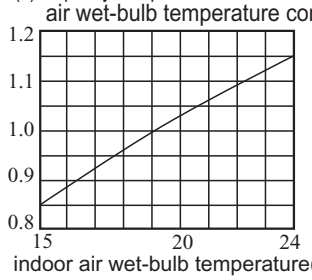


■ AU52, 60**

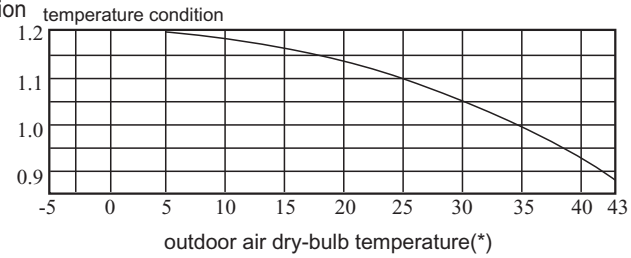
1) Calculation method

Calculation method of refrigerating capacity-Refrigerating capacity to be known = Refrigerating capacity x (1) x (2) x (3) x (4) x (5) W

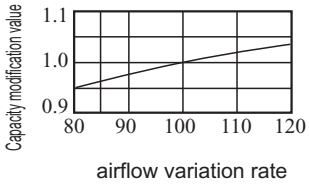
(1) Capacity compensation value of indoor air wet-bulb temperature condition



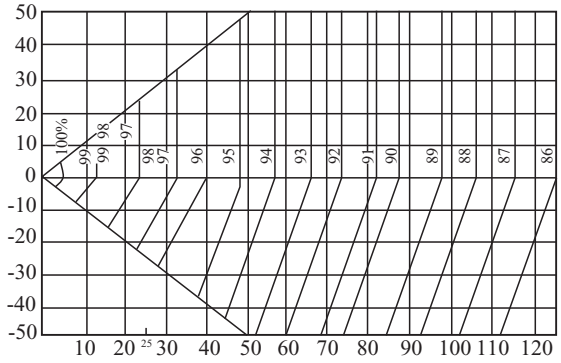
Capacity compensation value of outdoor air dry-bulb temperature condition

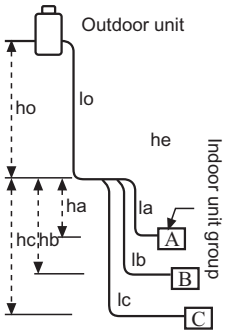


(3) Capacity modification value under airflow variation rate of indoor unit group (only for airflow type unit)



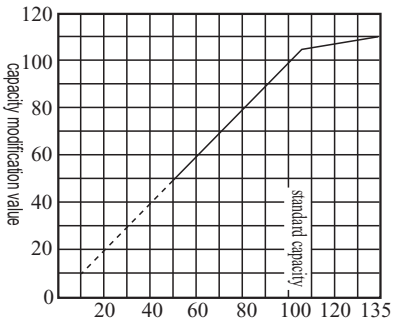
(4) Fall of refrigerant pipe of indoor and outdoor unit, capacity compensation value of pipe length





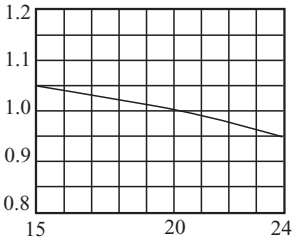
L(m) Length of refrigerant pipe (corresponding length)
L (m)

(5) Capacity compensation suitable for total capability of indoor unit group (cooling)

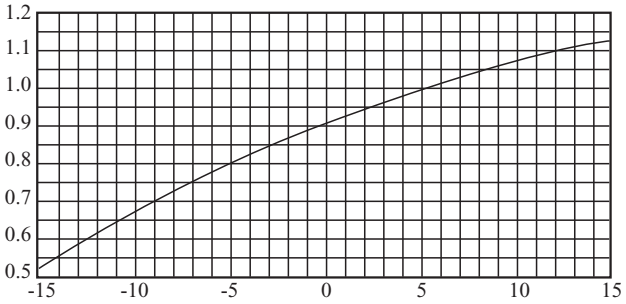


2) Calculation method of heating capacity—Heating capacity to be known = Heating capacity ((1) x (2) x (3) x (4) x (5) x (6)) W

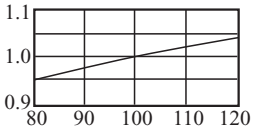
(1) Capacity modification under indoor air wet-bulb temperature condition



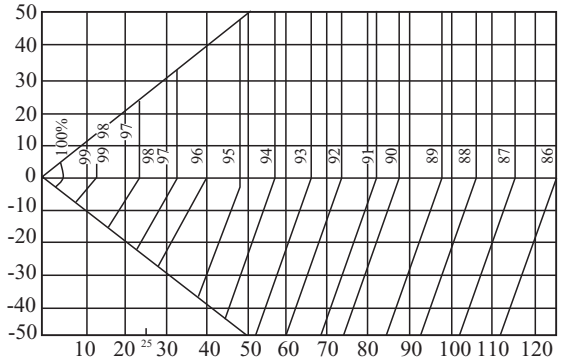
(2) Capacity modification under outdoor air wet-bulb temperature condition



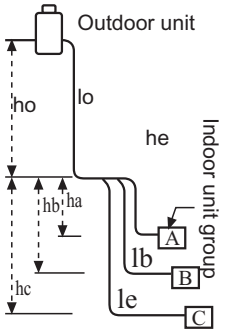
(3) Capacity modification value under airflow variation rate of indoor unit group



(4) Fall of refrigerant pipe of indoor and outdoor unit, capacity compensation value of pipe length

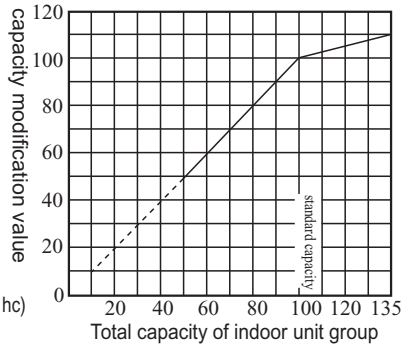


Length of refrigerant pipe (corresponding length) L (m)

