



SERVICE MANUAL

COMMERCIAL Single DC-Inverter

2008

ENG

[SUP]



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Part 1

General Information

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1. Model Names of Indoor/Outdoor Units

1.1 Indoor Units

Model name	Dimension (mm)	Net/Gross weight (kg)	Power supply
HUBI 531 XR	Width: 1000 Height: 298 Depth:800	38/45	220~240V-1ph-50Hz
HUBI 711 XR	Width: 1000 Height: 298 Depth:800	38/45	220~240V-1ph-50Hz
HUBI 1081 XR	Width: 1350 Height: 298 Depth:800	48/57	220~240V-1ph-50Hz
HUBI 1411 XR	Width: 1350 Height: 320 Depth:810	62/72	220~240V-1ph-50Hz
HUBI 1761 XR	Width: 1350 Height: 320 Depth:800	62/72	220~240V-1ph-50Hz
HSFI 351 XR	Width: 990 Height: 203 Depth: 660	27/33	220~240V-1ph-50Hz
HSFI 531 XR	Width: 990 Height: 203 Depth:660	29/35	220~240V-1ph-50Hz
HSFI 711 XR	Width: 990 Height: 203 Depth:660	29/35	220~240V-1ph-50Hz
HSFI 1081 XR	Width: 1280 Height: 203 Depth:660	37/42	220~240V-1ph-50Hz
HSFI 1411 XR	Width: 1670 Height: 240 Depth:680	52/59	220~240V-1ph-50Hz
HSFI 1761 XR	Width: 1670 Height: 240 Depth:680	52/59	220~240V-1ph-50Hz
HTBI 711 XR	Width: 840 Height: 230 Depth:840	29/36	220~240V-1ph-50Hz
HTBI 1081 XR	Width: 840 Height: 300 Depth:840	36/41	220~240V-1ph-50Hz
HTBI 1411 XR	Width: 840 Height: 300 Depth:840	36/41	220~240V-1ph-50Hz
HTFI 351 XR	Width: 580 Height: 254 Depth: 580	21/28	220~240V-1ph-50Hz
HTFI 531 XR	Width: 580 Height: 254 Depth: 580	21/28	220~240V-1ph-50Hz
HFII 351 XR	Width: 700 Height: 600 Depth: 210	15/20	220~240V-1ph-50Hz
HFII 531 XR	Width: 700 Height: 600 Depth: 210	15/20	220~240V-1ph-50Hz

1.2 Outdoor Units

Model name	Dimension (mm)	Net/Gross weight (kg)	Power supply
HCKI 351 XR	Width: 761 Height: 593 Depth: 279	39.5/42.5	220~240V-1ph-50Hz
HCKI 531 XR	Width: 842 Height: 695 Depth: 360	63/67	220~240V-1ph-50Hz
HCKI 711 XR	Width: 895 Height: 862 Depth: 355	72/77	220~240V-1ph-50Hz
HCKI 1081 XR	Width: 940 Height: 1245 Depth: 400	106/114	220~240V-1ph-50Hz
HCKI 1411 XR	Width: 940 Height: 1245 Depth: 400	106/114	220~240V-1ph-50Hz
HCSI 1082 XR	Width: 990 Height: 966 Depth: 396	107/114	380V-3ph-50Hz
HCSI 1412 XR	Width: 940 Height: 1245 Depth: 400	115/121	380V-3ph-50Hz
HCSI 1762 XR	Width: 940 Height: 1245 Depth: 400	115/121	380V-3ph-50Hz

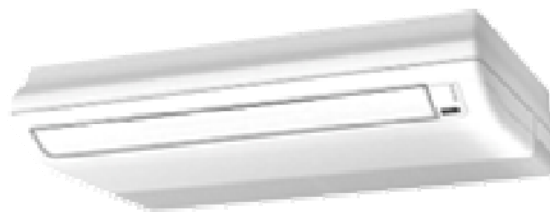
2. External Appearance

2.1 Indoor units

Duct Type



Ceiling & Floor Type



Four-Way Cassette Type



Compact four-way cassette



Console



2.2 Outdoor unit

HCKI 351 XR



HCKI 531 XR



HCKI 711 XR



HCSI 1081 XR



HCKI 1081 XR、HCKI 1411 XR、HCSI 1411 XR、HCSI 1761 XR



3. Features

3.1 Universal outdoor unit design

Indoor unit with the same capacity can match with the same outdoor unit.

3.2 High efficiency and energy saving.

Thanks to the DC inverter technology and optimized piping system, the EER and COP of whole series can easily reach A-class.

3.3 Low noise and low starting current.

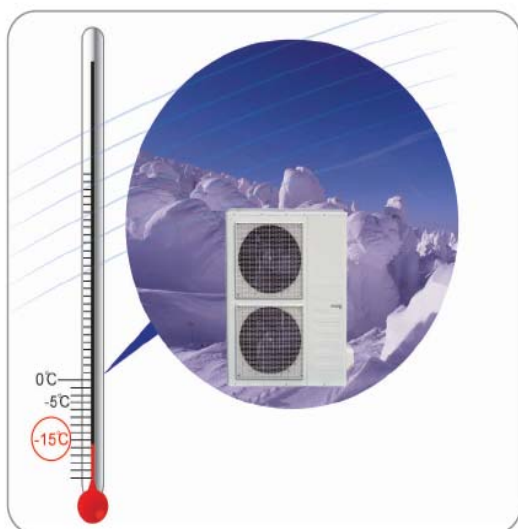
Thanks to the DC inverter technology, the system can work with low noise, and very small starting current.

3.4 Intelligent refrigerant adjustment technology (Except 3,5Kw Systems).

Throttle part is made up of capillary and electronic expansion valve (EXV). The outdoor unit can output the most accurate capacity in any condition.

3.5 Working in cooling mode under -15°C (Except 3,5Kw Systems).

Outdoor unit built-in with low ambient kit, it can control the outdoor unit's fan and cooling can be performed throughout the year for computer rooms, banquet halls, etc. Wide operation range covers outdoor temperatures as low as -15°C for cooling.



3.6 Indoor & outdoor unit's power supply is separate.

3.7 All indoor units have network control function.

3.8 All indoor units have Auto-restart function.

Part 2

Indoor Units

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Ceiling and Floor Type

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1. Features

1.1. New design, more modern and elegant appearance.



1.2. Convenient installation

- The ceiling type can be easily installed into a corner of the ceiling even if the ceiling is very narrow
- It is especially useful when installation of an air conditioner in the center of the ceiling is impossible due to a structure such as one lighting

1.3. Two direction auto swing (vertical & horizontal) and wide angle air flow

- Air flow directional control minimizes the air resistance and produces wider air flow to vertical direction.
- The range of horizontal air discharge is widened which secures wider air flow distribution to provide more comfortable air circulation no matter where the unit is set up



1.4. Three level fan speed, more humanism design, meets different air-supply requirement.

1.5. Water proof by utilizing the absorbing plastic film on water collector

1.6. Easy operation. Auto-restart function, remote control and optional wire control method.

1.7. Low noise level plus compact size

- Shape of the blades has been improved to prevent noise caused by turbulence.

2. Specifications

Model		Indoor	Model name	HSFI 351 XR	HSFI 531 XR
			Power supply	220~240V-1 Ph-50Hz	220~240V-1 Ph-50Hz
		Outdoor	Model name	HCKI 351 XR	HCKI 531 XR
			Power supply	220~240V-1 Ph-50Hz	220~240V-1 Ph-50Hz
Cooling	Capacity(Max.-Rated-Min.)		KW	4.0-3.50-1.4	5.65-5.30-1.63
	Input(Max.-Rated-Min.)		KW	2.55-1.08-0.38	2.6-1.63-0.57
	Current(Max.-Rated-Min.)		A	12-5.9-2.0	12.3-7.09-2.47
	EER			3.24	3.25
Heating	Capacity(Max.-Rated-Min.)		KW	4.75-4.00-1.4	6.15-5.90-1.45
	Input(Max.-Rated-Min.)		KW	2.55-1.10-0.38	2.34-1.59-0.72
	Current(Max.-Rated-Min.)		A	12-6.1-2.0	11.07-6.91-3.13
	COP			3.62	3.71
Max. input consumption			W	2550	2600
Max. current			A	12	12.3
Compressor	Model			DA108X1C-20FZ3	JU1015D4
	Type			HERMETIC DC INVERTER	Rotary DC Inverter
	Brand			TOSHIBA	HITACHI
	Capacity		Btu/h	10921	15013
	Input		W	855	1585
	Rated current(RLA)		A	5.3	8.8
	Thermal protector			20	-
	Capacitor		uF	INTERNAL	-
	Refrigerant oil		ml	ESTER OIL VG74 480ml	HAF68D1U, 580
Indoor fan motor	Model			YSK25-6L	YSK55-4L
	Type			AC Motor	AC Motor
	Input		w	33.4/31.1/29.5	125/105/85
	Capacitor		uF	1,2	2.5uF/450V
	Speed(hi/mi/lo)		r/min	756/666/592	1310/1190/1040
Indoor coil	a.Number of rows			3	3
	b.Tube pitch(a)x row pitch(b)		mm	25.4×22	25.4 x 22
	c.Fin spacing		mm	1,8	1.8
	d.Fin type (code)			Hydrophilic aluminium	Hydrophilic aluminum
	e.Tube outside dia.and type		mm	Φ9.53	Φ9.53 Inner groove tube
	f.Coil length x height x width		mm	804x254x66	828x254x66
	g.Number of circuits			3	3
Indoor air flow (Hi/Mi/Lo)			m ³ /h	584/518/463	800/600/500
Sound level (sound pressure)			dB(A)	39.6/36.7/33.1	43/41/38
Indoor unit	Dimension (W x H x D)		mm	990x206x660	990 x203 x660
	Packing (W x H x D)		mm	1089x296 x744	1089 x296 x744
	Net/Gross weight		kg	27/33	29/35
Outdoor fan motor	Model			YDK24-6G	YDK53-6Y
	Type			Welling	AC MOTOR
	Input		W	59/43	129/86
	Capacitor		uF	2,5	3uF/450V
	Speed		r/min	800/550	770/560
Outdoor coil	Number of rows			2	2
	Tube pitch(a)x row pitch(b)		mm	25.4*22	25.4/22

	Fin spacing	mm	1.4	1.7
	Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminium
	Tube outside dia.and type	mm	9.53 innergroove tube	9.53 innergroove tube
	Coil length x height x width	mm	637x558x44	749x660x44
	Number of circuits		2	4
Outdoor air flow(Hi/Low)		m ³ /h	2500/1600	2400/2200
Sound level(sound pressure)(Hi/Low)		dB(A)	48/44	52/47
Outdoor unit	Dimension(WxDxH)	mm	761x593x315	842x695x360
	Packing (WxDxH)	mm	887x655x355	970x770x400
	Net/Gross weight	kg	39.5/42.5	63/67
Refrigerant	Type		R410A	R410A
	Charged volume	g	1400	1700
Throttle type			Capillary	EEV & Capillary
Design pressure(Hi/Low)		MPa	4.2/2.0	4.2/2.0
Refrigerant piping	Liquid side/ Gas side	mm	6.35/12.7	6.35/12.7
	Max. refrigerant pipe length	m	10	25
	Max. difference in level(Outdoor is up)	m	5	15
	Max. difference in level (Outdoor is down)	m	5	9
Connection wiring	Power wiring (Indoor)	mm ²	3x1.5	3 core x 1.0
	Power wiring (Outdoor)	mm ²	4x1.5	3 core x 2.5
	Signal wiring	mm ²	3-core shielded wire x0.5	3-core shielded wire x0.5
Drainage water pipe dia. (Indoor)		mm	Φ16	Φ25
Wireless remote controller (Indoor)			R05/BGE (standard)	
Operation temp (Indoor)		°C	17~30	
Ambient temp (Outdoor)		°C	Cooling: 21~43; Heating: -5~24	Cooling: -15~43; Heating: -15~21

Model	Indoor	Model name	HSFI 711 XR	HSFI 1081 XR
		Power supply	220~240V-1 Ph-50Hz	220~240V-1 Ph-50Hz
	Outdoor	Model name	HCKI 711 XR	HCKI 1081 XR
		Power supply	220~240V-1 Ph-50Hz	220~240V-1 Ph-50Hz
Cooling	Capacity(Max.-Rated-Min.)	KW	7.9-7.10-1.63	13.2-10.80-3.0
	Input(Max.-Rated-Min.)	KW	2.8-2.18-0.98	5.5-3.32-2.3
	Current(Max.-Rated-Min.)	A	13.2-9.48-4.26	25-14.13-10
	EER		3.26	3.25
Heating	Capacity(Max.-Rated-Min.)	KW	8.6-7.80-1.75	14.0-11.85-3.7
	Input(Max.-Rated-Min.)	KW	2.60-2.08-1.05	5.20-3.19-2.0
	Current(Max.-Rated-Min.)	A	12.34-9.22-4.56	23.64-13.91-8.69
	COP		3.75	3.71
Max. input consumption		W	2800	5500
Max. current		A	13.2	25
Compressor	Model		JU1015D4	TNB306FPGM
	Type		Rotor DC Inverter	Rotor DC Inverter
	Brand		HITACHI	MITSUBISHI ELECTRIC
	Capacity	Btu/h	15013	33642
	Input	W	1585	3080
	Rated current(RLA)	A	8.8	13.5
	Thermal protector		-	-
	Capacitor	uF	-	-
	Refrigerant oil	ml	HAF68D1U, 580	FV50S, 870
Indoor fan motor	Model		YSK55-4L	YSK80-4A
	Type		AC motor	AC motor
	Input	w	125/105/85	143/122/110
	Capacitor	uF	2.5uF/450V	3.5uF/450V
	Speed(hi/mi/lo)	r/min	1310/1190/1040	1310/1210/1115
Indoor coil	a.Number of rows		3	3
	b.Tube pitch(a)x row pitch(b)	mm	25.4 x 22	25.4 x 22
	c.Fin spacing	mm	1.8	1.8
	d.Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ9.53 Inner groove tube	Φ9.53 Inner groove tube
	f.Coil length x height x width	mm	828 x 254 x 66	1118 x 254 x 66
	g.Number of circuits		3	5
Indoor air flow (Hi/Mi/Lo)		m³/h	1000/900/700	1400/1200/1000
Sound level (sound pressure)		dB(A)	45/43/40	45/43/40
Indoor unit	Dimension (W x H x D)	mm	990 x 203 x 660	1280 x 203 x 660
	Packing (W x H x D)	mm	1089 x 296 x 744	1379 x 296 x 744
	Net/Gross weight	kg	29/35	37/42
Outdoor fan motor	Model		YDK53-6Z	(YDK100-6A)×2
	Type		AC MOTOR	AC MOTOR
	Input	W	141.5/92	(158/140)×2
	Capacitor	uF	3uF/450V	(3.5uF/450V)×2
	Speed	r/min	815/550	(890/590)×2
Outdoor coil	Number of rows		2	2.5
	Tube pitch(a)x row pitch(b)	mm	25.4×22	25.4×22
	Fin spacing	mm	1.5	1.5

	Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia.and type	mm	Φ9.53 innergroove tube	Φ9.53 innergroove tube
	Coil length x height x width	mm	748x813x44	1152×1220×44
	Number of circuits		2	8
Outdoor air flow(Hi/Low)		m ³ /h	3000/2800	6000/5800
Sound level(sound pressure)(Hi/Low)		dB(A)	53/48	57/52
Outdoor unit	Dimension(WxDxH)	mm	895X862X355	940×1245×400
	Packing (WxDxH)	mm	1043x915x395	1058×1380×435
	Net/Gross weight	kg	72/77	106/114
Refrigerant	Type		R410A	R410A
	Charged volume	g	2200	4100
Throttle type			Electronic expansion valve & Capillary	
Design pressure(Hi/Low)		MPa	4.2/2.0	4.2/2.0
Refrigerant piping	Liquid side/ Gas side	mm	Φ9.53/Φ16	Φ9.53/Φ16
	Max. refrigerant pipe length	m	25	30
	Max. difference in level(Outdoor is up)	m	15	20
	Max. difference in level(Outdoor is down)	m	9	12
Connection wiring	Power wiring (Indoor)	mm ²	3 core x 1.0	3core x 1.0
	Power wiring (Outdoor)	mm ²	3 core x 2.5	3 core x 2.5
	Signal wiring	mm ²	3-core shielded wire x0.5	3-core shielded wire x0.5
Drainage water pipe dia. (Indoor)		mm	Φ25	Φ25
Wireless remote controller (Indoor)			R05/BGE (standard)	
Operation temp (Indoor)		℃	17~30	
Ambient temp (Outdoor)		℃	Cooling: -15~43; Heating: -15~21	

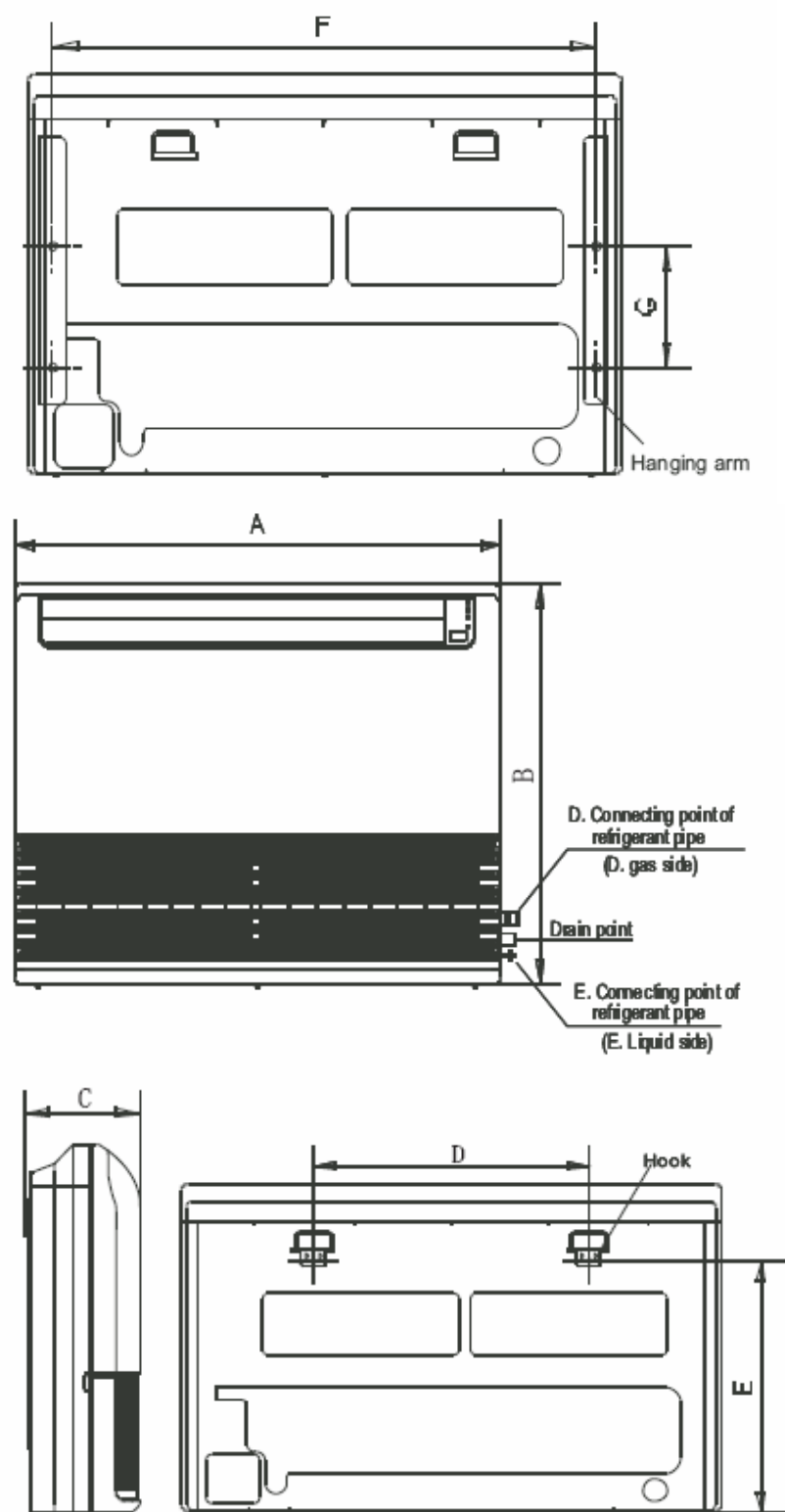
Model	Indoor	Model name	HSFI 1081 XR	HSFI 1411 XR
		Power supply	220~240V-1 Ph-50Hz	220~240V-1 Ph-50Hz
	Outdoor	Model name	HCSI 1082 XR	HCKI 1411 XR
		Power supply	380V~-3 Ph-50Hz	220~240V-1 Ph-50Hz
Cooling	Capacity(Max.-Rated-Min.)	KW	13.2-10.80-3.0	15.6-14.10-3.6
	Input(Max.-Rated-Min.)	KW	4.9-3.33-2.3	6.0-4.34-2.5
	Current(Max.-Rated-Min.)	A	7.5-4.72-3.3	28-18.78-10.8
	EER		3.24	3.25
Heating	Capacity(Max.-Rated-Min.)	KW	14.0-11.85-3.7	16.5-15.40-4.2
	Input(Max.-Rated-Min.)	KW	4.64-3.17-2.0	5.59-4.14-2.3
	Current(Max.-Rated-Min.)	A	7.10-4.44-2.9	26.07-17.96-10
	COP		3.74	3.72
Max. input consumption		W	4900	6000
Max. current		A	7.5	28
Compressor	Model		ANB33FBEMT	TNB306FPGM
	Type		Scroll DC Inverter	Rotor DC Inverter
	Brand		SIAM	MITSUBISHI ELECTRIC
	Capacity	Btu/h	36900	33642
	Input	W	3300	3080
	Rated current(RLA)	A	12.4	13.5
	Thermal protector		-	-
	Capacitor	uF	-	-
	Refrigerant oil	ml	MEL 56, 1700	FV50S, 870
Indoor fan motor	Model		YSK80-4A	(YSK59-4D) x 2
	Type		AC motor	AC motor
	Input	w	143/122/110	(89.5/81.5/77.5) x2
	Capacitor	uF	3.5uF/450V	2.5uF/450V) x2
	Speed(hi/mi/lo)	r/min	1310/1210/1115	(1170/1070/995) x2
Indoor coil	a.Number of rows		3	3
	b.Tube pitch(a)x row pitch(b)	mm	25.4 x 22	25.4 x 22
	c.Fin spacing	mm	1.8	1.8
	d.Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ9.53 Inner groove tube	Φ9.53 Inner groove tube
	f.Coil length x height x width	mm	1118 x 254 x 66	1384 x 254 x 66
	g.Number of circuits		5	5
Indoor air flow (Hi/Mi/Lo)		m³/h	1400/1200/1000	2000/1800/1600
Sound level (sound pressure)		dB(A)	45/43/40	47/46/44
Indoor unit	Dimension (W x H x D)	mm	1280 x 203 x 660	1670 x 240 x 680
	Packing (W x H x D)	mm	1379 x 296 x 744	1764 x 329 x 760
	Net/Gross weight	kg	37/42	52/59
Outdoor fan motor	Model		YDK250-6E	(YDK100-6A)×2
	Type		AC MOTOR	AC MOTOR
	Input	W	307/194	(158/140)×2
	Capacitor	uF	10uF±5% 450V	(3.5uF/450V)×2
	Speed	r/min	740/530	(890/590)×2
Outdoor coil	Number of rows		2	2.5
	Tube pitch(a)x row pitch(b)	mm	25.4 x 22	25.4×22
	Fin spacing	mm	1.7	1.5

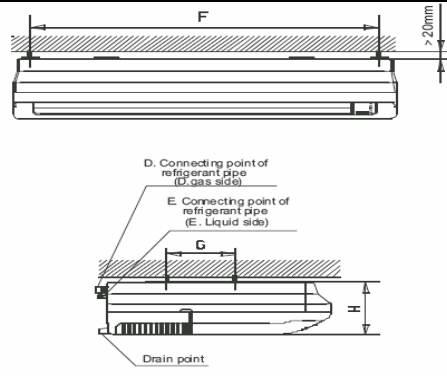
	Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia.and type	mm	Φ9.53 innergroove tube	Φ9.53 innergroove tube
	Coil length x height x width	mm	888x915x44	1152×1220×44
	Number of circuits		4	8
Outdoor air flow(Hi/Low)		m ³ /h	5000/4800	6000/5800
Sound level(sound pressure)(Hi/Low)		dB(A)	55/50	59/54
Outdoor unit	Dimension(WxDxH)	mm	990X966X396	940×1245×400
	Packing (WxDxH)	mm	1120x1100x440	1058×1380×435
	Net/Gross weight	kg	107/114	106/114
Refrigerant	Type		R410A	R410A
	Charged volume	g	2900	4450
Throttle type			Electronic expansion valve & Capillary	
Design pressure(Hi/Low)		MPa	4.2/2.0	4.2/2.0
Refrigerant piping	Liquid side/ Gas side	mm	Φ9.53/Φ16	Φ9.53/Φ16
	Max. refrigerant pipe length	m	30	50
	Max. difference in level(Outdoor is up)	m	20	25
	Max. difference in level(Outdoor is down)	m	12	20
Connection wiring	Power wiring (Indoor)	mm ²	3core x 1.0	3 core x 1.0
	Power wiring (Outdoor)	mm ²	5 core x 2.5	3 core x 2.5
	Signal wiring	mm ²	3-core shielded wire x0.5	3-core shielded wire x0.5
Drainage water pipe dia. (Indoor)		mm	Φ25	Φ25
Wireless remote controller (Indoor)			R05/BGE (standard)	
Operation temp (Indoor)		℃	17~30	
Ambient temp (Outdoor)		℃	Cooling: -15~43; Heating: -15~21	

Model	Indoor	Model name	HSFI 1411 XR	HSFI 1761 XR
		Power supply	220~240V-1 Ph-50Hz	220~240V-1 Ph-50Hz
	Outdoor	Model name	HCSI 1412 XR	HCSI 1762 XR
		Power supply	380V~-3 Ph-50Hz	380V~-3 Ph-50Hz
Cooling	Capacity(Max.-Rated-Min.)	KW	15.6-14.10-3.4	18.2-17.60-4.25
	Input(Max.-Rated-Min.)	KW	5.95-4.35-2.5	7.5-5.36-3.0
	Current(Max.-Rated-Min.)	A	8.5-6.28-3.6	11.5-7.20-4.3
	EER		3.24	3.28
Heating	Capacity(Max.-Rated-Min.)	KW	16.5-15.40-4.2	19.2-18.50-4.8
	Input(Max.-Rated-Min.)	KW	5.55-4.16-2.3	6.92-4.98-2.6
	Current(Max.-Rated-Min.)	A	7.91-6.09-3.3	10.62-6.97-3.8
	COP		3.70	3.71
Max. input consumption		W	5950	7500
Max. current		A	8.5	11.5
Compressor	Model		ANB42FBEMT	ANB42FBEMT
	Type		Scroll DC Inverter	Scroll DC Inverter
	Brand		SIAM	SIAM
	Capacity	Btu/h	47440	47440
	Input	W	4160	4160
	Rated current(RLA)	A	15.2	15.2
	Thermal protector		-	-
	Capacitor	uF	-	-
	Refrigerant oil	ml	MEL 56, 1700	MEL 56, 1700
Indoor fan motor	Model		(YSK59-4D) x 2	(YSK59-4D) x 2
	Type		AC motor	AC motor
	Input	w	(89.5/81.5/77.5) x2	(89.5/81.5/77.5) x2
	Capacitor	uF	2.5uF/450V) x2	(2.5uF/450V) x2
	Speed(hi/mi/lo)	r/min	(1170/1070/995) x2	(1170/1070/995) x2
Indoor coil	a.Number of rows		3	3
	b.Tube pitch(a)x row pitch(b)	mm	25.4 x 22	25.4 x 22
	c.Fin spacing	mm	1.8	1.8
	d.Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ9.53 Inner groove tube	Φ9.53 Inner groove tube
	f.Coil length x height x width	mm	1384 x 254 x 66	1384 x 254 x 66
	g.Number of circuits		5	5
Indoor air flow (Hi/Mi/Lo)		m ³ /h	2000/1800/1600	2000/1800/1600
Sound level (sound pressure)		dB(A)	47/46/44	47/46/44
Indoor unit	Dimension (W x H x D)	mm	1670 x 240 x 680	1670 x 240 x 680
	Packing (W x H x D)	mm	1764 x 329 x 760	1764 x 329 x 760
	Net/Gross weight	kg	52/59	52/59
Outdoor fan motor	Model		(YDK100-6A)×2	(YDK100-6A)×2
	Type		AC MOTOR	AC MOTOR
	Input	W	(158/140)×2	(158/140)×2
	Capacitor	uF	(3.5uF/450V)×2	(3.5uF/450V)×2
	Speed	r/min	(890/590)×2	(890/590)×2
Outdoor coil	Number of rows		2	2
	Tube pitch(a)x row pitch(b)	mm	25.4 x 22	25.4 x 22

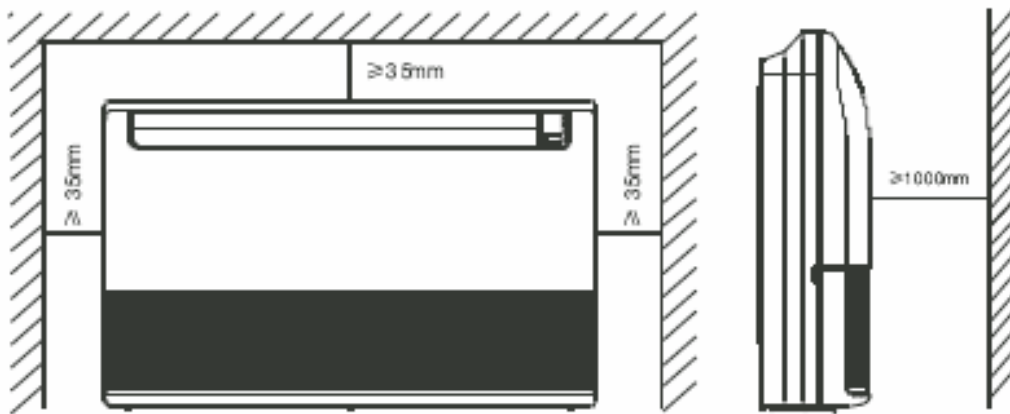
	Fin spacing	mm	1.8	1.8
	Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia. and type	mm	Φ9.53 innergroove tube	Φ9.53 innergroove tube
	Coil length x height x width	mm	1186x1220x44	1186x1220x44
	Number of circuits		4	4
Outdoor air flow(Hi/Low)		m ³ /h	6000/5800	6000/5800
Sound level(sound pressure)(Hi/Low)		dB(A)	59/54	59/54
Outdoor unit	Dimension(WxDxH)	mm	940×1245×400	940×1245×400
	Packing (WxDxH)	mm	1058×1380×435	1058×1380×435
	Net/Gross weight	kg	115/121	115/121
Refrigerant	Type		R410A	R410A
	Charged volume	g	3850	3850
Throttle type			Electronic expansion valve & Capillary	
Design pressure(Hi/Low)		MPa	4.2/2.0	4.2/2.0
Refrigerant piping	Liquid side/ Gas side	mm	Φ9.53/Φ16	Φ9.53/Φ16
	Max. refrigerant pipe length	m	50	50
	Max. difference in level(Outdoor is up)	m	30	30
	Max. difference in level (Outdoor is down)	m	20	20
Connection wiring	Power wiring (Indoor)	mm ²	3 core x 1.0	3 core x 1.0
	Power wiring (Outdoor)	mm ²	5 core×2.5	5 core×2.5
	Signal wiring	mm ²	3-core shielded wire x0.5	3-core shielded wire x0.5
Drainage water pipe dia. (Indoor)		mm	Φ25	Φ25
Wireless remote controller (Indoor)			R05/BGE (standard)	
Operation temp (Indoor)		°C	17~30	
Ambient temp (Outdoor)		°C	Cooling: -15~43; Heating: -15~21	

3. Dimensions



 Capacity	A	B	C	D	E	F	G	H
HSFI 351 XR	990	660	206	505	506	907	200	203
HSFI 531, 711 XR	990	660	206	505	506	907	200	203
HSFI 1081 XR	1280	660	206	795	506	1195	200	203
HSFI 1411, 1761 XR	1670	680	244	1070	450	1542	200	240

4. Service Space



5. Wiring Diagrams

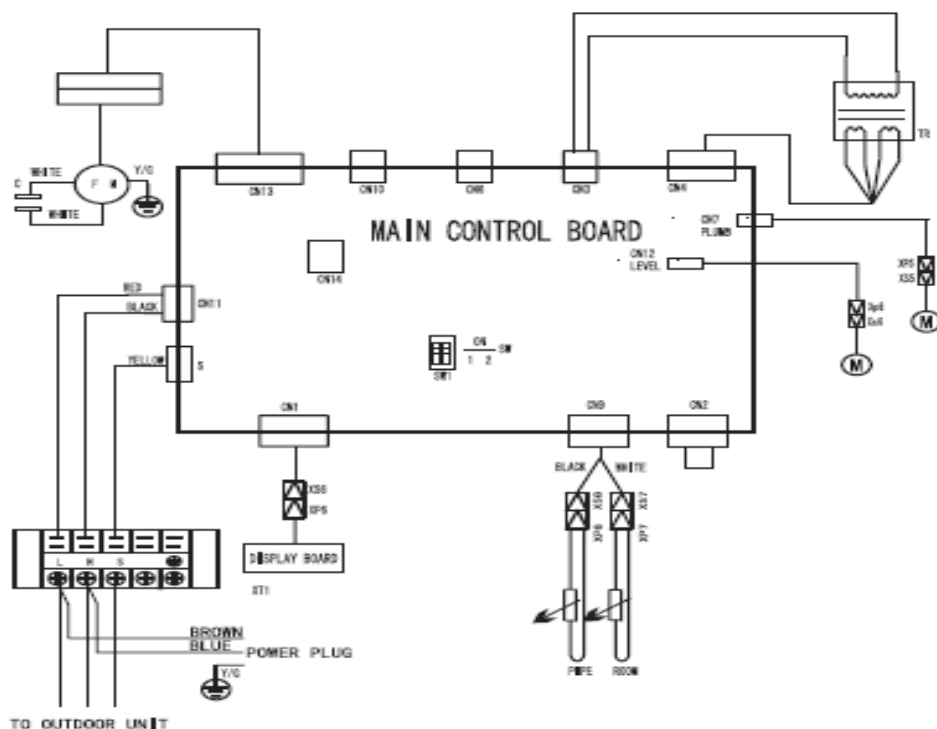
HSFI 351 XR

202044090014

WIRING DIAGRAMING

FUNCTION OF SWITCH		
TEMP. SELECT		
SWITCH	TEMP.	
	6	
	4	
	2	
	0	

CODE	TITLE
FM	INDOOR FAN
ROOM	ROOM TEMP.
M	SWING MOTOR
PIPE	MIDDLE PIPE TEMP.
XPS-8	CONNECTORS
XSS-8	CONNECTORS
XT1	5-WAY CONNECTOR
TR	TRANSFORMER



531 XR、HSFI 711 XR

2204429161

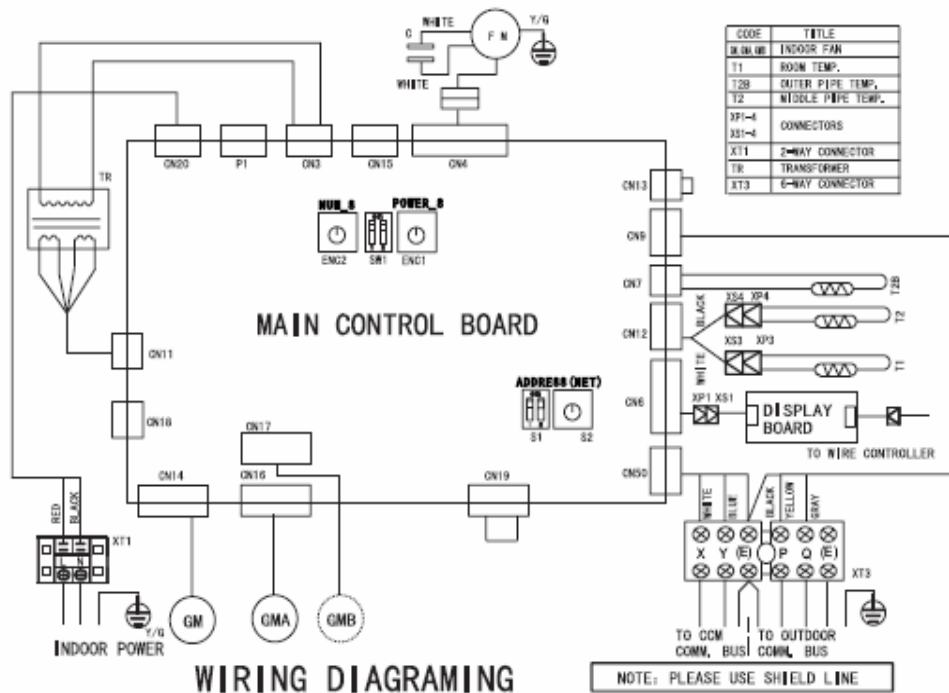
FUNCTION OF SWITCH

SW	ADDRESS	SW
	32	
	47	
	63	
	80	
	97	

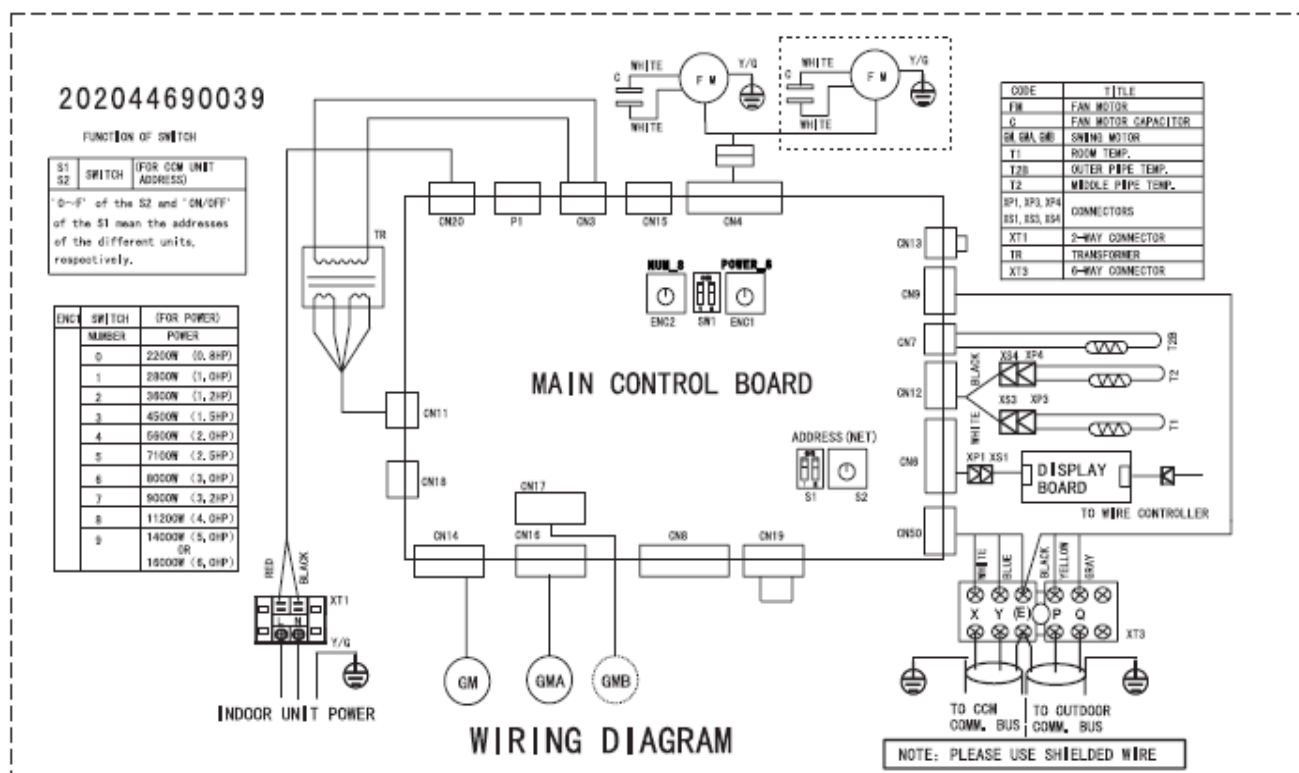
ENC2 SWITCH (FOR OUTDOOR UNIT ADDRESS)
 '0'-'F' of the ENC2 and the SW1 mean the addresses of the different units, respectively.

S1 SWITCH (FOR COM UNIT ADDRESS)
 '0'-'F' of the S2 and 'ON/OFF' of the S1 mean the addresses of the different units, respectively.

ENC1 SWITCH	(FOR POWER)
NUMBER	POWER
0	2200W (0.8HP)
1	2800W (1.0HP)
2	3600W (1.2HP)
3	4500W (1.5HP)
4	5600W (2.0HP)
5	7100W (2.5HP)
6	8000W (3.0HP)
7	9000W (3.2HP)
8	11200W (4.0HP)
9	14000W (5.0HP)



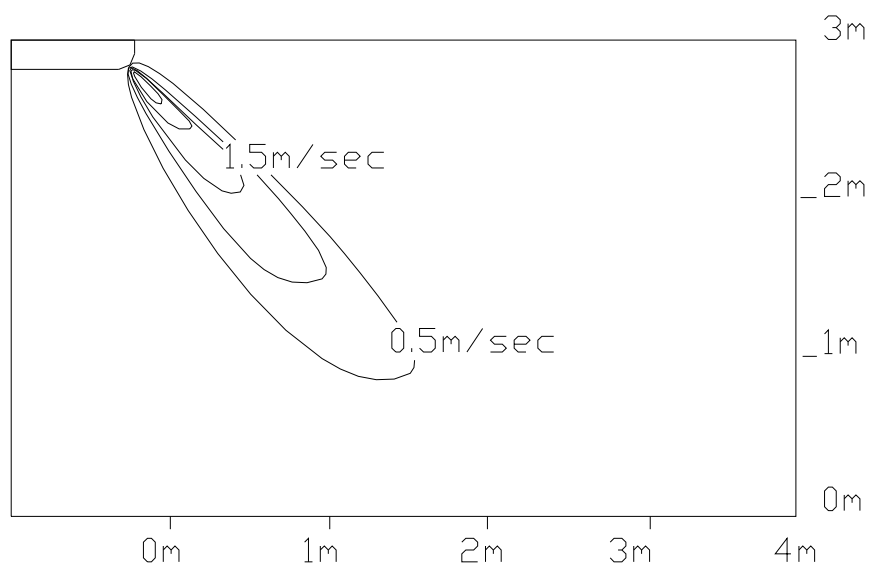
HSFI 1081 XR、HSFI 1411 XR、HSFI 1761 XR



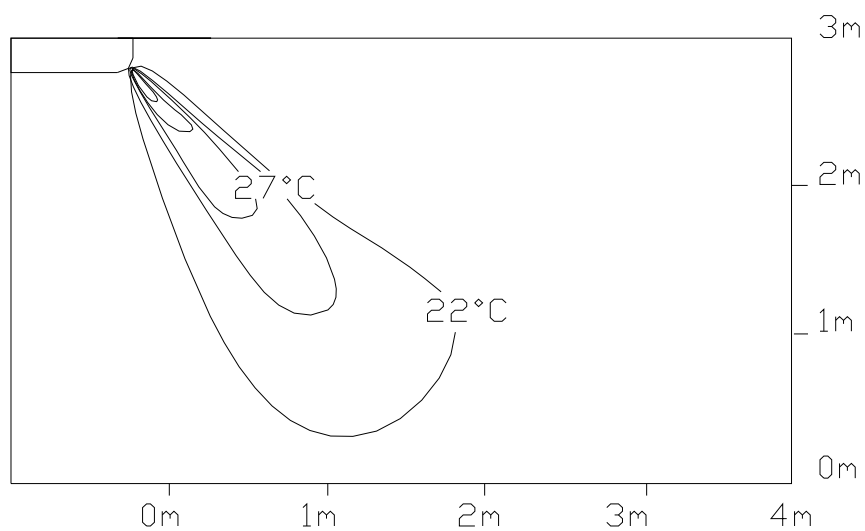
6. Air Velocity and Temperature Distributions

Discharge angle 60° (CEILING)

Airflow velocity

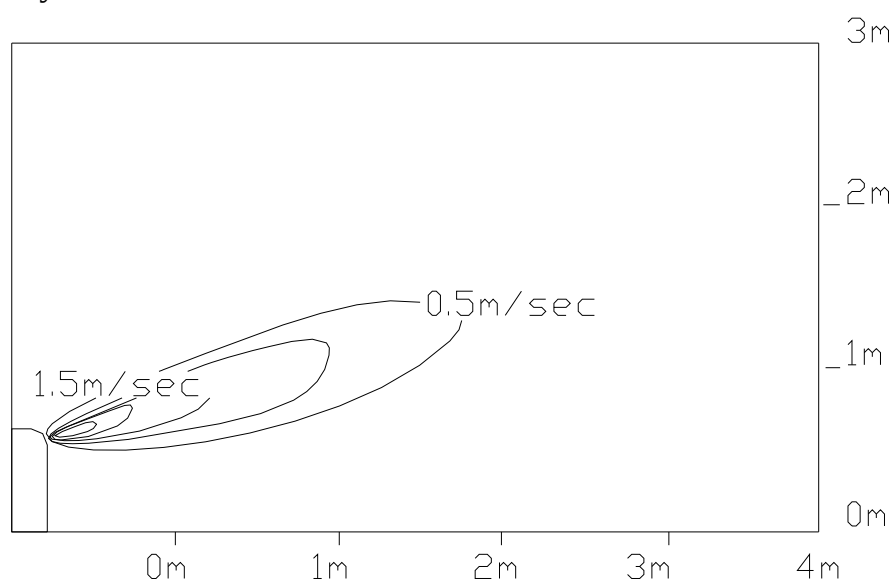


Temperature

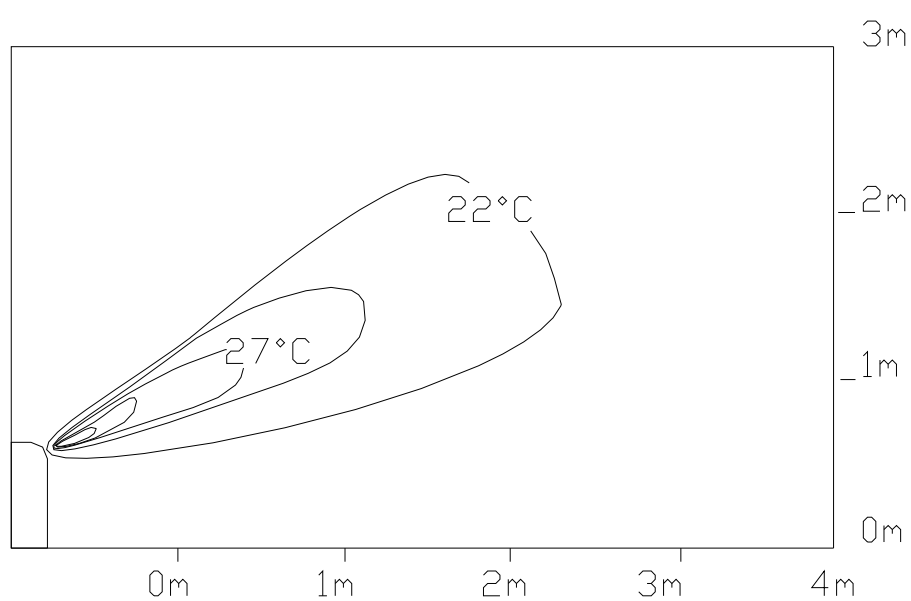


Discharge angle 60° (FLOOR)

Airflow velocity



Temperature



7. Capacity Tables**HSFI 531 XR****Cooling**

Outdoor temperature (°C DB)	Indoor temperature(°C WB)													
	14.00		16.00		18.00		19.00		20.00		22.00		24.00	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00	3.65	0.54	4.31	0.68	4.97	0.81	5.30	0.88	5.57	0.95	5.69	0.95	5.82	0.96
12.00	3.65	0.55	4.31	0.69	4.97	0.83	5.30	0.90	5.57	0.97	5.69	0.97	5.82	0.98
14.00	3.65	0.56	4.31	0.70	4.97	0.84	5.30	0.91	5.57	0.98	5.69	0.99	5.82	1.00
16.00	3.65	0.57	4.31	0.72	4.97	0.86	5.30	0.93	5.57	1.00	5.69	1.00	5.82	1.01
18.00	3.65	0.58	4.31	0.73	4.97	0.87	5.30	0.95	5.57	1.02	5.69	1.02	5.82	1.03
19.00	3.65	0.59	4.31	0.74	4.97	0.89	5.30	0.96	5.57	1.04	5.69	1.04	5.82	1.05
21.00	3.65	0.64	4.31	0.79	4.97	0.95	5.30	1.03	5.57	1.11	5.69	1.11	5.82	1.13
23.00	3.65	0.68	4.31	0.85	4.97	1.02	5.30	1.10	5.57	1.19	5.69	1.19	5.82	1.21
25.00	3.65	0.73	4.31	0.91	4.97	1.09	5.30	1.18	5.57	1.27	5.69	1.28	5.82	1.29
27.00	3.65	0.78	4.31	0.97	4.97	1.16	5.30	1.26	5.57	1.36	5.69	1.37	5.82	1.38
29.00	3.65	0.83	4.31	1.04	4.97	1.24	5.30	1.35	5.57	1.45	5.69	1.46	5.82	1.47
31.00	3.65	0.89	4.31	1.11	4.97	1.33	5.30	1.44	5.57	1.55	5.69	1.56	5.82	1.57
33.00	3.65	0.95	4.31	1.18	4.97	1.41	5.30	1.53	5.57	1.65	5.69	1.66	5.82	1.67
35.00	3.65	1.01	4.31	1.26	4.97	1.50	5.30	1.63	5.57	1.76	5.69	1.76	5.82	1.78
37.00	3.65	1.07	4.31	1.33	4.97	1.60	5.30	1.73	5.57	1.87	5.69	1.87	5.82	1.89
39.00	3.65	1.08	4.31	1.34	4.97	1.61	5.30	1.74	5.57	1.88	5.69	1.88	5.82	1.90
41.00	3.65	1.08	4.31	1.35	4.97	1.61	5.30	1.75	5.57	1.89	5.69	1.89	5.82	1.91
43.00	3.65	1.09	4.31	1.35	4.97	1.62	5.30	1.76	5.57	1.89	5.69	1.90	5.82	1.92

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	3.72	1.30	3.72	1.33	3.72	1.36	3.57	1.30	3.43	1.24	3.13	1.12
-12.6	-13	3.93	1.32	3.93	1.35	3.93	1.38	3.77	1.32	3.62	1.26	3.30	1.14
-10.5	-11	4.13	1.35	4.13	1.37	4.13	1.40	3.97	1.34	3.81	1.28	3.48	1.16
-9.5	-10	4.23	1.36	4.23	1.38	4.23	1.41	4.07	1.35	3.90	1.29	3.56	1.17
-8.5	-9.1	4.33	1.37	4.33	1.40	4.33	1.42	4.16	1.36	3.99	1.30	3.64	1.17
-7	-7.6	4.48	1.38	4.48	1.41	4.48	1.44	4.30	1.38	4.12	1.31	3.77	1.19
-5	-5.6	4.68	1.40	4.68	1.43	4.68	1.46	4.49	1.40	4.31	1.33	3.93	1.21
-3	-3.7	4.87	1.42	4.87	1.45	4.87	1.48	4.68	1.42	4.49	1.35	4.10	1.22
0	-0.7	5.17	1.45	5.17	1.48	5.17	1.52	4.96	1.45	4.76	1.38	4.35	1.25
3	2.2	5.47	1.48	5.47	1.52	5.47	1.55	5.25	1.48	5.03	1.41	4.60	1.28
5	4.1	5.66	1.50	5.66	1.54	5.66	1.57	5.44	1.50	5.21	1.43	4.76	1.29
7	6	5.86	1.52	5.86	1.56	5.90	1.59	5.63	1.52	5.39	1.45	4.93	1.31
9	7.9	5.86	1.47	5.86	1.51	5.90	1.54	5.63	1.47	5.39	1.40	4.93	1.27
11	9.8	5.86	1.42	5.86	1.45	5.90	1.48	5.63	1.42	5.39	1.35	4.93	1.22
13	11.8	5.86	1.37	5.86	1.40	5.90	1.43	5.63	1.37	5.39	1.30	4.93	1.18
15	13.7	5.86	1.32	5.86	1.35	5.90	1.38	5.63	1.32	5.39	1.26	4.93	1.14

HSFI 711 XR
Cooling

Outdoor temperature (°C DB)		Indoor temperature(°C WB)													
		14.00		16.00		18.00		19.00		20.00		22.00		24.00	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00		4.87	0.73	5.75	0.91	6.63	1.09	7.1	1.18	7.44	1.27	7.60	1.27	7.76	1.29
12.00		4.87	0.74	5.75	0.92	6.63	1.11	7.1	1.20	7.44	1.29	7.60	1.30	7.76	1.31
14.00		4.87	0.75	5.75	0.94	6.63	1.13	7.1	1.22	7.44	1.32	7.60	1.32	7.76	1.33
16.00		4.87	0.77	5.75	0.96	6.63	1.15	7.1	1.24	7.44	1.34	7.60	1.34	7.76	1.36
18.00		4.87	0.78	5.75	0.97	6.63	1.17	7.1	1.26	7.44	1.36	7.60	1.37	7.76	1.38
19.00		4.87	0.79	5.75	0.99	6.63	1.19	7.1	1.29	7.44	1.39	7.60	1.39	7.76	1.40
21.00		4.87	0.85	5.75	1.06	6.63	1.27	7.1	1.38	7.44	1.49	7.60	1.49	7.76	1.51
23.00		4.87	0.91	5.75	1.14	6.63	1.36	7.1	1.48	7.44	1.59	7.60	1.60	7.76	1.61
25.00		4.87	0.98	5.75	1.22	6.63	1.46	7.1	1.58	7.44	1.70	7.60	1.71	7.76	1.73
27.00		4.87	1.04	5.75	1.30	6.63	1.56	7.1	1.69	7.44	1.82	7.60	1.83	7.76	1.84
29.00		4.87	1.11	5.75	1.39	6.63	1.66	7.1	1.80	7.44	1.94	7.60	1.95	7.76	1.97
31.00		4.87	1.19	5.75	1.48	6.63	1.77	7.1	1.92	7.44	2.07	7.60	2.08	7.76	2.10
33.00		4.87	1.27	5.75	1.58	6.63	1.89	7.1	2.05	7.44	2.21	7.60	2.22	7.76	2.24
35.00		4.87	1.35	5.75	1.68	6.63	2.01	7.1	2.18	7.44	2.35	7.60	2.36	7.76	2.38
37.00		4.87	1.43	5.75	1.79	6.63	2.14	7.1	2.32	7.44	2.50	7.60	2.51	7.76	2.53
39.00		4.87	1.44	5.75	1.79	6.63	2.15	7.1	2.33	7.44	2.51	7.60	2.52	7.76	2.54
41.00		4.87	1.45	5.75	1.80	6.63	2.16	7.1	2.34	7.44	2.52	7.60	2.53	7.76	2.55
43.00		4.87	1.45	5.75	1.81	6.63	2.17	7.1	2.35	7.44	2.53	7.60	2.54	7.76	2.57

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	4.93	1.74	4.93	1.77	4.93	1.81	4.73	1.73	4.54	1.65	4.15	1.49
-12.6	-13	5.20	1.77	5.20	1.80	5.20	1.84	5.00	1.76	4.79	1.68	4.38	1.52
-10.5	-11	5.48	1.79	5.48	1.83	5.48	1.87	5.26	1.79	5.04	1.71	4.61	1.54
-9.5	-10	5.61	1.81	5.61	1.85	5.61	1.88	5.39	1.80	5.16	1.72	4.72	1.55
-8.5	-9.1	5.74	1.82	5.74	1.86	5.74	1.90	5.51	1.82	5.28	1.73	4.83	1.57
-7	-7.6	5.94	1.84	5.94	1.88	5.94	1.92	5.70	1.84	5.46	1.75	4.99	1.58
-5	-5.6	6.20	1.87	6.20	1.91	6.20	1.95	5.95	1.86	5.71	1.78	5.21	1.61
-3	-3.7	6.46	1.90	6.46	1.94	6.46	1.98	6.20	1.89	5.95	1.80	5.43	1.63
0	-0.7	6.85	1.94	6.85	1.98	6.85	2.02	6.58	1.93	6.31	1.84	5.76	1.67
3	2.2	7.24	1.98	7.24	2.02	7.24	2.06	6.96	1.97	6.67	1.88	6.09	1.70
5	4.1	7.50	2.01	7.50	2.05	7.50	2.09	7.21	2.00	6.91	1.91	6.31	1.72
7	6	7.77	2.03	7.77	2.08	7.80	2.08	7.46	2.03	7.15	1.93	6.53	1.75
9	7.9	7.77	1.96	7.77	2.01	7.80	2.05	7.46	1.96	7.15	1.87	6.53	1.69
11	9.8	7.77	1.90	7.77	1.94	7.80	1.98	7.46	1.89	7.15	1.80	6.53	1.63
13	11.8	7.77	1.83	7.77	1.87	7.80	1.91	7.46	1.82	7.15	1.74	6.53	1.57
15	13.7	7.77	1.76	7.77	1.80	7.80	1.84	7.46	1.75	7.15	1.67	6.53	1.51

HSFI 1081 XR (1-Phase)**Cooling**

Outdoor temperature (°C DB)	Indoor temperature(°C WB)													
	14.00		16.00		18.00		19.00		20.00		22.00		24.00	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00	7.31	1.08	8.63	1.35	9.94	1.62	10.80	1.76	11.16	1.89	11.40	1.90	11.64	1.92
12.00	7.31	1.10	8.63	1.38	9.94	1.65	10.80	1.79	11.16	1.93	11.40	1.93	11.64	1.95
14.00	7.31	1.12	8.63	1.40	9.94	1.68	10.80	1.82	11.16	1.96	11.40	1.97	11.64	1.99
16.00	7.31	1.14	8.63	1.43	9.94	1.71	10.80	1.85	11.16	2.00	11.40	2.00	11.64	2.02
18.00	7.31	1.16	8.63	1.45	9.94	1.74	10.80	1.89	11.16	2.03	11.40	2.04	11.64	2.06
19.00	7.31	1.19	8.63	1.48	9.94	1.77	10.80	1.92	11.16	2.07	11.40	2.07	11.64	2.09
21.00	7.31	1.27	8.63	1.58	9.94	1.90	10.80	2.06	11.16	2.22	11.40	2.22	11.64	2.24
23.00	7.31	1.36	8.63	1.70	9.94	2.03	10.80	2.20	11.16	2.37	11.40	2.38	11.64	2.40
25.00	7.31	1.46	8.63	1.81	9.94	2.17	10.80	2.36	11.16	2.54	11.40	2.55	11.64	2.57
27.00	7.31	1.56	8.63	1.94	9.94	2.32	10.80	2.52	11.16	2.72	11.40	2.72	11.64	2.75
29.00	7.31	1.66	8.63	2.07	9.94	2.48	10.80	2.69	11.16	2.90	11.40	2.91	11.64	2.94
31.00	7.31	1.77	8.63	2.21	9.94	2.64	10.80	2.87	11.16	3.09	11.40	3.10	11.64	3.13
33.00	7.31	1.89	8.63	2.35	9.94	2.82	10.80	3.06	11.16	3.29	11.40	3.30	11.64	3.34
35.00	7.31	2.01	8.63	2.50	9.94	3.00	10.80	3.32	11.16	3.50	11.40	3.51	11.64	3.55
37.00	7.31	2.14	8.63	2.66	9.94	3.19	10.80	3.46	11.16	3.73	11.40	3.74	11.64	3.77
39.00	7.31	2.15	8.63	2.67	9.94	3.20	10.80	3.47	11.16	3.74	11.40	3.75	11.64	3.79
41.00	7.31	2.16	8.63	2.69	9.94	3.22	10.80	3.49	11.16	3.76	11.40	3.77	11.64	3.81
43.00	7.31	2.17	8.63	2.70	9.94	3.23	10.80	3.50	11.16	3.78	11.40	3.79	11.64	3.83

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	7.44	2.62	7.44	2.68	7.44	2.73	7.15	2.61	6.85	2.49	6.26	2.25
-12.6	-13	7.86	2.66	7.86	2.72	7.86	2.78	7.55	2.66	7.23	2.54	6.61	2.29
-10.5	-11	8.27	2.71	8.27	2.77	8.27	2.82	7.94	2.70	7.62	2.58	6.96	2.33
-9.5	-10	8.47	2.73	8.47	2.79	8.47	2.85	8.13	2.72	7.80	2.60	7.12	2.35
-8.5	-9.1	8.67	2.75	8.67	2.81	8.67	2.87	8.32	2.74	7.98	2.62	7.29	2.36
-7	-7.6	8.96	2.78	8.96	2.84	8.96	2.90	8.61	2.77	8.25	2.64	7.54	2.39
-5	-5.6	9.36	2.82	9.36	2.88	9.36	2.94	8.99	2.81	8.61	2.68	7.87	2.43
-3	-3.7	9.75	2.86	9.75	2.92	9.75	2.98	9.36	2.85	8.98	2.72	8.20	2.46
0	-0.7	10.34	2.92	10.34	2.99	10.34	3.05	9.93	2.92	9.52	2.78	8.70	2.52
3	2.2	10.93	2.99	10.93	3.05	10.93	3.11	10.50	2.98	10.07	2.84	9.20	2.57
5	4.1	11.33	3.03	11.33	3.09	11.33	3.16	10.88	3.02	10.43	2.88	9.53	2.60
7	6	11.72	3.07	11.72	3.13	11.85	3.19	11.26	3.06	10.79	2.92	9.86	2.64
9	7.9	11.72	2.97	11.72	3.03	11.85	3.09	11.26	2.96	10.79	2.82	9.86	2.55
11	9.8	11.72	2.86	11.72	2.92	11.85	2.99	11.26	2.85	10.79	2.72	9.86	2.46
13	11.8	11.72	2.76	11.72	2.82	11.85	2.88	11.26	2.75	10.79	2.63	9.86	2.37
15	13.7	11.72	2.66	11.72	2.71	11.85	2.77	11.26	2.65	10.79	2.53	9.86	2.28

HSFI 1081 XR (3-Phase)**Cooling**

Outdoor temperature (°C DB)	Indoor temperature(°C WB)													
	14.00		16.00		18.00		19.00		20.00		22.00		24.00	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00	7.27	1.09	8.58	1.36	9.90	1.62	10.80	1.76	11.10	1.90	11.35	1.90	11.59	1.92
12.00	7.27	1.11	8.58	1.38	9.90	1.65	10.80	1.79	11.10	1.93	11.35	1.94	11.59	1.96
14.00	7.27	1.13	8.58	1.41	9.90	1.68	10.80	1.83	11.10	1.97	11.35	1.97	11.59	1.99
16.00	7.27	1.15	8.58	1.43	9.90	1.71	10.80	1.86	11.10	2.00	11.35	2.01	11.59	2.03
18.00	7.27	1.17	8.58	1.46	9.90	1.74	10.80	1.89	11.10	2.04	11.35	2.04	11.59	2.06
19.00	7.27	1.19	8.58	1.48	9.90	1.77	10.80	1.92	11.10	2.07	11.35	2.08	11.59	2.10
21.00	7.27	1.27	8.58	1.59	9.90	1.90	10.80	2.06	11.10	2.22	11.35	2.23	11.59	2.25
23.00	7.27	1.36	8.58	1.70	9.90	2.04	10.80	2.21	11.10	2.38	11.35	2.39	11.59	2.41
25.00	7.27	1.46	8.58	1.82	9.90	2.18	10.80	2.36	11.10	2.55	11.35	2.56	11.59	2.58
27.00	7.27	1.56	8.58	1.95	9.90	2.33	10.80	2.53	11.10	2.72	11.35	2.73	11.59	2.76
29.00	7.27	1.67	8.58	2.08	9.90	2.49	10.80	2.70	11.10	2.91	11.35	2.92	11.59	2.95
31.00	7.27	1.78	8.58	2.22	9.90	2.65	10.80	2.88	11.10	3.10	11.35	3.11	11.59	3.14
33.00	7.27	1.89	8.58	2.36	9.90	2.83	10.80	3.06	11.10	3.30	11.35	3.31	11.59	3.35
35.00	7.27	2.01	8.58	2.51	9.90	3.01	10.80	3.33	11.10	3.51	11.35	3.53	11.59	3.56
37.00	7.27	2.14	8.58	2.67	9.90	3.20	10.80	3.47	11.10	3.74	11.35	3.75	11.59	3.79
39.00	7.27	2.15	8.58	2.68	9.90	3.21	10.80	3.48	11.10	3.75	11.35	3.77	11.59	3.80
41.00	7.27	2.16	8.58	2.69	9.90	3.23	10.80	3.50	11.10	3.77	11.35	3.78	11.59	3.82
43.00	7.27	2.17	8.58	2.71	9.90	3.24	10.80	3.51	11.10	3.79	11.35	3.80	11.59	3.84

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	7.00	2.47	7.00	2.52	7.00	2.57	6.72	2.46	6.44	2.35	5.89	2.12
-12.6	-13	7.39	2.51	7.39	2.56	7.39	2.61	7.10	2.50	6.80	2.38	6.22	2.16
-10.5	-11	7.78	2.55	7.78	2.60	7.78	2.66	7.47	2.54	7.16	2.42	6.54	2.19
-9.5	-10	7.96	2.57	7.96	2.62	7.96	2.68	7.65	2.56	7.33	2.44	6.70	2.21
-8.5	-9.1	8.15	2.59	8.15	2.64	8.15	2.70	7.83	2.58	7.50	2.46	6.86	2.22
-7	-7.6	8.43	2.62	8.43	2.67	8.43	2.73	8.09	2.61	7.76	2.49	7.09	2.25
-5	-5.6	8.80	2.65	8.80	2.71	8.80	2.77	8.45	2.65	8.10	2.52	7.40	2.28
-3	-3.7	9.17	2.69	9.17	2.75	9.17	2.81	8.81	2.68	8.44	2.56	7.71	2.32
0	-0.7	9.73	2.75	9.73	2.81	9.73	2.87	9.34	2.74	8.95	2.62	8.18	2.37
3	2.2	10.28	2.81	10.28	2.87	10.28	2.93	9.88	2.80	9.47	2.67	8.65	2.42
5	4.1	10.65	2.85	10.65	2.91	10.65	2.97	10.23	2.84	9.81	2.71	8.96	2.45
7	6	11.03	2.89	11.03	2.95	11.85	3.17	10.59	2.88	10.15	2.75	9.28	2.48
9	7.9	11.03	2.79	11.03	2.85	11.85	3.00	10.59	2.78	10.15	2.65	9.28	2.40
11	9.8	11.03	2.69	11.03	2.75	11.85	2.91	10.59	2.68	10.15	2.56	9.28	2.32
13	11.8	11.03	2.60	11.03	2.65	11.85	2.71	10.59	2.59	10.15	2.47	9.28	2.23
15	13.7	11.03	2.50	11.03	2.55	11.85	2.61	10.59	2.49	10.15	2.38	9.28	2.15

HSFI 1411 XR (1-Phase)**Cooling**

Outdoor temperature (°C DB)	Indoor temperature(°C WB)													
	14.00		16.00		18.00		19.00		20.00		22.00		24.00	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00	9.74	1.44	11.50	1.80	13.26	2.15	14.10	2.33	14.88	2.51	15.20	2.52	15.52	2.55
12.00	9.74	1.47	11.50	1.83	13.26	2.19	14.10	2.38	14.88	2.56	15.20	2.57	15.52	2.59
14.00	9.74	1.50	11.50	1.86	13.26	2.23	14.10	2.42	14.88	2.61	15.20	2.62	15.52	2.64
16.00	9.74	1.52	11.50	1.90	13.26	2.27	14.10	2.46	14.88	2.65	15.20	2.66	15.52	2.69
18.00	9.74	1.55	11.50	1.93	13.26	2.31	14.10	2.51	14.88	2.70	15.20	2.71	15.52	2.74
19.00	9.74	1.58	11.50	1.96	13.26	2.35	14.10	2.55	14.88	2.75	15.20	2.76	15.52	2.78
21.00	9.74	1.69	11.50	2.10	13.26	2.52	14.10	2.73	14.88	2.95	15.20	2.95	15.52	2.98
23.00	9.74	1.81	11.50	2.25	13.26	2.70	14.10	2.93	14.88	3.16	15.20	3.16	15.52	3.20
25.00	9.74	1.94	11.50	2.41	13.26	2.89	14.10	3.13	14.88	3.38	15.20	3.39	15.52	3.42
27.00	9.74	2.07	11.50	2.58	13.26	3.09	14.10	3.35	14.88	3.61	15.20	3.62	15.52	3.66
29.00	9.74	2.21	11.50	2.75	13.26	3.30	14.10	3.57	14.88	3.85	15.20	3.87	15.52	3.90
31.00	9.74	2.36	11.50	2.94	13.26	3.52	14.10	3.81	14.88	4.11	15.20	4.12	15.52	4.16
33.00	9.74	2.51	11.50	3.13	13.26	3.74	14.10	4.06	14.88	4.38	15.20	4.39	15.52	4.43
35.00	9.74	2.67	11.50	3.33	13.26	3.98	14.10	4.34	14.88	4.66	15.20	4.67	15.52	4.72
37.00	9.74	2.84	11.50	3.54	13.26	4.24	14.10	4.59	14.88	4.95	15.20	4.97	15.52	5.02
39.00	9.74	2.85	11.50	3.55	13.26	4.25	14.10	4.61	14.88	4.97	15.20	4.99	15.52	5.04
41.00	9.74	2.86	11.50	3.57	13.26	4.27	14.10	4.64	14.88	5.00	15.20	5.01	15.52	5.06
43.00	9.74	2.88	11.50	3.59	13.26	4.29	14.10	4.66	14.88	5.02	15.20	5.04	15.52	5.08

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	9.68	3.38	9.68	3.46	9.68	3.53	9.29	3.37	8.91	3.22	8.14	2.91
-12.6	-13	10.21	3.44	10.21	3.51	10.21	3.59	9.81	3.43	9.40	3.27	8.59	2.96
-10.5	-11	10.75	3.50	10.75	3.57	10.75	3.64	10.33	3.48	9.90	3.32	9.05	3.01
-9.5	-10	11.01	3.52	11.01	3.60	11.01	3.67	10.57	3.51	10.14	3.35	9.26	3.03
-8.5	-9.1	11.27	3.55	11.27	3.62	11.27	3.70	10.82	3.54	10.37	3.38	9.48	3.05
-7	-7.6	11.65	3.59	11.65	3.66	11.65	3.74	11.19	3.58	10.73	3.41	9.80	3.09
-5	-5.6	12.16	3.64	12.16	3.72	12.16	3.80	11.68	3.63	11.20	3.46	10.23	3.13
-3	-3.7	12.68	3.69	12.68	3.77	12.68	3.85	12.17	3.68	11.67	3.51	10.66	3.18
0	-0.7	13.45	3.77	13.45	3.86	13.45	3.94	12.91	3.76	12.38	3.59	11.31	3.25
3	2.2	14.21	3.85	14.21	3.94	14.21	4.02	13.65	3.84	13.09	3.67	11.96	3.31
5	4.1	14.73	3.91	14.73	3.99	14.73	4.07	14.14	3.90	13.56	3.72	12.39	3.36
7	6	15.24	3.96	15.24	4.05	15.40	4.14	14.64	3.95	14.03	3.77	12.82	3.41
9	7.9	15.24	3.83	15.24	3.91	15.40	3.99	14.64	3.82	14.03	3.64	12.82	3.29
11	9.8	15.24	3.69	15.24	3.77	15.40	3.85	14.64	3.68	14.03	3.52	12.82	3.18
13	11.8	15.24	3.56	15.24	3.64	15.40	3.71	14.64	3.55	14.03	3.39	12.82	3.06
15	13.7	15.24	3.43	15.24	3.50	15.40	3.58	14.64	3.42	14.03	3.26	12.82	2.95

HSFI 1411 XR (3-Phase)**Cooling**

Outdoor temperature (°C DB)	Indoor temperature(°C WB)													
	14.00		16.00		18.00		19.00		20.00		22.00		24.00	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00	9.70	1.45	11.45	1.80	13.20	2.16	14.10	2.34	14.81	2.52	15.13	2.53	15.45	2.55
12.00	9.70	1.47	11.45	1.83	13.20	2.20	14.10	2.38	14.81	2.57	15.13	2.58	15.45	2.60
14.00	9.70	1.50	11.45	1.87	13.20	2.24	14.10	2.42	14.81	2.61	15.13	2.62	15.45	2.65
16.00	9.70	1.53	11.45	1.90	13.20	2.28	14.10	2.47	14.81	2.66	15.13	2.67	15.45	2.69
18.00	9.70	1.55	11.45	1.93	13.20	2.32	14.10	2.51	14.81	2.71	15.13	2.72	15.45	2.74
19.00	9.70	1.58	11.45	1.97	13.20	2.36	14.10	2.55	14.81	2.75	15.13	2.76	15.45	2.79
21.00	9.70	1.69	11.45	2.11	13.20	2.53	14.10	2.74	14.81	2.95	15.13	2.96	15.45	2.99
23.00	9.70	1.81	11.45	2.26	13.20	2.70	14.10	2.93	14.81	3.16	15.13	3.17	15.45	3.20
25.00	9.70	1.94	11.45	2.42	13.20	2.89	14.10	3.14	14.81	3.38	15.13	3.39	15.45	3.43
27.00	9.70	2.07	11.45	2.58	13.20	3.09	14.10	3.36	14.81	3.62	15.13	3.63	15.45	3.66
29.00	9.70	2.21	11.45	2.76	13.20	3.30	14.10	3.58	14.81	3.86	15.13	3.87	15.45	3.91
31.00	9.70	2.36	11.45	2.94	13.20	3.52	14.10	3.82	14.81	4.12	15.13	4.13	15.45	4.17
33.00	9.70	2.52	11.45	3.13	13.20	3.75	14.10	4.07	14.81	4.39	15.13	4.40	15.45	4.44
35.00	9.70	2.68	11.45	3.33	13.20	3.99	14.10	4.35	14.81	4.67	15.13	4.68	15.45	4.73
37.00	9.70	2.85	11.45	3.55	13.20	4.25	14.10	4.61	14.81	4.96	15.13	4.98	15.45	5.03
39.00	9.70	2.86	11.45	3.56	13.20	4.26	14.10	4.63	14.81	4.99	15.13	5.00	15.45	5.05
41.00	9.70	2.87	11.45	3.58	13.20	4.28	14.10	4.65	14.81	5.01	15.13	5.02	15.45	5.07
43.00	9.70	2.88	11.45	3.59	13.20	4.30	14.10	4.67	14.81	5.03	15.13	5.05	15.45	5.10

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	9.82	3.44	9.82	3.51	9.82	3.59	9.43	3.43	9.04	3.27	8.26	2.96
-12.6	-13	10.37	3.50	10.37	3.57	10.37	3.65	9.96	3.49	9.55	3.33	8.72	3.01
-10.5	-11	10.92	3.55	10.92	3.63	10.92	3.71	10.48	3.54	10.05	3.38	9.18	3.06
-9.5	-10	11.18	3.58	11.18	3.66	11.18	3.73	10.73	3.57	10.29	3.41	9.40	3.08
-8.5	-9.1	11.44	3.61	11.44	3.69	11.44	3.76	10.98	3.60	10.53	3.43	9.62	3.10
-7	-7.6	11.83	3.65	11.83	3.73	11.83	3.80	11.36	3.64	10.89	3.47	9.95	3.14
-5	-5.6	12.35	3.70	12.35	3.78	12.35	3.86	11.86	3.69	11.37	3.52	10.39	3.18
-3	-3.7	12.87	3.76	12.87	3.84	12.87	3.92	12.36	3.75	11.85	3.57	10.82	3.23
0	-0.7	13.65	3.84	13.65	3.92	13.65	4.00	13.11	3.83	12.56	3.65	11.48	3.30
3	2.2	14.43	3.92	14.43	4.00	14.43	4.09	13.86	3.91	13.28	3.73	12.14	3.37
5	4.1	14.95	3.97	14.95	4.06	14.95	4.14	14.36	3.96	13.76	3.78	12.58	3.42
7	6	15.47	4.03	15.47	4.11	15.40	4.16	14.86	4.02	14.24	3.83	13.01	3.46
9	7.9	15.47	3.89	15.47	3.98	15.40	4.06	14.86	3.88	14.24	3.70	13.01	3.35
11	9.8	15.47	3.76	15.47	3.84	15.40	3.92	14.86	3.75	14.24	3.57	13.01	3.23
13	11.8	15.47	3.62	15.47	3.70	15.40	3.78	14.86	3.61	14.24	3.45	13.01	3.12
15	13.7	15.47	3.49	15.47	3.56	15.40	3.64	14.86	3.48	14.24	3.32	13.01	3.00

HSFI 1761 XR
Cooling

Outdoor temperature (°C DB)		Indoor temperature(°C WB)													
		14.00		16.00		18.00		19.00		20.00		22.00		24.00	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00		11.08	1.66	13.08	2.07	15.08	2.47	17.60	2.68	16.92	2.89	17.29	2.90	17.66	2.93
12.00		11.08	1.69	13.08	2.10	15.08	2.52	17.60	2.73	16.92	2.95	17.29	2.96	17.66	2.98
14.00		11.08	1.72	13.08	2.14	15.08	2.57	17.60	2.78	16.92	3.00	17.29	3.01	17.66	3.04
16.00		11.08	1.75	13.08	2.18	15.08	2.61	17.60	2.83	16.92	3.05	17.29	3.06	17.66	3.09
18.00		11.08	1.78	13.08	2.22	15.08	2.66	17.60	2.88	16.92	3.11	17.29	3.12	17.66	3.15
19.00		11.08	1.81	13.08	2.26	15.08	2.70	17.60	2.93	16.92	3.16	17.29	3.17	17.66	3.20
21.00		11.08	1.94	13.08	2.42	15.08	2.90	17.60	3.14	16.92	3.39	17.29	3.40	17.66	3.43
23.00		11.08	2.08	13.08	2.59	15.08	3.10	17.60	3.37	16.92	3.63	17.29	3.64	17.66	3.68
25.00		11.08	2.23	13.08	2.77	15.08	3.32	17.60	3.60	16.92	3.88	17.29	3.90	17.66	3.93
27.00		11.08	2.38	13.08	2.97	15.08	3.55	17.60	3.85	16.92	4.15	17.29	4.16	17.66	4.21
29.00		11.08	2.54	13.08	3.17	15.08	3.79	17.60	4.11	16.92	4.43	17.29	4.45	17.66	4.49
31.00		11.08	2.71	13.08	3.38	15.08	4.04	17.60	4.39	16.92	4.73	17.29	4.74	17.66	4.79
33.00		11.08	2.89	13.08	3.60	15.08	4.31	17.60	4.67	16.92	5.04	17.29	5.05	17.66	5.10
35.00		11.08	3.07	13.08	3.83	15.08	4.58	17.60	5.36	16.92	5.36	17.29	5.37	17.66	5.43
37.00		11.08	3.27	13.08	4.07	15.08	4.87	17.60	5.29	16.92	5.70	17.29	5.72	17.66	5.77
39.00		11.08	3.28	13.08	4.09	15.08	4.89	17.60	5.31	16.92	5.72	17.29	5.74	17.66	5.80
41.00		11.08	3.30	13.08	4.11	15.08	4.92	17.60	5.33	16.92	5.75	17.29	5.77	17.66	5.82
43.00		11.08	3.31	13.08	4.13	15.08	4.94	17.60	5.36	16.92	5.78	17.29	5.79	17.66	5.85

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	11.17	3.94	11.17	4.02	11.17	4.11	10.73	3.93	10.29	3.75	9.40	3.39
-12.6	-13	11.80	4.01	11.80	4.09	11.80	4.18	11.33	3.99	10.86	3.81	9.92	3.44
-10.5	-11	12.42	4.07	12.42	4.16	12.42	4.24	11.93	4.06	11.43	3.87	10.45	3.50
-9.5	-10	12.71	4.10	12.71	4.19	12.71	4.28	12.21	4.09	11.71	3.90	10.70	3.53
-8.5	-9.1	13.01	4.13	13.01	4.22	13.01	4.31	12.49	4.12	11.98	3.93	10.95	3.55
-7	-7.6	13.45	4.18	13.45	4.27	13.45	4.36	12.92	4.17	12.39	3.98	11.32	3.59
-5	-5.6	14.05	4.24	14.05	4.33	14.05	4.42	13.49	4.23	12.93	4.03	11.82	3.65
-3	-3.7	14.64	4.30	14.64	4.39	14.64	4.49	14.06	4.29	13.48	4.09	12.32	3.70
0	-0.7	15.53	4.40	15.53	4.49	15.53	4.58	14.91	4.38	14.29	4.18	13.06	3.78
3	2.2	16.42	4.49	16.42	4.58	16.42	4.68	15.76	4.48	15.11	4.27	13.81	3.86
5	4.1	17.01	4.55	17.01	4.65	17.01	4.75	16.33	4.54	15.66	4.33	14.31	3.91
7	6	17.60	4.61	17.60	4.71	18.50	4.98	16.90	4.60	16.20	4.39	14.81	3.97
9	7.9	17.60	4.46	17.60	4.55	18.50	4.65	16.90	4.44	16.20	4.24	14.81	3.83
11	9.8	17.60	4.30	17.60	4.40	18.50	4.49	16.90	4.29	16.20	4.09	14.81	3.70
13	11.8	17.60	4.15	17.60	4.24	18.50	4.33	16.90	4.14	16.20	3.95	14.81	3.57
15	13.7	17.60	3.99	17.60	4.08	18.50	4.16	16.90	3.98	16.20	3.80	14.81	3.43

9. Electric Characteristics

Model	Indoor Unit				Power Supply	IFM	
	Hz	Voltage	Min	Max	MFA	kW	FLA
HSFI 351 XR	50	220~240	198	254	15	0.065	0.52
HSFI 531 XR	50	220~240	198	254	15	0.065	0.52
HSFI 711 XR	50	220~240	198	254	15	0.065	0.52
HSFI 1081 XR	50	220~240	198	254	15	0.085	0.585
HSFI 1411 XR	50	220~240	198	254	15	0.059*2	0.39
HSFI 1761 XR	50	220~240	198	254	15	0.059*2	0.39

Remark:

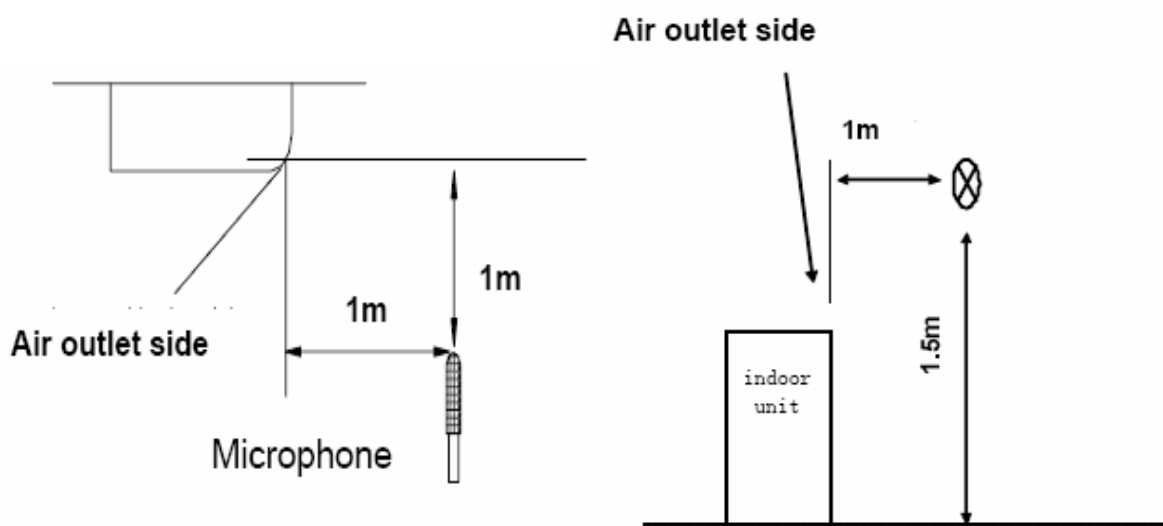
MFA: Max. Fuse Amps. (A)

KW: Fan Motor Rated Output (KW)

FLA: Full Load Amps. (A)

IFM: Indoor Fan Motor

10. Sound Levels

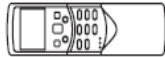


Ceiling

Floor

Model	Noise level dB(A)		
	H	M	L
HSFI 351 XR	39	36	33
HSFI 531 XR	43	41	38
HSFI 711 XR	45	43	40
HSFI 1081 XR	45	43	40
HSFI 1411 XR	47	46	44
HSFI 1761 XR	47	46	44

11. Accessories

	Name	Shape	Quantity
Installation Fittings	1.Hook		2
	2.Hanging arm		2
Remote Controller & Its Frame	3. Remote controller		1
	4. Frame		1
	5. Mounting screw(ST2.9×10-C-H)		2
	6. Alkaline dry batteries (AM4)		2
Others	7. Owner's manual		1
	8. Installation manual		1

Duct Type

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Features

1) Normal body

①. Economic and convenient installation

- Several diffusers branch off from an indoor unit, adjusting the room temperature, which makes many rooms to be air-conditioned with only one indoor unit.
- All models feature thin design making them applicable to ceiling pocket that tends to be shallow



②. Plenum standard

- Including front clapboard



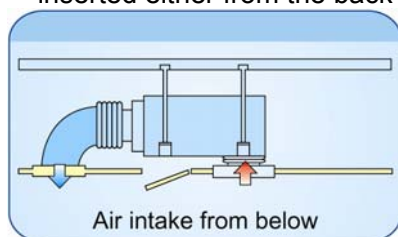
Clapboard

③. A long-life and high-efficiency filter

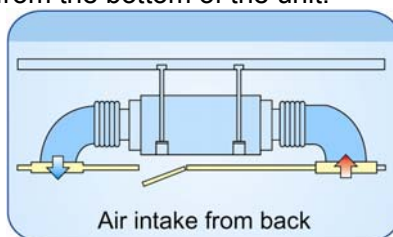


④. Way of air intake and inserting air filter

- Air intake can be positioned either at the back or below the unit. Similarly, the air filter also can be inserted either from the back or from the bottom of the unit.