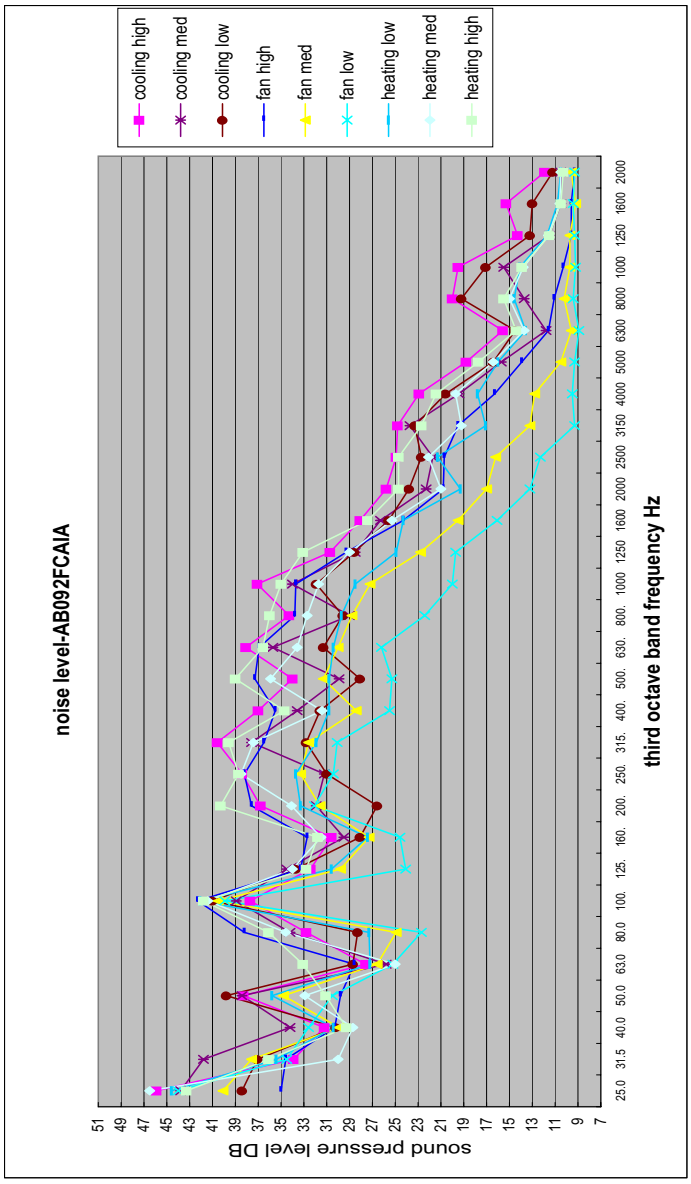


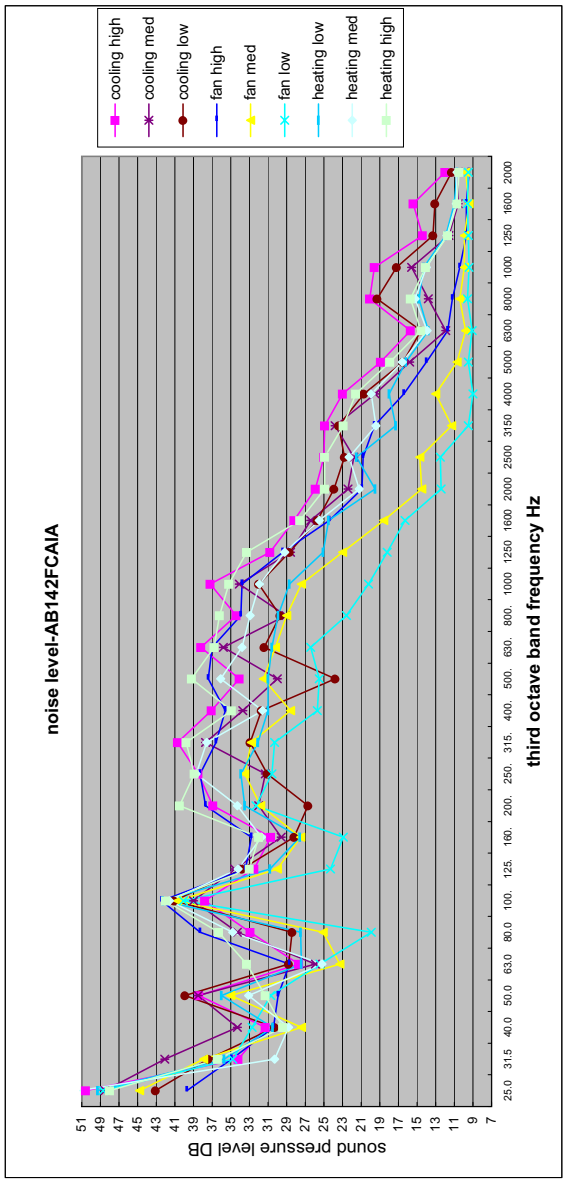
H=ho+(the max. value of ha, hb, hc)
L=lo+(the max. value of la, lb, lc)

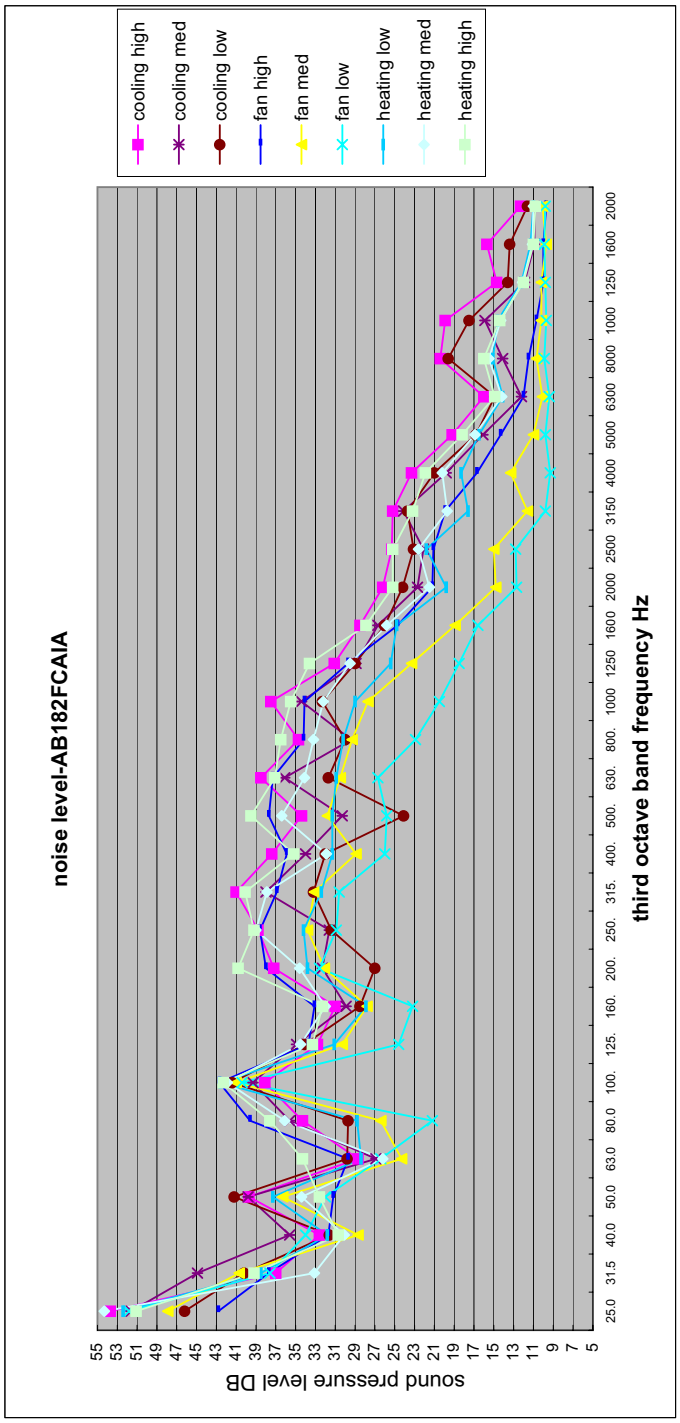
(5) Capacity compensation suitable for total capability of indoor unit group (heating)