Air intake from below



Air intake from back

Specifications

Model	Indoor	Model name	HUBI 531 XR	HUBI 711 XR
		Power supply	220~240V-1 Ph-50Hz	220~240V-1 Ph-50Hz
	Outdoor	Model name	MOU-18HRDN1	MOU-24HRDN1
		Power supply	220~240V-1 Ph-50Hz	220~240V-1 Ph-50Hz
Cooling	Capacity(Max.-Rated-Min.)	KW	5.9-5.30-1.78	8.1-7.10-1.78
	Input(Max.-Rated-Min.)	KW	2.6-1.62-0.66	2.8-2.18-0.98
	Current(Max.-Rated-Min.)	A	12.3-7.03-2.52	13.2-9.48-4.26
	EER		3.27	3.26
Heating	Capacity(Max.-Rated-Min.)	KW	6.3-5.90-1.55	8.8-7.80-1.8
	Input(Max.-Rated-Min.)	KW	2.34-1.59-0.76	2.60-2.09-1.05
	Current(Max.-Rated-Min.)	A	11.07-6.91-3.3	12.24-9.13-4.56
	COP		3.71	3.73
Max. input consumption		W	2600	2800
Max. current		A	12.3	13.2
Compressor	Model		JU1015D4	JU1015D4
	Type		Rotary DC Inverter	Rotary DC Inverter
	Brand		HITACHI	HITACHI
	Capacity	Btu/h	15013	15013
	Input	W	1585	1585
	Rated current(RLA)	A	8.8	8.8
	Thermal protector		-	-
	Capacitor	uF	-	-
	Refrigerant oil	ml	HAF68D1U, 580	HAF68D1U, 580
Indoor fan motor	Model		YSK55-4D	YSK74-4C
	Type		AC Motor	AC Motor
	Input	W	117/110/101	170/150/133
	Capacitor	uF	3uF/450V	6.5uF/450V
	Speed(hi/mi/lo)	r/min	900/800/690	1100/1020/900
Indoor coil	a.Number of rows		3	3
	b.Tube pitch(a)x row pitch(b)	mm	25.4 x 22	25.4 x 22
	c.Fin spacing	mm	1.7	1.7
	d.Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ9.53 Inner groove tube	Φ9.53 Inner groove tube
	f.Coil length x height x width	mm	800 x 254 x 66	800 x 254 x 66
	g.Number of circuits		2	3
Indoor air flow (Hi/Mi/Lo) (0 Pa)		m³/h	1281.1/1129.4/952.3	1861.4/1540/1254
Indoor external static pressure (Hi)		Pa	40	40
Sound level (sound pressure)		dB(A)	45/41/38	45/43/41
Indoor unit	Dimension (W x H x D)	mm	1000 x 298 x 800	1000 x 298 x 800
	Packing (W x H x D)	mm	1205 x 940 x 370	1205 x 940 x 370
	Net/Gross weight	Kg	38/45	38/45
Outdoor fan motor	Model		YDK53-6Y	YDK53-6Z
	Type		AC MOTOR	AC MOTOR
	Input	W	129/86	141.5/92
	Capacitor	uF	3uF/450V	3uF/450V
	Speed	r/min	770/560	815/550
Outdoor coil	Number of rows		2	2
	Tube pitch(a)x row pitch(b)	mm	25.4/22	25.4/22

	Fin spacing	mm	1.7	1.5
	Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminium
	Tube outside dia.and type	mm	9.53 innergroove tube	9.53 innergroove tube
	Coil length x height x width	mm	749x660x44	748x813x44
	Number of circuits		4	2
Outdoor air flow(Hi/Low)		m ³ /h	2400/2200	3000/2800
Sound level(sound pressure)(Hi/Low)		dB(A)	52/47	53/48
Outdoor unit	Dimension(WxDxH)	mm	842x695x360	895x862x355
	Packing (WxDxH)	mm	970x770x400	1043x915x395
	Net/Gross weight	kg	63/67	72/77
Refrigerant	Type		R410A	R410A
	Charged volume	g	1700	2200
Throttle type			Electronic expansion valve & Capillary	
Design pressure(Hi/Low)		MPa	4.2/2.0	4.2/2.0
Refrigerant piping	Liquid side/ Gas side	mm	6.35/12.7	9.53/16
	Max. refrigerant pipe length	m	25	25
	Max. difference in level(Outdoor is up)	m	15	15
	Max. difference in level (Outdoor is down)	m	9	9
Connection wiring	Power wiring (Outdoor)	mm ²	3 core x 2.5	3 core x 2.5
	Power wiring (Indoor)	mm ²	3-core x 1.0	3-core x 1.0
	Signal wiring	mm ²	3-core shielded wire x0.5	3-core shielded wire x0.5
Drainage water pipe dia. (Indoor)		mm	Φ32	Φ32
Wireless remote controller (Indoor)			R51/E(standard)	
Operation temp (Indoor)		℃	17-30	
Ambient temp (Outdoor)		℃	Cooling: -15~43; Heating: -15~21	

Model	Indoor	Model name	HUBI 1081 XR	HUBI 1081 XR
		Power supply	220~240V-1 Ph-50Hz	220~240V-1 Ph-50Hz
	Outdoor	Model name	HCKI 1081 XR	HCSI 1082 XR
		Power supply	220~240V-1 Ph-50Hz	380V~ -3 Ph-50Hz
Cooling	Capacity(Max.-Rated-Min.)	KW	13.5-10.80-3.2	13.5-10.80-3.2
	Input(Max.-Rated-Min.)	KW	5.5-3.29-2.3	4.9-3.32-2.3
	Current(Max.-Rated-Min.)	A	25-14-10	7.5-4.72-3.3
	EER		3.28	3.25
Heating	Capacity(Max.-Rated-Min.)	KW	14.5 -11.85-3.8	14.5-11.85-3.8
	Input(Max.-Rated-Min.)	KW	5.20-3.19-2.0	4.64-3.16-2.0
	Current(Max.-Rated-Min.)	A	23.64-13.87-8.69	7.10-4.36-2.9
	COP		3.71	3.75
Max. input consumption		W	5500	4900
Max. current		A	25	7.5
Compressor	Model		TNB306FPGM	ANB33FBEMT
	Type		Rotor DC Inverter	Scroll DC Inverter
	Brand		MITSUBISHI ELECTRIC	SIAM
	Capacity	Btu/h	33642	36900
	Input	W	3080	3300
	Rated current(RLA)	A	13.5	12.4
	Thermal protector		-	-
	Capacitor	uF	-	-
	Refrigerant oil	ml	FV50S, 870	MEL 56, 1700
Indoor fan motor	Model		(YSK59-4A) x 2	(YSK59-4A) x 2
	Type		AC motor	AC motor
	Input	W	(104/87/78) x 2	(104/87/78) x 2
	Capacitor	uF	(4uF/450V) x 2	(4uF/450V) x 2
	Speed(hi/mi/lo)	r/min	(840/695/610) x 2	(840/695/610) x 2
Indoor coil	a.Number of rows		3	3
	b.Tube pitch(a)x row pitch(b)	mm	25.4 x 22	25.4 x 22
	c.Fin spacing	mm	1.7	1.7
	d.Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ9.53 Inner groove tube	Φ9.53 Inner groove tube
	f.Coil length x height x width	mm	1150 x 254 x 66	1150 x 254 x 66
	g.Number of circuits		5	5
Indoor air flow (Hi/Mi/Lo) (0 Pa)		m³/h	2209.1/1963.1/1817.7	2209.1/1963.1/1817.7
Indoor external static pressure (Hi)		Pa	70	70
Sound level (sound pressure)		dB(A)	46/44/42	46/44/42
Indoor unit	Dimension (W x H x D)	mm	1350 x 298 x 800	1350x298x800
	Packing (W x H x D)	mm	1555 x 370 x 940	1555 x 370 x 940
	Net/Gross weight	Kg	48/57	48/57
Outdoor fan motor	Model		(YDK100-6A)x2	YDK250-6E
	Type		AC MOTOR	AC MOTOR
	Input	W	(158/140)x2	307/194
	Capacitor	uF	(3.5uF/450V)x2	10uF±5% 450V
	Speed	r/min	(890/590)x2	740/530
Outdoor coil	Number of rows		2.5	2

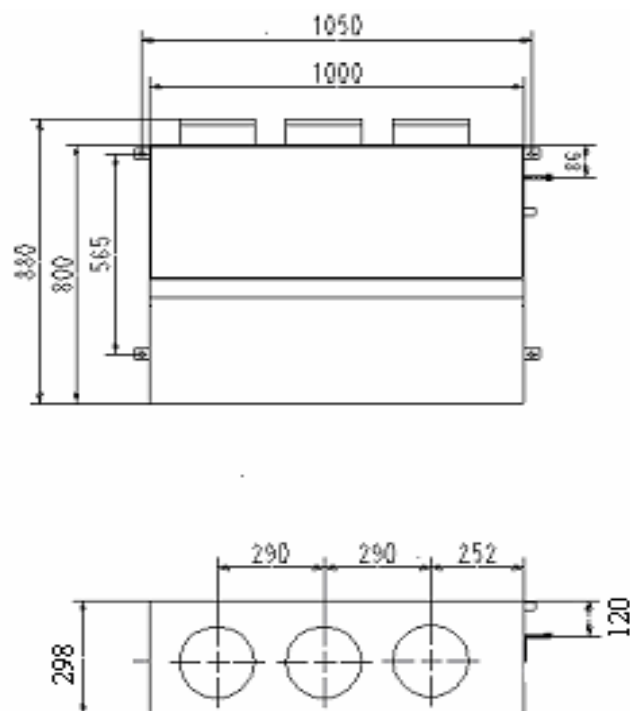
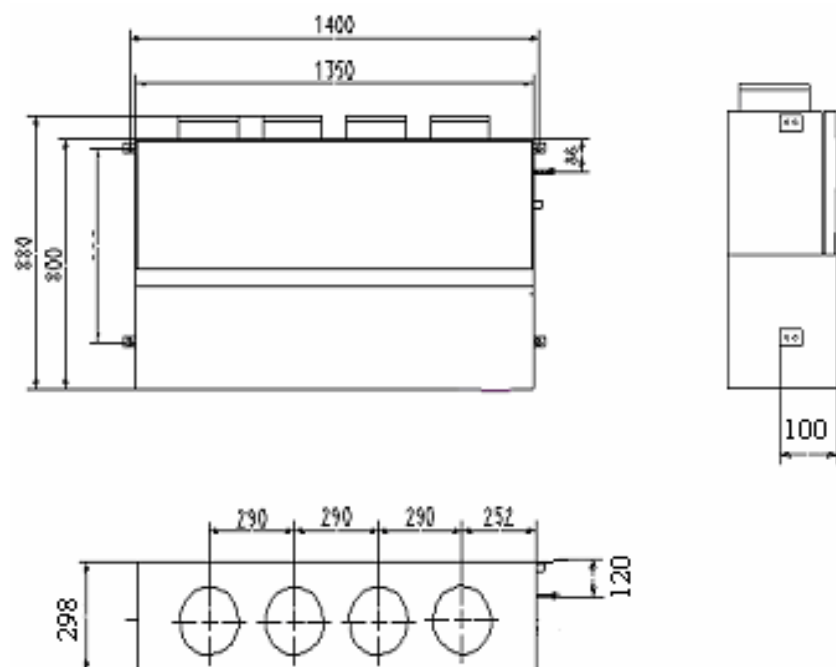
	Tube pitch(a)x row pitch(b)	mm	25.4×22	25.4×22
	Fin spacing	mm	1.5	1.7
	Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia.and type	mm	Φ9.53 innergroove tube	Φ9.53 innergroove tube
	Coil length x height x width	mm	1152x1220x44	888×915×44
	Number of circuits		8	4
Outdoor air flow(Hi/Low)		m ³ /h	6000/5800	5000/4800
Sound level(sound pressure)(Hi/Low)		dB(A)	57/52	55/50
Outdoor unit	Dimension(WxDxH)	mm	940X1245X400	990×966×396
	Packing (WxDxH)	mm	1058x1380x435	1120×1100×440
	Net/Gross weight	kg	106/114	107/114
Refrigerant	Type		R410A	R410A
	Charged volume	g	4100	2900
Throttle type			Electronic expansion valve & Capillary	
Design pressure(Hi/Low)		MPa	4.2/2.0	4.2/2.0
Refrigerant piping	Liquid side/ Gas side	mm	Φ9.53/Φ16	Φ9.53/Φ16
	Max. refrigerant pipe length	m	30	30
	Max. difference in level(Outdoor is up)	m	20	20
	Max. difference in level(Outdoor is down)	m	12	12
Connection wiring	Power wiring (Outdoor)	mm ²	3 core x 2.5	5 core x 2.5
	Power wiring (Indoor)	mm ²	3 core x 1.0	3 core x 1.0
	Signal wiring	mm ²	3-core shielded wire x0.5	3-core shielded wire x0.5
Drainage water pipe dia. (Indoor)		mm	Φ32	Φ32
Wireless remote controller (Indoor)			R51/E(standard)	
Operation temp (Indoor)		℃	17-30	
Ambient temp (Outdoor)		℃	Cooling: -15~43; Heating: -15~21	

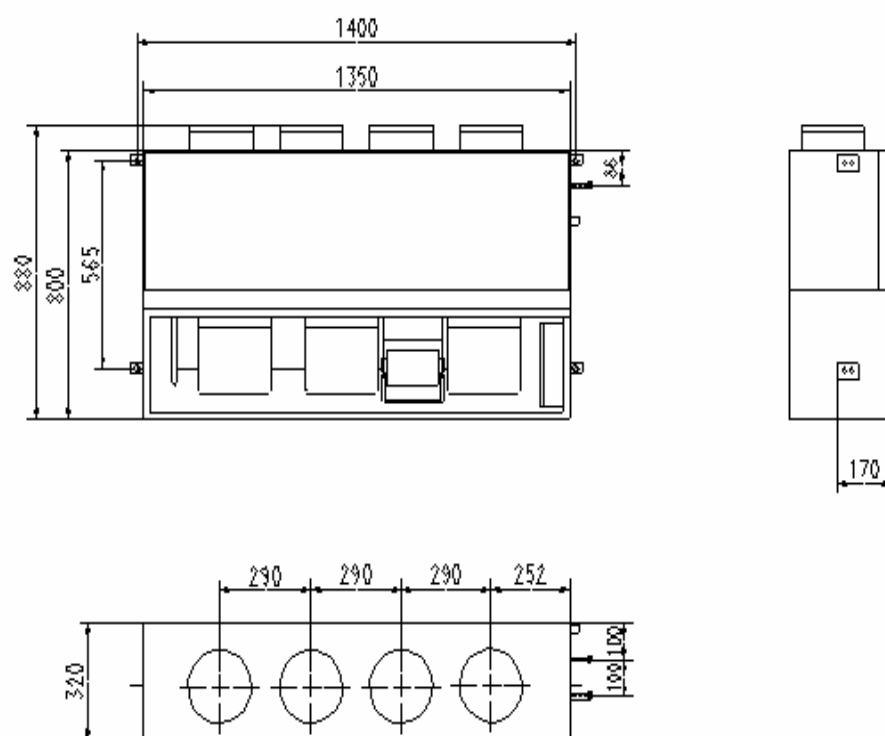
Model	Indoor	Model name	HUBI 1411 XR	HUBI 1411 XR
		Power supply	220~240V-1 Ph-50Hz	220~240V-1 Ph-50Hz
	Outdoor	Model name	HCKI 1411 XR	HCSI 1412 XR
		Power supply	220~240V-1 Ph-50Hz	380~ -3 Ph-50Hz
Cooling	Capacity(Max.-Rated-Min.)	KW	16-14.10-3.8	16-14.10-3.6
	Input(Max.-Rated-Min.)	KW	6.0-4.33-2.5	5.95-4.34-2.5
	Current(Max.-Rated-Min.)	A	28 -18.83-10.8	8.5-6.30-3.6
	EER		3.26	3.25
Heating	Capacity(Max.-Rated-Min.)	KW	17.2-15.40-4.5	17.2-15.40-4.3
	Input(Max.-Rated-Min.)	KW	5.60-4.15-2.3	5.55-4.14-2.3
	Current(Max.-Rated-Min.)	A	26.07-18.04-10	7.91-6.09-3.3
	COP		3.71	3.72
Max. input consumption		W	6000	5950
Max. current		A	28	8.5
Compressor	Model		TNB306FPGM	ANB42FBEMT
	Type		Rotor DC Inverter	Scroll DC Inverter
	Brand		MITSUBISHI ELECTRIC	SIAM
	Capacity	Btu/h	33642	47440
	Input	W	3080	4160
	Rated current(RLA)	A	13.5	15.2
	Thermal protector		-	-
	Capacitor	uF	-	-
	Refrigerant oil	ml	FV50S, 870	MEL 56, 1700
Indoor fan motor	Model		YSK160-4	YSK160-4
	Type		AC motor	AC motor
	Input	W	324/264/223	324/264/223
	Capacitor	uF	10uF/450V	10uF/450V
	Speed(hi/mi/lo)	r/min	870/770/700	870/770/700
Indoor coil	a.Number of rows		3	3
	b.Tube pitch(a)x row pitch(b)	mm	25.4 x 22	25.4 x 22
	c.Fin spacing	mm	1.7	1.7
	d.Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ9.53 Inner groove tube	Φ9.53 Inner groove tube
	f.Coil length x height x width	mm	1150 x 254 x 66	1150 x 254 x 66
	g.Number of circuits		5	6
Indoor air flow (Hi/Mi/Lo) (0 Pa)		m ³ /h	2209.1/1963.1/1817.7	2883.8/2460.6/2151.2
Indoor external static pressure (Hi)		Pa	96	96
Sound level (sound pressure)		dB(A)	46/44/42	47/45/43
Indoor unit	Dimension (W x H x D)	mm	1350x320x800	1350x320x800
	Packing (W x H x D)	mm	1555 x 420 x 930	1555 x 420 x 930
	Net/Gross weight	Kg	62/72	62/72
Outdoor fan motor	Model		(YDK100-6A)x2	(YDK100-6A)x2
	Type		AC MOTOR	AC MOTOR
	Input	W	(158/140)x2	(158/140)x2
	Capacitor	uF	(3.5uF/450V)x2	(3.5uF/450V)x2

	Speed	r/min	(890/590)x2	(890/590)x2
Outdoor coil	Number of rows		2.5	2
	Tube pitch(a)x row pitch(b)	mm	25.4 x 22	25.4x22
	Fin spacing	mm	1.5	1.8
	Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia.and type	mm	Φ9.53 innergroove tube	Φ9.53 innergroove tube
	Coil length x height x width	mm	1152x1220x44	1186x1220x44
	Number of circuits		8	4
Outdoor air flow(Hi/Low)		m ³ /h	6000/5800	6000/5800
Sound level(sound pressure)(Hi/Low)		dB(A)	59/54	59/54
Outdoor unit	Dimension(WxDxH)	mm	940X1245X400	940x1245x400
	Packing (WxDxH)	mm	1058x1380x435	1058x1380x435
	Net/Gross weight	kg	106/114	115/121
Refrigerant	Type		R410A	R410A
	Charged volume	g	4450	3850
Throttle type			Electronic expansion valve & Capillary	
Design pressure(Hi/Low)		MPa	4.2/2.0	4.2/2.0
Refrigerant piping	Liquid side/ Gas side	mm	Φ9.53/Φ16	Φ9.53/Φ16
	Max. refrigerant pipe length	m	50	50
	Max. difference in level(Outdoor is up)	m	25	30
	Max. difference in level (Outdoor is down)	m	20	20
Connection wiring	Power wiring (Outdoor)	mm ²	3 core x 2.5	5 core x 2.5
	Power wiring (Indoor)	mm ²	3 core x 1.0	3 core x 1.0
	Signal wiring	mm ²	3-core shielded wire x0.5	3-core shielded wire x0.5
Drainage water pipe dia. (Indoor)		mm	Φ32	Φ32
Wireless remote controller (Indoor)			R51/E(standard)	
Operation temp (Indoor)		℃	17-30	
Ambient temp (Outdoor)		℃	Cooling: -15~43; Heating: -15~21	

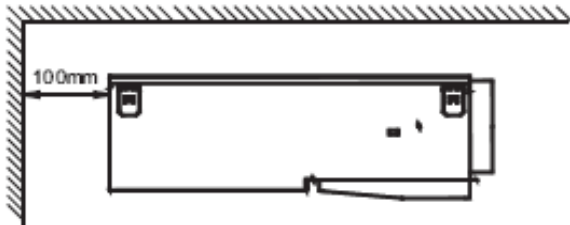
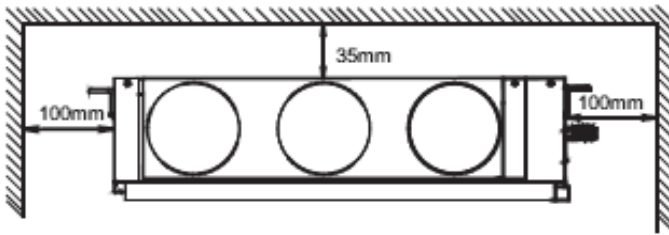
Model	Indoor	Model name	HUBI 1761 XR
		Power supply	220~240V-1 Ph-50Hz
	Outdoor	Model name	MOUA-60HRDN1
		Power supply	380V~3 Ph-50Hz
Cooling	Capacity(Max.-Rated-Min.)	KW	17.8-17.60-4.4
	Input(Max.-Rated-Min.)	KW	7.5-5.35-3.0
	Current(Max.-Rated-Min.)	A	11.5-7.20-4.3
	EER		3.29
Heating	Capacity(Max.-Rated-Min.)	KW	18.7-18.5-5.0
	Input(Max.-Rated-Min.)	KW	6.92-4.96-2.6
	Current(Max.-Rated-Min.)	A	10.64-6.96-3.8
	COP		3.73
Max. input consumption		W	7500
Max. current		A	11.5
Compressor	Model		ANB42FBEMT
	Type		Scroll DC Inverter
	Brand		SIAM
	Capacity	Btu/h	47440
	Input	W	4160
	Rated current(RLA)	A	15.2
	Thermal protector		-
	Capacitor	uF	-
	Refrigerant oil	ml	MEL 56, 1700
Indoor fan motor	Model		YSK160-4
	Type		AC motor
	Input	W	324/264/223
	Capacitor	uF	10uF/450V
	Speed(hi/mi/lo)	r/min	870/770/700
Indoor coil	a.Number of rows		3
	b.Tube pitch(a)x row pitch(b)	mm	25.4 x 22
	c.Fin spacing	mm	1.7
	d.Fin type (code)		Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ9.53 Inner groove tube
	f.Coil length x height x width	mm	1150 x 254 x 66
	g.Number of circuits		6
Indoor air flow (Hi/Mi/Lo) (0 Pa)		m ³ /h	2883.8/2460.6/2151.2
Indoor external static pressure (Hi)		Pa	96
Sound level (sound pressure)		dB(A)	47/45/43
Indoor unit	Dimension (W x H x D)	mm	1350x320x800
	Packing (W x H x D)	mm	1555 x 420 x 930
	Net/Gross weight	Kg	62/72
Outdoor fan motor	Model		(YDK100-6A)×2
	Type		AC MOTOR
	Input	W	(158/140)×2
	Capacitor	uF	(3.5uF/450V)×2
	Speed	r/min	(890/590)×2
Outdoor coil	Number of rows		2
	Tube pitch(a)x row pitch(b)	mm	25.4 x 22

	Fin spacing	mm	1.8
	Fin type (code)		Hydrophilic aluminum
	Tube outside dia. and type	mm	Φ9.53 innergroove tube
	Coil length x height x width	mm	1186x1220x44
	Number of circuits		4
Outdoor air flow(Hi/Low)		m ³ /h	6000/5800
Sound level(sound pressure)(Hi/Low)		dB(A)	59/54
Outdoor unit	Dimension(WxDxH)	mm	940×1245×400
	Packing (WxDxH)	mm	1058×1380×435
	Net/Gross weight	kg	115/121
Refrigerant	Type		R410A
	Charged volume	g	3850
Throttle type			
Design pressure(Hi/Low)		MPa	4.2/2.0
Refrigerant piping	Liquid side/ Gas side	mm	Φ9.53/Φ16
	Max. refrigerant pipe length	m	50
	Max. difference in level(Outdoor is up)	m	30
	Max. difference in level (Outdoor is down)	m	20
Connection wiring	Power wiring (Outdoor)	mm ²	5 core×2.5
	Power wiring (Indoor)	mm ²	3 core x 1.0
	Signal wiring	mm ²	3-core shielded wire x0.5
Drainage water pipe dia. (Indoor)		mm	Φ32
Wireless remote controller (Indoor)			R51/E(standard)
Operation temp (indoor)		°C	17-30
Ambient temp (Outdoor)		°C	Cooling: -15~43; Heating: -15~21

Dimensions (Unit: mm)**HUBI 531 XR HUBI 711 XR****HUBI 1081 XR**

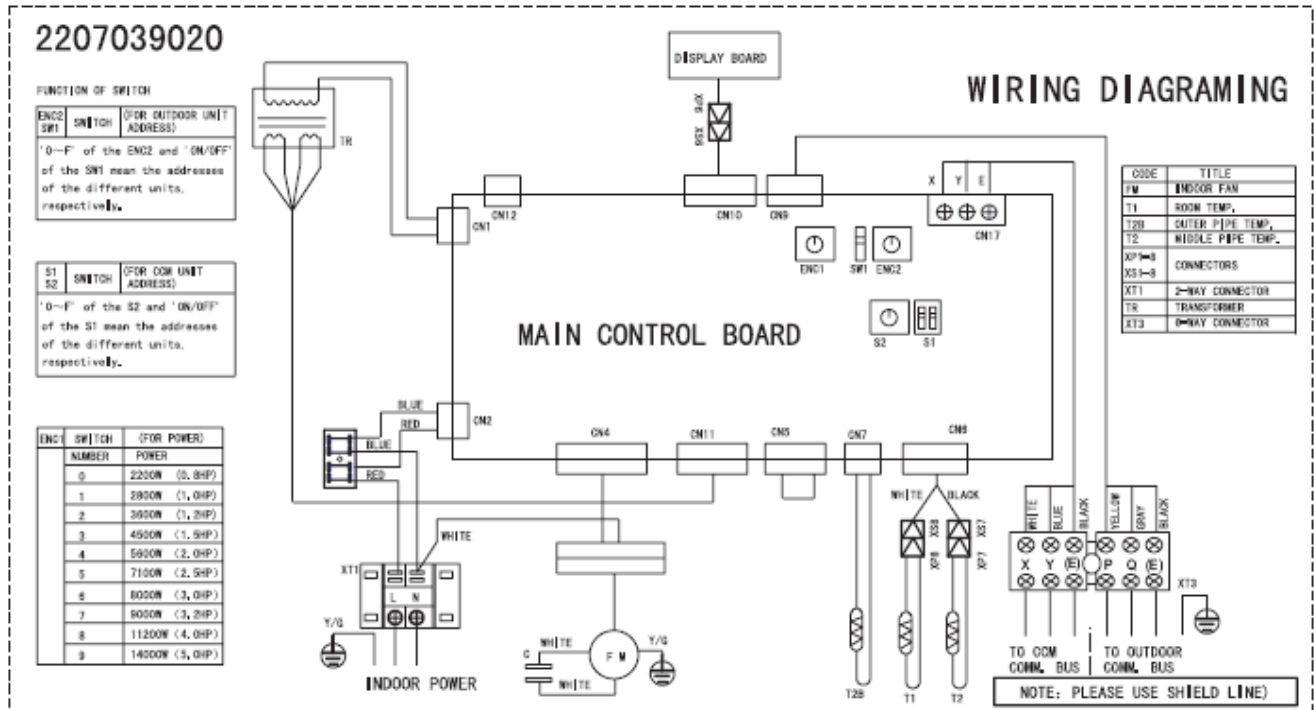
HUBI 1411 XR HUBI 1761 XR

Service Space

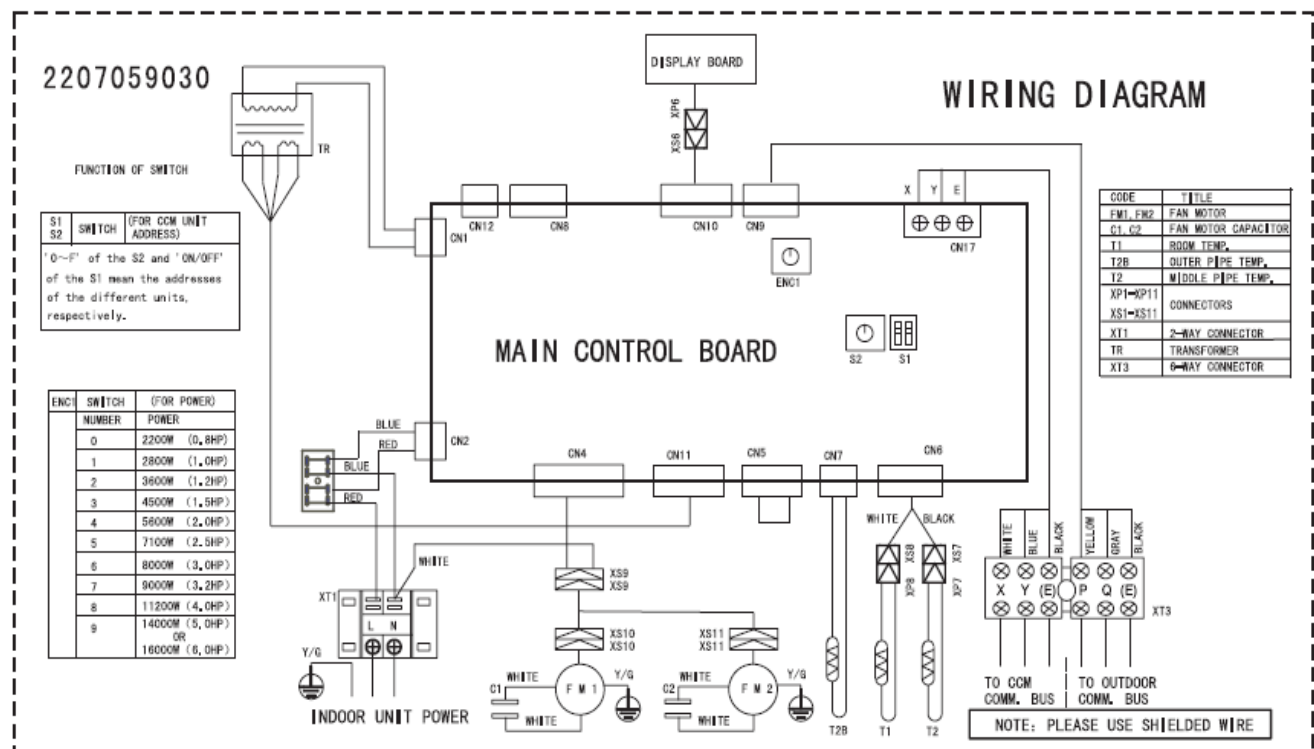


Wiring Diagrams

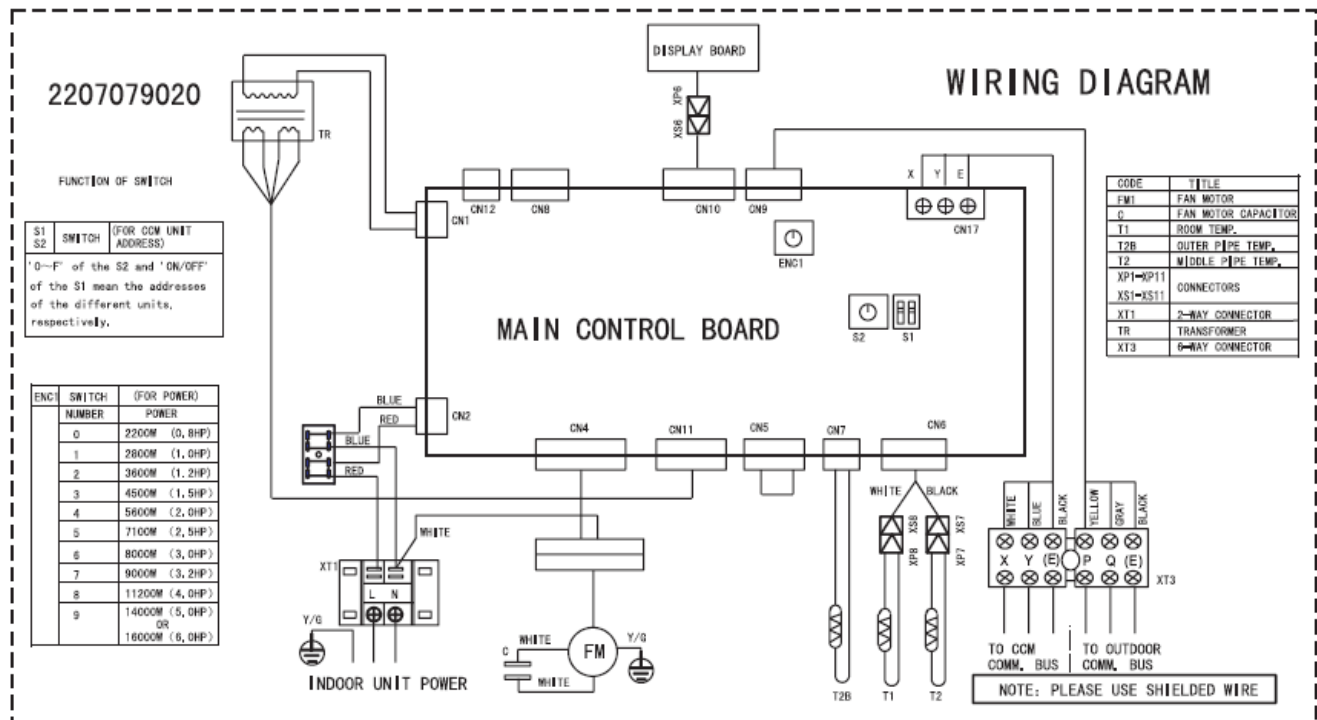
HUBI 531 XR、HUBI 711 XR

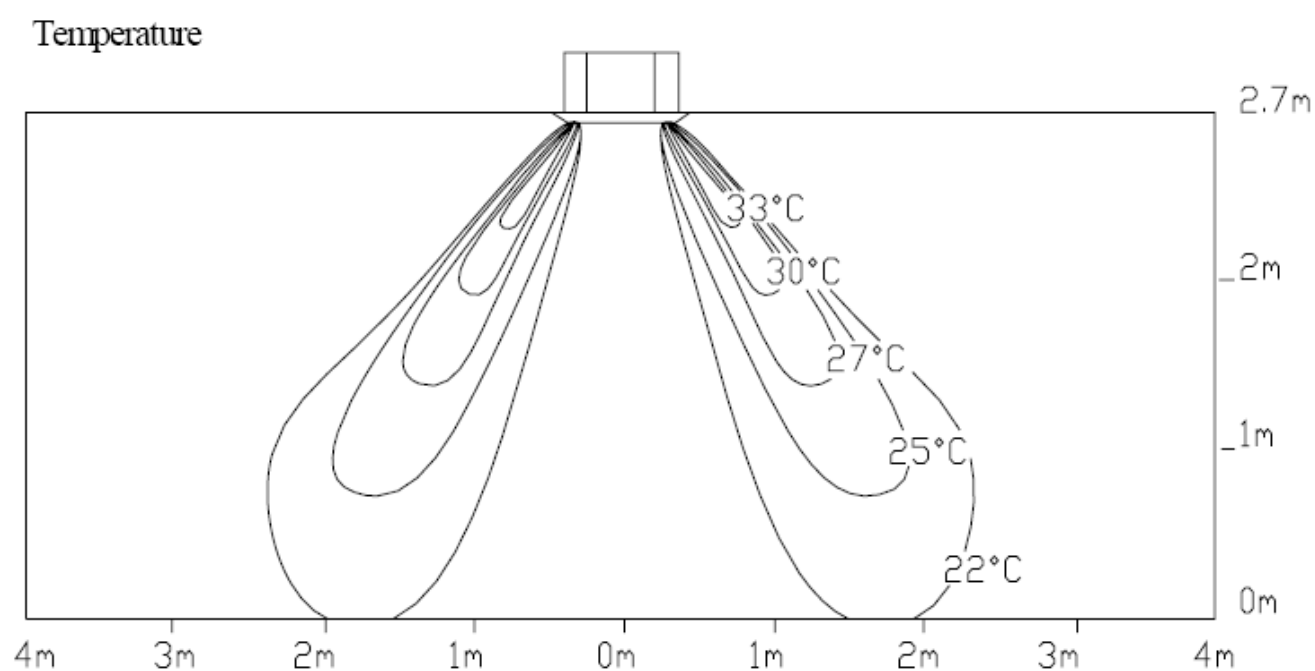
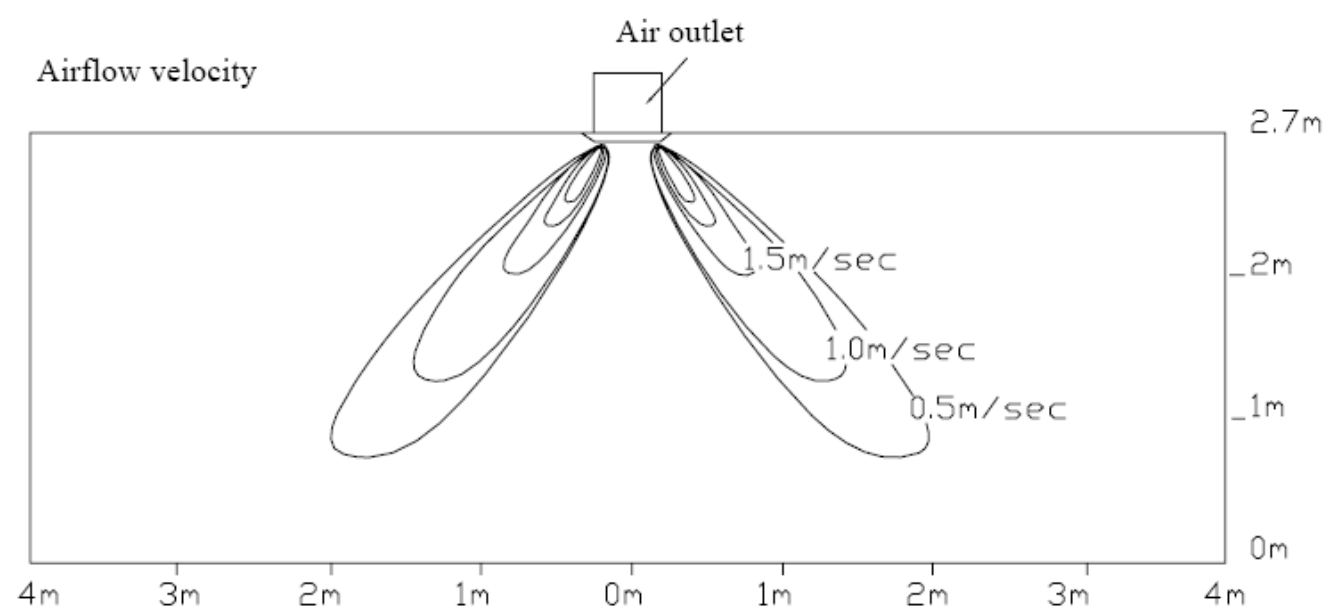


HUBI 1081 XR



HUBI 1411 XR、HUBI 1761 XR



Air Velocity and Temperature Distributions

Capacity Tables**HUBI 531 XR****Cooling**

Outdoor temperature (°C DB)	Indoor temperature(°C WB)													
	14.00		16.00		18.00		19.00		20.00		22.00		24.00	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00	3.65	0.54	4.31	0.67	4.97	0.81	5.30	0.87	5.57	0.94	5.69	0.95	5.82	0.96
12.00	3.65	0.55	4.31	0.69	4.97	0.82	5.30	0.89	5.57	0.96	5.69	0.96	5.82	0.97
14.00	3.65	0.56	4.31	0.70	4.97	0.84	5.30	0.91	5.57	0.98	5.69	0.98	5.82	0.99
16.00	3.65	0.57	4.31	0.71	4.97	0.85	5.30	0.92	5.57	1.00	5.69	1.00	5.82	1.01
18.00	3.65	0.58	4.31	0.72	4.97	0.87	5.30	0.94	5.57	1.01	5.69	1.02	5.82	1.03
19.00	3.65	0.59	4.31	0.74	4.97	0.88	5.30	0.96	5.57	1.03	5.69	1.03	5.82	1.04
21.00	3.65	0.63	4.31	0.79	4.97	0.94	5.30	1.02	5.57	1.10	5.69	1.11	5.82	1.12
23.00	3.65	0.68	4.31	0.85	4.97	1.01	5.30	1.10	5.57	1.18	5.69	1.19	5.82	1.20
25.00	3.65	0.73	4.31	0.90	4.97	1.08	5.30	1.17	5.57	1.27	5.69	1.27	5.82	1.28
27.00	3.65	0.78	4.31	0.97	4.97	1.16	5.30	1.26	5.57	1.35	5.69	1.36	5.82	1.37
29.00	3.65	0.83	4.31	1.03	4.97	1.24	5.30	1.34	5.57	1.45	5.69	1.45	5.82	1.46
31.00	3.65	0.88	4.31	1.10	4.97	1.32	5.30	1.43	5.57	1.54	5.69	1.55	5.82	1.56
33.00	3.65	0.94	4.31	1.17	4.97	1.40	5.30	1.52	5.57	1.64	5.69	1.65	5.82	1.66
35.00	3.65	1.00	4.31	1.25	4.97	1.49	5.30	1.62	5.57	1.75	5.69	1.75	5.82	1.77
37.00	3.65	1.06	4.31	1.33	4.97	1.59	5.30	1.72	5.57	1.86	5.69	1.86	5.82	1.88
39.00	3.65	1.07	4.31	1.33	4.97	1.60	5.30	1.73	5.57	1.87	5.69	1.87	5.82	1.89
41.00	3.65	1.07	4.31	1.34	4.97	1.60	5.30	1.74	5.57	1.87	5.69	1.88	5.82	1.90
43.00	3.65	1.08	4.31	1.34	4.97	1.61	5.30	1.75	5.57	1.88	5.69	1.89	5.82	1.91

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	3.72	1.30	3.72	1.33	3.72	1.36	3.57	1.30	3.43	1.24	3.13	1.12
-12.6	-13	3.93	1.32	3.93	1.35	3.93	1.38	3.77	1.32	3.62	1.26	3.30	1.14
-10.5	-11	4.13	1.35	4.13	1.37	4.13	1.40	3.97	1.34	3.81	1.28	3.48	1.16
-9.5	-10	4.23	1.36	4.23	1.38	4.23	1.41	4.07	1.35	3.90	1.29	3.56	1.17
-8.5	-9.1	4.33	1.37	4.33	1.40	4.33	1.42	4.16	1.36	3.99	1.30	3.64	1.17
-7	-7.6	4.48	1.38	4.48	1.41	4.48	1.44	4.30	1.38	4.12	1.31	3.77	1.19
-5	-5.6	4.68	1.40	4.68	1.43	4.68	1.46	4.49	1.40	4.31	1.33	3.93	1.21
-3	-3.7	4.87	1.42	4.87	1.45	4.87	1.48	4.68	1.42	4.49	1.35	4.10	1.22
0	-0.7	5.17	1.45	5.17	1.48	5.17	1.52	4.96	1.45	4.76	1.38	4.35	1.25
3	2.2	5.47	1.48	5.47	1.52	5.47	1.55	5.25	1.48	5.03	1.41	4.60	1.28
5	4.1	5.66	1.50	5.66	1.54	5.66	1.57	5.44	1.50	5.21	1.43	4.76	1.29
7	6	5.86	1.52	5.86	1.56	5.90	1.59	5.63	1.52	5.39	1.45	4.93	1.31
9	7.9	5.86	1.47	5.86	1.51	5.90	1.54	5.63	1.47	5.39	1.40	4.93	1.27
11	9.8	5.86	1.42	5.86	1.45	5.90	1.48	5.63	1.42	5.39	1.35	4.93	1.22
13	11.8	5.86	1.37	5.86	1.40	5.90	1.43	5.63	1.37	5.39	1.30	4.93	1.18
15	13.7	5.86	1.32	5.86	1.35	5.90	1.38	5.63	1.32	5.39	1.26	4.93	1.14

HUBI 711 XR
Cooling

Outdoor temperature(°C DB)	Indoor temperature(°C WB)													
	14.00		16.00		18.00		19.00		20.00		22.00		24.00	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00	4.87	0.73	5.75	0.91	6.63	1.09	7.10	1.18	7.44	1.27	7.60	1.27	7.76	1.29
12.00	4.87	0.74	5.75	0.92	6.63	1.11	7.10	1.20	7.44	1.29	7.60	1.30	7.76	1.31
14.00	4.87	0.75	5.75	0.94	6.63	1.13	7.10	1.22	7.44	1.32	7.60	1.32	7.76	1.33
16.00	4.87	0.77	5.75	0.96	6.63	1.15	7.10	1.24	7.44	1.34	7.60	1.34	7.76	1.36
18.00	4.87	0.78	5.75	0.97	6.63	1.17	7.10	1.26	7.44	1.36	7.60	1.37	7.76	1.38
19.00	4.87	0.79	5.75	0.99	6.63	1.19	7.10	1.29	7.44	1.39	7.60	1.39	7.76	1.40
21.00	4.87	0.85	5.75	1.06	6.63	1.27	7.10	1.38	7.44	1.49	7.60	1.49	7.76	1.51
23.00	4.87	0.91	5.75	1.14	6.63	1.36	7.10	1.48	7.44	1.59	7.60	1.60	7.76	1.61
25.00	4.87	0.98	5.75	1.22	6.63	1.46	7.10	1.58	7.44	1.70	7.60	1.71	7.76	1.73
27.00	4.87	1.04	5.75	1.30	6.63	1.56	7.10	1.69	7.44	1.82	7.60	1.83	7.76	1.84
29.00	4.87	1.11	5.75	1.39	6.63	1.66	7.10	1.80	7.44	1.94	7.60	1.95	7.76	1.97
31.00	4.87	1.19	5.75	1.48	6.63	1.77	7.10	1.92	7.44	2.07	7.60	2.08	7.76	2.10
33.00	4.87	1.27	5.75	1.58	6.63	1.89	7.10	2.05	7.44	2.21	7.60	2.22	7.76	2.24
35.00	4.87	1.35	5.75	1.68	6.63	2.01	7.10	2.18	7.44	2.35	7.60	2.36	7.76	2.38
37.00	4.87	1.43	5.75	1.79	6.63	2.14	7.10	2.32	7.44	2.50	7.60	2.51	7.76	2.53
39.00	4.87	1.44	5.75	1.79	6.63	2.15	7.10	2.33	7.44	2.51	7.60	2.52	7.76	2.54
41.00	4.87	1.45	5.75	1.80	6.63	2.16	7.10	2.34	7.44	2.52	7.60	2.53	7.76	2.55
43.00	4.87	1.45	5.75	1.81	6.63	2.17	7.10	2.35	7.44	2.53	7.60	2.54	7.76	2.57

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	4.93	1.72	4.93	1.76	4.93	1.79	4.73	1.72	4.54	1.64	4.15	1.48
-12.6	-13	5.20	1.75	5.20	1.79	5.20	1.82	5.00	1.74	4.79	1.66	4.38	1.50
-10.5	-11	5.48	1.78	5.48	1.82	5.48	1.85	5.26	1.77	5.04	1.69	4.61	1.53
-9.5	-10	5.61	1.79	5.61	1.83	5.61	1.87	5.39	1.79	5.16	1.70	4.72	1.54
-8.5	-9.1	5.74	1.80	5.74	1.84	5.74	1.88	5.51	1.80	5.28	1.72	4.83	1.55
-7	-7.6	5.94	1.82	5.94	1.86	5.94	1.90	5.70	1.82	5.46	1.74	4.99	1.57
-5	-5.6	6.20	1.85	6.20	1.89	6.20	1.93	5.95	1.85	5.71	1.76	5.21	1.59
-3	-3.7	6.46	1.88	6.46	1.92	6.46	1.96	6.20	1.87	5.95	1.79	5.43	1.62
0	-0.7	6.85	1.92	6.85	1.96	6.85	2.00	6.58	1.91	6.31	1.83	5.76	1.65
3	2.2	7.24	1.96	7.24	2.00	7.24	2.04	6.96	1.95	6.67	1.86	6.09	1.69
5	4.1	7.50	1.99	7.50	2.03	7.50	2.07	7.21	1.98	6.91	1.89	6.31	1.71
7	6	7.77	2.01	7.77	2.06	7.80	2.09	7.46	2.01	7.15	1.92	6.53	1.73
9	7.9	7.77	1.95	7.77	1.99	7.80	2.03	7.46	1.94	7.15	1.85	6.53	1.67
11	9.8	7.77	1.88	7.77	1.92	7.80	1.96	7.46	1.87	7.15	1.79	6.53	1.62
13	11.8	7.77	1.81	7.77	1.85	7.80	1.89	7.46	1.81	7.15	1.72	6.53	1.56
15	13.7	7.77	1.74	7.77	1.78	7.80	1.82	7.46	1.74	7.15	1.66	6.53	1.50

HUBI 1081 XR (1-Phase)**Cooling**

Outdoor temperature (°C DB)		Indoor temperature(°C WB)													
		14.00		16.00		18.00		19.00		20.00		22.00		24.00	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00		7.31	1.07	8.63	1.34	9.94	1.60	10.80	1.74	11.16	1.87	11.40	1.88	11.64	1.90
12.00		7.31	1.09	8.63	1.36	9.94	1.63	10.80	1.77	11.16	1.91	11.40	1.91	11.64	1.93
14.00		7.31	1.11	8.63	1.39	9.94	1.66	10.80	1.80	11.16	1.94	11.40	1.95	11.64	1.97
16.00		7.31	1.13	8.63	1.41	9.94	1.69	10.80	1.84	11.16	1.98	11.40	1.98	11.64	2.00
18.00		7.31	1.15	8.63	1.44	9.94	1.72	10.80	1.87	11.16	2.01	11.40	2.02	11.64	2.04
19.00		7.31	1.17	8.63	1.46	9.94	1.75	10.80	1.90	11.16	2.05	11.40	2.05	11.64	2.07
21.00		7.31	1.26	8.63	1.57	9.94	1.88	10.80	2.04	11.16	2.20	11.40	2.20	11.64	2.22
23.00		7.31	1.35	8.63	1.68	9.94	2.01	10.80	2.18	11.16	2.35	11.40	2.36	11.64	2.38
25.00		7.31	1.44	8.63	1.80	9.94	2.15	10.80	2.33	11.16	2.52	11.40	2.52	11.64	2.55
27.00		7.31	1.54	8.63	1.92	9.94	2.30	10.80	2.50	11.16	2.69	11.40	2.70	11.64	2.72
29.00		7.31	1.65	8.63	2.05	9.94	2.46	10.80	2.66	11.16	2.87	11.40	2.88	11.64	2.91
31.00		7.31	1.76	8.63	2.19	9.94	2.62	10.80	2.84	11.16	3.06	11.40	3.07	11.64	3.10
33.00		7.31	1.87	8.63	2.33	9.94	2.79	10.80	3.03	11.16	3.26	11.40	3.27	11.64	3.30
35.00		7.31	1.99	8.63	2.48	9.94	2.97	10.80	3.29	11.16	3.47	11.40	3.48	11.64	3.52
37.00		7.31	2.12	8.63	2.64	9.94	3.16	10.80	3.42	11.16	3.69	11.40	3.70	11.64	3.74
39.00		7.31	2.13	8.63	2.65	9.94	3.17	10.80	3.44	11.16	3.71	11.40	3.72	11.64	3.76
41.00		7.31	2.14	8.63	2.66	9.94	3.19	10.80	3.46	11.16	3.72	11.40	3.74	11.64	3.77
43.00		7.31	2.15	8.63	2.67	9.94	3.20	10.80	3.47	11.16	3.74	11.40	3.75	11.64	3.79

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	7.44	2.61	7.44	2.67	7.44	2.72	7.15	2.61	6.85	2.49	6.26	2.25
-12.6	-13	7.86	2.66	7.86	2.71	7.86	2.77	7.55	2.65	7.23	2.53	6.61	2.28
-10.5	-11	8.27	2.70	8.27	2.76	8.27	2.81	7.94	2.69	7.62	2.57	6.96	2.32
-9.5	-10	8.47	2.72	8.47	2.78	8.47	2.84	8.13	2.71	7.80	2.59	7.12	2.34
-8.5	-9.1	8.67	2.74	8.67	2.80	8.67	2.86	8.32	2.73	7.98	2.61	7.29	2.36
-7	-7.6	8.96	2.77	8.96	2.83	8.96	2.89	8.61	2.76	8.25	2.64	7.54	2.38
-5	-5.6	9.36	2.81	9.36	2.87	9.36	2.93	8.99	2.80	8.61	2.68	7.87	2.42
-3	-3.7	9.75	2.85	9.75	2.91	9.75	2.98	9.36	2.85	8.98	2.71	8.20	2.45
0	-0.7	10.34	2.92	10.34	2.98	10.34	3.04	9.93	2.91	9.52	2.77	8.70	2.51
3	2.2	10.93	2.98	10.93	3.04	10.93	3.10	10.50	2.97	10.07	2.83	9.20	2.56
5	4.1	11.33	3.02	11.33	3.08	11.33	3.15	10.88	3.01	10.43	2.87	9.53	2.60
7	6	11.72	3.06	11.72	3.12	11.85	3.19	11.26	3.05	10.79	2.91	9.86	2.63
9	7.9	11.72	2.96	11.72	3.02	11.85	3.08	11.26	2.95	10.79	2.81	9.86	2.54
11	9.8	11.72	2.85	11.72	2.91	11.85	2.98	11.26	2.85	10.79	2.72	9.86	2.45
13	11.8	11.72	2.75	11.72	2.81	11.85	2.87	11.26	2.74	10.79	2.62	9.86	2.37
15	13.7	11.72	2.65	11.72	2.71	11.85	2.76	11.26	2.64	10.79	2.52	9.86	2.28

HUBI 1081 XR (3-Phase)
Cooling

Outdoor temperature (°C DB)	Indoor temperature(°C WB)													
	14.00		16.00		18.00		19.00		20.00		22.00		24.00	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00	7.27	1.09	8.58	1.36	9.90	1.62	10.80	1.76	11.10	1.90	11.35	1.90	11.59	1.92
12.00	7.27	1.11	8.58	1.38	9.90	1.65	10.80	1.79	11.10	1.93	11.35	1.94	11.59	1.96
14.00	7.27	1.13	8.58	1.41	9.90	1.68	10.80	1.83	11.10	1.97	11.35	1.97	11.59	1.99
16.00	7.27	1.15	8.58	1.43	9.90	1.71	10.80	1.86	11.10	2.00	11.35	2.01	11.59	2.03
18.00	7.27	1.17	8.58	1.46	9.90	1.74	10.80	1.89	11.10	2.04	11.35	2.04	11.59	2.06
19.00	7.27	1.19	8.58	1.48	9.90	1.77	10.80	1.92	11.10	2.07	11.35	2.08	11.59	2.10
21.00	7.27	1.27	8.58	1.59	9.90	1.90	10.80	2.06	11.10	2.22	11.35	2.23	11.59	2.25
23.00	7.27	1.36	8.58	1.70	9.90	2.04	10.80	2.21	11.10	2.38	11.35	2.39	11.59	2.41
25.00	7.27	1.46	8.58	1.82	9.90	2.18	10.80	2.36	11.10	2.55	11.35	2.56	11.59	2.58
27.00	7.27	1.56	8.58	1.95	9.90	2.33	10.80	2.53	11.10	2.72	11.35	2.73	11.59	2.76
29.00	7.27	1.67	8.58	2.08	9.90	2.49	10.80	2.70	11.10	2.91	11.35	2.92	11.59	2.95
31.00	7.27	1.78	8.58	2.22	9.90	2.65	10.80	2.88	11.10	3.10	11.35	3.11	11.59	3.14
33.00	7.27	1.89	8.58	2.36	9.90	2.83	10.80	3.06	11.10	3.30	11.35	3.31	11.59	3.35
35.00	7.27	2.01	8.58	2.51	9.90	3.01	10.80	3.32	11.10	3.51	11.35	3.53	11.59	3.56
37.00	7.27	2.14	8.58	2.67	9.90	3.20	10.80	3.47	11.10	3.74	11.35	3.75	11.59	3.79
39.00	7.27	2.15	8.58	2.68	9.90	3.21	10.80	3.48	11.10	3.75	11.35	3.77	11.59	3.80
41.00	7.27	2.16	8.58	2.69	9.90	3.23	10.80	3.50	11.10	3.77	11.35	3.78	11.59	3.82
43.00	7.27	2.17	8.58	2.71	9.90	3.24	10.80	3.51	11.10	3.79	11.35	3.80	11.59	3.84

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	7.00	2.47	7.00	2.52	7.00	2.57	6.72	2.46	6.44	2.35	5.89	2.12
-12.6	-13	7.39	2.51	7.39	2.56	7.39	2.61	7.10	2.50	6.80	2.38	6.22	2.16
-10.5	-11	7.78	2.55	7.78	2.60	7.78	2.66	7.47	2.54	7.16	2.42	6.54	2.19
-9.5	-10	7.96	2.57	7.96	2.62	7.96	2.68	7.65	2.56	7.33	2.44	6.70	2.21
-8.5	-9.1	8.15	2.59	8.15	2.64	8.15	2.70	7.83	2.58	7.50	2.46	6.86	2.22
-7	-7.6	8.43	2.62	8.43	2.67	8.43	2.73	8.09	2.61	7.76	2.49	7.09	2.25
-5	-5.6	8.80	2.65	8.80	2.71	8.80	2.77	8.45	2.65	8.10	2.52	7.40	2.28
-3	-3.7	9.17	2.69	9.17	2.75	9.17	2.81	8.81	2.68	8.44	2.56	7.71	2.32
0	-0.7	9.73	2.75	9.73	2.81	9.73	2.87	9.34	2.74	8.95	2.62	8.18	2.37
3	2.2	10.28	2.81	10.28	2.87	10.28	2.93	9.88	2.80	9.47	2.67	8.65	2.42
5	4.1	10.65	2.85	10.65	2.91	10.65	2.97	10.23	2.84	9.81	2.71	8.96	2.45
7	6	11.03	2.89	11.03	2.95	11.85	3.16	10.59	2.88	10.15	2.75	9.28	2.48
9	7.9	11.03	2.79	11.03	2.85	11.85	3.02	10.59	2.78	10.15	2.65	9.28	2.40
11	9.8	11.03	2.69	11.03	2.75	11.85	2.91	10.59	2.68	10.15	2.56	9.28	2.32
13	11.8	11.03	2.60	11.03	2.65	11.85	2.71	10.59	2.59	10.15	2.47	9.28	2.23
15	13.7	11.03	2.50	11.03	2.55	11.85	2.61	10.59	2.49	10.15	2.38	9.28	2.15

HUBI 1411 XR (1-Phase)**Cooling**

Outdoor temperature(°C DB)		Indoor temperature(°C WB)													
		14.00		16.00		18.00		19.00		20.00		22.00		24.00	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00		9.74	1.45	11.50	1.80	13.26	2.16	14.10	2.34	14.88	2.52	15.20	2.53	15.52	2.55
12.00		9.74	1.47	11.50	1.83	13.26	2.20	14.10	2.38	14.88	2.57	15.20	2.58	15.52	2.60
14.00		9.74	1.50	11.50	1.87	13.26	2.24	14.10	2.42	14.88	2.61	15.20	2.62	15.52	2.65
16.00		9.74	1.53	11.50	1.90	13.26	2.28	14.10	2.47	14.88	2.66	15.20	2.67	15.52	2.69
18.00		9.74	1.55	11.50	1.93	13.26	2.32	14.10	2.51	14.88	2.71	15.20	2.72	15.52	2.74
19.00		9.74	1.58	11.50	1.97	13.26	2.36	14.10	2.55	14.88	2.75	15.20	2.76	15.52	2.79
21.00		9.74	1.69	11.50	2.11	13.26	2.53	14.10	2.74	14.88	2.95	15.20	2.96	15.52	2.99
23.00		9.74	1.81	11.50	2.26	13.26	2.70	14.10	2.93	14.88	3.16	15.20	3.17	15.52	3.20
25.00		9.74	1.94	11.50	2.42	13.26	2.89	14.10	3.14	14.88	3.38	15.20	3.39	15.52	3.43
27.00		9.74	2.07	11.50	2.58	13.26	3.09	14.10	3.36	14.88	3.62	15.20	3.63	15.52	3.66
29.00		9.74	2.21	11.50	2.76	13.26	3.30	14.10	3.58	14.88	3.86	15.20	3.87	15.52	3.91
31.00		9.74	2.36	11.50	2.94	13.26	3.52	14.10	3.82	14.88	4.12	15.20	4.13	15.52	4.17
33.00		9.74	2.52	11.50	3.13	13.26	3.75	14.10	4.07	14.88	4.39	15.20	4.40	15.52	4.44
35.00		9.74	2.68	11.50	3.33	13.26	3.99	14.10	4.33	14.88	4.67	15.20	4.68	15.52	4.73
37.00		9.74	2.85	11.50	3.55	13.26	4.25	14.10	4.61	14.88	4.96	15.20	4.98	15.52	5.03
39.00		9.74	2.86	11.50	3.56	13.26	4.26	14.10	4.63	14.88	4.99	15.20	5.00	15.52	5.05
41.00		9.74	2.87	11.50	3.58	13.26	4.28	14.10	4.65	14.88	5.01	15.20	5.02	15.52	5.07
43.00		9.74	2.88	11.50	3.59	13.26	4.30	14.10	4.67	14.88	5.03	15.20	5.05	15.52	5.10

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	9.68	3.40	9.68	3.47	9.68	3.54	9.29	3.39	8.91	3.23	8.14	2.92
-12.6	-13	10.21	3.46	10.21	3.53	10.21	3.60	9.81	3.45	9.40	3.29	8.59	2.97
-10.5	-11	10.75	3.51	10.75	3.59	10.75	3.66	10.33	3.50	9.90	3.34	9.05	3.02
-9.5	-10	11.01	3.54	11.01	3.61	11.01	3.69	10.57	3.53	10.14	3.37	9.26	3.04
-8.5	-9.1	11.27	3.57	11.27	3.64	11.27	3.72	10.82	3.55	10.37	3.39	9.48	3.07
-7	-7.6	11.65	3.61	11.65	3.68	11.65	3.76	11.19	3.59	10.73	3.43	9.80	3.10
-5	-5.6	12.16	3.66	12.16	3.74	12.16	3.82	11.68	3.65	11.20	3.48	10.23	3.15
-3	-3.7	12.68	3.71	12.68	3.79	12.68	3.87	12.17	3.70	11.67	3.53	10.66	3.19
0	-0.7	13.45	3.79	13.45	3.87	13.45	3.95	12.91	3.78	12.38	3.61	11.31	3.26
3	2.2	14.21	3.87	14.21	3.96	14.21	4.04	13.65	3.86	13.09	3.68	11.96	3.33
5	4.1	14.73	3.93	14.73	4.01	14.73	4.09	14.14	3.91	13.56	3.74	12.39	3.38
7	6	15.24	3.98	15.24	4.07	15.40	4.15	14.64	3.97	14.03	3.79	12.82	3.42
9	7.9	15.24	3.85	15.24	3.93	15.40	4.01	14.64	3.83	14.03	3.66	12.82	3.31
11	9.8	15.24	3.71	15.24	3.79	15.40	3.87	14.64	3.70	14.03	3.53	12.82	3.19
13	11.8	15.24	3.58	15.24	3.66	15.40	3.73	14.64	3.57	14.03	3.40	12.82	3.08
15	13.7	15.24	3.45	15.24	3.52	15.40	3.59	14.64	3.44	14.03	3.28	12.82	2.96

HUBI 1411 XR (3-Phase)
Cooling

Outdoor temperature(°C DB)		Indoor temperature(°C WB)													
		14.00		16.00		18.00		19.00		20.00		22.00		24.00	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00		9.70	1.45	11.45	1.81	13.20	2.17	14.10	2.35	14.81	2.53	15.13	2.54	15.45	2.56
12.00		9.70	1.48	11.45	1.84	13.20	2.21	14.10	2.39	14.81	2.58	15.13	2.59	15.45	2.61
14.00		9.70	1.51	11.45	1.88	13.20	2.25	14.10	2.44	14.81	2.63	15.13	2.63	15.45	2.66
16.00		9.70	1.53	11.45	1.91	13.20	2.29	14.10	2.48	14.81	2.67	15.13	2.68	15.45	2.71
18.00		9.70	1.56	11.45	1.94	13.20	2.33	14.10	2.52	14.81	2.72	15.13	2.73	15.45	2.75
19.00		9.70	1.59	11.45	1.98	13.20	2.37	14.10	2.57	14.81	2.77	15.13	2.78	15.45	2.80
21.00		9.70	1.70	11.45	2.12	13.20	2.54	14.10	2.75	14.81	2.97	15.13	2.98	15.45	3.00
23.00		9.70	1.82	11.45	2.27	13.20	2.72	14.10	2.95	14.81	3.18	15.13	3.19	15.45	3.22
25.00		9.70	1.95	11.45	2.43	13.20	2.91	14.10	3.15	14.81	3.40	15.13	3.41	15.45	3.44
27.00		9.70	2.08	11.45	2.60	13.20	3.11	14.10	3.37	14.81	3.63	15.13	3.65	15.45	3.68
29.00		9.70	2.22	11.45	2.77	13.20	3.32	14.10	3.60	14.81	3.88	15.13	3.89	15.45	3.93
31.00		9.70	2.37	11.45	2.96	13.20	3.54	14.10	3.84	14.81	4.14	15.13	4.15	15.45	4.19
33.00		9.70	2.53	11.45	3.15	13.20	3.77	14.10	4.09	14.81	4.41	15.13	4.42	15.45	4.46
35.00		9.70	2.69	11.45	3.35	13.20	4.01	14.10	4.34	14.81	4.69	15.13	4.70	15.45	4.75
37.00		9.70	2.86	11.45	3.56	13.20	4.27	14.10	4.63	14.81	4.99	15.13	5.00	15.45	5.05
39.00		9.70	2.87	11.45	3.58	13.20	4.28	14.10	4.65	14.81	5.01	15.13	5.02	15.45	5.07
41.00		9.70	2.88	11.45	3.59	13.20	4.30	14.10	4.67	14.81	5.03	15.13	5.05	15.45	5.10
43.00		9.70	2.90	11.45	3.61	13.20	4.32	14.10	4.69	14.81	5.06	15.13	5.07	15.45	5.12

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	9.82	3.44	9.82	3.51	9.82	3.59	9.43	3.43	9.04	3.27	8.26	2.96
-12.6	-13	10.37	3.50	10.37	3.57	10.37	3.65	9.96	3.49	9.55	3.33	8.72	3.01
-10.5	-11	10.92	3.55	10.92	3.63	10.92	3.71	10.48	3.54	10.05	3.38	9.18	3.06
-9.5	-10	11.18	3.58	11.18	3.66	11.18	3.73	10.73	3.57	10.29	3.41	9.40	3.08
-8.5	-9.1	11.44	3.61	11.44	3.69	11.44	3.76	10.98	3.60	10.53	3.43	9.62	3.10
-7	-7.6	11.83	3.65	11.83	3.73	11.83	3.80	11.36	3.64	10.89	3.47	9.95	3.14
-5	-5.6	12.35	3.70	12.35	3.78	12.35	3.86	11.86	3.69	11.37	3.52	10.39	3.18
-3	-3.7	12.87	3.76	12.87	3.84	12.87	3.92	12.36	3.75	11.85	3.57	10.82	3.23
0	-0.7	13.65	3.84	13.65	3.92	13.65	4.00	13.11	3.83	12.56	3.65	11.48	3.30
3	2.2	14.43	3.92	14.43	4.00	14.43	4.09	13.86	3.91	13.28	3.73	12.14	3.37
5	4.1	14.95	3.97	14.95	4.06	14.95	4.14	14.36	3.96	13.76	3.78	12.58	3.42
7	6	15.47	4.03	15.47	4.11	15.40	4.14	14.86	4.02	14.24	3.83	13.01	3.46
9	7.9	15.47	3.89	15.47	3.98	15.40	4.06	14.86	3.88	14.24	3.70	13.01	3.35
11	9.8	15.47	3.76	15.47	3.84	15.40	3.92	14.86	3.75	14.24	3.57	13.01	3.23
13	11.8	15.47	3.62	15.47	3.70	15.40	3.78	14.86	3.61	14.24	3.45	13.01	3.12
15	13.7	15.47	3.49	15.47	3.56	15.40	3.64	14.86	3.48	14.24	3.32	13.01	3.00

HUBI 1761 XR
Cooling

Outdoor temperature(°C DB)		Indoor temperature(°C WB)													
		14.00		16.00		18.00		19.00		20.00		22.00		24.00	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00		11.08	1.66	13.08	2.07	15.08	2.47	17.60	2.68	16.92	2.89	17.29	2.90	17.66	2.93
12.00		11.08	1.69	13.08	2.10	15.08	2.52	17.60	2.73	16.92	2.95	17.29	2.96	17.66	2.98
14.00		11.08	1.72	13.08	2.14	15.08	2.57	17.60	2.78	16.92	3.00	17.29	3.01	17.66	3.04
16.00		11.08	1.75	13.08	2.18	15.08	2.61	17.60	2.83	16.92	3.05	17.29	3.06	17.66	3.09
18.00		11.08	1.78	13.08	2.22	15.08	2.66	17.60	2.88	16.92	3.11	17.29	3.12	17.66	3.15
19.00		11.08	1.81	13.08	2.26	15.08	2.70	17.60	2.93	16.92	3.16	17.29	3.17	17.66	3.20
21.00		11.08	1.94	13.08	2.42	15.08	2.90	17.60	3.14	16.92	3.39	17.29	3.40	17.66	3.43
23.00		11.08	2.08	13.08	2.59	15.08	3.10	17.60	3.37	16.92	3.63	17.29	3.64	17.66	3.68
25.00		11.08	2.23	13.08	2.77	15.08	3.32	17.60	3.60	16.92	3.88	17.29	3.90	17.66	3.93
27.00		11.08	2.38	13.08	2.97	15.08	3.55	17.60	3.85	16.92	4.15	17.29	4.16	17.66	4.21
29.00		11.08	2.54	13.08	3.17	15.08	3.79	17.60	4.11	16.92	4.43	17.29	4.45	17.66	4.49
31.00		11.08	2.71	13.08	3.38	15.08	4.04	17.60	4.39	16.92	4.73	17.29	4.74	17.66	4.79
33.00		11.08	2.89	13.08	3.60	15.08	4.31	17.60	4.67	16.92	5.04	17.29	5.05	17.66	5.10
35.00		11.08	3.07	13.08	3.83	15.08	4.58	17.60	5.35	16.92	5.36	17.29	5.37	17.66	5.43
37.00		11.08	3.27	13.08	4.07	15.08	4.87	17.60	5.29	16.92	5.70	17.29	5.72	17.66	5.77
39.00		11.08	3.28	13.08	4.09	15.08	4.89	17.60	5.31	16.92	5.72	17.29	5.74	17.66	5.80
41.00		11.08	3.30	13.08	4.11	15.08	4.92	17.60	5.33	16.92	5.75	17.29	5.77	17.66	5.82
43.00		11.08	3.31	13.08	4.13	15.08	4.94	17.60	5.36	16.92	5.78	17.29	5.79	17.66	5.85

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	11.17	3.93	11.17	4.02	11.17	4.10	10.73	3.92	10.29	3.74	9.40	3.38
-12.6	-13	11.80	4.00	11.80	4.08	11.80	4.17	11.33	3.99	10.86	3.80	9.92	3.44
-10.5	-11	12.42	4.06	12.42	4.15	12.42	4.24	11.93	4.05	11.43	3.86	10.45	3.49
-9.5	-10	12.71	4.09	12.71	4.18	12.71	4.27	12.21	4.08	11.71	3.89	10.70	3.52
-8.5	-9.1	13.01	4.12	13.01	4.21	13.01	4.30	12.49	4.11	11.98	3.92	10.95	3.55
-7	-7.6	13.45	4.17	13.45	4.26	13.45	4.35	12.92	4.16	12.39	3.97	11.32	3.59
-5	-5.6	14.05	4.23	14.05	4.32	14.05	4.41	13.49	4.22	12.93	4.03	11.82	3.64
-3	-3.7	14.64	4.29	14.64	4.39	14.64	4.48	14.06	4.28	13.48	4.09	12.32	3.69
0	-0.7	15.53	4.39	15.53	4.48	15.53	4.57	14.91	4.37	14.29	4.17	13.06	3.77
3	2.2	16.42	4.48	16.42	4.58	16.42	4.67	15.76	4.47	15.11	4.26	13.81	3.85
5	4.1	17.01	4.54	17.01	4.64	17.01	4.74	16.33	4.53	15.66	4.32	14.31	3.91
7	6	17.60	4.60	17.60	4.70	18.50	4.96	16.90	4.59	16.20	4.38	14.81	3.96
9	7.9	17.60	4.45	17.60	4.54	18.50	4.64	16.90	4.44	16.20	4.23	14.81	3.83
11	9.8	17.60	4.29	17.60	4.39	18.50	4.48	16.90	4.28	16.20	4.09	14.81	3.69
13	11.8	17.60	4.14	17.60	4.23	18.50	4.32	16.90	4.13	16.20	3.94	14.81	3.56
15	13.7	17.60	3.99	17.60	4.07	18.50	4.16	16.90	3.97	16.20	3.79	14.81	3.43

Electric Characteristics

Model	Indoor Unit				Power Supply	Indoor fan motor	
	Hz	Voltage	Min.	Max.	MFA	kW	FLA
HUBI 531 XR	50	220~240	198	254	15	0.055	0.54
HUBI 711 XR	50	220~240	198	254	15	0.074	0.785
HUBI 1081 XR	50	220~240	198	254	15	0.059 x2	0.475
HUBI 1411 XR	50	220~240	198	254	15	0.16	1.47
HUBI 1761 XR	50	220~240	198	254	15	0.16	1.47

Remark:

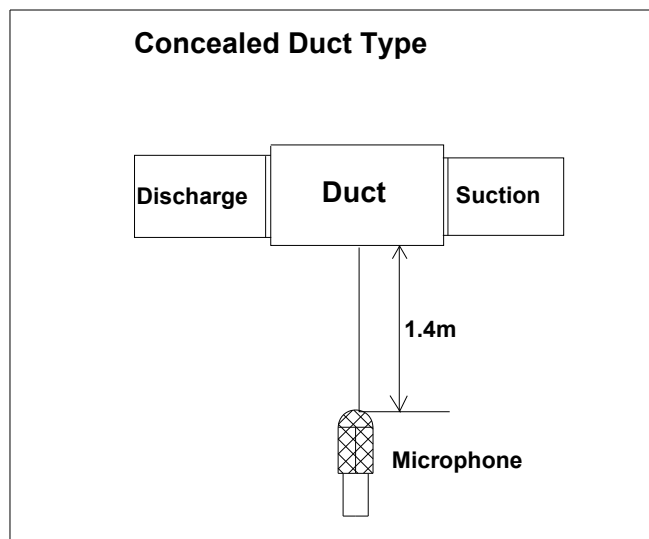
MFA: Max. Fuse Amps. (A)

KW: Fan Motor Rated Output (KW)

FLA: Full Load Amps. (A)

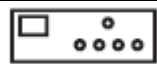
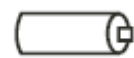
IFM: Indoor Fan Motor

Sound Levels



Model	Noise level dB(A)		
	H	M	L
HUBI 531 XR	45	41	38
HUBI 711 XR	45	43	41
HUBI 1081 XR	46	44	42
HUBI 1411 XR	47	45	43
HUBI 1761 XR	47	45	43

Accessories

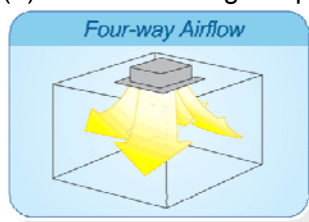
Name	Quantity	Shape	Usage
1.Pipe insulating material	2		(Heat resisting)
2.Drain elbow	1		To connect drain
3.Seal	1		To connect drain
4.Signal receiver display board	1		Receive Signal
5.Remote controller	1		_____
6.Frame	1		_____
7.Mounting screw(ST2.9×10-C-H)	2		_____
8.Alkaline dry batteries(AM4)	2		_____
9.Remote controller manual	1	_____	_____
10.Owner' s manual	1	_____	_____
11.Installation manual	1	_____	_____

Four-way Cassette Type

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Features

- (1) Low operation noise
 - Streamline plate ensures quietness
 - Creates natural and comfortable environment
- (2) Efficient cooling---Equal, fast and wide—range cooling



- (3) Excellent performance. Fin spacing 1.45mm, higher heat-exchanging efficiency and lower noise. The optimal evaporator & sufficient airflow volume guarantees the excellent capacity

- (4) The adoption of the most advanced 3- Dimensional Screw fan
 - Reduces the air resistance passing through
 - Smooths the air flow
 - Makes air speed distribution to the heat exchange uniform



Diffused part

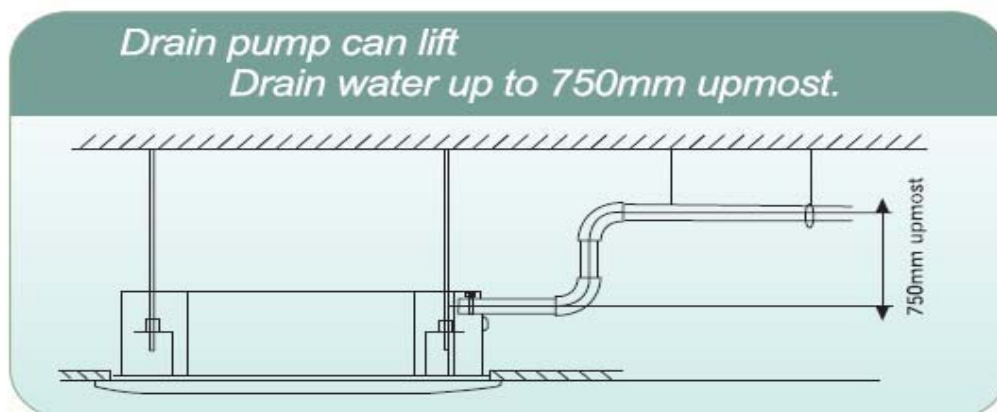
Three-dimension screw fan

- (5) Fresh air makes life healthier and more comfortable.