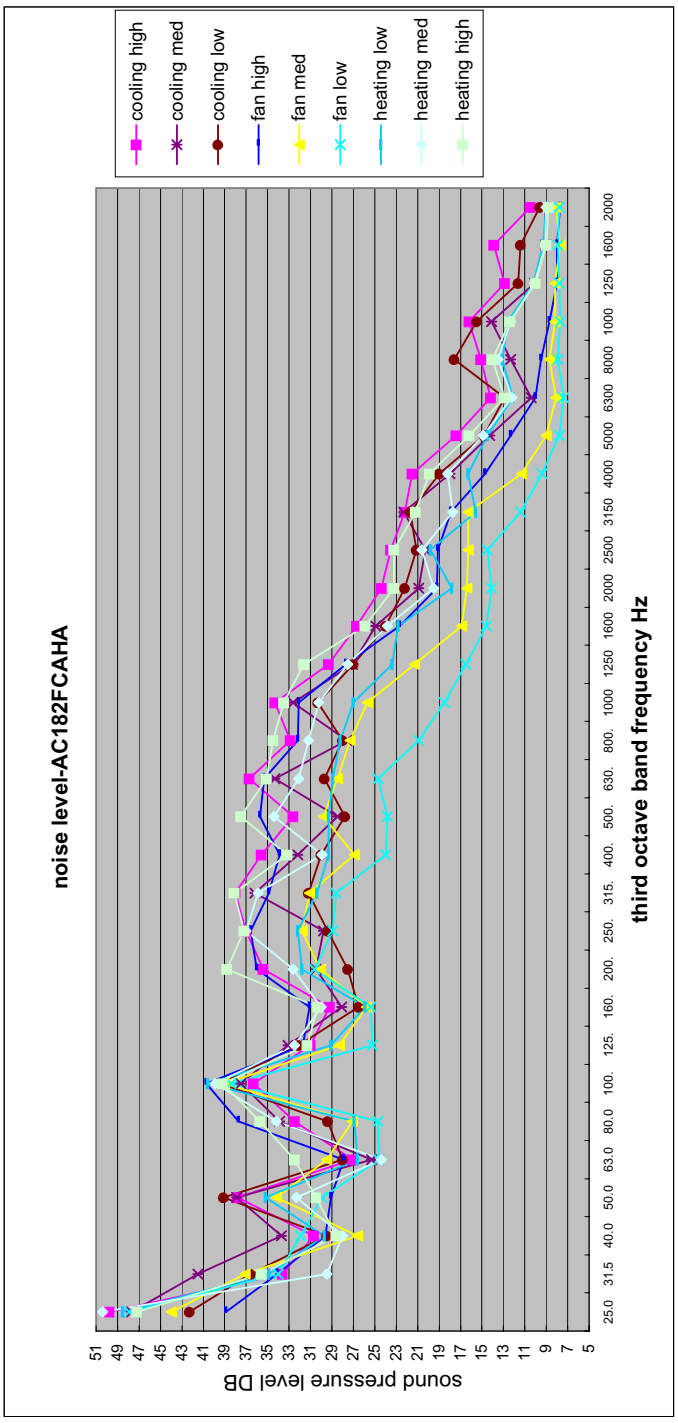


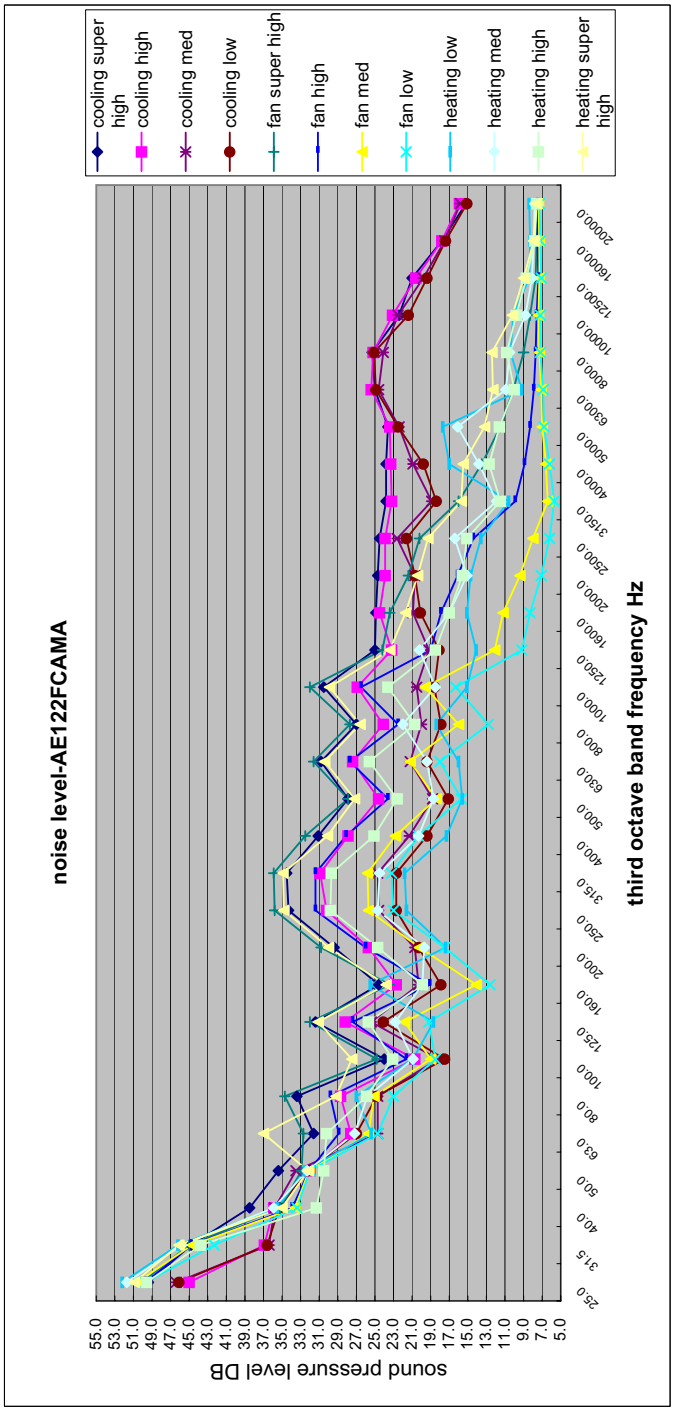
12. Noise level

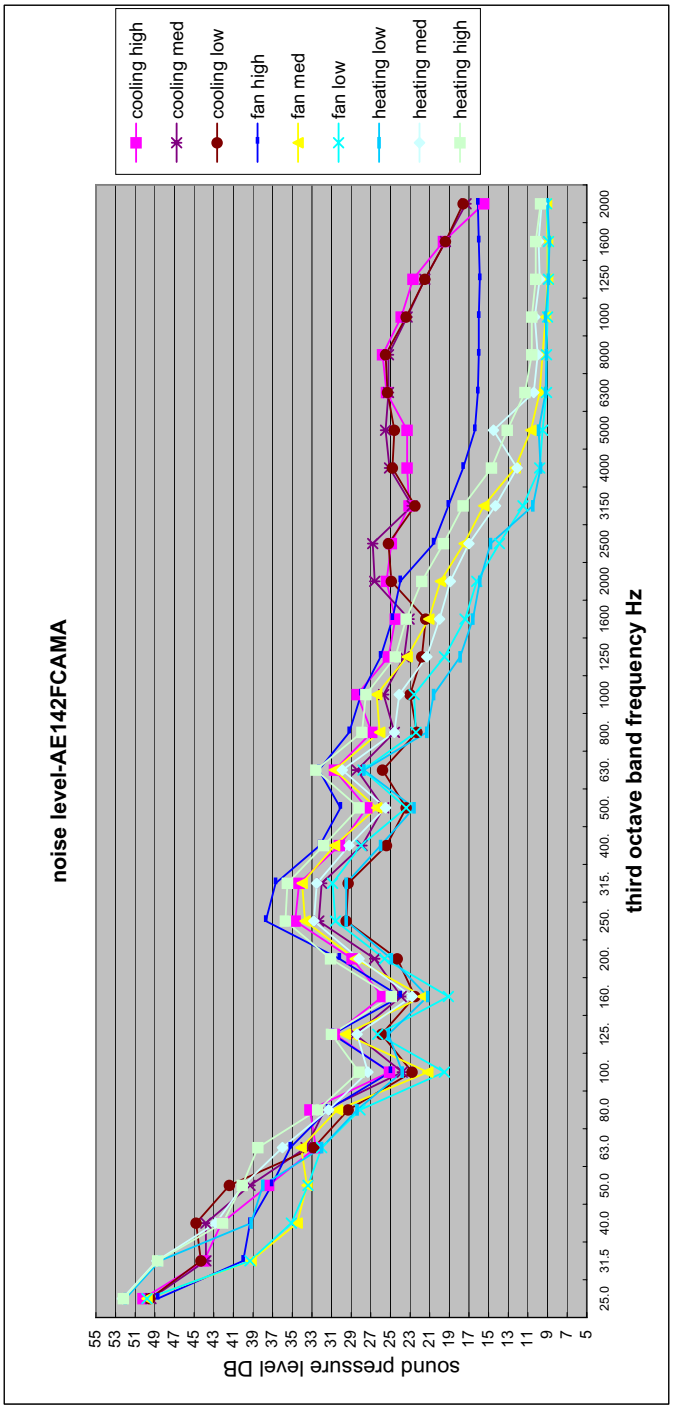


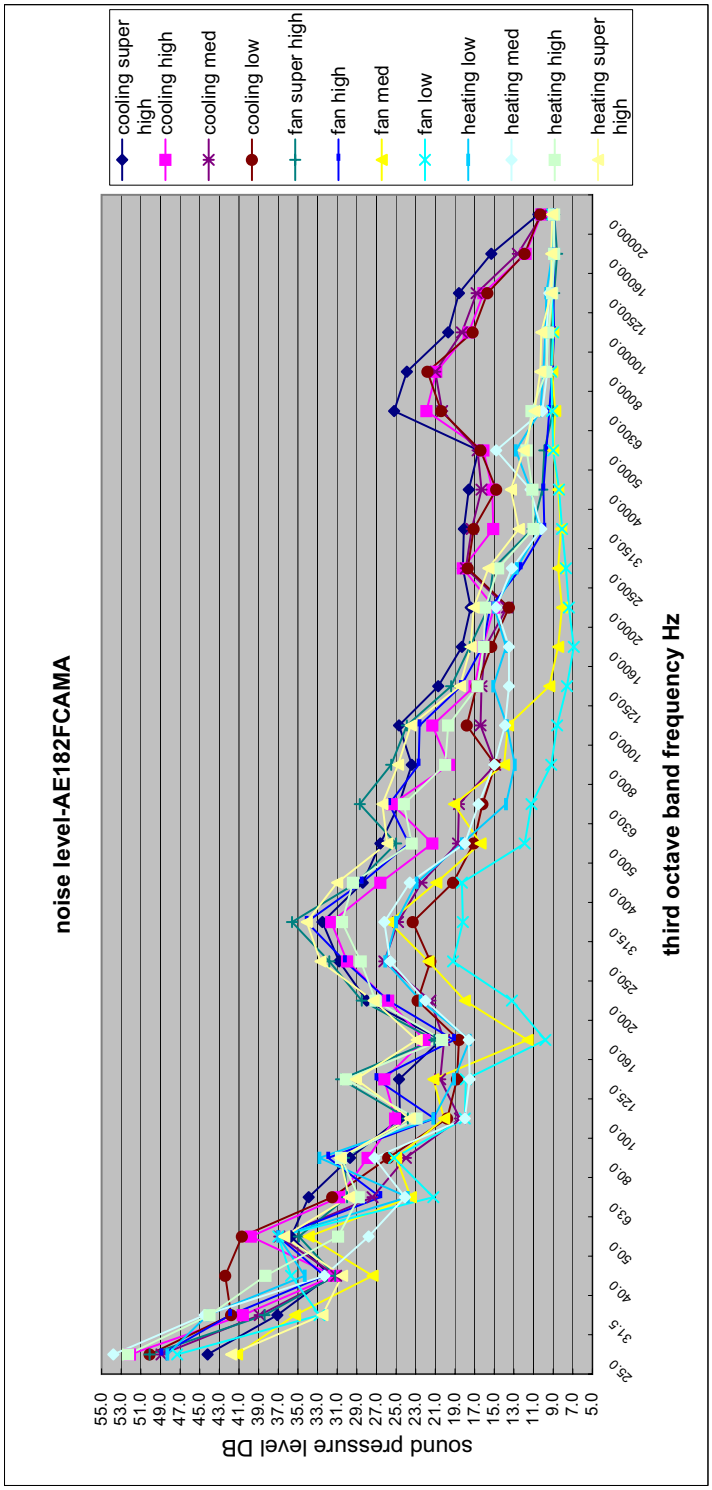