Fresh Air Intake

- (6) Drainage pump can take up the condenser water to 500mm.



- (7) Ultra thin machine body to easy installation and maintenance. HTBI 711 XR Model:230mm, 1081-1411 XR Models:300mm.

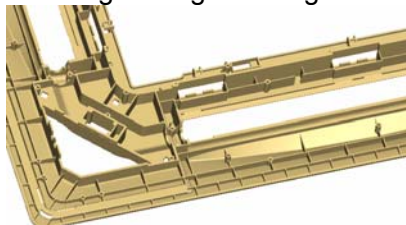


(8) Swing angle of louver

- 1) Add one more swing motor, one motor driving two louvers. Controlling the interspace of each part, minimizing the angle loss.
- 2) The swing angle of the first louver are 40~42 degrees and the second louver are 37~38 degrees. New evaporator and inner configuration designed can acquire high heat-exchanger effect.

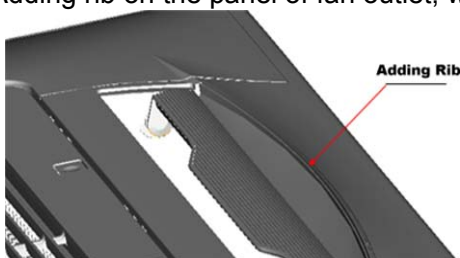


(9) More strengthening rib design around the panel, preventing the distortion for the panel.

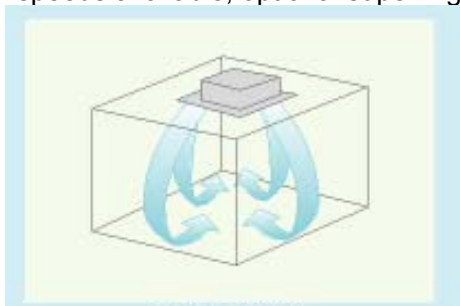


(10) New outlet frame design to make the phenomena of coagulation great improvement: prevent the condensing water from damaging the air guide strip.

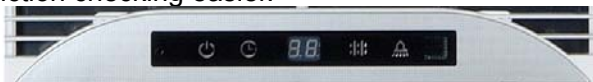
(11) Adding rib on the panel of fan outlet, which can avoid the air outlet direct flow to people.



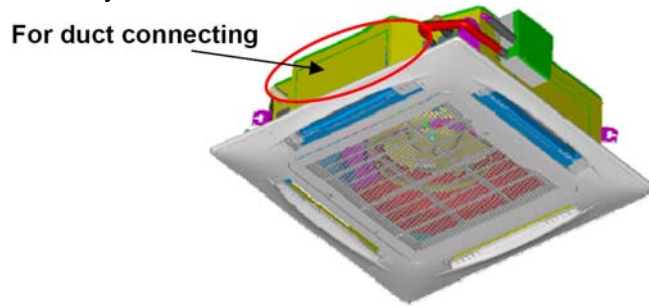
(12) 4 speeds available, optional super high fan speed design suitable for the large building over 3m high.



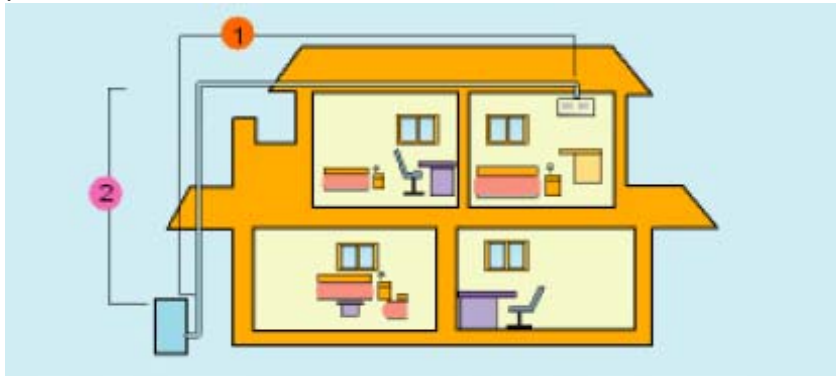
(13) Adding digital tube displaying on the display board. LED can display the Error Code to make the malfunction checking easier.



(14) Reserve spaces for air side-outlet, it is available to connect duct pipe hence Air supplying from the four sides to nearby small room..



(15) The connecting pipe and drop height is higher. Max. pipe length up to 50m (refer to ①) , and Max. drop height up to 20m (refer to ②) .



(16) Optimal design, smaller Control Box, Space saving and convenient for wiring,
Using fire resistance galvanized steel for E-box material. Metal box make the control part more stable and prevent damaging

Specifications

Model	Indoor	Model name	HTBI 711 XR	
		Power supply	220~240V-1 Ph-50Hz	
	Outdoor	Model name	HCKI 711 XR	
		Power supply	220~240V-1 Ph-50Hz	
Cooling	Capacity(Max.-Rated-Min.)		KW	7.85-7.10-1.59
	Input(Max.-Rated-Min.)		KW	2.8-2.18-0.98
	Current(Max.-Rated-Min.)		A	13.2-9.48-4.26
	EER			3.26
Heating	Capacity(Max.-Rated-Min.)		KW	8.5-7.80-1.70
	Input(Max.-Rated-Min.)		KW	2.60-2.09-1.05
	Current(Max.-Rated-Min.)		A	12.23-9.13-4.56
	COP			3.73
Max. input consumption			W	2800
Max. current			A	13.2
Compressor	Model			JU1015D4
	Type			Rotary DC Inverter
	Brand			HITACHI
	Capacity		Btu/h	15013
	Input		W	1585
	Rated current(RLA)		A	8.8
	Thermal protector			-
	Capacitor		uF	-
	Refrigerant oil		ml	HAF68D1U, 580
Indoor motor fan	Model			YDK80-6E
	Type			AC MOTOR
	Input		w	110/100/90
	Capacitor		uF	3.5uF/450V
	Speed(hi/mi/lo)		r/min	670/550/400
Indoor coil	a.Number of rows			2
	b.Tube pitch(a)x row pitch(b)		mm	21 x13.37
	c.Fin spacing		mm	1.45
	d.Fin type (code)			Hydrophilic aluminum
	e.Tube outside dia.and type		mm	Φ7 Inner groove tube
	f.Coil length x height x width		mm	1960x168x26.74
	g.Number of circuits			8
Indoor air flow (Hi/Mi/Lo)			m ³ /h	1220/1010/820
Sound level (sound pressure)			dB(A)	42/40.5/39
Indoor unit	Dimension (W x H x D)		mm	840x230x840
	Packing (W x H x D)		mm	955x247x955
	Net/Gross weight		kg	29/36
Panel	Dimension (W x H x D)		mm	950 x46x950
	Packing (W x H x D)		mm	1035x90x1035
	Net/Gross weight		kg	6/9
Outdoor motor fan	Model			YDK53-6Z
	Type			AC MOTOR
	Input		W	141.5/92
	Capacitor		uF	3uF/450V

	Speed	r/min	815/550
Outdoor coil	Number of rows		2
	Tube pitch(a)x row pitch(b)	mm	25.4/22
	Fin spacing	mm	1.5
	Fin type (code)		Hydrophilic aluminium
	Tube outside dia.and type	mm	9.53 innergroove tube
	Coil length x height x width	mm	748x813x44
	Number of circuits		2
Outdoor air flow(Hi/Low)		m ³ /h	3000/2800
Sound level(sound pressure)(Hi/Low)		dB(A)	53/48
Outdoor unit	Dimension(WxDxH)	mm	895x862x355
	Packing (WxDxH)	mm	1043x915x395
	Net/Gross weight	kg	72/77
Refrigerant	Type		R410A
	Charged volume	g	2200
Throttle type			Electronic expansion valve & Capillary
Design pressure(Hi/Low)		MPa	4.2/2.0
Refrigerant piping	Liquid side/ Gas side	mm	9.53/16
	Max. refrigerant pipe length	m	25
	Max. difference in level(Outdoor is up)	m	15
	Max. difference in level(Outdoor is down)	m	9
Connection wiring	Power wiring (Indoor)	mm ²	3 core×1.0
	Power wiring (Outdoor)	mm ²	3 core x 2.5
	Signal wiring	mm ²	3-core shielded wire x0.5
Drainage water pipe dia.		mm	Φ32
Wireless remote controller			R05/BGE (standard)
Operation temp		°C	17~30
Ambient temp		°C	Cooling: -15~43; Heating: -15~21

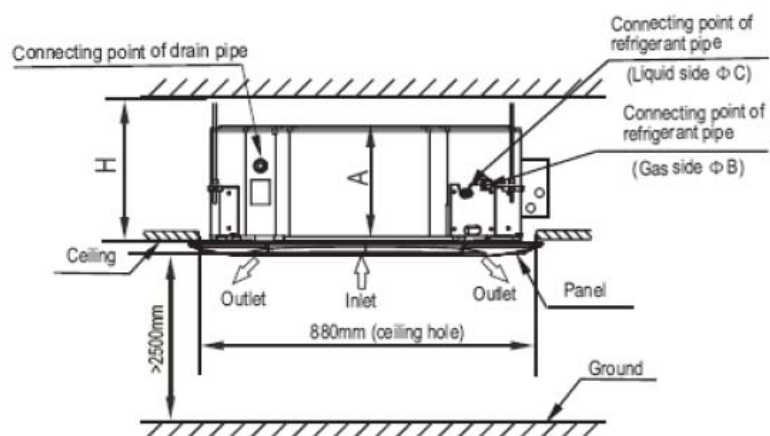
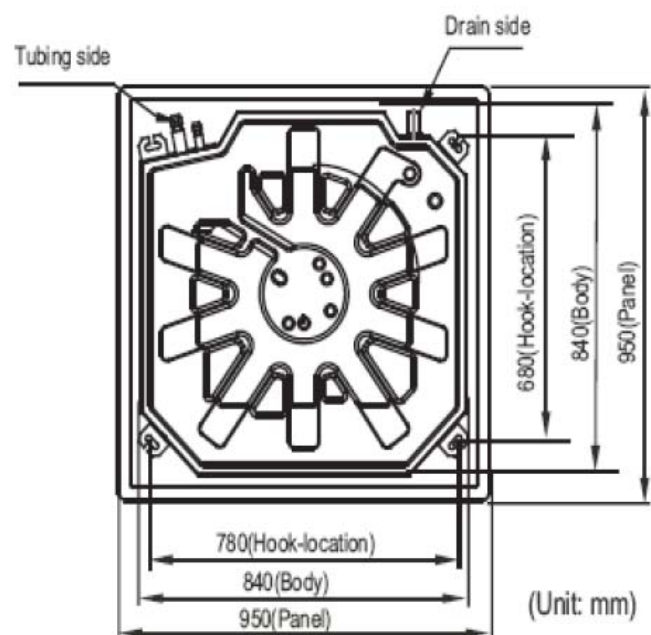
Model	Indoor	Model name	HTBI 1081 XR	HTBI 1081 XR
		Power supply	220~240V-1 Ph-50Hz	220~240V-1 Ph-50Hz
	Outdoor	Model name	HCKI 1081 XR	HCSI 1082 XR
		Power supply	220~240V-1 Ph-50Hz	380V~ -3 Ph-50Hz
Cooling	Capacity(Max.-Rated-Min.)	KW	12.4-10.80-2.9	12.4-10.8-2.9
	Input(Max.-Rated-Min.)	KW	5.5-3.32-2.3	4.9-3.33-2.3
	Current(Max.-Rated-Min.)	A	25-14.13-10	7.5-4.72-3.3
	EER		3.25	3.24
Heating	Capacity(Max.-Rated-Min.)	KW	13.2 -11.85-3.7	13.2-11.85-3.7
	Input(Max.-Rated-Min.)	KW	5.20-3.20-2.0	4.64-3.18-2.0
	Current(Max.-Rated-Min.)	A	23.64-13.91-8.69	7.10-4.36-2.9
	COP		3.71	3.73
Max. input consumption		W	5500	4900
Max. current		A	25	7.5
Compressor	Model		TNB306FPGM	ANB33FBEMT
	Type		Rotor DC Inverter	Scroll DC Inverter
	Brand		MITSUBISHI ELECTRIC	SIAM
	Capacity	Btu/h	33642	36900
	Input	W	3080	3300
	Rated current(RLA)	A	13.5	12.4
	Thermal protector		-	-
	Capacitor	uF	-	-
	Refrigerant oil	ml	FV50S, 870	MEL 56, 1700
Indoor motor fan	Model		YDK90-6E	YDK90-6E
	Type		AC MOTOR	AC MOTOR
	Input	w	143/114/93	143/114/93
	Capacitor	uF	3.5uF/450V	3.5uF/450V
	Speed(hi/mi/lo)	r/min	770/640/550	770/640/550
Indoor coil	a.Number of rows		2	2
	b.Tube pitch(a)x row pitch(b)	mm	21 x13.37	21x13.37
	c.Fin spacing	mm	1.45	1.45
	d.Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ7 Inner groove tube	Φ7 Inner groove tube
	f.Coil length x height x width	mm	1960x252x26.74	1960x252x26.74
	g.Number of circuits		12	12
Indoor air flow (Hi/Mi/Lo)		m ³ /h	1530/1300/1120	1530/1300/1120
Sound level (sound pressure)		dB(A)	44/42.5/41	44/42.5/41
Indoor unit	Dimension (W x H x D)	mm	840x300x840	840x300x840
	Packing (W x H x D)	mm	955x317x955	955x317x955
	Net/Gross weight	kg	36/41	36/41
Panel	Dimension (W x H x D)	mm	950 x46x950	950 x46x950
	Packing (W x H x D)	mm	1035x90x1035	1035x90x1035
	Net/Gross weight	kg	6/9	6/9
Outdoor motor fan	Model		(YDK100-6A)x2	YDK250-6E
	Type		AC MOTOR	AC MOTOR
	Input	W	(158/140)x2	307/194
	Capacitor	uF	(3.5uF/450V)x2	10uF±5% 450V

	Speed	r/min	(890/590)×2	(740/530)×2
Outdoor coil	Number of rows		2.5	2
	Tube pitch(a)× row pitch(b)	mm	25.4×22	25.4×22
	Fin spacing	mm	1.5	1.7
	Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia.and type	mm	Φ9.53 innergroove tube	Φ9.53 innergroove tube
	Coil length x height x width	mm	1152×1220×44	888×915×44
	Number of circuits		8	4
Outdoor air flow(Hi/Low)		m ³ /h	6000/5800	5000/4800
Sound level(sound pressure)(Hi/Low)		dB(A)	57/52	55/50
Outdoor unit	Dimension(WxDxH)	mm	940×1245×400	990×966×396
	Packing (WxDxH)	mm	1058×1380×435	1120×1100×440
	Net/Gross weight	kg	106/114	107/114
Refrigerant	Type		R410A	R410A
	Charged volume	g	4100	2900
Throttle type			Electronic expansion valve & Capillary	
Design pressure(Hi/Low)		MPa	4.2/2.0	4.2/2.0
Refrigerant piping	Liquid side/ Gas side	mm	Φ9.53/Φ16	Φ9.53/Φ16
	Max. refrigerant pipe length	m	30	30
	Max. difference in level(Outdoor is up)	m	20	20
	Max. difference in level(Outdoor is down)	m	12	12
Connection wiring	Power wiring (Indoor)	mm ²	3 core×1.0	3 core×1.0
	Power wiring (Outdoor)	mm ²	3 core x 2.5	5 core x 2.5
	Signal wiring	mm ²	3-core shielded wire x0.5	3-core shielded wire x0.5
Drainage water pipe dia.		mm	Φ32	Φ32
Wireless remote controller			R05/BGE (standard)	
Operation temp		℃	17~30	
Ambient temp		℃	Cooling: -15~43; Heating: -15~21	

Model	Indoor	Model name	HTBI 1411 XR	HTBI 1411 XR
		Power supply	220~240V-1 Ph-50Hz	220~240V-1 Ph-50Hz
	Outdoor	Model name	HCKI 1411 XR	HCSI 1412 XR
		Power supply	220~240V -1 Ph-50Hz	380V~-3 Ph-50Hz
Cooling	Capacity(Max.-Rated-Min.)	KW	15.0-14.10-3.4	15.0-14.10-3.4
	Input(Max.-Rated-Min.)	KW	6.0-4.35-2.5	5.95-4.33-2.5
	Current(Max.-Rated-Min.)	A	28-18.96-10.8	8.5-6.30-3.6
	EER		3.24	3.26
Heating	Capacity(Max.-Rated-Min.)	KW	16.0-15.40-4.2	16.0-15.40-4.2
	Input(Max.-Rated-Min.)	KW	5.6-4.16-2.3	5.55-4.15-2.3
	Current(Max.-Rated-Min.)	A	26.1-18.09-10	7.93-6.13-3.3
	COP		3.70	3.71
Max. input consumption		W	6000	5950
Max. current		A	28	8.5
Compressor	Model		TNB306FPGM	ANB42FBEMT
	Type		Rotor DC Inverter	Scroll DC Inverter
	Brand		MITSUBISHI ELECTRIC	SIAM
	Capacity	Btu/h	33642	47440
	Input	W	3080	4160
	Rated current(RLA)	A	13.5	15.2
	Thermal protector		-	-
	Capacitor	uF	-	-
	Refrigerant oil	ml	FV50S, 870	MEL 56, 1700
Indoor motor fan	Model		YDK90-6E	YDK90-6E
	Type		AC MOTOR	AC MOTOR
	Input	w	143/114/93	143/114/93
	Capacitor	uF	3.5uF/450V	3.5uF/450V
	Speed(hi/mi/lo)	r/min	770/640/550	770/640/550
Indoor coil	a.Number of rows		2	2
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37	21x13.37
	c.Fin spacing	mm	1.45	1.45
	d.Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ7 Inner groove tube	Φ7 Inner groove tube
	f.Coil length x height x width	mm	1960x252x26.74	1960x252x26.74
	g.Number of circuits		12	12
Indoor air flow (Hi/Mi/Lo)		m ³ /h	1530/1300/1120	1530/1300/1120
Sound level (sound pressure)		dB(A)	44/42.5/41	44/42.5/41
Indoor unit	Dimension (W x H x D)	mm	840x300x840	840x300x840
	Packing (W x H x D)	mm	955x317x955	955x317x955
	Net/Gross weight	kg	36/41	36/41
Panel	Dimension (W x H x D)	mm	950 x46x950	950 x46x950
	Packing (W x H x D)	mm	1035x90x1035	1035x90x1035
	Net/Gross weight	kg	6/9	6/9
Outdoor motor fan	Model		(YDK100-6A)x2	(YDK100-6A)×2
	Type		AC MOTOR	AC MOTOR
	Input	W	(158/140)x2	(158/140)×2
	Capacitor	uF	(3.5uF/450V)x2	(3.5uF/450V)×2

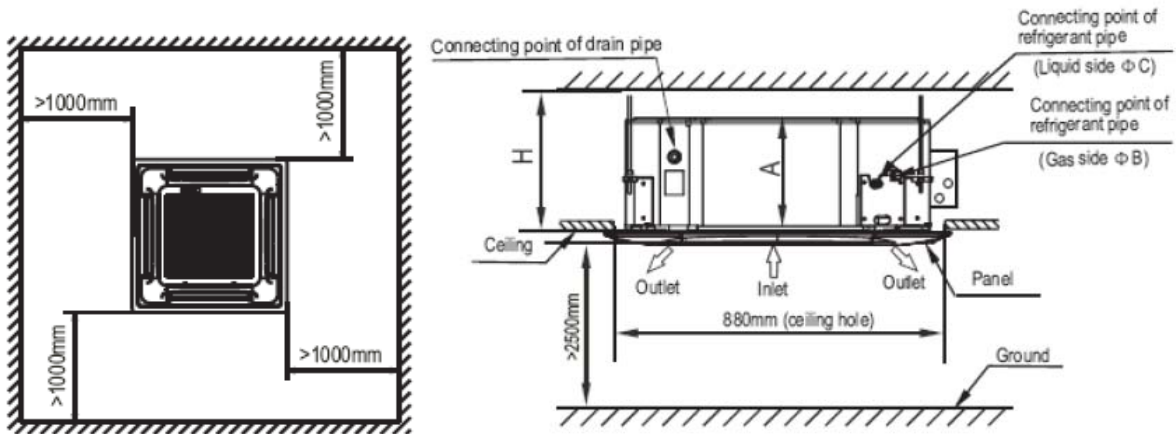
	Speed	r/min	(890/590)x2	(890/590)x2
Outdoor coil	Number of rows		2.5	2
	Tube pitch(a)x row pitch(b)	mm	25.4 x 22	25.4x22
	Fin spacing	mm	1.5	1.8
	Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	Tube outside dia.and type	mm	Φ9.53 innergroove tube	Φ9.53 innergroove tube
	Coil length x height x width	mm	1152x1220x44	1186x1220x44
	Number of circuits		8	4
Outdoor air flow(Hi/Low)		m ³ /h	6000/5800	6000/5800
Sound level(sound pressure)(Hi/Low)		dB(A)	59/54	59/54
Outdoor unit	Dimension(WxDxH)	mm	940x1245x400	940x1245x400
	Packing (WxDxH)	mm	1058x1380x435	1058x1380x435
	Net/Gross weight	kg	106/114	115/121
Refrigerant	Type		R410A	R410A
	Charged volume	g	4450	3850
Throttle type			Electronic expansion valve & Capillary	
Design pressure(Hi/Low)		MPa	4.2/2.0	4.2/2.0
Refrigerant piping	Liquid side/ Gas side	mm	Φ9.53/Φ16	Φ9.53/Φ16
	Max. refrigerant pipe length	m	50	50
	Max. difference in level(Outdoor is up)	m	25	30
	Max. difference in level(Outdoor is down)	m	20	20
Connection wiring	Power wiring (Indoor)	mm ²	3 core×1.0	3 core×1.0
	Power wiring (Outdoor)	mm ²	5 core x 2.5	5 core x 2.5
	Signal wiring	mm ²	3-core shielded wire x0.5	3-core shielded wire x0.5
Drainage water pipe dia.		mm	Φ32	Φ32
Wireless remote controller			R05/BGE (standard)	
Operation temp		℃	17~30	
Ambient temp		℃	Cooling: -15~43; Heating: -15~21	

Dimensions



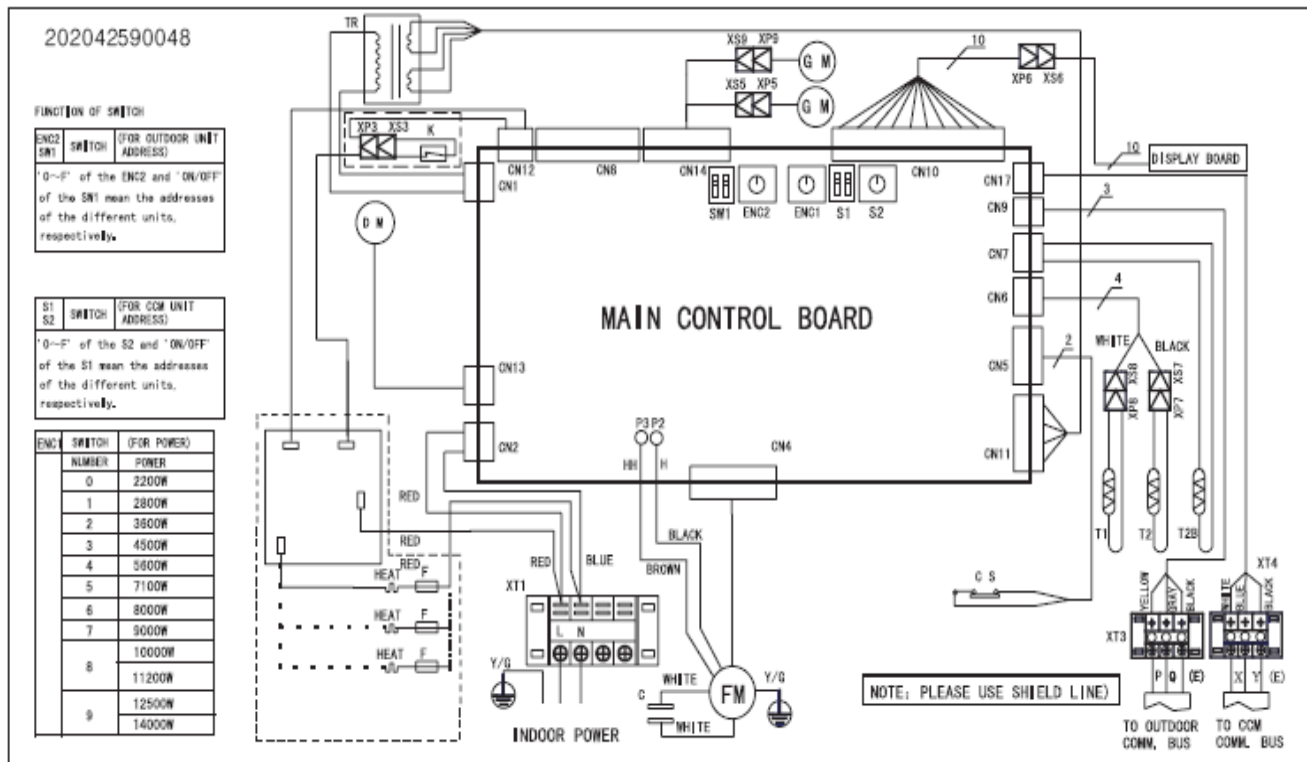
MODEL(Btu/h)	A	B	C	H
HTBI 711 XR	230	Φ 16	Φ 9.53	> 260
HTBI 1081 XR	300	Φ 16	Φ 9.53	> 330
HTBI 1411 XR	300	Φ 16	Φ 9.53	> 330

Service Space

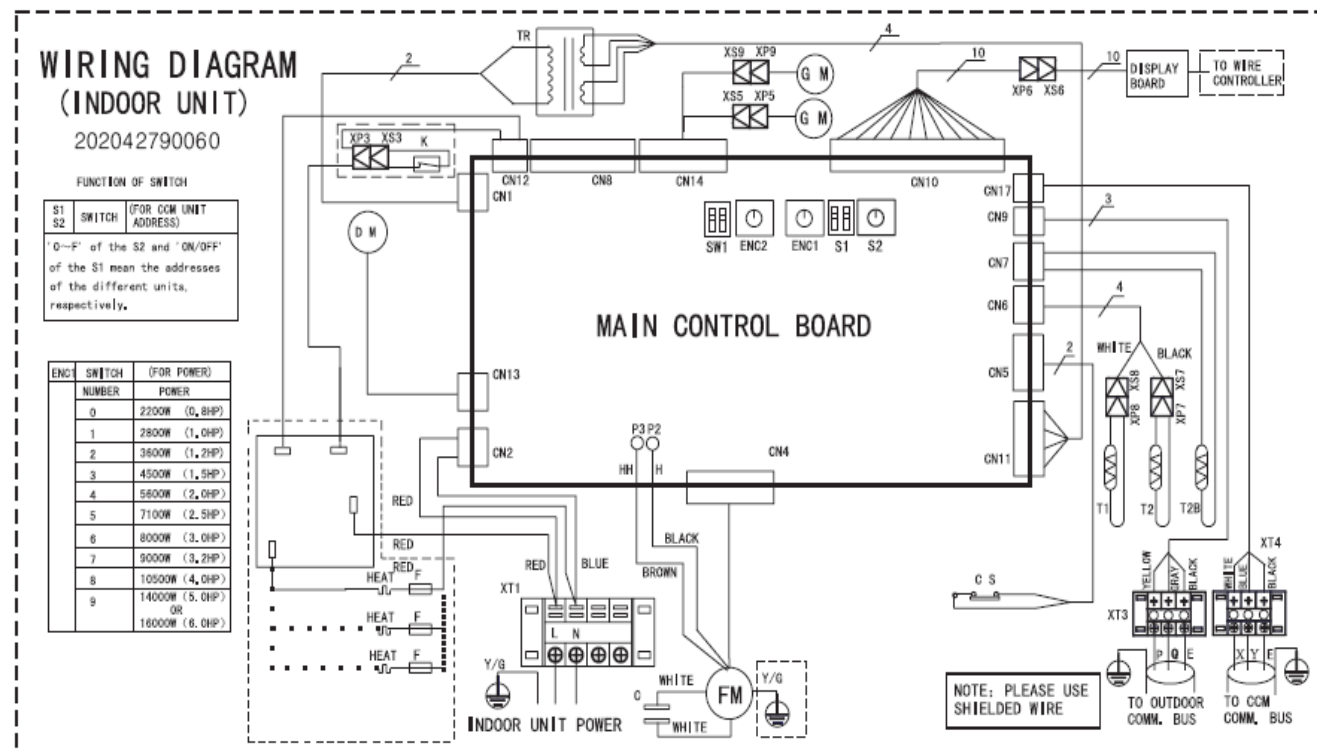


Wiring Diagrams

HTBI 711 XR

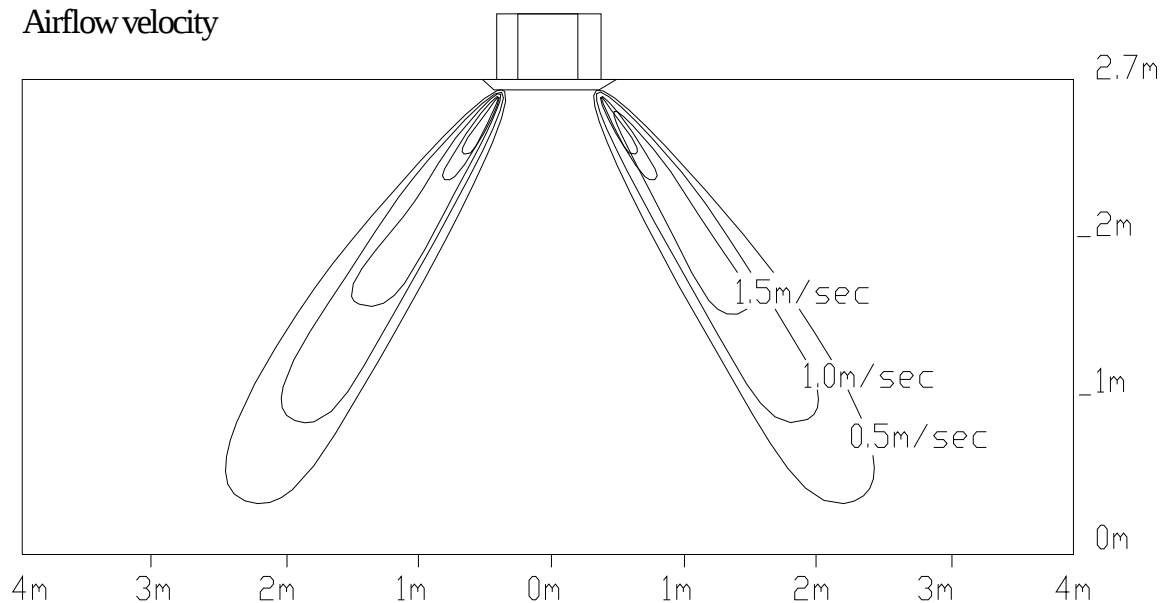


HTBI 1081 XR, HTBI 1411 XR

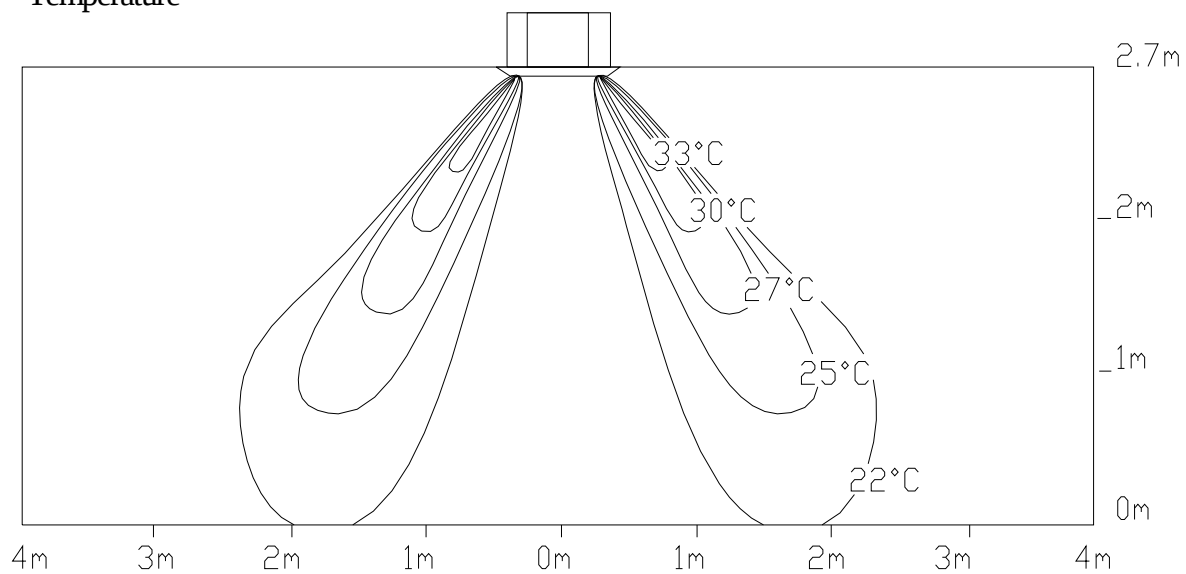


Air Velocity and Temperature Distributions

Airflow velocity



Temperature



Capacity Tables

HTBI 711 XR
Cooling

Outdoor temperature(°C DB)	Indoor temperature(°C WB)													
	14.00		16.00		18.00		19.00		20.00		22.00		24.00	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00	4.87	0.73	5.75	0.91	6.63	1.09	7.10	1.18	7.44	1.27	7.60	1.27	7.76	1.29
12.00	4.87	0.74	5.75	0.92	6.63	1.11	7.10	1.20	7.44	1.29	7.60	1.30	7.76	1.31
14.00	4.87	0.75	5.75	0.94	6.63	1.13	7.10	1.22	7.44	1.32	7.60	1.32	7.76	1.33
16.00	4.87	0.77	5.75	0.96	6.63	1.15	7.10	1.24	7.44	1.34	7.60	1.34	7.76	1.36
18.00	4.87	0.78	5.75	0.97	6.63	1.17	7.10	1.26	7.44	1.36	7.60	1.37	7.76	1.38
19.00	4.87	0.79	5.75	0.99	6.63	1.19	7.10	1.29	7.44	1.39	7.60	1.39	7.76	1.40
21.00	4.87	0.85	5.75	1.06	6.63	1.27	7.10	1.38	7.44	1.49	7.60	1.49	7.76	1.51
23.00	4.87	0.91	5.75	1.14	6.63	1.36	7.10	1.48	7.44	1.59	7.60	1.60	7.76	1.61
25.00	4.87	0.98	5.75	1.22	6.63	1.46	7.10	1.58	7.44	1.70	7.60	1.71	7.76	1.73
27.00	4.87	1.04	5.75	1.30	6.63	1.56	7.10	1.69	7.44	1.82	7.60	1.83	7.76	1.84
29.00	4.87	1.11	5.75	1.39	6.63	1.66	7.10	1.80	7.44	1.94	7.60	1.95	7.76	1.97
31.00	4.87	1.19	5.75	1.48	6.63	1.77	7.10	1.92	7.44	2.07	7.60	2.08	7.76	2.10
33.00	4.87	1.27	5.75	1.58	6.63	1.89	7.10	2.05	7.44	2.21	7.60	2.22	7.76	2.24
35.00	4.87	1.35	5.75	1.68	6.63	2.01	7.10	2.18	7.44	2.35	7.60	2.36	7.76	2.38
37.00	4.87	1.43	5.75	1.79	6.63	2.14	7.10	2.32	7.44	2.50	7.60	2.51	7.76	2.53
39.00	4.87	1.44	5.75	1.79	6.63	2.15	7.10	2.33	7.44	2.51	7.60	2.52	7.76	2.54
41.00	4.87	1.45	5.75	1.80	6.63	2.16	7.10	2.34	7.44	2.52	7.60	2.53	7.76	2.55
43.00	4.87	1.45	5.75	1.81	6.63	2.17	7.10	2.35	7.44	2.53	7.60	2.54	7.76	2.57

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	4.93	1.72	4.93	1.76	4.93	1.79	4.73	1.72	4.54	1.64	4.15	1.48
-12.6	-13	5.20	1.75	5.20	1.79	5.20	1.82	5.00	1.74	4.79	1.66	4.38	1.50
-10.5	-11	5.48	1.78	5.48	1.82	5.48	1.85	5.26	1.77	5.04	1.69	4.61	1.53
-9.5	-10	5.61	1.79	5.61	1.83	5.61	1.87	5.39	1.79	5.16	1.70	4.72	1.54
-8.5	-9.1	5.74	1.80	5.74	1.84	5.74	1.88	5.51	1.80	5.28	1.72	4.83	1.55
-7	-7.6	5.94	1.82	5.94	1.86	5.94	1.90	5.70	1.82	5.46	1.74	4.99	1.57
-5	-5.6	6.20	1.85	6.20	1.89	6.20	1.93	5.95	1.85	5.71	1.76	5.21	1.59
-3	-3.7	6.46	1.88	6.46	1.92	6.46	1.96	6.20	1.87	5.95	1.79	5.43	1.62
0	-0.7	6.85	1.92	6.85	1.96	6.85	2.00	6.58	1.91	6.31	1.83	5.76	1.65
3	2.2	7.24	1.96	7.24	2.00	7.24	2.04	6.96	1.95	6.67	1.86	6.09	1.69
5	4.1	7.50	1.99	7.50	2.03	7.50	2.07	7.21	1.98	6.91	1.89	6.31	1.71
7	6	7.77	2.01	7.77	2.06	7.80	2.09	7.46	2.01	7.15	1.92	6.53	1.73
9	7.9	7.77	1.95	7.77	1.99	7.80	2.03	7.46	1.94	7.15	1.85	6.53	1.67
11	9.8	7.77	1.88	7.77	1.92	7.80	1.96	7.46	1.87	7.15	1.79	6.53	1.62
13	11.8	7.77	1.81	7.77	1.85	7.80	1.89	7.46	1.81	7.15	1.72	6.53	1.56
15	13.7	7.77	1.74	7.77	1.78	7.80	1.82	7.46	1.74	7.15	1.66	6.53	1.50

HTBI 1081 XR (1 Phase)**Cooling**

Outdoor temperature(°C DB)		Indoor temperature(°C WB)													
		14.00		16.00		18.00		19.00		20.00		22.00		24.00	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00		7.31	1.08	8.63	1.35	9.94	1.62	10.80	1.76	11.16	1.89	11.40	1.90	11.64	1.92
12.00		7.31	1.10	8.63	1.38	9.94	1.65	10.80	1.79	11.16	1.93	11.40	1.93	11.64	1.95
14.00		7.31	1.12	8.63	1.40	9.94	1.68	10.80	1.82	11.16	1.96	11.40	1.97	11.64	1.99
16.00		7.31	1.14	8.63	1.43	9.94	1.71	10.80	1.85	11.16	2.00	11.40	2.00	11.64	2.02
18.00		7.31	1.16	8.63	1.45	9.94	1.74	10.80	1.89	11.16	2.03	11.40	2.04	11.64	2.06
19.00		7.31	1.19	8.63	1.48	9.94	1.77	10.80	1.92	11.16	2.07	11.40	2.07	11.64	2.09
21.00		7.31	1.27	8.63	1.58	9.94	1.90	10.80	2.06	11.16	2.22	11.40	2.22	11.64	2.24
23.00		7.31	1.36	8.63	1.70	9.94	2.03	10.80	2.20	11.16	2.37	11.40	2.38	11.64	2.40
25.00		7.31	1.46	8.63	1.81	9.94	2.17	10.80	2.36	11.16	2.54	11.40	2.55	11.64	2.57
27.00		7.31	1.56	8.63	1.94	9.94	2.32	10.80	2.52	11.16	2.72	11.40	2.72	11.64	2.75
29.00		7.31	1.66	8.63	2.07	9.94	2.48	10.80	2.69	11.16	2.90	11.40	2.91	11.64	2.94
31.00		7.31	1.77	8.63	2.21	9.94	2.64	10.80	2.87	11.16	3.09	11.40	3.10	11.64	3.13
33.00		7.31	1.89	8.63	2.35	9.94	2.82	10.80	3.06	11.16	3.29	11.40	3.30	11.64	3.34
35.00		7.31	2.01	8.63	2.50	9.94	3.00	10.80	3.32	11.16	3.50	11.40	3.51	11.64	3.55
37.00		7.31	2.14	8.63	2.66	9.94	3.19	10.80	3.46	11.16	3.73	11.40	3.74	11.64	3.77
39.00		7.31	2.15	8.63	2.67	9.94	3.20	10.80	3.47	11.16	3.74	11.40	3.75	11.64	3.79
41.00		7.31	2.16	8.63	2.69	9.94	3.22	10.80	3.49	11.16	3.76	11.40	3.77	11.64	3.81
43.00		7.31	2.17	8.63	2.70	9.94	3.23	10.80	3.50	11.16	3.78	11.40	3.79	11.64	3.83

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	7.44	2.62	7.44	2.68	7.44	2.73	7.15	2.61	6.85	2.49	6.26	2.25
-12.6	-13	7.86	2.66	7.86	2.72	7.86	2.78	7.55	2.66	7.23	2.54	6.61	2.29
-10.5	-11	8.27	2.71	8.27	2.77	8.27	2.82	7.94	2.70	7.62	2.58	6.96	2.33
-9.5	-10	8.47	2.73	8.47	2.79	8.47	2.85	8.13	2.72	7.80	2.60	7.12	2.35
-8.5	-9.1	8.67	2.75	8.67	2.81	8.67	2.87	8.32	2.74	7.98	2.62	7.29	2.36
-7	-7.6	8.96	2.78	8.96	2.84	8.96	2.90	8.61	2.77	8.25	2.64	7.54	2.39
-5	-5.6	9.36	2.82	9.36	2.88	9.36	2.94	8.99	2.81	8.61	2.68	7.87	2.43
-3	-3.7	9.75	2.86	9.75	2.92	9.75	2.98	9.36	2.85	8.98	2.72	8.20	2.46
0	-0.7	10.34	2.92	10.34	2.99	10.34	3.05	9.93	2.92	9.52	2.78	8.70	2.52
3	2.2	10.93	2.99	10.93	3.05	10.93	3.11	10.50	2.98	10.07	2.84	9.20	2.57
5	4.1	11.33	3.03	11.33	3.09	11.33	3.16	10.88	3.02	10.43	2.88	9.53	2.60
7	6	11.72	3.07	11.72	3.13	11.85	3.19	11.26	3.06	10.79	2.92	9.86	2.64
9	7.9	11.72	2.97	11.72	3.03	11.85	3.09	11.26	2.96	10.79	2.82	9.86	2.55
11	9.8	11.72	2.86	11.72	2.92	11.85	2.99	11.26	2.85	10.79	2.72	9.86	2.46
13	11.8	11.72	2.76	11.72	2.82	11.85	2.88	11.26	2.75	10.79	2.63	9.86	2.37
15	13.7	11.72	2.66	11.72	2.71	11.85	2.77	11.26	2.65	10.79	2.53	9.86	2.28

HTBI 1081 XR (3 Phase)**Cooling**

Outdoor temperature(°C DB)		Indoor temperature(°C WB)													
		14.00		16.00		18.00		19.00		20.00		22.00		24.00	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00		7.27	1.09	8.58	1.36	9.90	1.62	10.80	1.76	11.10	1.90	11.35	1.90	11.59	1.92
12.00		7.27	1.11	8.58	1.38	9.90	1.65	10.80	1.79	11.10	1.93	11.35	1.94	11.59	1.96
14.00		7.27	1.13	8.58	1.41	9.90	1.68	10.80	1.83	11.10	1.97	11.35	1.97	11.59	1.99
16.00		7.27	1.15	8.58	1.43	9.90	1.71	10.80	1.86	11.10	2.00	11.35	2.01	11.59	2.03
18.00		7.27	1.17	8.58	1.46	9.90	1.74	10.80	1.89	11.10	2.04	11.35	2.04	11.59	2.06
19.00		7.27	1.19	8.58	1.48	9.90	1.77	10.80	1.92	11.10	2.07	11.35	2.08	11.59	2.10
21.00		7.27	1.27	8.58	1.59	9.90	1.90	10.80	2.06	11.10	2.22	11.35	2.23	11.59	2.25
23.00		7.27	1.36	8.58	1.70	9.90	2.04	10.80	2.21	11.10	2.38	11.35	2.39	11.59	2.41
25.00		7.27	1.46	8.58	1.82	9.90	2.18	10.80	2.36	11.10	2.55	11.35	2.56	11.59	2.58
27.00		7.27	1.56	8.58	1.95	9.90	2.33	10.80	2.53	11.10	2.72	11.35	2.73	11.59	2.76
29.00		7.27	1.67	8.58	2.08	9.90	2.49	10.80	2.70	11.10	2.91	11.35	2.92	11.59	2.95
31.00		7.27	1.78	8.58	2.22	9.90	2.65	10.80	2.88	11.10	3.10	11.35	3.11	11.59	3.14
33.00		7.27	1.89	8.58	2.36	9.90	2.83	10.80	3.06	11.10	3.30	11.35	3.31	11.59	3.35
35.00		7.27	2.01	8.58	2.51	9.90	3.01	10.80	3.33	11.10	3.51	11.35	3.53	11.59	3.56
37.00		7.27	2.14	8.58	2.67	9.90	3.20	10.80	3.47	11.10	3.74	11.35	3.75	11.59	3.79
39.00		7.27	2.15	8.58	2.68	9.90	3.21	10.80	3.48	11.10	3.75	11.35	3.77	11.59	3.80
41.00		7.27	2.16	8.58	2.69	9.90	3.23	10.80	3.50	11.10	3.77	11.35	3.78	11.59	3.82
43.00		7.27	2.17	8.58	2.71	9.90	3.24	10.80	3.51	11.10	3.79	11.35	3.80	11.59	3.84

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	7.00	2.47	7.00	2.52	7.00	2.57	6.72	2.46	6.44	2.35	5.89	2.12
-12.6	-13	7.39	2.51	7.39	2.56	7.39	2.61	7.10	2.50	6.80	2.38	6.22	2.16
-10.5	-11	7.78	2.55	7.78	2.60	7.78	2.66	7.47	2.54	7.16	2.42	6.54	2.19
-9.5	-10	7.96	2.57	7.96	2.62	7.96	2.68	7.65	2.56	7.33	2.44	6.70	2.21
-8.5	-9.1	8.15	2.59	8.15	2.64	8.15	2.70	7.83	2.58	7.50	2.46	6.86	2.22
-7	-7.6	8.43	2.62	8.43	2.67	8.43	2.73	8.09	2.61	7.76	2.49	7.09	2.25
-5	-5.6	8.80	2.65	8.80	2.71	8.80	2.77	8.45	2.65	8.10	2.52	7.40	2.28
-3	-3.7	9.17	2.69	9.17	2.75	9.17	2.81	8.81	2.68	8.44	2.56	7.71	2.32
0	-0.7	9.73	2.75	9.73	2.81	9.73	2.87	9.34	2.74	8.95	2.62	8.18	2.37
3	2.2	10.28	2.81	10.28	2.87	10.28	2.93	9.88	2.80	9.47	2.67	8.65	2.42
5	4.1	10.65	2.85	10.65	2.91	10.65	2.97	10.23	2.84	9.81	2.71	8.96	2.45
7	6	11.03	2.89	11.03	2.95	11.85	3.18	10.59	2.88	10.15	2.75	9.28	2.48
9	7.9	11.03	2.79	11.03	2.85	11.85	2.91	10.59	2.78	10.15	2.65	9.28	2.40
11	9.8	11.03	2.69	11.03	2.75	11.85	2.81	10.59	2.68	10.15	2.56	9.28	2.32
13	11.8	11.03	2.60	11.03	2.65	11.85	2.71	10.59	2.59	10.15	2.47	9.28	2.23
15	13.7	11.03	2.50	11.03	2.55	11.85	2.61	10.59	2.49	10.15	2.38	9.28	2.15

HTBI 1411 XR (1 Phase)**Cooling**

Outdoor temperature (°C DB)	Indoor temperature(°C WB)													
	14.00		16.00		18.00		19.00		20.00		22.00		24.00	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00	9.74	1.46	11.50	1.81	13.26	2.17	14.10	2.35	14.88	2.54	15.20	2.55	15.52	2.57
12.00	9.74	1.48	11.50	1.85	13.26	2.21	14.10	2.40	14.88	2.59	15.20	2.59	15.52	2.62
14.00	9.74	1.51	11.50	1.88	13.26	2.25	14.10	2.44	14.88	2.63	15.20	2.64	15.52	2.67
16.00	9.74	1.54	11.50	1.91	13.26	2.29	14.10	2.49	14.88	2.68	15.20	2.69	15.52	2.71
18.00	9.74	1.56	11.50	1.95	13.26	2.33	14.10	2.53	14.88	2.73	15.20	2.73	15.52	2.76
19.00	9.74	1.59	11.50	1.98	13.26	2.37	14.10	2.57	14.88	2.77	15.20	2.78	15.52	2.81
21.00	9.74	1.70	11.50	2.12	13.26	2.54	14.10	2.76	14.88	2.97	15.20	2.98	15.52	3.01
23.00	9.74	1.83	11.50	2.27	13.26	2.72	14.10	2.95	14.88	3.18	15.20	3.19	15.52	3.23
25.00	9.74	1.95	11.50	2.43	13.26	2.91	14.10	3.16	14.88	3.41	15.20	3.42	15.52	3.45
27.00	9.74	2.09	11.50	2.60	13.26	3.12	14.10	3.38	14.88	3.64	15.20	3.65	15.52	3.69
29.00	9.74	2.23	11.50	2.78	13.26	3.33	14.10	3.61	14.88	3.89	15.20	3.90	15.52	3.94
31.00	9.74	2.38	11.50	2.96	13.26	3.55	14.10	3.85	14.88	4.15	15.20	4.16	15.52	4.20
33.00	9.74	2.53	11.50	3.16	13.26	3.78	14.10	4.10	14.88	4.42	15.20	4.43	15.52	4.47
35.00	9.74	2.69	11.50	3.36	13.26	4.02	14.10	4.35	14.88	4.70	15.20	4.71	15.52	4.76
37.00	9.74	2.87	11.50	3.57	13.26	4.28	14.10	4.64	14.88	5.00	15.20	5.01	15.52	5.06
39.00	9.74	2.88	11.50	3.59	13.26	4.29	14.10	4.66	14.88	5.02	15.20	5.04	15.52	5.08
41.00	9.74	2.89	11.50	3.60	13.26	4.31	14.10	4.68	14.88	5.04	15.20	5.06	15.52	5.11
43.00	9.74	2.90	11.50	3.62	13.26	4.33	14.10	4.70	14.88	5.07	15.20	5.08	15.52	5.13

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	9.68	3.41	9.68	3.48	9.68	3.55	9.29	3.40	8.91	3.24	8.14	2.93
-12.6	-13	10.21	3.46	10.21	3.54	10.21	3.61	9.81	3.45	9.40	3.30	8.59	2.98
-10.5	-11	10.75	3.52	10.75	3.60	10.75	3.67	10.33	3.51	9.90	3.35	9.05	3.03
-9.5	-10	11.01	3.55	11.01	3.62	11.01	3.70	10.57	3.54	10.14	3.37	9.26	3.05
-8.5	-9.1	11.27	3.57	11.27	3.65	11.27	3.73	10.82	3.56	10.37	3.40	9.48	3.07
-7	-7.6	11.65	3.61	11.65	3.69	11.65	3.77	11.19	3.60	10.73	3.44	9.80	3.11
-5	-5.6	12.16	3.67	12.16	3.75	12.16	3.82	11.68	3.66	11.20	3.49	10.23	3.15
-3	-3.7	12.68	3.72	12.68	3.80	12.68	3.88	12.17	3.71	11.67	3.54	10.66	3.20
0	-0.7	13.45	3.80	13.45	3.88	13.45	3.96	12.91	3.79	12.38	3.62	11.31	3.27
3	2.2	14.21	3.88	14.21	3.97	14.21	4.05	13.65	3.87	13.09	3.69	11.96	3.34
5	4.1	14.73	3.94	14.73	4.02	14.73	4.10	14.14	3.92	13.56	3.74	12.39	3.38
7	6	15.24	3.99	15.24	4.07	15.40	4.16	14.64	3.98	14.03	3.80	12.82	3.43
9	7.9	15.24	3.86	15.24	3.94	15.40	4.02	14.64	3.84	14.03	3.67	12.82	3.32
11	9.8	15.24	3.72	15.24	3.80	15.40	3.88	14.64	3.71	14.03	3.54	12.82	3.20
13	11.8	15.24	3.59	15.24	3.66	15.40	3.74	14.64	3.58	14.03	3.41	12.82	3.09
15	13.7	15.24	3.45	15.24	3.53	15.40	3.60	14.64	3.44	14.03	3.29	12.82	2.97

HTBI 1411 XR (3 Phase)**Cooling**

Outdoor temperature (°C DB)		Indoor temperature(°C WB)													
		14.00		16.00		18.00		19.00		20.00		22.00		24.00	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00		9.70	1.45	11.45	1.81	13.20	2.17	14.10	2.35	14.81	2.53	15.13	2.54	15.45	2.56
12.00		9.70	1.48	11.45	1.84	13.20	2.21	14.10	2.39	14.81	2.58	15.13	2.59	15.45	2.61
14.00		9.70	1.51	11.45	1.88	13.20	2.25	14.10	2.44	14.81	2.63	15.13	2.63	15.45	2.66
16.00		9.70	1.53	11.45	1.91	13.20	2.29	14.10	2.48	14.81	2.67	15.13	2.68	15.45	2.71
18.00		9.70	1.56	11.45	1.94	13.20	2.33	14.10	2.52	14.81	2.72	15.13	2.73	15.45	2.75
19.00		9.70	1.59	11.45	1.98	13.20	2.37	14.10	2.57	14.81	2.77	15.13	2.78	15.45	2.80
21.00		9.70	1.70	11.45	2.12	13.20	2.54	14.10	2.75	14.81	2.97	15.13	2.98	15.45	3.00
23.00		9.70	1.82	11.45	2.27	13.20	2.72	14.10	2.95	14.81	3.18	15.13	3.19	15.45	3.22
25.00		9.70	1.95	11.45	2.43	13.20	2.91	14.10	3.15	14.81	3.40	15.13	3.41	15.45	3.44
27.00		9.70	2.08	11.45	2.60	13.20	3.11	14.10	3.37	14.81	3.63	15.13	3.65	15.45	3.68
29.00		9.70	2.22	11.45	2.77	13.20	3.32	14.10	3.60	14.81	3.88	15.13	3.89	15.45	3.93
31.00		9.70	2.37	11.45	2.96	13.20	3.54	14.10	3.84	14.81	4.14	15.13	4.15	15.45	4.19
33.00		9.70	2.53	11.45	3.15	13.20	3.77	14.10	4.09	14.81	4.41	15.13	4.42	15.45	4.46
35.00		9.70	2.69	11.45	3.35	13.20	4.01	14.10	4.33	14.81	4.69	15.13	4.70	15.45	4.75
37.00		9.70	2.86	11.45	3.56	13.20	4.27	14.10	4.63	14.81	4.99	15.13	5.00	15.45	5.05
39.00		9.70	2.87	11.45	3.58	13.20	4.28	14.10	4.65	14.81	5.01	15.13	5.02	15.45	5.07
41.00		9.70	2.88	11.45	3.59	13.20	4.30	14.10	4.67	14.81	5.03	15.13	5.05	15.45	5.10
43.00		9.70	2.90	11.45	3.61	13.20	4.32	14.10	4.69	14.81	5.06	15.13	5.07	15.45	5.12

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	9.82	3.47	9.82	3.54	9.82	3.61	9.43	3.45	9.04	3.30	8.26	2.98
-12.6	-13	10.37	3.52	10.37	3.60	10.37	3.67	9.96	3.51	9.55	3.35	8.72	3.03
-10.5	-11	10.92	3.58	10.92	3.66	10.92	3.73	10.48	3.57	10.05	3.41	9.18	3.08
-9.5	-10	11.18	3.61	11.18	3.68	11.18	3.76	10.73	3.60	10.29	3.43	9.40	3.10
-8.5	-9.1	11.44	3.63	11.44	3.71	11.44	3.79	10.98	3.62	10.53	3.46	9.62	3.13
-7	-7.6	11.83	3.68	11.83	3.75	11.83	3.83	11.36	3.66	10.89	3.50	9.95	3.16
-5	-5.6	12.35	3.73	12.35	3.81	12.35	3.89	11.86	3.72	11.37	3.55	10.39	3.21
-3	-3.7	12.87	3.78	12.87	3.87	12.87	3.95	12.36	3.77	11.85	3.60	10.82	3.25
0	-0.7	13.65	3.87	13.65	3.95	13.65	4.03	13.11	3.85	12.56	3.68	11.48	3.32
3	2.2	14.43	3.95	14.43	4.03	14.43	4.12	13.86	3.94	13.28	3.76	12.14	3.39
5	4.1	14.95	4.00	14.95	4.09	14.95	4.17	14.36	3.99	13.76	3.81	12.58	3.44
7	6	15.47	4.06	15.47	4.14	15.40	4.15	14.86	4.04	14.24	3.86	13.01	3.49
9	7.9	15.47	3.92	15.47	4.00	15.40	4.09	14.86	3.91	14.24	3.73	13.01	3.37
11	9.8	15.47	3.78	15.47	3.87	15.40	3.95	14.86	3.77	14.24	3.60	13.01	3.25
13	11.8	15.47	3.65	15.47	3.73	15.40	3.80	14.86	3.64	14.24	3.47	13.01	3.14
15	13.7	15.47	3.51	15.47	3.59	15.40	3.66	14.86	3.50	14.24	3.34	13.01	3.02

Electric Characteristics

Model	Indoor Unit				Power Supply	IFM	
	Hz	Voltage	Min	Max	MFA	kW	FLA
HTBI 711 XR	50	220-240	198	254	15	0.065	0.56
HTBI 1081 XR	50	220-240	198	254	15	0.09	0.77
HTBI 1411 XR	50	220-240	198	254	15	0.09	0.77

Remark:

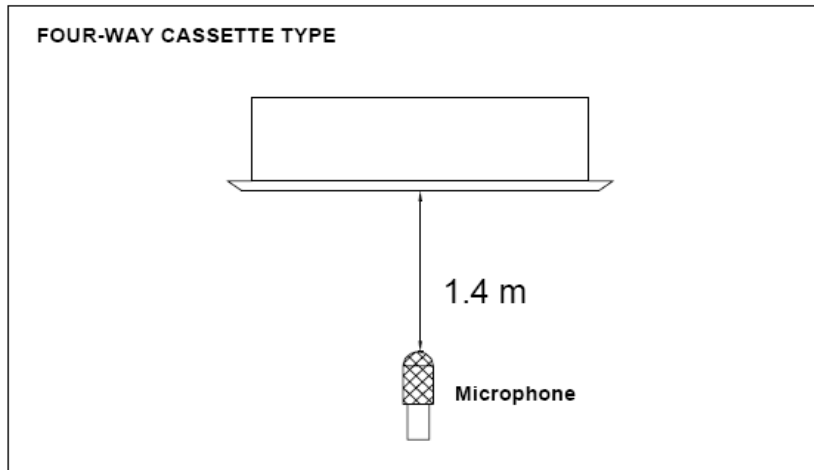
MFA: Max. Fuse Amps. (A)

KW: Fan Motor Rated Output (KW)

FLA: Full Load Amps. (A)

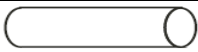
IFM:Indoor Fan Motor

Sound Levels



Model	Noise level dB(A)		
	H	M	L
HTBI 711 XR	42	40.5	39
HTBI 1081 XR	44	42.5	41
HTBI 1411 XR	44	42.5	41

Accessories

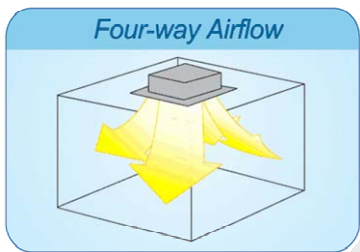
	Name	Shape	Quantity
Installation Fittings	1. Expansible hook		4
	2. Installation hook		4
	3. Installation paper board		1
	4. Bolt M5		4
Tubing & Fittings	5. Connecting pipe group		1
	6. Binding tape		6
	7. Soundproof / insulation sheath		2
Drainpipe Fittings	8. Out-let pipe sheath		1
	9. Out-let pipe clasp		1
	10. Tightening band		20
	11. Drain joint		1
	12. Seal ring		1
Protect Pipe Fittings	13. Wall conduit		1
	14. Wall conduit cover		1
Remote controller & Its Frame	15. Remote controller		1
	16. Frame		1
	17. Mounting screw(ST2.9 10-C-H)		2
	18. Alkaline dry batteries (AM4)		2
Others	19. Owner's manual		1
	20. Installation manual		1
	21. Net work winding		1

Compact Four-way Cassette Type

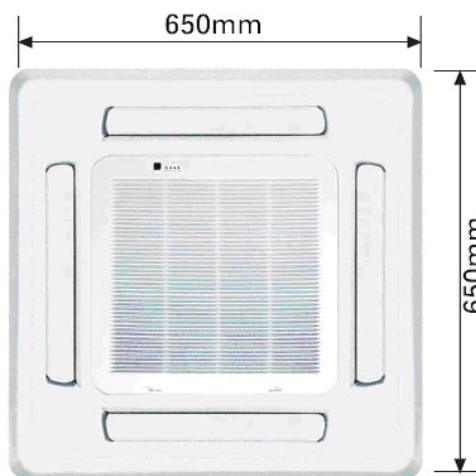
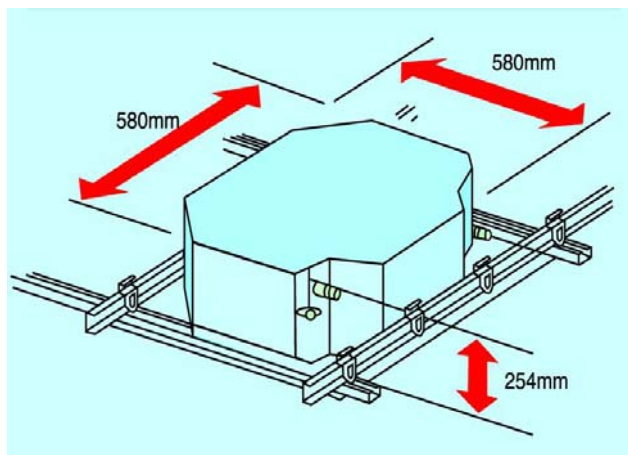
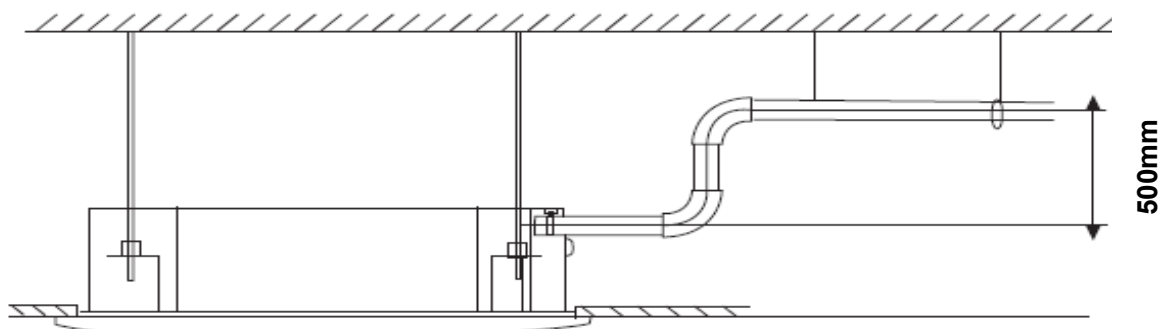
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Features

- (1) Low operation noise
 - Streamline plate ensures quietness
 - Creates natural and comfortable environment
- (2) Efficient cooling
 - Equal, fast and wide—range cooling



- (3) Built-in water pump which pumping head is 500mm up most
- (4) Compact design makes it easy for installation and maintenance

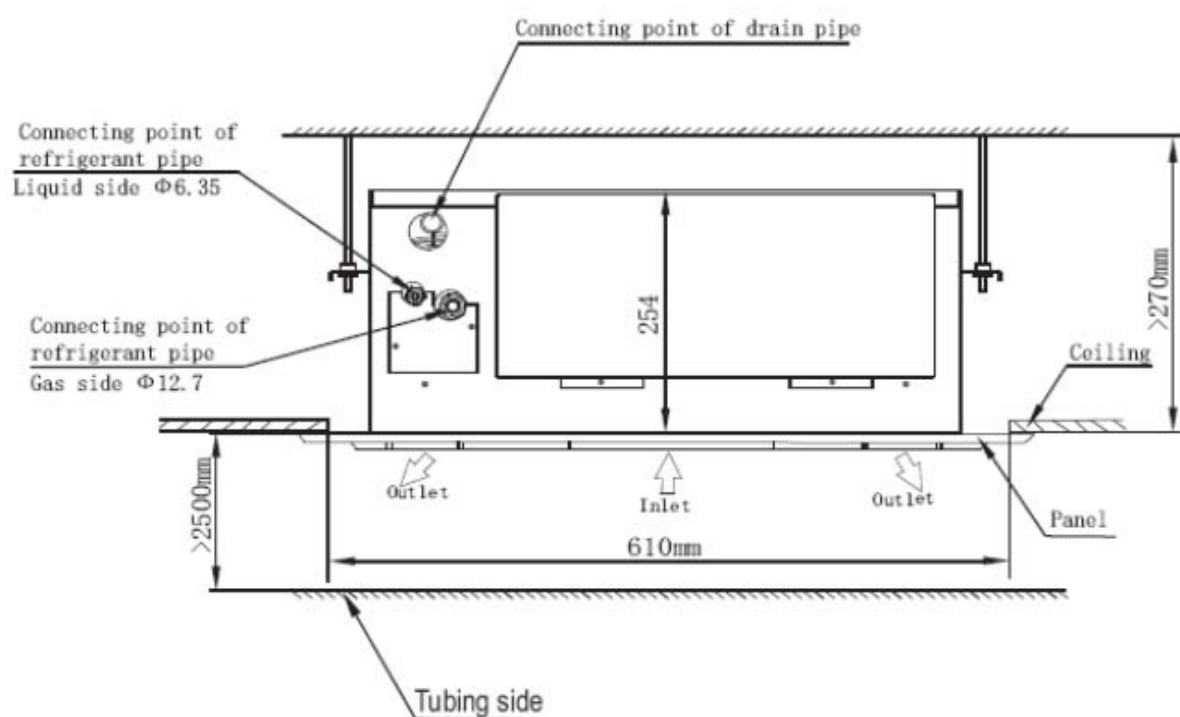
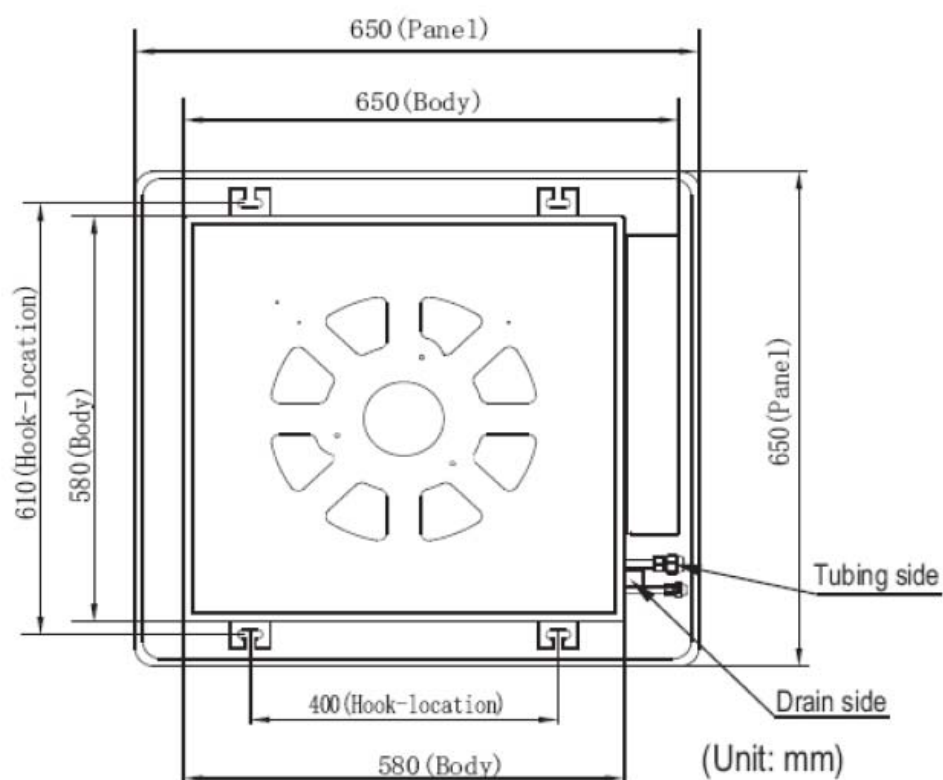


Specification

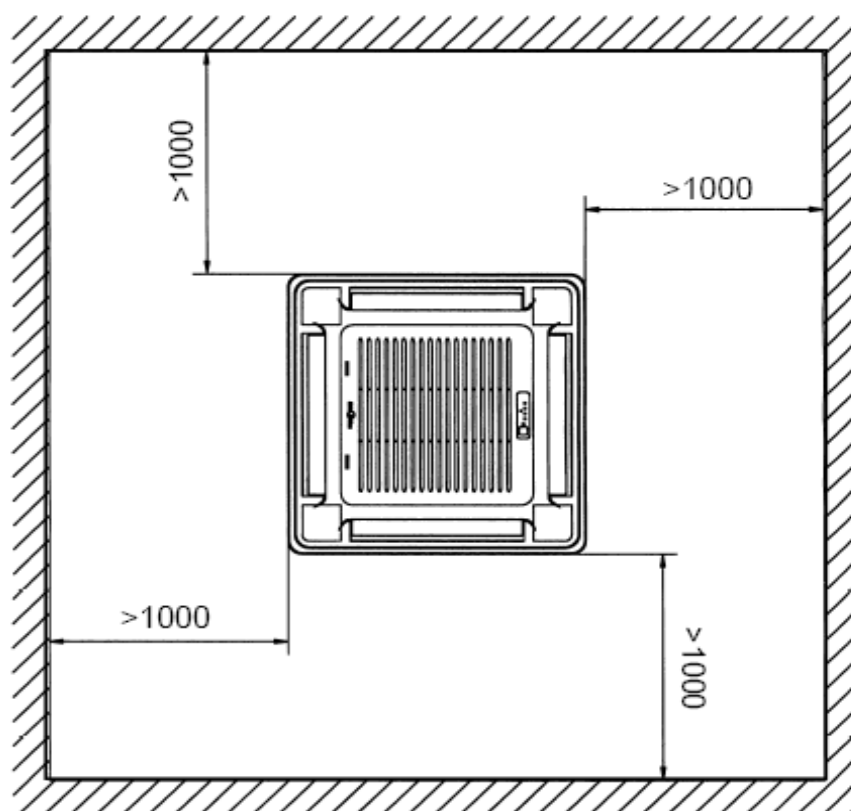
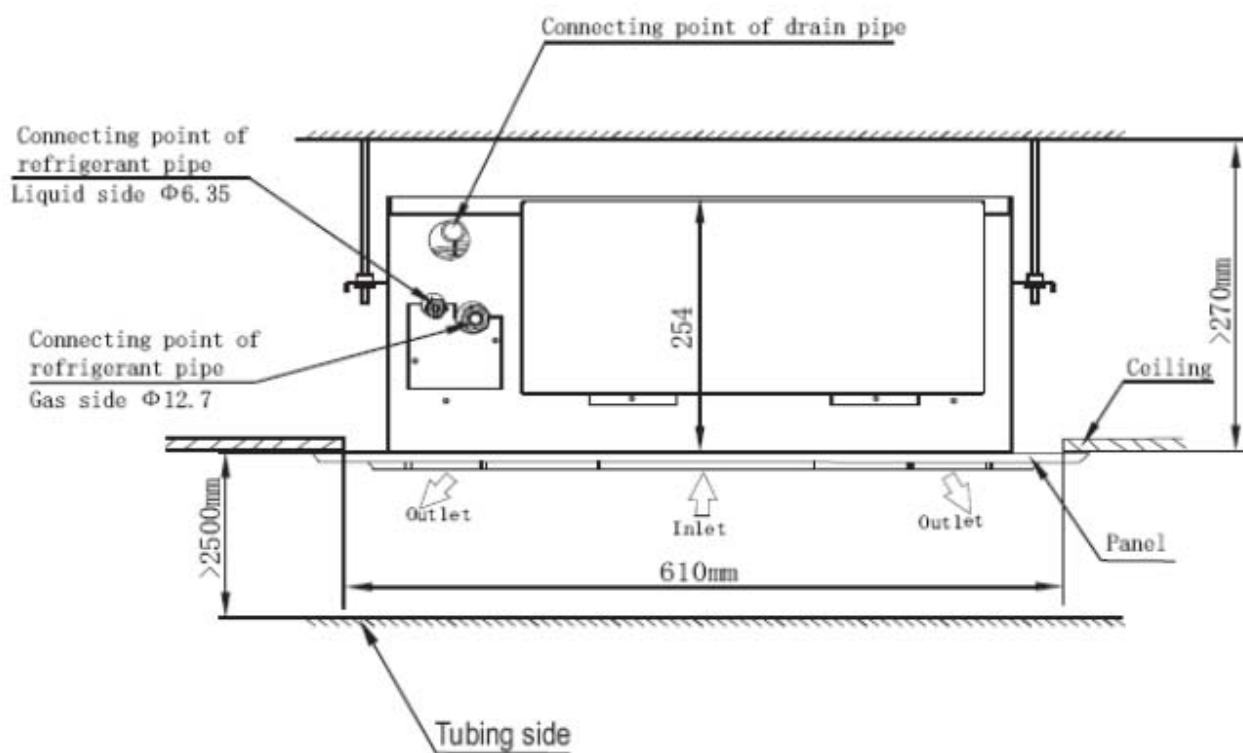
Model	Indoor	Model name	HTFI 351 XR	HTFI 531 XR
		Power supply	220~240V-1 Ph-50Hz	220~240V-1 Ph-50Hz
	Outdoor	Model name	HCKI 351 XR	HCKI 531 XR
		Power supply	220~240V-1 Ph-50Hz	220~240V-1 Ph-50Hz
Cooling	Capacity(Max.-Rated-Min.)		KW	3500
	Input(Max.-Rated-Min.)		KW	1050
	Current(Max.-Rated-Min.)		A	5,6
	EER			3,33
Heating	Capacity(Max.-Rated-Min.)		KW	4000
	Input(Max.-Rated-Min.)		KW	1075
	Current(Max.-Rated-Min.)		A	6,6
	COP			3,72
Max. input consumption		W	2550	2550
Max. current		A	12	12
Compressor	Model		DA108X1C-20FZ3	JU1015D4
	Type		DC Inverter Rotary	Rotary DC Inverter
	Brand		TOSHIBA	HITACHI
	Capacity		Btu/h	10921
	Input		W	855
	Rated current(RLA)		A	5,3
	Thermal protector		Internal	-
	Capacitor		uF	-
	Refrigerant oil		ml	ESTER OIL VG74 480ml
Indoor motor fan	Model		YDK45-4F	YDK45-4F
	Type		AC MOTOR	AC MOTOR
	Input		w	57
	Capacitor		uF	2UF/450V
	Speed(hi/mi/lo)		r/min	930/845/680
Indoor coil	a.Number of rows			2
	b.Tube pitch(a)x row pitch(b)		mm	21 x13.37
	c.Fin spacing		mm	1,4
	d.Fin type (code)			Hydrophilic aluminum
	e.Tube outside dia.and type		mm	Φ7 Inner groove tube
	f.Coil length x height x width		mm	1247 x 210 x 26.74
	g.Number of circuits			5
Indoor air flow (Hi/Mi/Lo)		m ³ /h	683/530/530	683/530/530
Sound level (sound pressure)		dB(A)	42/41/38	42/41/38
Indoor unit	Dimension (W x H x D)		mm	580x254x580
	Packing (W x H x D)		mm	750 x340 x745
	Net/Gross weight		kg	21/28
Panel	Dimension (W x H x D)		mm	650 x30 x650
	Packing (W x H x D)		mm	715 x115 x715
	Net/Gross weight		kg	3/5
Outdoor motor fan	Model		YDK24-6G	YDK53-6Y
	Type		Welling	AC MOTOR
	Input		W	59/47
	Capacitor		uF	2.5

	Speed	r/min	800/550	770/560
Outdoor coil	Number of rows		2	2
	Tube pitch(a)x row pitch(b)	mm	25.4*22	25.4/22
	Fin spacing	mm	1.4	1.7
	Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminum
	Tube outside dia.and type	mm	9.53 innergroove tube	Φ9.53 innergroove tube
	Coil length x height x width	mm	637*558*44	749*660*44
	Number of circuits		2	4
Outdoor air flow(Hi/Low)		m ³ /h	2500/1600	2500/1600
Sound level(sound pressure)(Hi/Low)		dB(A)	48/44	48/44
Outdoor unit	Dimension(WxDxH)	mm	761×593×279	842×695×360
	Packing (WxDxH)	mm	887×655×355	970×770×400
	Net/Gross weight	kg	39.5/42.5	63/67
Refrigerant	Type		R410A	R410A
	Charged volume	g	1400	1700
Throttle type			Capillary	EEV & Capillary
Design pressure(Hi/Low)		MPa	4.2/2.0	4.2/2.0
Refrigerant piping	Liquid side/ Gas side	mm	Φ6.4/Φ12.7	Φ6.35/Φ12.7
	Max. refrigerant pipe length	m	10	25
	Max. difference in level(Outdoor is up)	m	5	15
	Max. difference in level(Outdoor is down)	m	5	9
Connection wiring	Power wiring (Indoor)	mm ²	3×1.5	3 core×1.0
	Power wiring (Outdoor)	mm ²	3 core×1.5	3 core x 2.5
	Signal wiring	mm ²	4-core shielded wire, 4×1.5	3-core shielded wire x0.5
Drainage water pipe dia.		mm	Φ25	Φ25
Wireless remote controller			R11HG/E (standard)	
Operation temp		℃	17~30	17~30
Ambient temp		℃	-5 ~ 43	Cooling: -15~43 Heating: -15~21