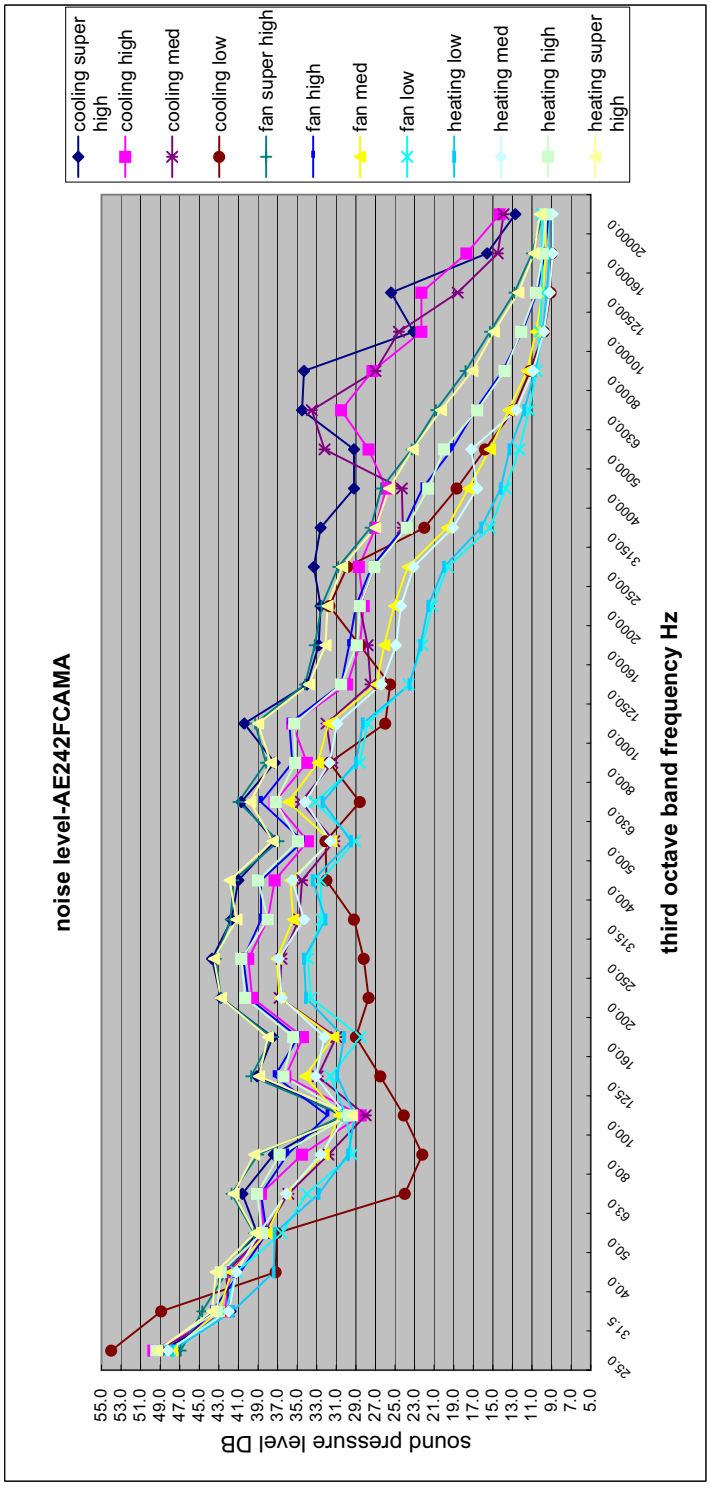


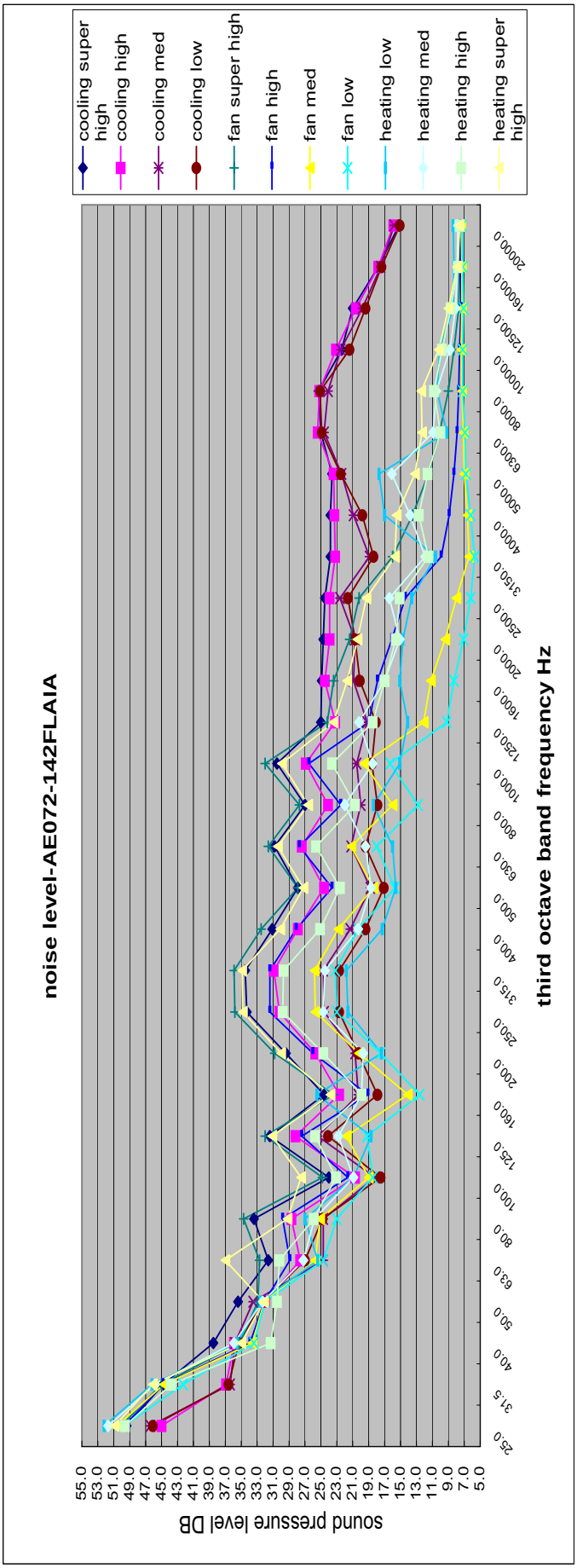


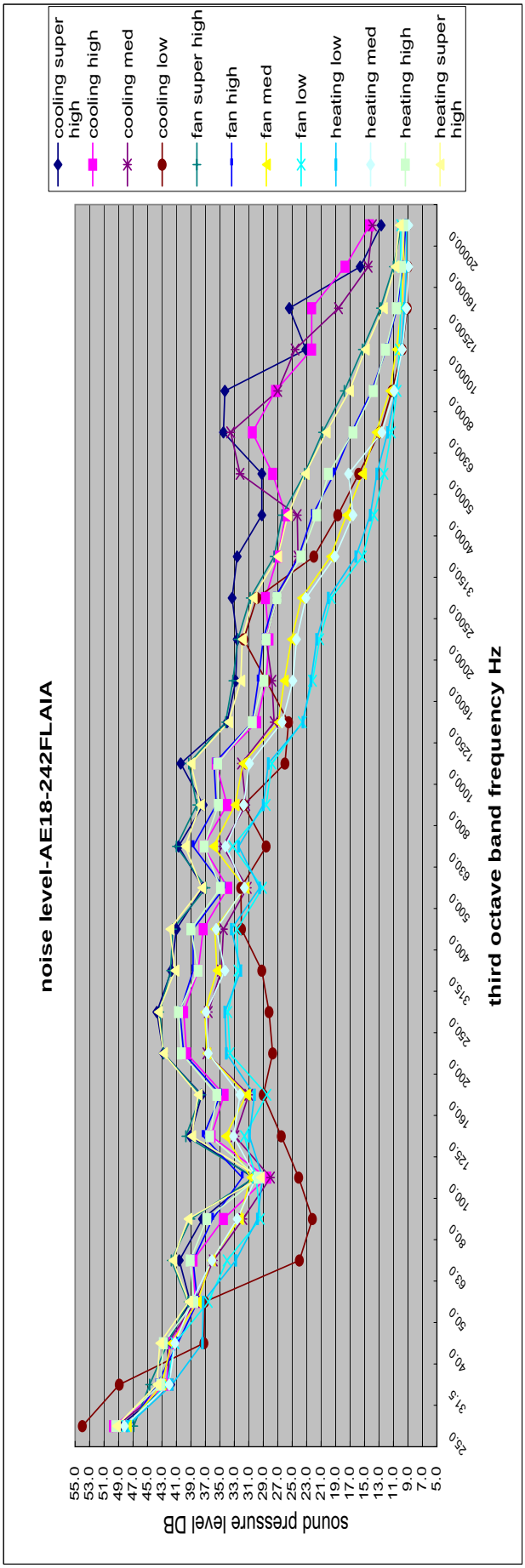

noise level-AE122FCAMA
cooling super high
cooling high
cooling med
cooling low
fan super high
fan high
fan med
fan low
heating low
heating med
heating high
heating super high
sound pressure level DB
third octave band frequency Hz

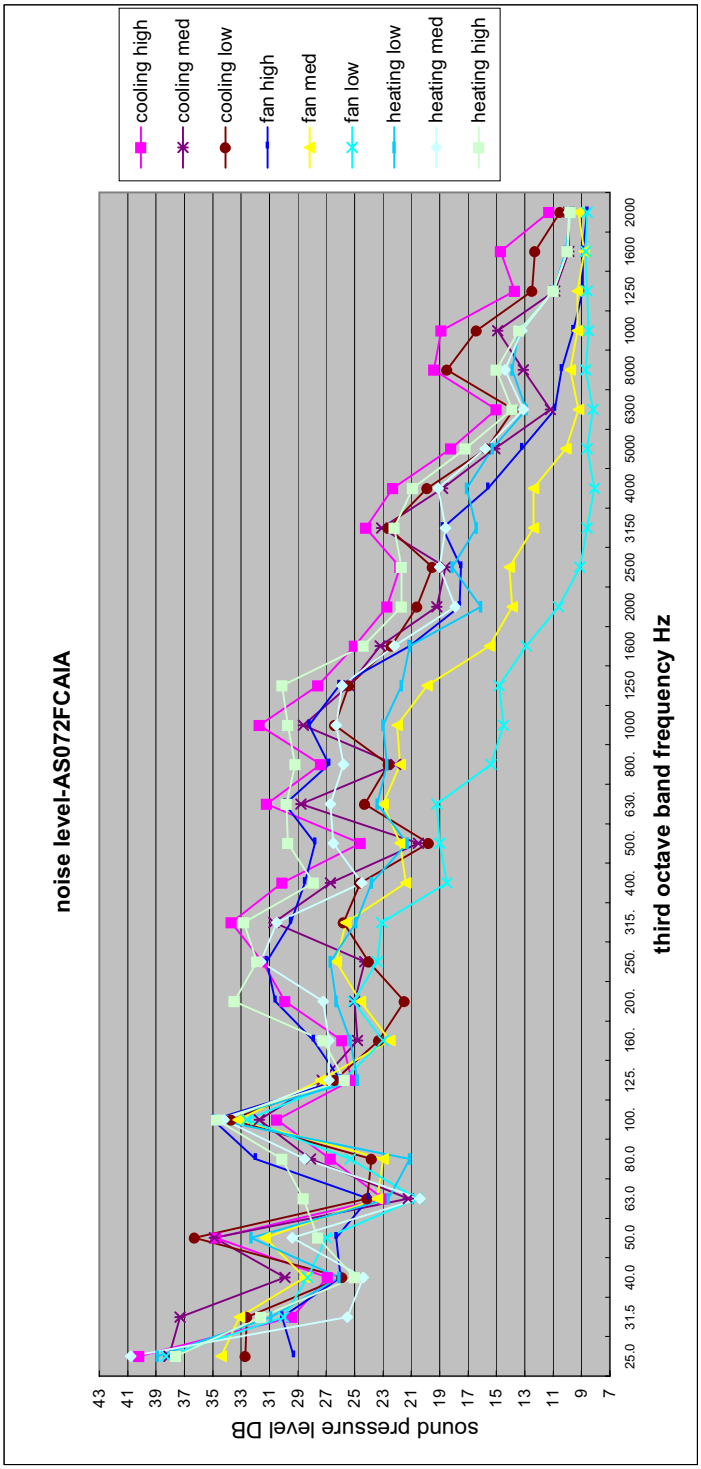

noise level-AE142FCAMA
cooling high
cooling med
cooling low
fan high
fan med
fan low
heating low
heating med
heating high
sound pressure level DB
third octave band frequency Hz