Dimension

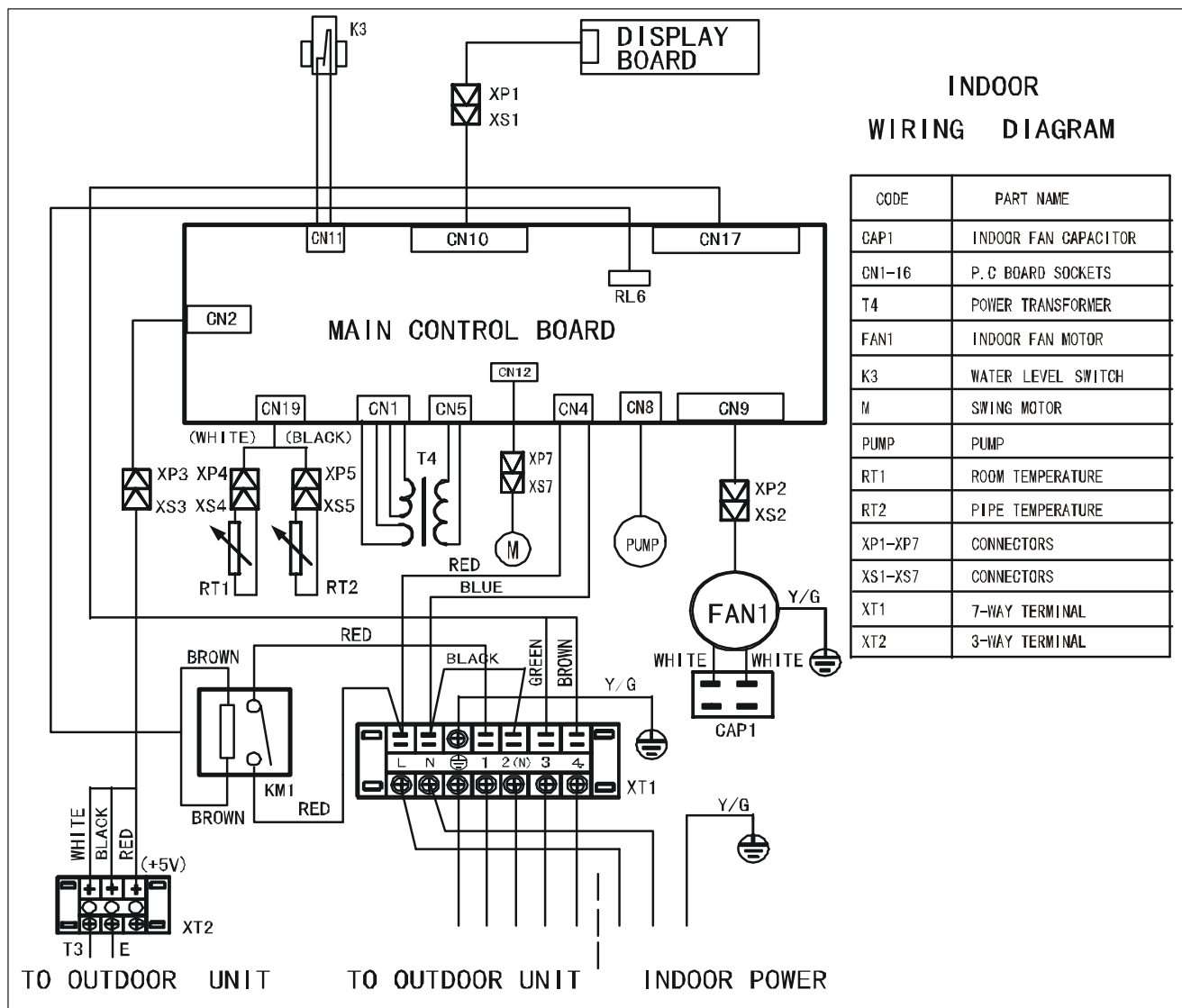


Service Space

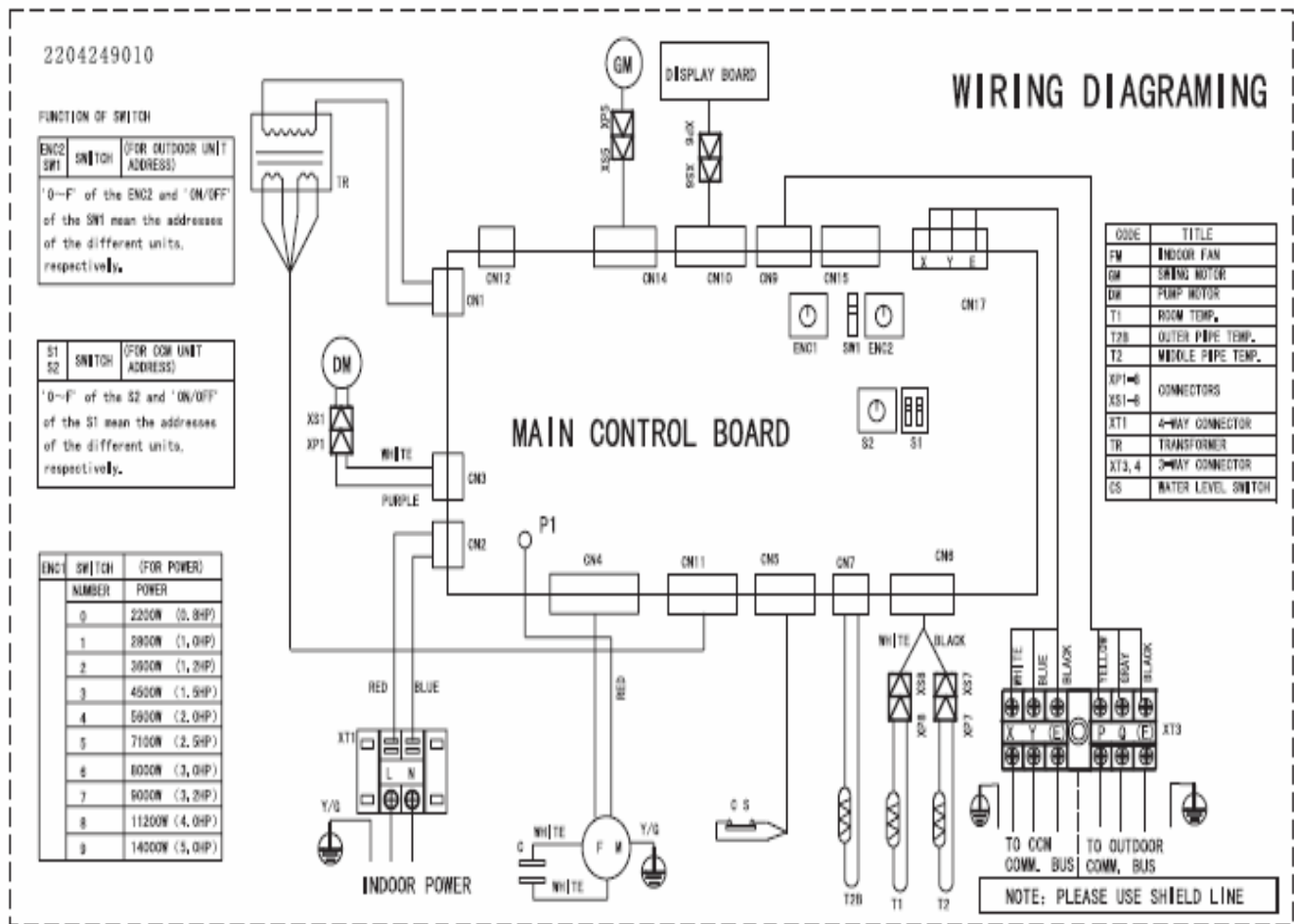


Wiring Diagram

HTFI 351 XR

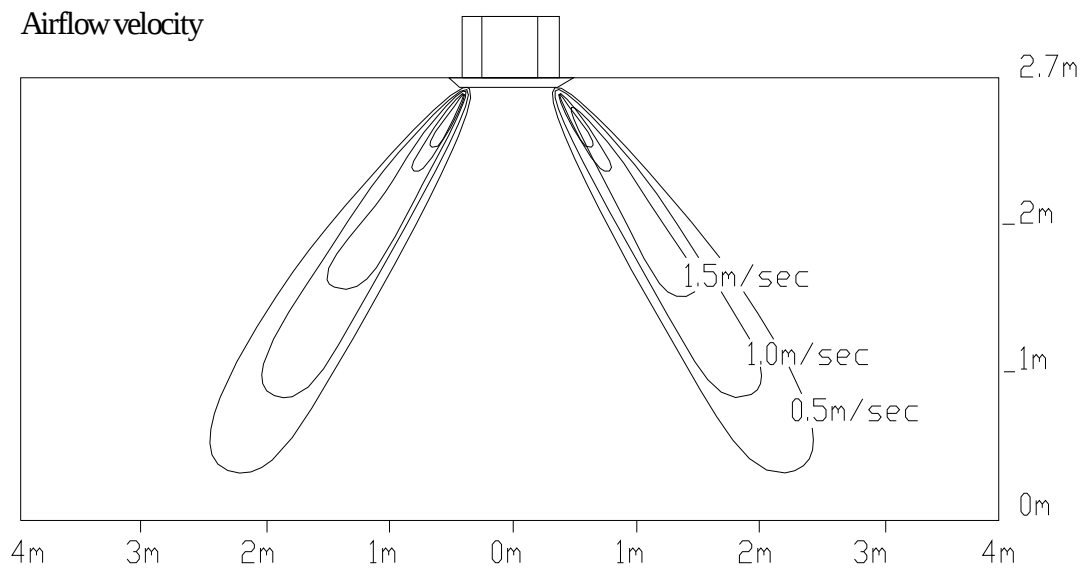


HTFI 531 XR

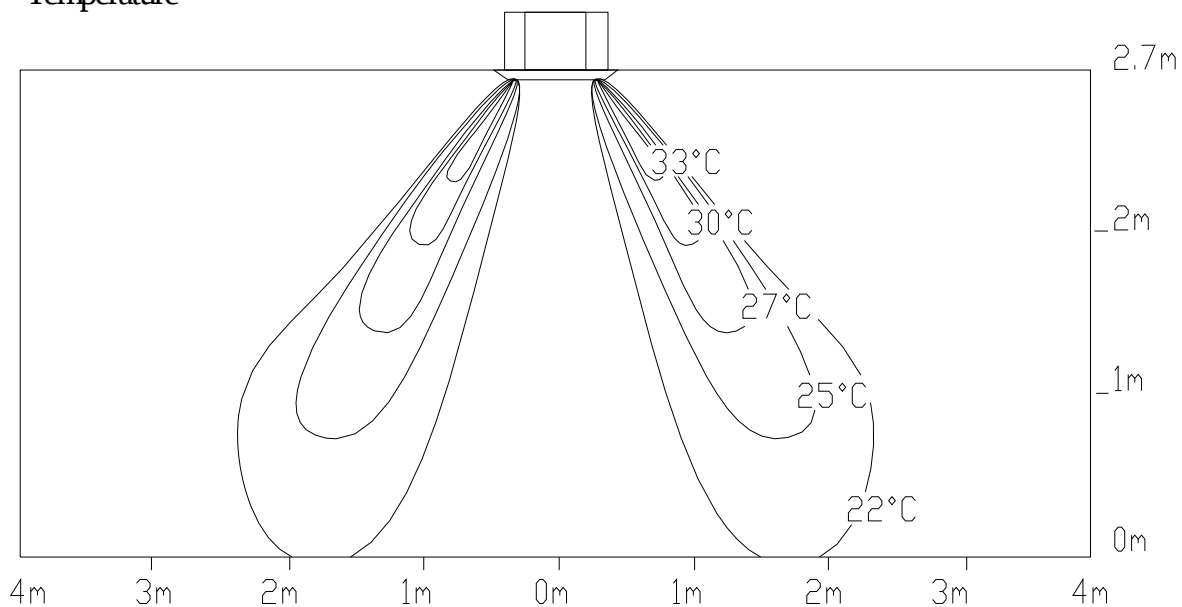


**Air Velocity and Temperature Distribution
(Reference Data) Discharge angle 60°**

Airflow velocity



Temperature



Capacity Tables**HTFI 351 XR****Cooling**

Outdoor temperature(°C DB)	Indoor temperature(°C WB)													
	14.00		16.00		18.00		19.00		20.00		22.00		24.00	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00	2.42	0.35	2.86	0.44	3.30	0.52	3.50	0.57	3.70	0.61	3.78	0.61	3.86	0.62
12.00	2.42	0.36	2.86	0.44	3.30	0.53	3.50	0.58	3.70	0.62	3.78	0.62	3.86	0.63
14.00	2.42	0.36	2.86	0.45	3.30	0.54	3.50	0.59	3.70	0.63	3.78	0.64	3.86	0.64
16.00	2.42	0.37	2.86	0.46	3.30	0.55	3.50	0.60	3.70	0.65	3.78	0.65	3.86	0.65
18.00	2.42	0.38	2.86	0.47	3.30	0.56	3.50	0.61	3.70	0.66	3.78	0.66	3.86	0.66
19.00	2.42	0.38	2.86	0.48	3.30	0.57	3.50	0.62	3.70	0.67	3.78	0.67	3.86	0.68
21.00	2.42	0.41	2.86	0.51	3.30	0.61	3.50	0.66	3.70	0.72	3.78	0.72	3.86	0.73
23.00	2.42	0.44	2.86	0.55	3.30	0.66	3.50	0.71	3.70	0.77	3.78	0.77	3.86	0.78
25.00	2.42	0.47	2.86	0.59	3.30	0.70	3.50	0.76	3.70	0.82	3.78	0.82	3.86	0.83
27.00	2.42	0.50	2.86	0.63	3.30	0.75	3.50	0.81	3.70	0.88	3.78	0.88	3.86	0.89
29.00	2.42	0.54	2.86	0.67	3.30	0.80	3.50	0.87	3.70	0.94	3.78	0.94	3.86	0.95
31.00	2.42	0.57	2.86	0.71	3.30	0.85	3.50	0.93	3.70	1.00	3.78	1.00	3.86	1.01
33.00	2.42	0.61	2.86	0.76	3.30	0.91	3.50	0.99	3.70	1.06	3.78	1.07	3.86	1.08
35.00	2.42	0.65	2.86	0.81	3.30	0.97	3.50	1.05	3.70	1.13	3.78	1.14	3.86	1.15
37.00	2.42	0.69	2.86	0.86	3.30	1.03	3.50	1.12	3.70	1.20	3.78	1.21	3.86	1.22
39.00	2.42	0.69	2.86	0.86	3.30	1.03	3.50	1.12	3.70	1.21	3.78	1.21	3.86	1.22
41.00	2.42	0.70	2.86	0.87	3.30	1.04	3.50	1.13	3.70	1.21	3.78	1.22	3.86	1.23
43.00	2.42	0.70	2.86	0.87	3.30	1.04	3.50	1.13	3.70	1.22	3.78	1.22	3.86	1.24

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	2.54	0.96	2.54	0.98	2.54	1.00	2.44	0.96	2.34	0.91	2.14	0.82
-12.6	-13	2.68	0.97	2.68	1.00	2.68	1.02	2.57	0.97	2.47	0.93	2.26	0.84
-10.5	-11	2.82	0.99	2.82	1.01	2.82	1.03	2.71	0.99	2.60	0.94	2.37	0.85
-9.5	-10	2.89	1.00	2.89	1.02	2.89	1.04	2.77	0.99	2.66	0.95	2.43	0.86
-8.5	-9.1	2.96	1.01	2.96	1.03	2.96	1.05	2.84	1.00	2.72	0.96	2.49	0.86
-7	-7.6	3.06	1.02	3.06	1.04	3.06	1.05	2.94	1.01	2.82	0.97	2.57	0.87
-5	-5.6	3.19	1.03	3.19	1.05	3.19	1.06	3.07	1.03	2.94	0.98	2.69	0.89
-3	-3.7	3.33	1.05	3.33	1.07	3.33	1.06	3.20	1.04	3.06	1.00	2.80	0.90
0	-0.7	3.53	1.07	3.53	1.09	3.53	1.07	3.39	1.07	3.25	1.02	2.97	0.92
3	2.2	3.73	1.09	3.73	1.12	3.73	1.07	3.58	1.09	3.43	1.04	3.14	0.94
5	4.1	3.87	1.11	3.87	1.13	3.87	1.08	3.71	1.10	3.56	1.05	3.25	0.95
7	6	4.00	1.12	4.00	1.15	4.00	1.07	3.84	1.12	3.68	1.07	3.37	0.96
9	7.9	4.00	1.08	4.00	1.11	4.00	1.13	3.84	1.08	3.68	1.03	3.37	0.93
11	9.8	4.00	1.05	4.00	1.07	4.00	1.09	3.84	1.04	3.68	1.00	3.37	0.90
13	11.8	4.00	1.01	4.00	1.03	4.00	1.05	3.84	1.01	3.68	0.96	3.37	0.87
15	13.7	4.00	0.97	4.00	0.99	4.00	1.01	3.84	0.97	3.68	0.92	3.37	0.84

HTFI 531 XR**Cooling**

Outdoor temperature(°C DB)		Indoor temperature(°C WB)													
		14.00		16.00		18.00		19.00		20.00		22.00		24.00	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00		3.65	0.54	4.31	0.67	4.97	0.81	5.30	0.87	5.57	0.94	5.69	0.95	5.82	0.96
12.00		3.65	0.55	4.31	0.69	4.97	0.82	5.30	0.89	5.57	0.96	5.69	0.96	5.82	0.97
14.00		3.65	0.56	4.31	0.70	4.97	0.84	5.30	0.91	5.57	0.98	5.69	0.98	5.82	0.99
16.00		3.65	0.57	4.31	0.71	4.97	0.85	5.30	0.92	5.57	1.00	5.69	1.00	5.82	1.01
18.00		3.65	0.58	4.31	0.72	4.97	0.87	5.30	0.94	5.57	1.01	5.69	1.02	5.82	1.03
19.00		3.65	0.59	4.31	0.74	4.97	0.88	5.30	0.96	5.57	1.03	5.69	1.03	5.82	1.04
21.00		3.65	0.63	4.31	0.79	4.97	0.94	5.30	1.02	5.57	1.10	5.69	1.11	5.82	1.12
23.00		3.65	0.68	4.31	0.85	4.97	1.01	5.30	1.10	5.57	1.18	5.69	1.19	5.82	1.20
25.00		3.65	0.73	4.31	0.90	4.97	1.08	5.30	1.17	5.57	1.27	5.69	1.27	5.82	1.28
27.00		3.65	0.78	4.31	0.97	4.97	1.16	5.30	1.26	5.57	1.35	5.69	1.36	5.82	1.37
29.00		3.65	0.83	4.31	1.03	4.97	1.24	5.30	1.34	5.57	1.45	5.69	1.45	5.82	1.46
31.00		3.65	0.88	4.31	1.10	4.97	1.32	5.30	1.43	5.57	1.54	5.69	1.55	5.82	1.56
33.00		3.65	0.94	4.31	1.17	4.97	1.40	5.30	1.52	5.57	1.64	5.69	1.65	5.82	1.66
35.00		3.65	1.00	4.31	1.25	4.97	1.49	5.30	1.62	5.57	1.75	5.69	1.75	5.82	1.77
37.00		3.65	1.06	4.31	1.33	4.97	1.59	5.30	1.72	5.57	1.86	5.69	1.86	5.82	1.88
39.00		3.65	1.07	4.31	1.33	4.97	1.60	5.30	1.73	5.57	1.87	5.69	1.87	5.82	1.89
41.00		3.65	1.07	4.31	1.34	4.97	1.60	5.30	1.74	5.57	1.87	5.69	1.88	5.82	1.90
43.00		3.65	1.08	4.31	1.34	4.97	1.61	5.30	1.75	5.57	1.88	5.69	1.89	5.82	1.91

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	3.72	1.26	3.72	1.29	3.72	1.32	3.57	1.26	3.43	1.20	3.13	1.09
-12.6	-13	3.93	1.28	3.93	1.31	3.93	1.34	3.77	1.28	3.62	1.22	3.30	1.10
-10.5	-11	4.13	1.30	4.13	1.33	4.13	1.36	3.97	1.30	3.81	1.24	3.48	1.12
-9.5	-10	4.23	1.31	4.23	1.34	4.23	1.37	4.07	1.31	3.90	1.25	3.56	1.13
-8.5	-9.1	4.33	1.32	4.33	1.35	4.33	1.38	4.16	1.32	3.99	1.26	3.64	1.14
-7	-7.6	4.48	1.34	4.48	1.37	4.48	1.40	4.30	1.34	4.12	1.27	3.77	1.15
-5	-5.6	4.68	1.36	4.68	1.39	4.68	1.42	4.49	1.36	4.31	1.29	3.93	1.17
-3	-3.7	4.87	1.38	4.87	1.41	4.87	1.44	4.68	1.38	4.49	1.31	4.10	1.19
0	-0.7	5.17	1.41	5.17	1.44	5.17	1.47	4.96	1.41	4.76	1.34	4.35	1.21
3	2.2	5.47	1.44	5.47	1.47	5.47	1.50	5.25	1.43	5.03	1.37	4.60	1.24
5	4.1	5.66	1.46	5.66	1.49	5.66	1.52	5.44	1.45	5.21	1.39	4.76	1.25
7	6	5.86	1.48	5.86	1.51	5.90	1.58	5.63	1.47	5.39	1.41	4.93	1.27
9	7.9	5.86	1.43	5.86	1.46	5.90	1.49	5.63	1.42	5.39	1.36	4.93	1.23
11	9.8	5.86	1.38	5.86	1.41	5.90	1.44	5.63	1.38	5.39	1.31	4.93	1.19
13	11.8	5.86	1.33	5.86	1.36	5.90	1.39	5.63	1.33	5.39	1.27	4.93	1.14
15	13.7	5.86	1.28	5.86	1.31	5.90	1.33	5.63	1.28	5.39	1.22	4.93	1.10

Electric Characteristics

Model	Indoor Unit				Power Supply	IFM	
	Hz	Voltage	Min.	Max.	MFA	kW	FLA
HTFI 351 XR	50	220~240	198	254	15	0.030	0.222
HTFI 531 XR	50	220~240	198	254	15	0.045	0.264

Remark:

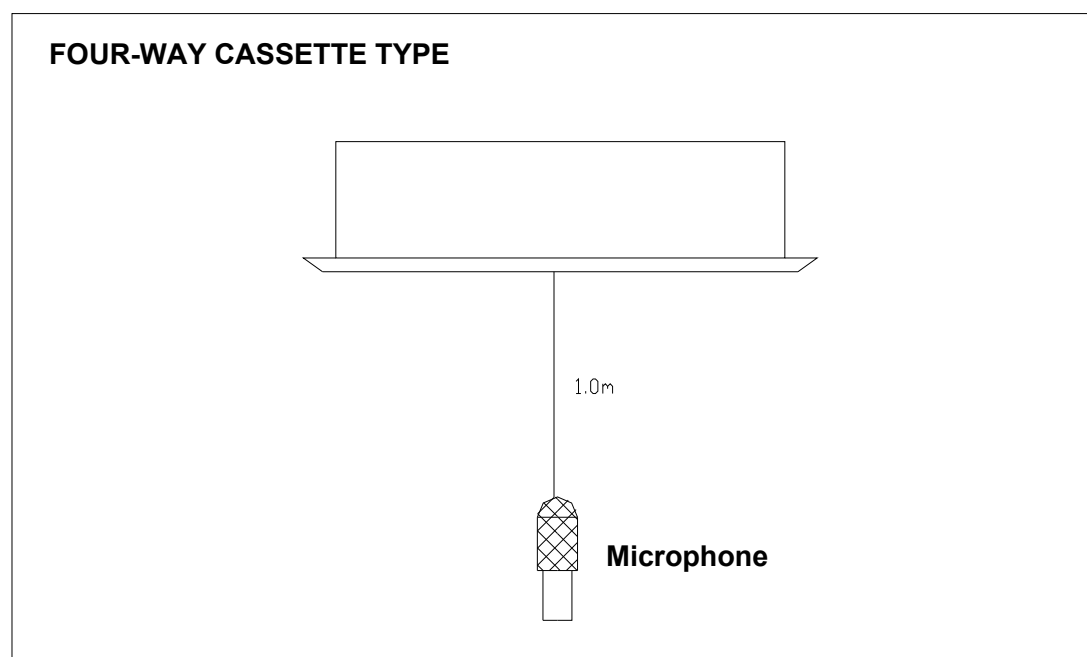
MFA: Max. Fuse Amps. (A)

KW: Fan Motor Rated Output (KW)

FLA: Full Load Amps. (A)

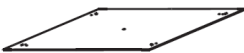
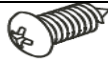
IFM: Indoor Fan Motor

1. Sound Level



Model	Noise level dB(A)		
	H	M	L
HTFI 351 XR	42	41	38
HTFI 531 XR	42	41	38

Accessories

	Name	Shape	Quantity
Installation Fittings	1. Expansible hook		4
	2. Installation hook		4
	3. Installation paper board		1
	4. Bolt M5		4
Tubing & Fittings	5. Connecting pipe group		1
	6. Binding tape		6
	7. Soundproof / insulation sheath		2
Drainpipe Fittings	8. Out-let pipe sheath		1
	9. Out-let pipe clasp		1
	10. Tightening band		20
	11. Drain joint		1
	12. Seal ring		1
Protect Pipe Fittings	13. Wall conduit		1
	14. Wall conduit cover		1
Remote controller & Its Frame	15. Remote controller		1
	16. Frame		1
	17. Mounting screw(ST2.9 10-C-H)		2
	18. Alkaline dry batteries (AM4)		2
Others	19. Owner's manual		1
	20. Installation manual		1
	21. Net work winding		1

Console Type

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1. Features

1.1. Consumes up to 30% less energy than non-inverter units

- DC inverter compressor
- indoor fan motor adopts DC motor

1.2. Achieves set temperature more quickly

- air supplying from top and bottom or from top only
- air inlet from four directions



1.3. Compact unit body, space saving

- this unit body is very thin and harmonious with room. It is beautiful, elegant and space saving.
- lightweight and compact.

1.4. Flexible installation.

- can be used for floor standing or lower wall applications
- as a floor standing floor model, it can be semi or fully recessed without loss of capacity.

1.5. High efficiency filter

- built in Formaldehyde nemesis filter

1.6. Comfort

- flexible air blow: vertical auto swing and wide angle louvers ensure that warm air reaches the furthest corners of the room and increase the air flow coverage
- Low noise operation, lowest to 23Db
- Low starting power and precise room temperature adjustment

1.7. Powerful mode can be selected for rapid cooling or heating.

1.8. Indoor unit adopts DC motor, it has five level fan speed meet different requirements.

2. Specifications

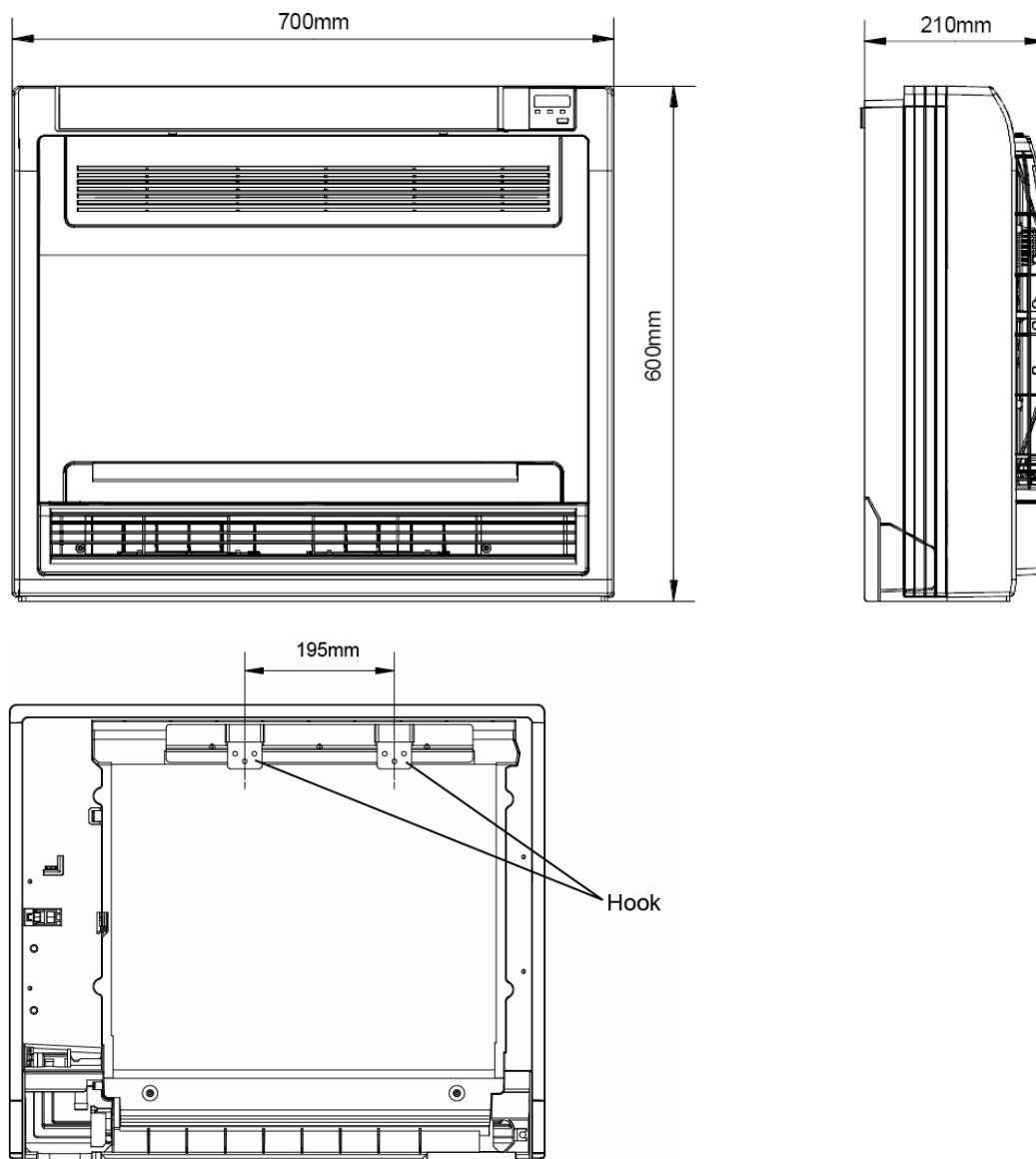
Model	Indoor	Model name	HFII 351 XR	HFII 531 XR
		Power supply	220~240V-1P-50Hz	220~240V-1P-50Hz
	Outdoor	Model name	HCKI 351 XR	HCKI 531 XR
		Power supply	220~240V-1P-50Hz	220~240V-1P-50Hz
Cooling	Capacity	KW	4.1-3.5-1.4	5.7-5.30-1.7
	Input	KW	1.4-1.07-0.35	2.5-1.61-0.55
	Current	A	12-4.3-2.0	12.3-6.7-2.45
	EER		3.26	3.29
Heating	Capacity	KW	4.9-4.0-1.4	6.2-5.90-1.45
	Input	KW	1.88-1.10-0.38	2.6-1.59-0.72
	Rated current	A	12-6.6-2.0	12.3-6.53-3.13
	COP		3.64	3.71
Max. input consumption		W	2550	2600
Max. current		A	12	12.3
Compressor	Model		DA108X1C-20FZ3	JU1015D4
	Type		DC Inverter Rotary	DC Inverter Rotary
	Brand		TOSHIBA	HITACHI
	Capacity	Btu/h	10921	15017
	Input	W	855	1585
	Rated current(RLA)	A	5.3	8.8
	Thermal protector		Internal	Internal
	Capacitor	μF	/	/
	Refrigerant oil	ml	ESTER OIL VG74 480ml	HAF68D1 580ml
Indoor fan motor	Model		RD-280-20-8A	RD-280-20-8A
	Type		DC MOTOR	DC MOTOR
	Input	w	18	28
	Capacitor	μF	/	/
	Speed(hi/mi/lo)	r/min	420/460/560/610/680	530/680/780/840/890
Indoor coil	a.Number of rows		2	2
	b.Tube pitch(a)x row pitch(b)	mm	21*13.37	21*13.37
	c.Fin spacing	mm	1.3	1.3
	d.Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e.Tube outside dia.and type	mm	Φ7 Inner groove tube	Φ7 Inner groove tube
	f.Coil length x height x width	mm	512*318*26.74	512*318*26.74
	g.Number of circuits		2	2
Indoor air flow		m ³ /h	350/380/460/490/550	440/560/640/700/740
Sound level (sound pressure)		dB(A)	23/27/31/33/35	29/31/33/35/38
Indoor unit	Dimension (W x H x D)	mm	700*600*210	700*600*210
	Packing (W x H x D)	mm	810*710*370	810*710*435
	Net/Gross weight	kg	20/25	20/25
Outdoor fan motor	Model		YDK24-6G	YDK53-6Y
	Type		AC MOTOR	AC MOTOR
	Input	W	59/47	129/86
	Capacitor	μF	2.5	3

HOKKAIDO Commercial DC-Inverter

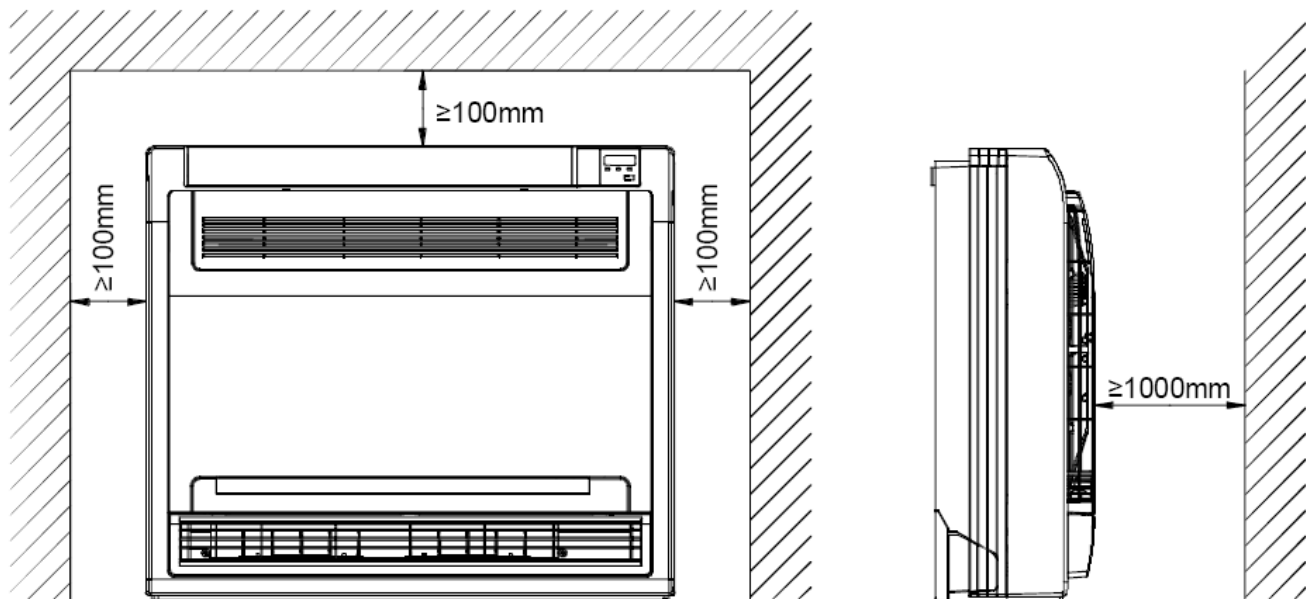
	Speed	r/min	800/550	770/560
Outdoor coil	Number of rows		2	2
	Tube pitch(a)x row pitch(b)	mm	25.4*22	25.4*22
	Fin spacing	mm	1.4	1.7
	Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminum
	Tube outside dia.and type	mm	Φ9.5 innergroove tube	Φ9.5 Innergroove tube
	Coil length x height x width	mm	637*558*44	748*660*44
	Number of circuits		2	2
Outdoor air flow		m ³ /h	2500/1600	2400/1680
Sound level (sound pressure)		dB(A)	48/44	52/47
Outdoor unit	Dimension(WxDxH)	mm	761×593×279	842×695×324
	Packing (WxDxH)	mm	887×655×355	965×770×395
	Net/Gross weight	kg	42/45	62/66
Refrigerant	Type		R410A	R410A
	Charged volume	g	1400	1700
Throttle type			Capillary	EXV
Design pressure (Hi/Lo)		MPa	4.2/2.0	4.2/2.0
Refrigerant piping	Liquid side/ Gas side	mm	φ6.4/12.7	φ6.4/12.7
	Max. refrigerant pipe length	m	10	20
	Max. difference in level(Outdoor is up)	m	5	10
	Max. difference in level (Outdoor is down)	m	5	10
Connection wiring	Power wiring (Indoor)	mm ²	3 core x 1.5	—
	Power wiring (Outdoor)	mm ²	—	3 core×2.5
	Signal wiring	mm ²	4-core shielded wire×1.5	3-core shielded wire x0.5
Wireless remote controller (Indoor)			R51D/E	
Operation temp (Indoor)		℃	17~30	
Ambient temp (Outdoor)		℃	-15~43	Cooling: -15~43; Heating: -15~21

3. Dimensions

HFII 351 XR / HFII 531 XR

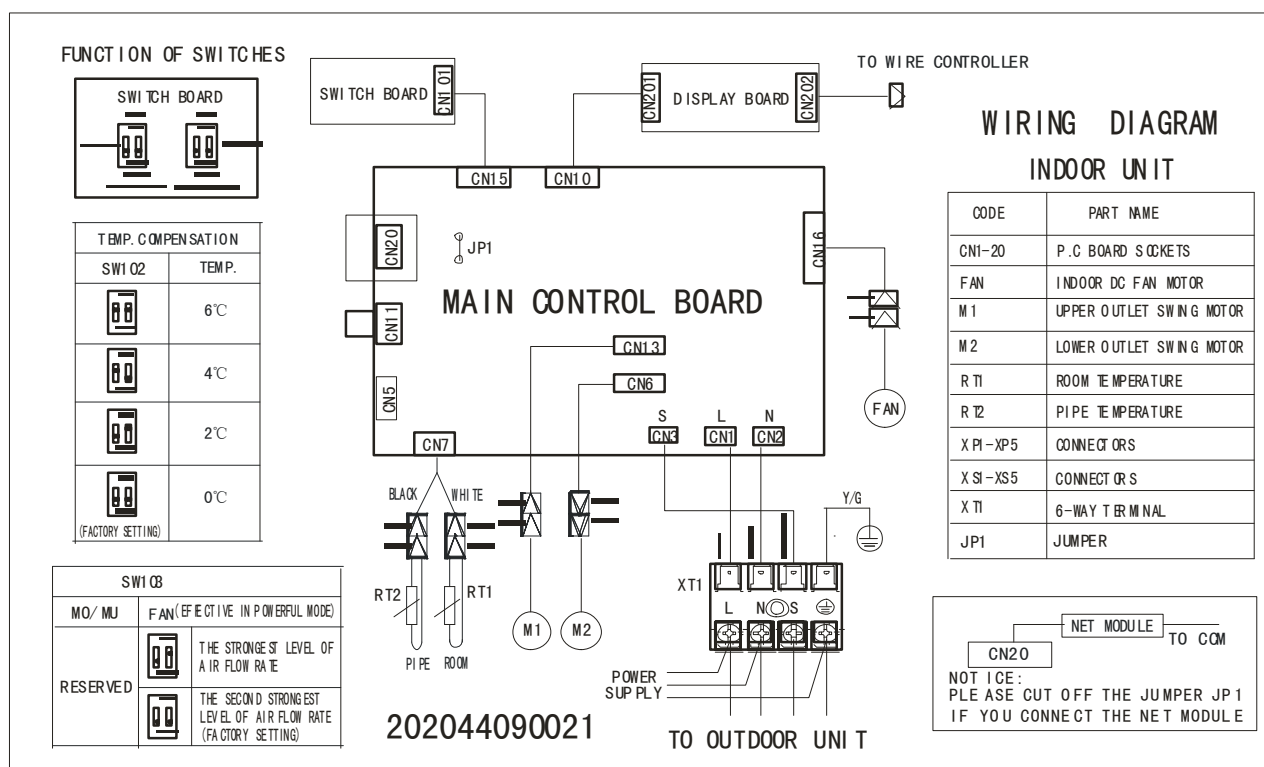


4. Service Space

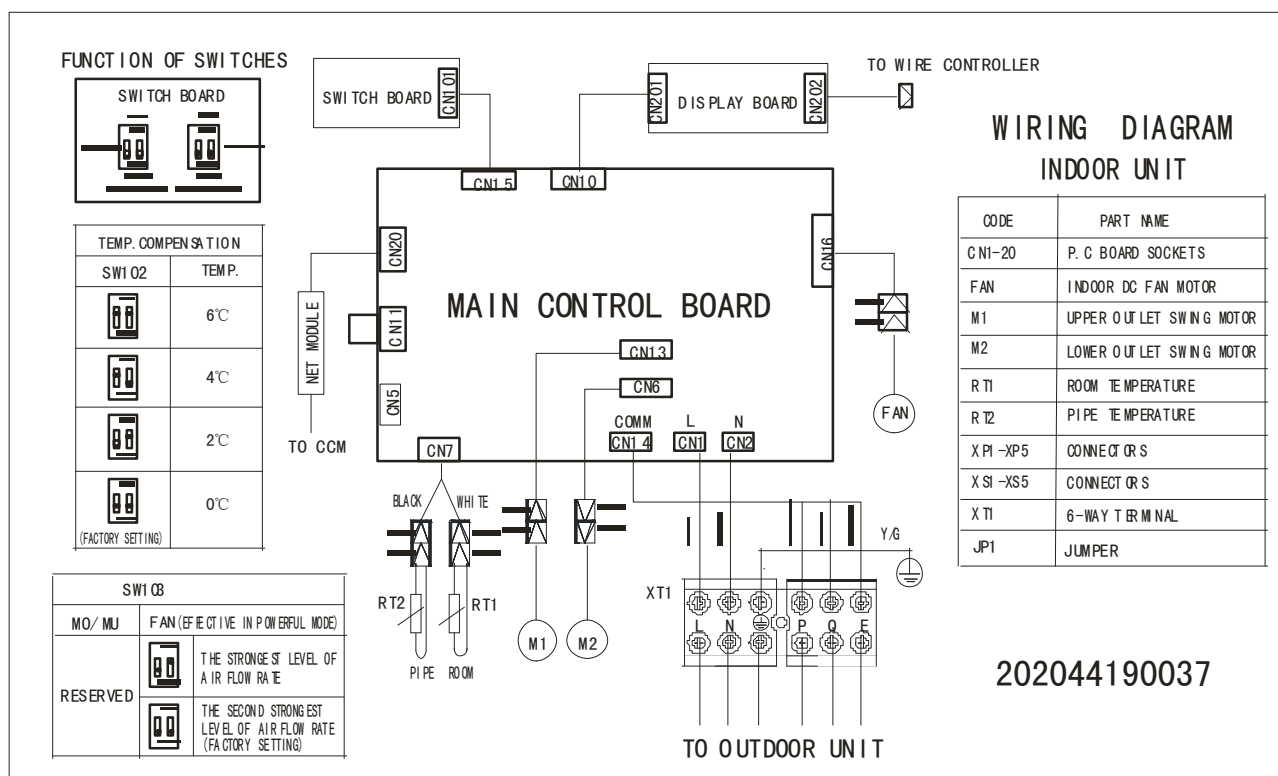


5. Wiring Diagrams

HFII 351 XR



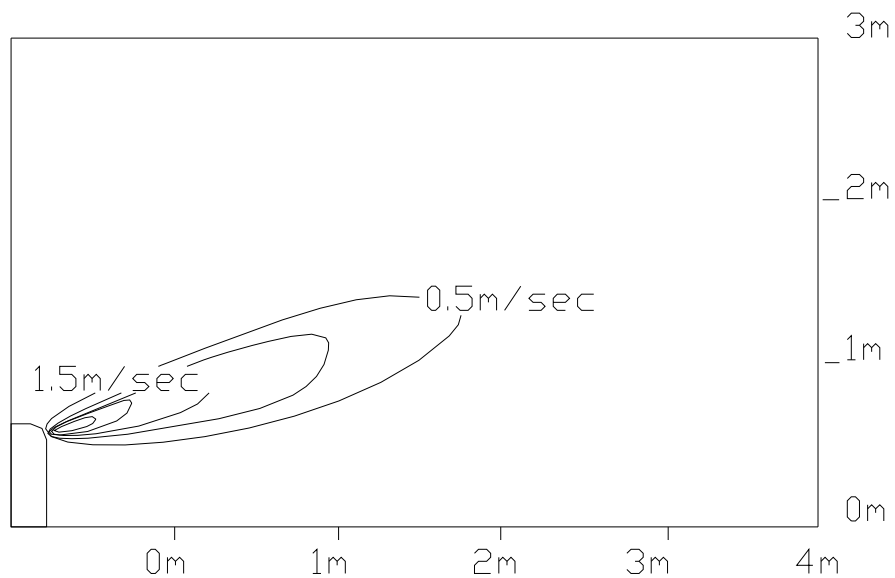
HFII 531 XR



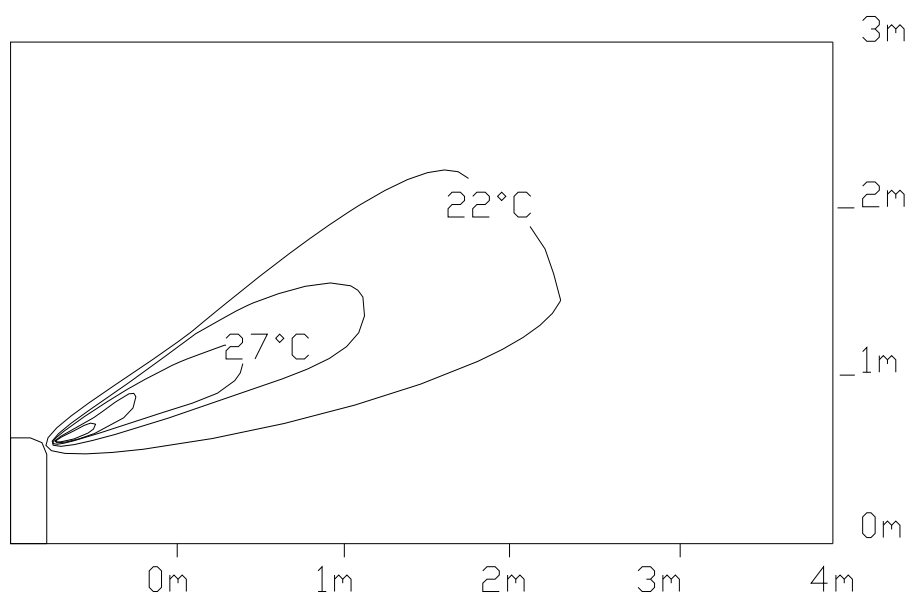
6. Air Velocity and Temperature Distributions