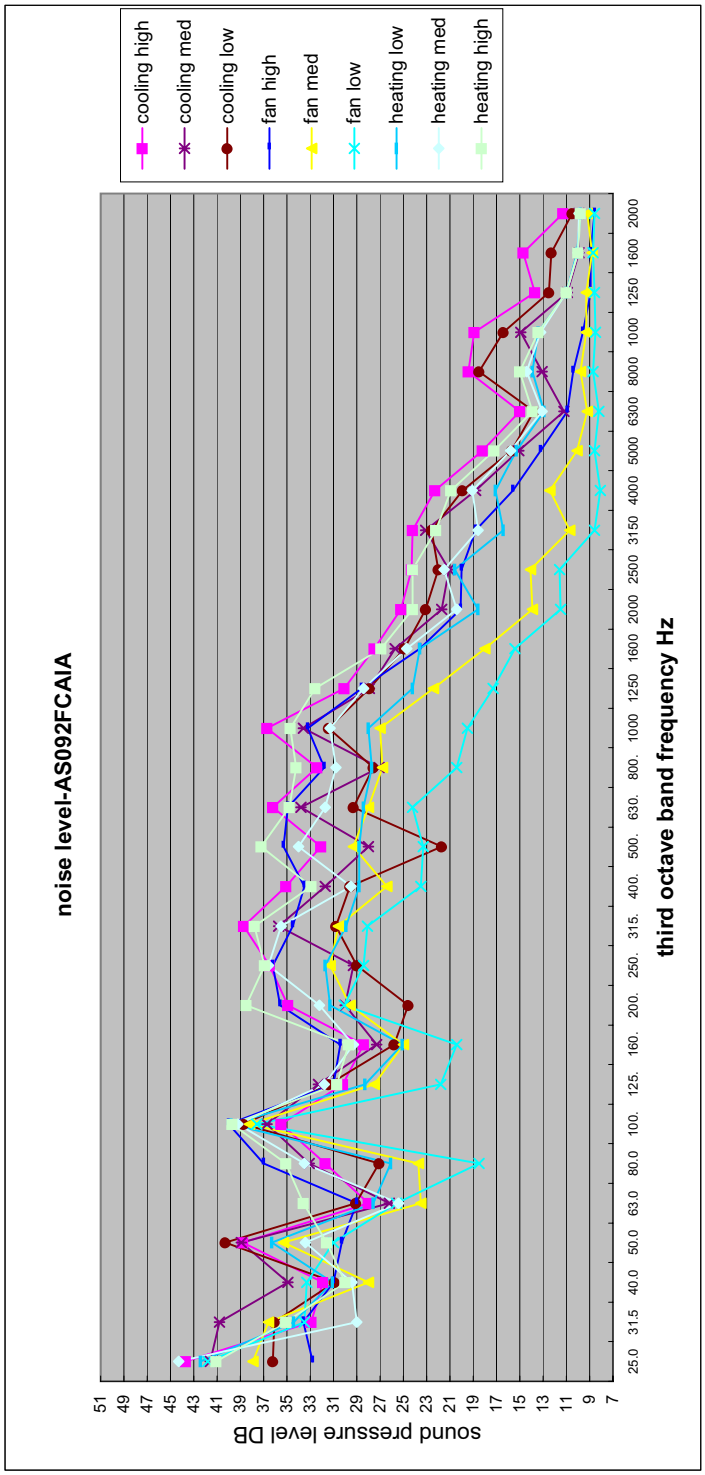


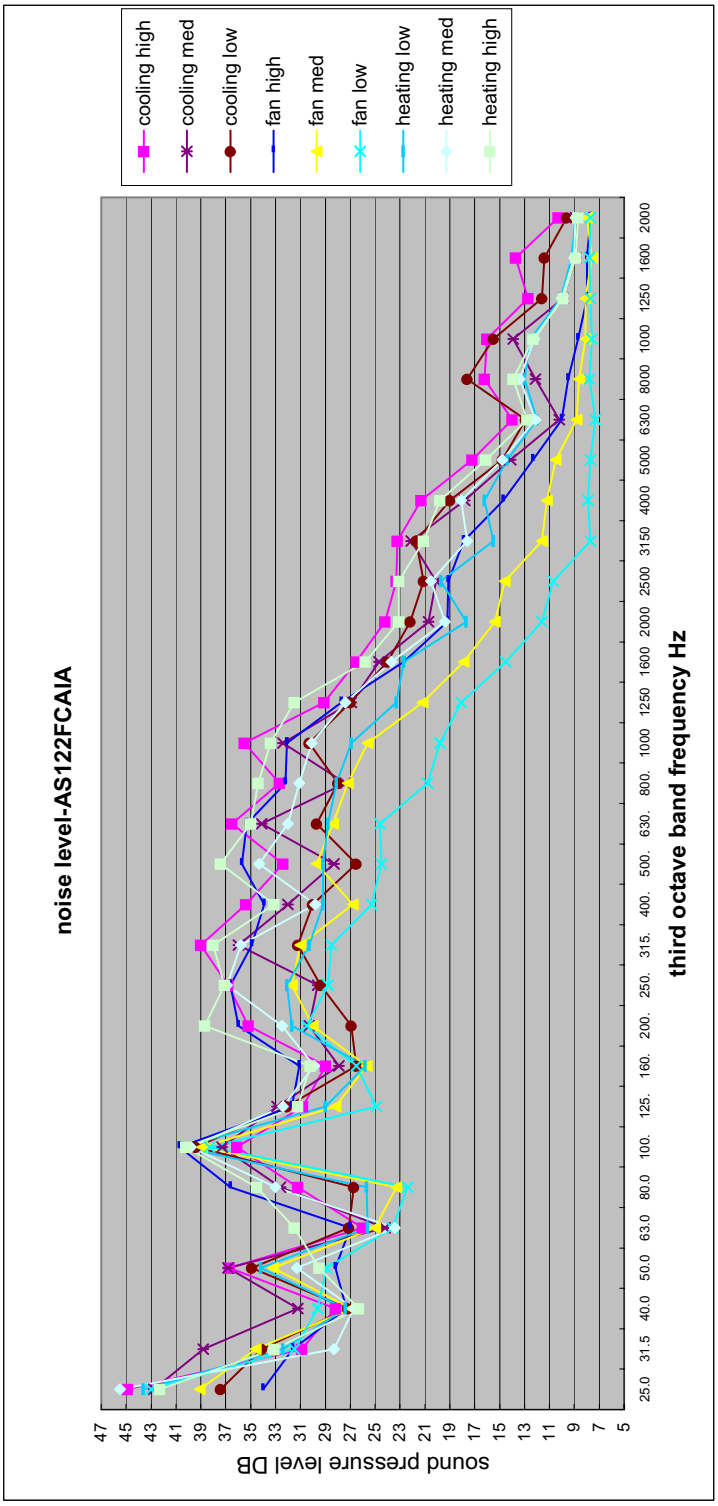


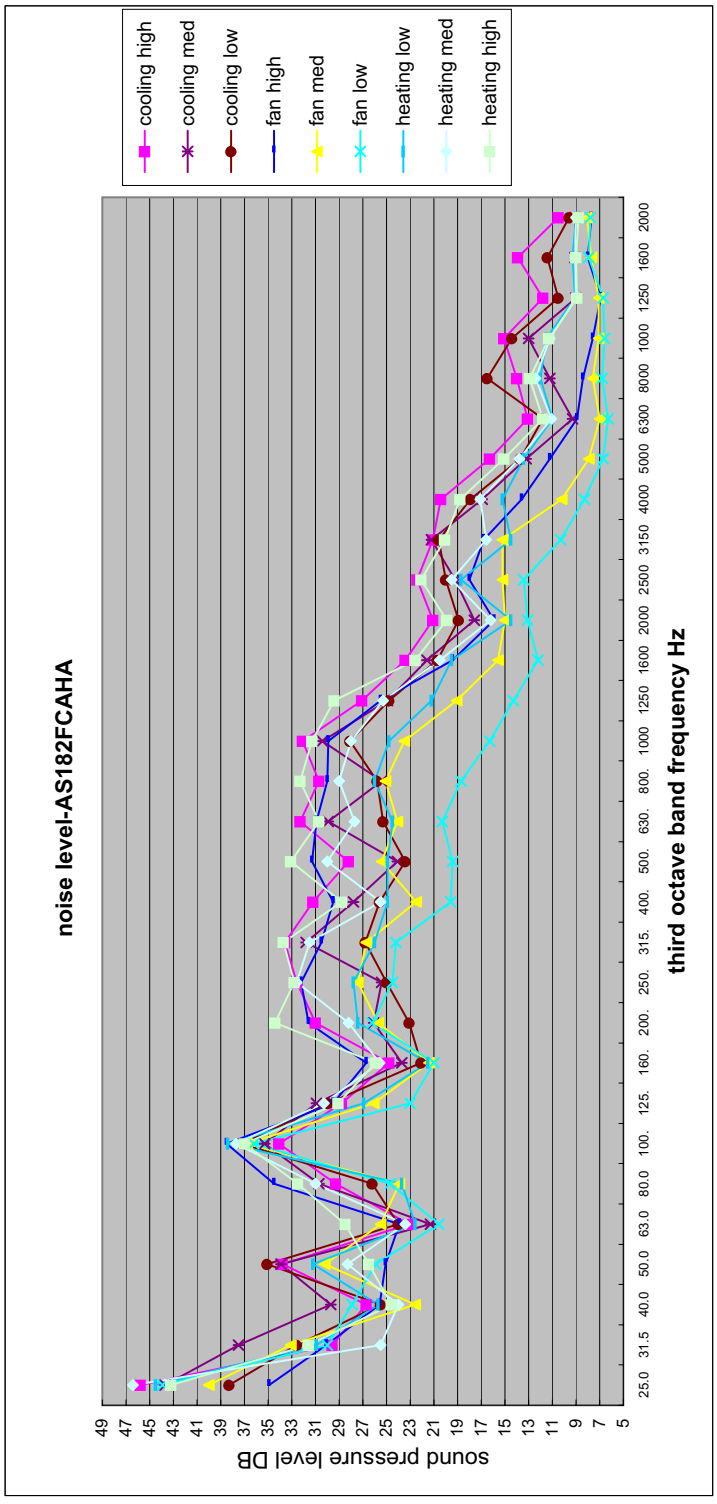


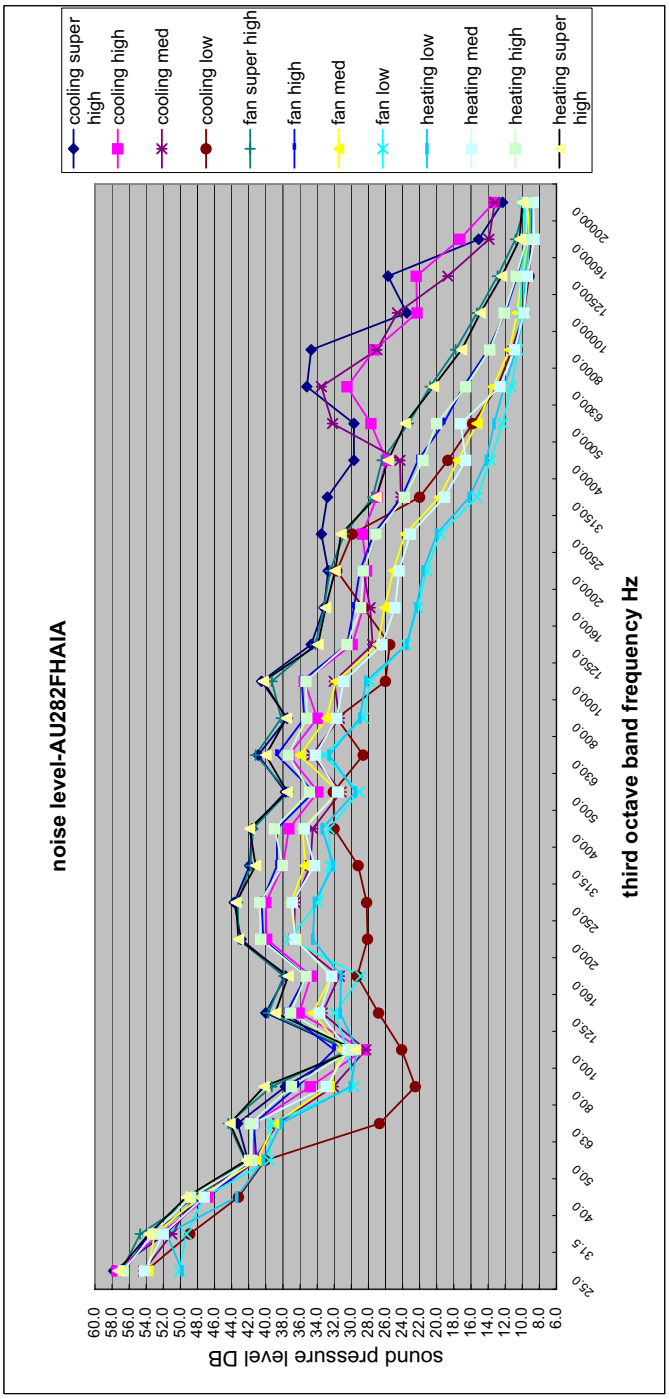


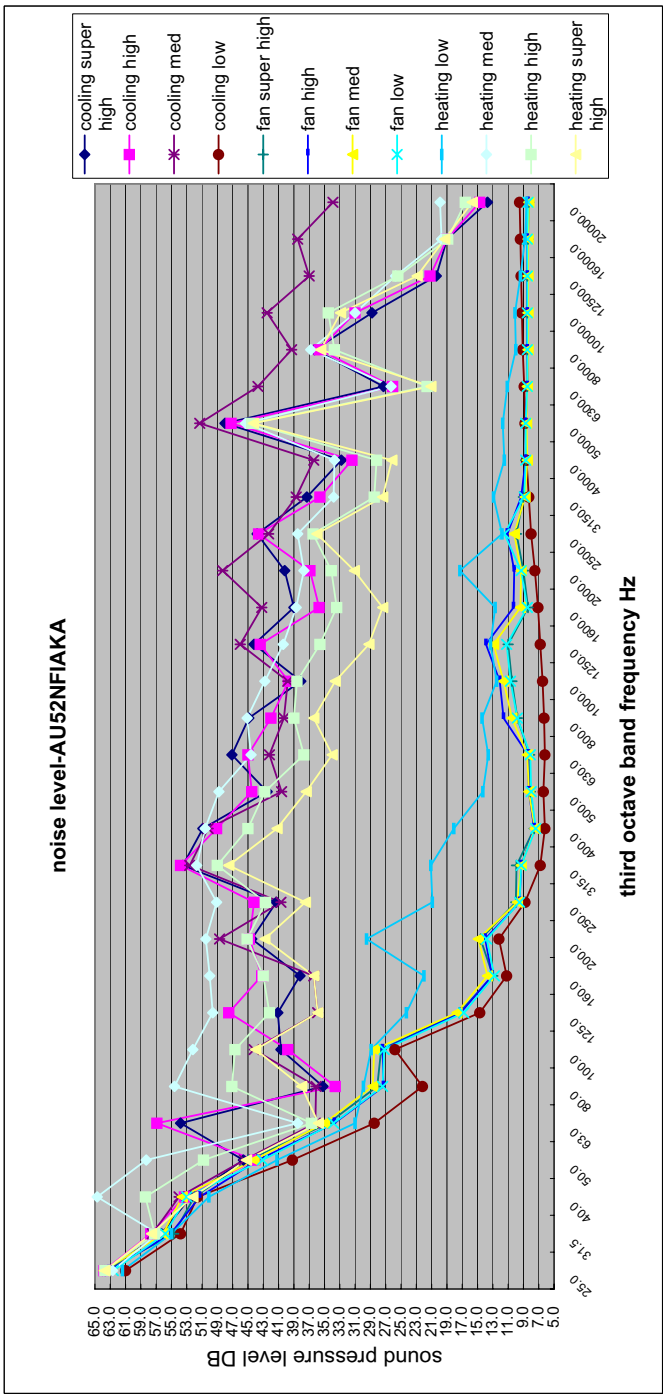


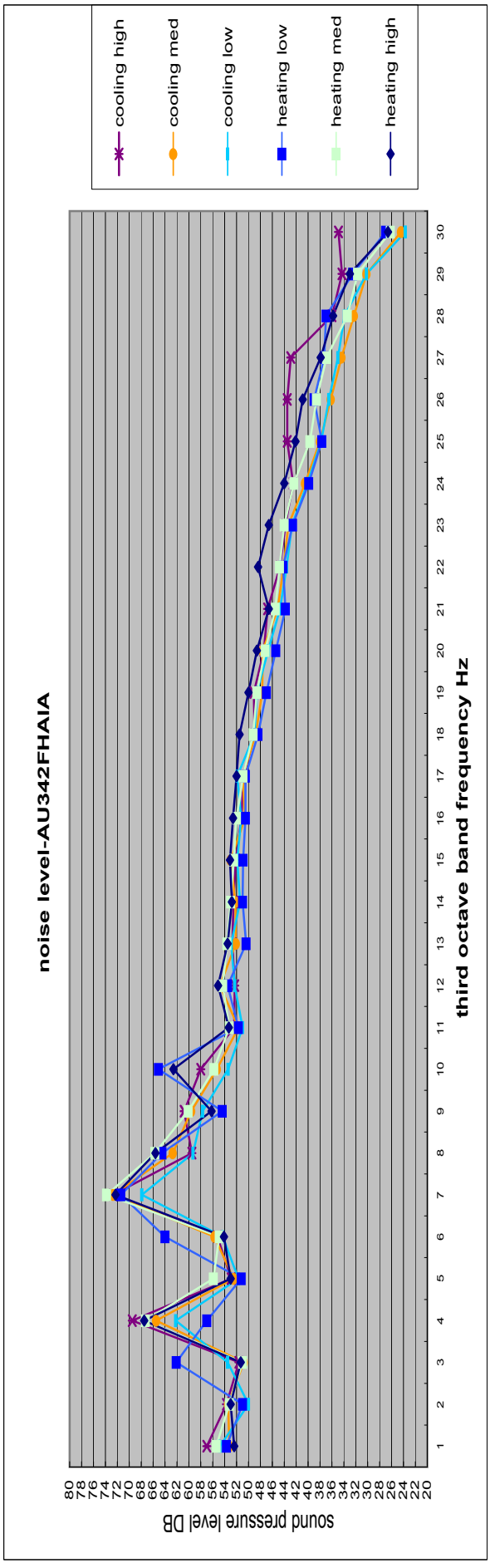


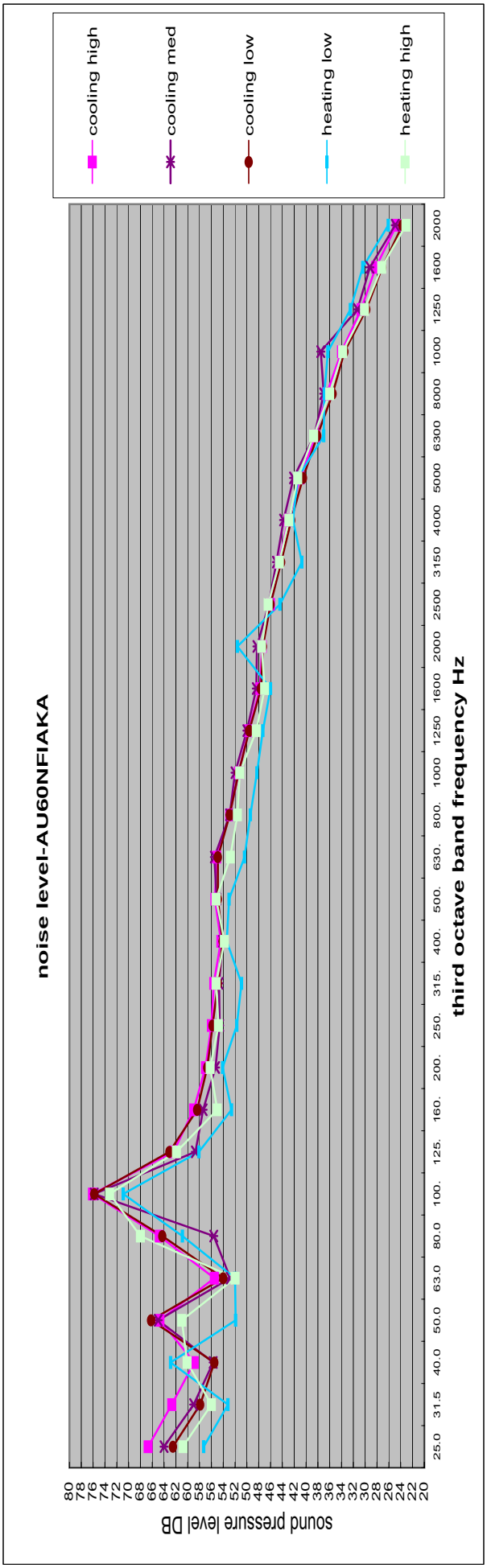












Sincere Forever

Haier Group

Haier Industrial Park, No.1, Haier Road

266101, Qingdao, China

http://www.haier.com