Discharge angle 60

Airflow velocity



Temperature



7. Capacity Tables

HFII 351 XR

Cooling

Outdoor temperature(° C DB)	Indoor temperature(°C WB)													
	14.00		16.00		18.00		19.00		20.00		22.00		24.00	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00	2.42	0.35	2.86	0.44	3.30	0.52	3.50	0.57	3.70	0.61	3.78	0.61	3.86	0.62
12.00	2.42	0.36	2.86	0.44	3.30	0.53	3.50	0.58	3.70	0.62	3.78	0.62	3.86	0.63
14.00	2.42	0.36	2.86	0.45	3.30	0.54	3.50	0.59	3.70	0.63	3.78	0.64	3.86	0.64
16.00	2.42	0.37	2.86	0.46	3.30	0.55	3.50	0.60	3.70	0.65	3.78	0.65	3.86	0.65
18.00	2.42	0.38	2.86	0.47	3.30	0.56	3.50	0.61	3.70	0.66	3.78	0.66	3.86	0.66
19.00	2.42	0.38	2.86	0.48	3.30	0.57	3.50	0.62	3.70	0.67	3.78	0.67	3.86	0.68
21.00	2.42	0.41	2.86	0.51	3.30	0.61	3.50	0.66	3.70	0.72	3.78	0.72	3.86	0.73
23.00	2.42	0.44	2.86	0.55	3.30	0.66	3.50	0.71	3.70	0.77	3.78	0.77	3.86	0.78
25.00	2.42	0.47	2.86	0.59	3.30	0.70	3.50	0.76	3.70	0.82	3.78	0.82	3.86	0.83
27.00	2.42	0.50	2.86	0.63	3.30	0.75	3.50	0.81	3.70	0.88	3.78	0.88	3.86	0.89
29.00	2.42	0.54	2.86	0.67	3.30	0.80	3.50	0.87	3.70	0.94	3.78	0.94	3.86	0.95
31.00	2.42	0.57	2.86	0.71	3.30	0.85	3.50	0.93	3.70	1.00	3.78	1.00	3.86	1.01
33.00	2.42	0.61	2.86	0.76	3.30	0.91	3.50	0.99	3.70	1.06	3.78	1.07	3.86	1.08
35.00	2.42	0.65	2.86	0.81	3.30	0.97	3.50	1.07	3.70	1.13	3.78	1.14	3.86	1.15
37.00	2.42	0.69	2.86	0.86	3.30	1.03	3.50	1.12	3.70	1.20	3.78	1.21	3.86	1.22
39.00	2.42	0.69	2.86	0.86	3.30	1.03	3.50	1.12	3.70	1.21	3.78	1.21	3.86	1.22
41.00	2.42	0.70	2.86	0.87	3.30	1.04	3.50	1.13	3.70	1.21	3.78	1.22	3.86	1.23
43.00	2.42	0.70	2.86	0.87	3.30	1.04	3.50	1.13	3.70	1.22	3.78	1.22	3.86	1.24

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	2.54	0.96	2.54	0.98	2.54	1.00	2.44	0.96	2.34	0.91	2.14	0.82
-12.6	-13	2.68	0.97	2.68	1.00	2.68	1.02	2.57	0.97	2.47	0.93	2.26	0.84
-10.5	-11	2.82	0.99	2.82	1.01	2.82	1.03	2.71	0.99	2.60	0.94	2.37	0.85
-9.5	-10	2.89	1.00	2.89	1.02	2.89	1.04	2.77	0.99	2.66	0.95	2.43	0.86
-8.5	-9.1	2.96	1.01	2.96	1.03	2.96	1.05	2.84	1.00	2.72	0.96	2.49	0.86
-7	-7.6	3.06	1.02	3.06	1.04	3.06	1.05	2.94	1.01	2.82	0.97	2.57	0.87
-5	-5.6	3.19	1.03	3.19	1.05	3.19	1.06	3.07	1.03	2.94	0.98	2.69	0.89
-3	-3.7	3.33	1.05	3.33	1.07	3.33	1.06	3.20	1.04	3.06	1.00	2.80	0.90
0	-0.7	3.53	1.07	3.53	1.09	3.53	1.07	3.39	1.07	3.25	1.02	2.97	0.92
3	2.2	3.73	1.09	3.73	1.12	3.73	1.07	3.58	1.09	3.43	1.04	3.14	0.94
5	4.1	3.87	1.11	3.87	1.13	3.87	1.08	3.71	1.10	3.56	1.05	3.25	0.95
7	6	4.00	1.12	4.00	1.15	4.00	1.10	3.84	1.12	3.68	1.07	3.37	0.96
9	7.9	4.00	1.08	4.00	1.11	4.00	1.13	3.84	1.08	3.68	1.03	3.37	0.93
11	9.8	4.00	1.05	4.00	1.07	4.00	1.09	3.84	1.04	3.68	1.00	3.37	0.90
13	11.8	4.00	1.01	4.00	1.03	4.00	1.05	3.84	1.01	3.68	0.96	3.37	0.87
15	13.7	4.00	0.97	4.00	0.99	4.00	1.01	3.84	0.97	3.68	0.92	3.37	0.84

HFII 531 XR**Cooling**

Outdoor temperature(° C DB)	Indoor temperature(°C WB)													
	14.00		16.00		18.00		19.00		20.00		22.00		24.00	
	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
10.00	3.65	0.52	4.31	0.65	4.97	0.78	5.27	0.85	5.57	0.91	5.69	0.92	5.82	0.93
12.00	3.65	0.53	4.31	0.66	4.97	0.80	5.27	0.86	5.57	0.93	5.69	0.93	5.82	0.94
14.00	3.65	0.54	4.31	0.68	4.97	0.81	5.27	0.88	5.57	0.95	5.69	0.95	5.82	0.96
16.00	3.65	0.55	4.31	0.69	4.97	0.83	5.27	0.89	5.57	0.96	5.69	0.97	5.82	0.98
18.00	3.65	0.56	4.31	0.70	4.97	0.84	5.27	0.91	5.57	0.98	5.69	0.98	5.82	0.99
19.00	3.65	0.57	4.31	0.71	4.97	0.85	5.27	0.93	5.57	1.00	5.69	1.00	5.82	1.01
21.00	3.65	0.61	4.31	0.76	4.97	0.92	5.27	0.99	5.57	1.07	5.69	1.07	5.82	1.08
23.00	3.65	0.66	4.31	0.82	4.97	0.98	5.27	1.06	5.57	1.15	5.69	1.15	5.82	1.16
25.00	3.65	0.70	4.31	0.88	4.97	1.05	5.27	1.14	5.57	1.23	5.69	1.23	5.82	1.24
27.00	3.65	0.75	4.31	0.94	4.97	1.12	5.27	1.22	5.57	1.31	5.69	1.32	5.82	1.33
29.00	3.65	0.80	4.31	1.00	4.97	1.20	5.27	1.30	5.57	1.40	5.69	1.40	5.82	1.42
31.00	3.65	0.86	4.31	1.07	4.97	1.28	5.27	1.39	5.57	1.49	5.69	1.50	5.82	1.51
33.00	3.65	0.91	4.31	1.14	4.97	1.36	5.27	1.48	5.57	1.59	5.69	1.60	5.82	1.61
35.00	3.65	0.97	4.31	1.21	4.97	1.45	5.30	1.61	5.57	1.69	5.69	1.70	5.82	1.71
37.00	3.65	1.03	4.31	1.29	4.97	1.54	5.30	1.67	5.57	1.80	5.69	1.81	5.82	1.82
39.00	3.65	1.04	4.31	1.29	4.97	1.55	5.30	1.68	5.57	1.81	5.69	1.81	5.82	1.83
41.00	3.65	1.04	4.31	1.30	4.97	1.55	5.30	1.68	5.57	1.82	5.69	1.82	5.82	1.84
43.00	3.65	1.05	4.31	1.30	4.97	1.56	5.30	1.69	5.57	1.82	5.69	1.83	5.82	1.85

Heating

Outdoor air temp.		Indoor temperature(°C DB)											
		16		18		20		21		22		24	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
°C DB	°C WB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-14.7	-15	3.72	1.37	3.72	1.40	3.72	1.43	3.57	1.36	3.43	1.30	3.13	1.18
-12.6	-13	3.93	1.39	3.93	1.42	3.93	1.45	3.77	1.39	3.62	1.32	3.30	1.20
-10.5	-11	4.13	1.41	4.13	1.44	4.13	1.47	3.97	1.41	3.81	1.34	3.48	1.22
-9.5	-10	4.23	1.42	4.23	1.45	4.23	1.48	4.07	1.42	3.90	1.35	3.56	1.22
-8.5	-9.1	4.33	1.43	4.33	1.47	4.33	1.50	4.16	1.43	3.99	1.36	3.64	1.23
-7	-7.6	4.48	1.45	4.48	1.48	4.48	1.51	4.30	1.45	4.12	1.38	3.77	1.25
-5	-5.6	4.68	1.47	4.68	1.50	4.68	1.54	4.49	1.47	4.31	1.40	3.93	1.27
-3	-3.7	4.87	1.49	4.87	1.53	4.87	1.56	4.68	1.49	4.49	1.42	4.10	1.28
0	-0.7	5.17	1.53	5.17	1.56	5.17	1.56	4.96	1.52	4.76	1.45	4.35	1.31
3	2.2	5.47	1.56	5.47	1.59	5.47	1.57	5.25	1.55	5.03	1.48	4.60	1.34
5	4.1	5.66	1.58	5.66	1.61	5.66	1.58	5.44	1.58	5.21	1.50	4.76	1.36
7	6	5.86	1.60	5.86	1.64	5.90	1.59	5.63	1.60	5.39	1.52	4.93	1.38
9	7.9	5.86	1.55	5.86	1.58	5.90	1.61	5.63	1.54	5.39	1.47	4.93	1.33
11	9.8	5.86	1.49	5.86	1.53	5.90	1.56	5.63	1.49	5.39	1.42	4.93	1.28
13	11.8	5.86	1.44	5.86	1.47	5.90	1.50	5.63	1.44	5.39	1.37	4.93	1.24
15	13.7	5.86	1.39	5.86	1.42	5.90	1.45	5.63	1.38	5.39	1.32	4.93	1.19

8. Electric Characteristics

Model	Indoor Unit				Power Supply	IFM	
	Hz	Voltage	Min	Max	MFA	kW	FLA
HFII 351 XR	50	220~240V	198V	254V	16	0.02	0.018
HFII 531 XR	50	220~240V	198V	254V	16	0.02	0.028

Remark:

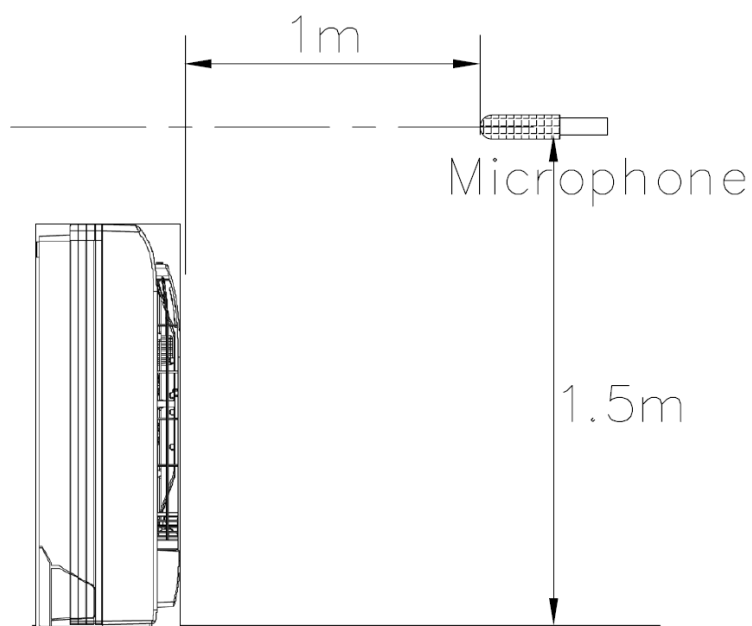
MFA: Max. Fuse Amps. (A)

KW: Fan Motor Rated Output (KW)

FLA: Full Load Amps. (A)

IFM: Indoor Fan Motor

9. Sound Levels



Model	Noise level dB(A)				
	Highest	Higher	H	M	L
HFII 351 XR	35	33	31	27	23
HFII 531 XR	38	35	33	31	29

11. Accessories**HFII 351-531 XR**

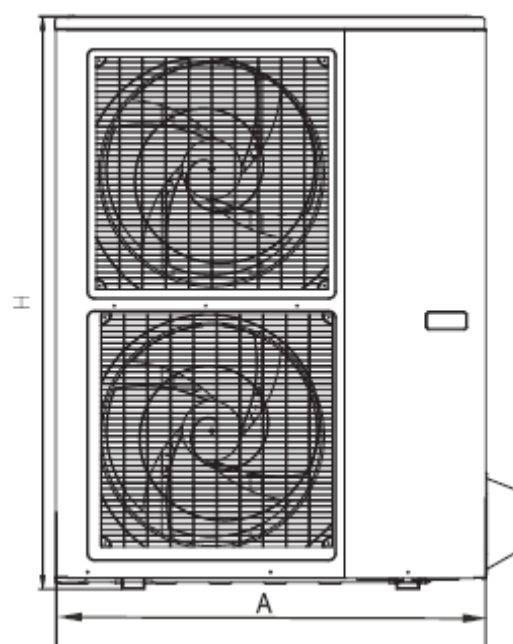
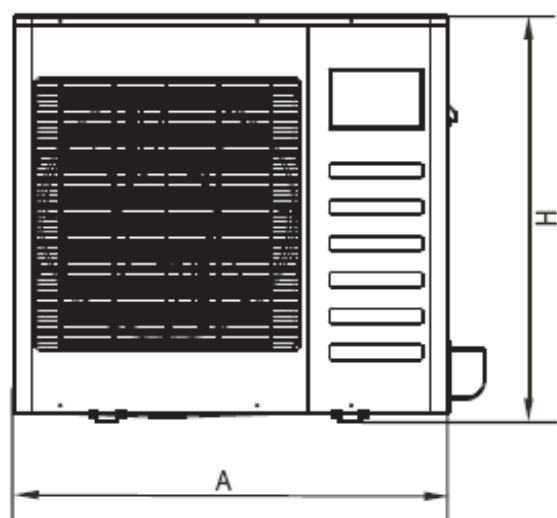
	Name	Shape	Quantity
Installation fittings	Hook		2
Remote controller & Its Frame	Remote controller		1
	Frame		1
	Mounting screw(ST2.9×10-C-H)		2
	Alkaline dry batteries (AM4)		2
Others	Installation manual	/	1
	Owner's manual	/	1

Part 3

Outdoor Units

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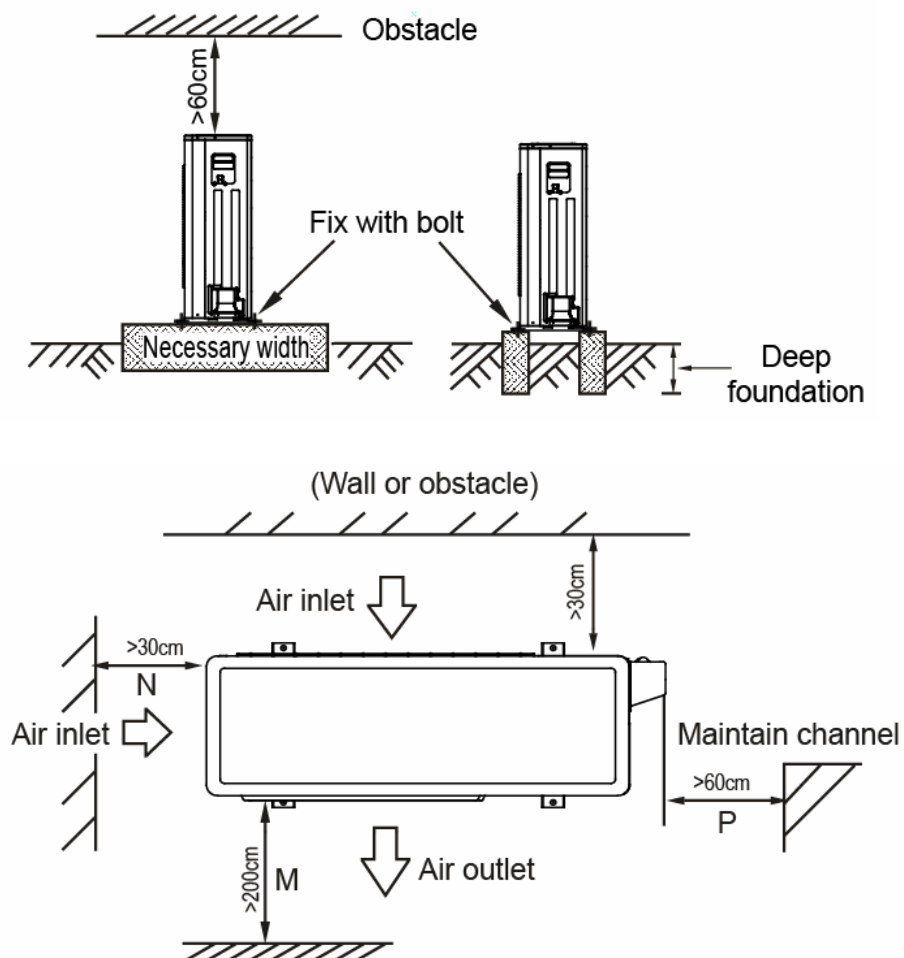
Dimensions



mm

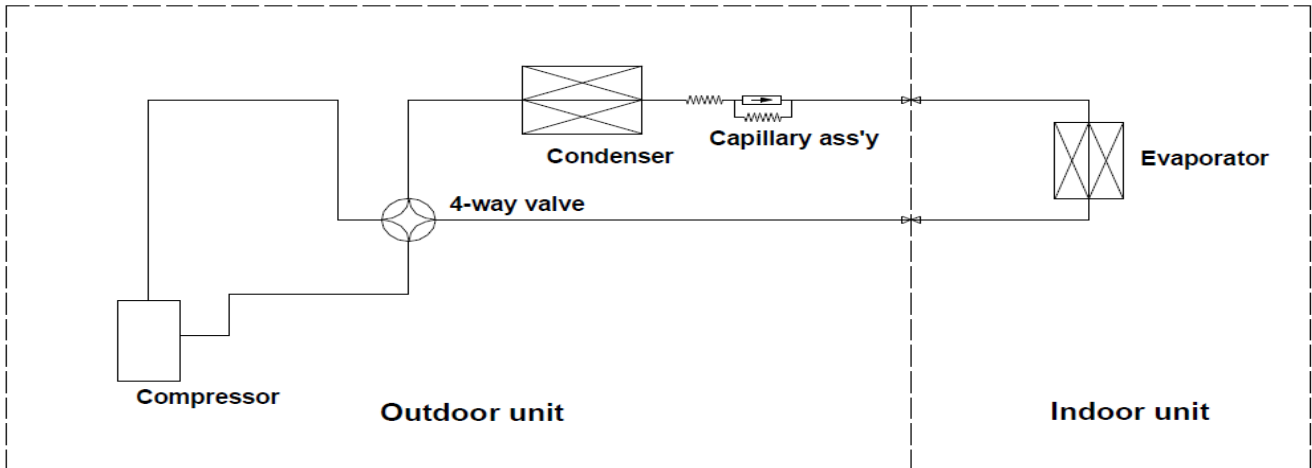
MODEL	A	B	C	D	E	F	H
HCKI 351 XR	761	530	290	315	270	279	593
HCKI 531 XR	842	560	335	360	312	324	695
HCKI 711 XR	895	590	333	355	302	313	862
HCSI 1082 XR	990	624	366	396	340	354	966
HCKI 1081 XR	940	600	376	400	340	360	1245
HCKI 1411 XR	940	600	376	400	340	360	1245
HCSI 1412 XR	940	600	376	400	340	360	1245
HCSI 1762 XR	940	600	376	400	340	360	1245

Service Space

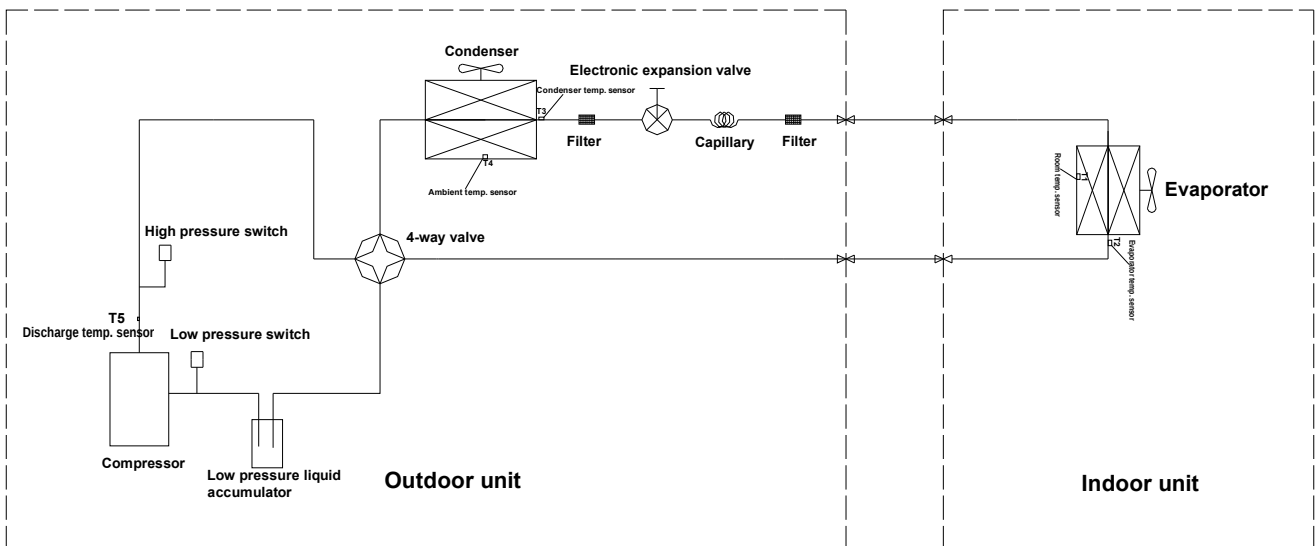


Piping Diagrams

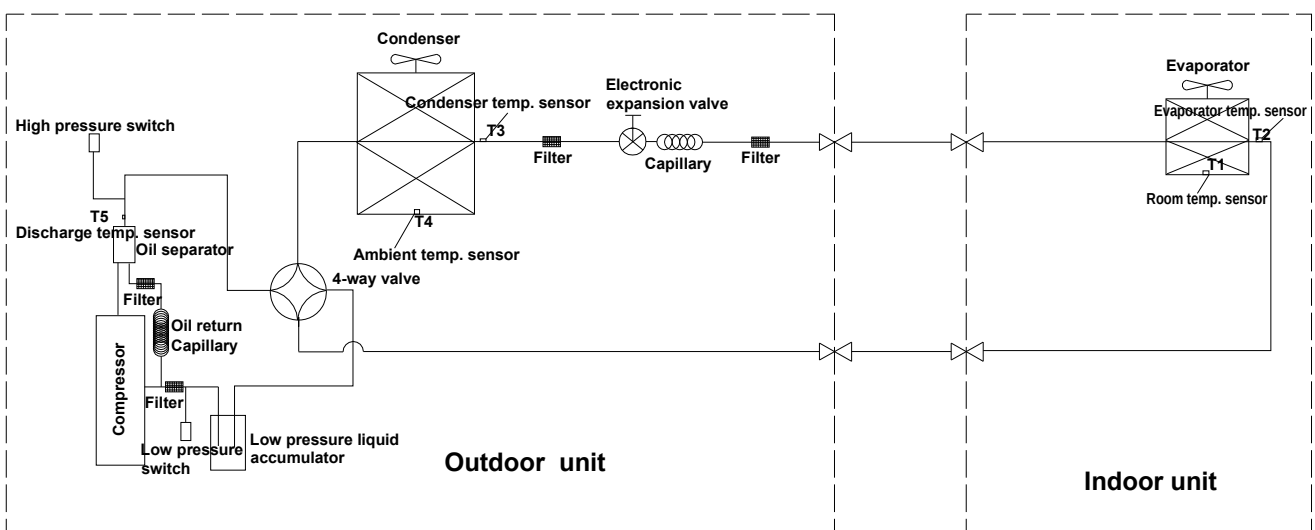
HCKI 351 XR



HCKI 531 XR、HCKI 711 XR

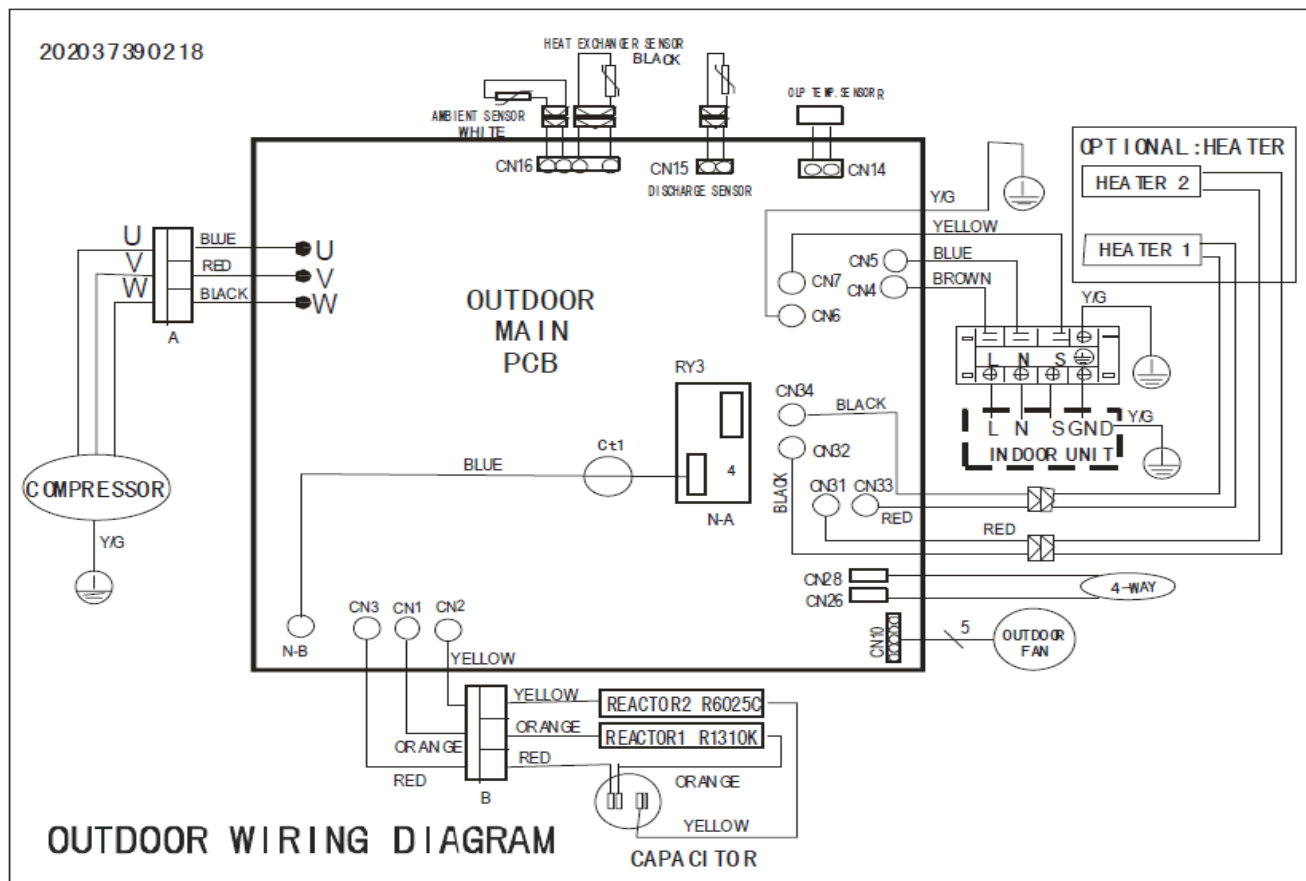


HCKI 1081 XR、HCKI 1411 XR、HCSI 1082 XR、HCSI 1412 XR、HCSI 1762 XR

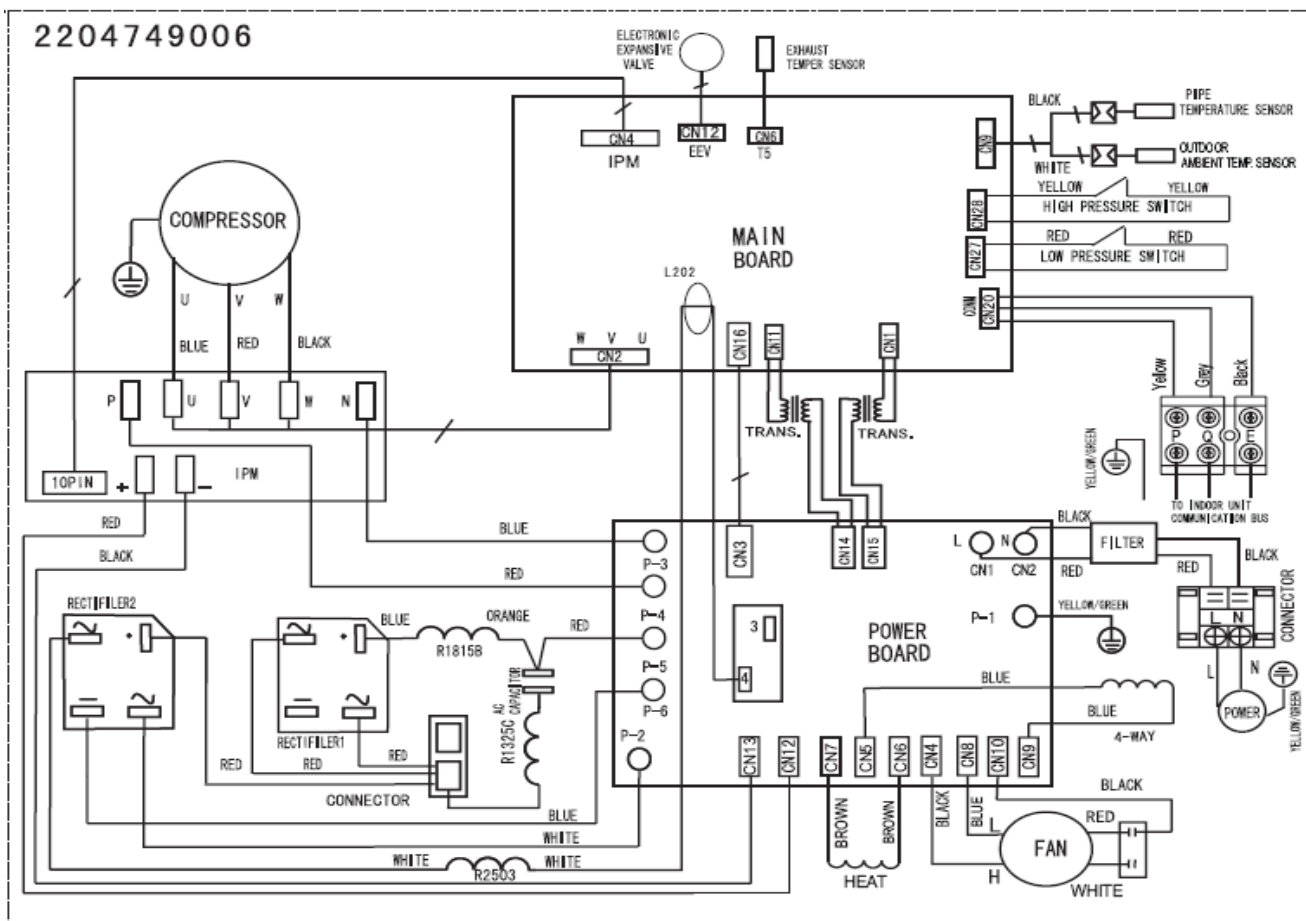


Wiring Diagrams

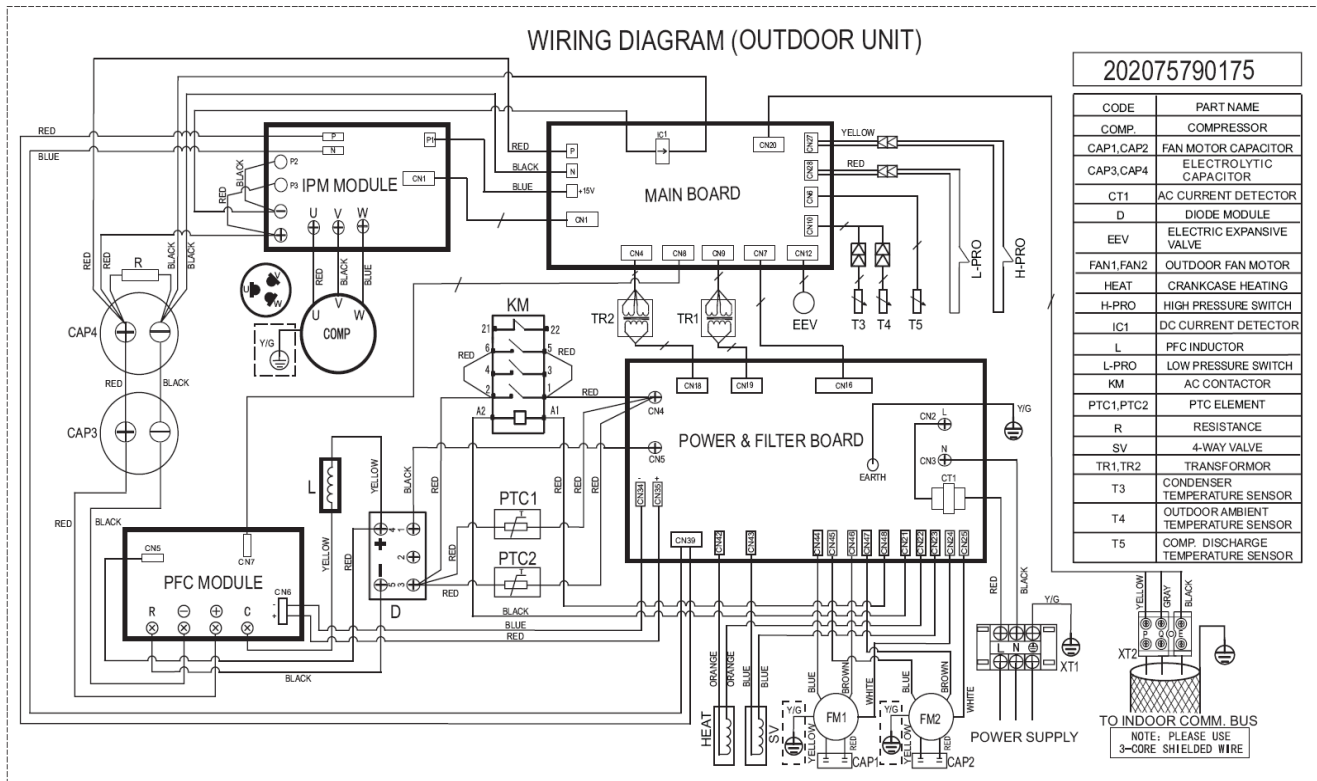
HCKI 351 XR



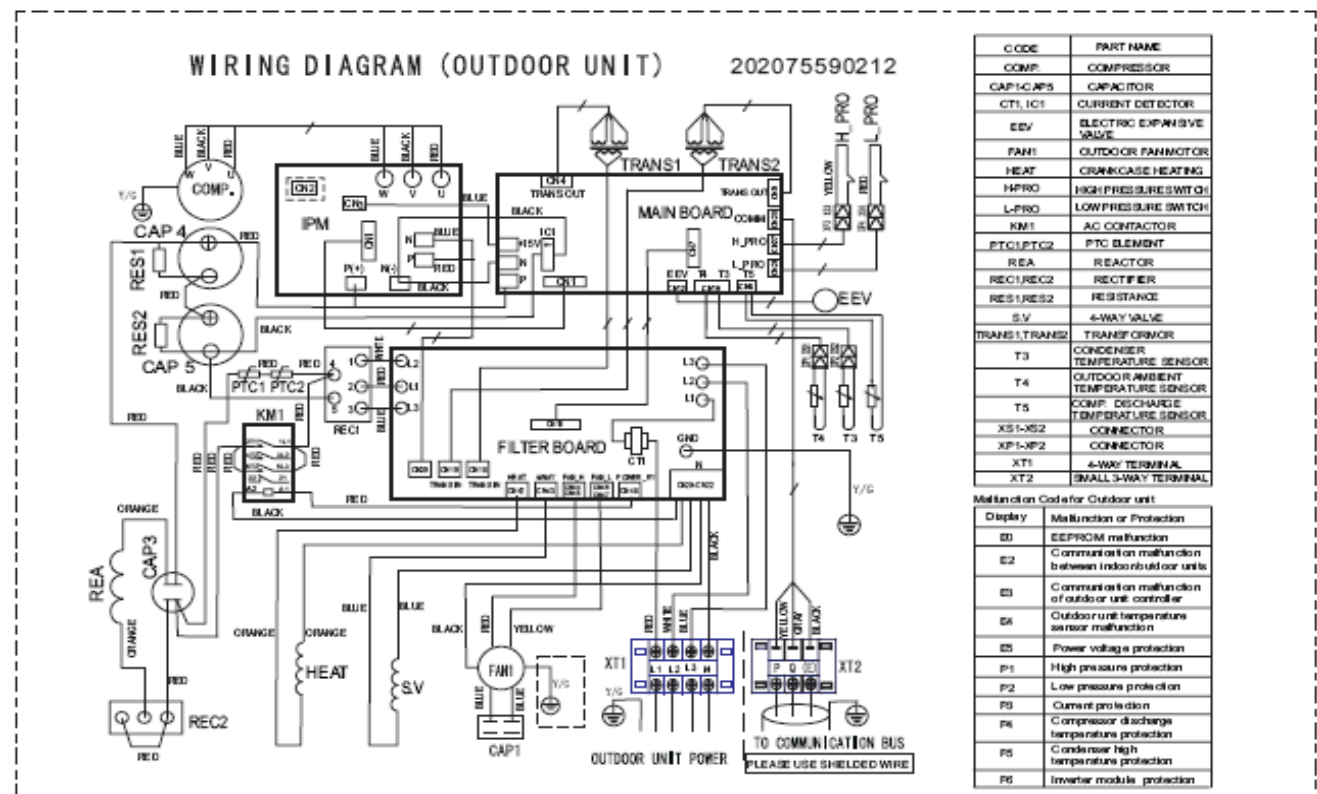
HCKI 531 XR、HCKI 711 XR



HCKI 1081 XR, HCKI 1411 XR

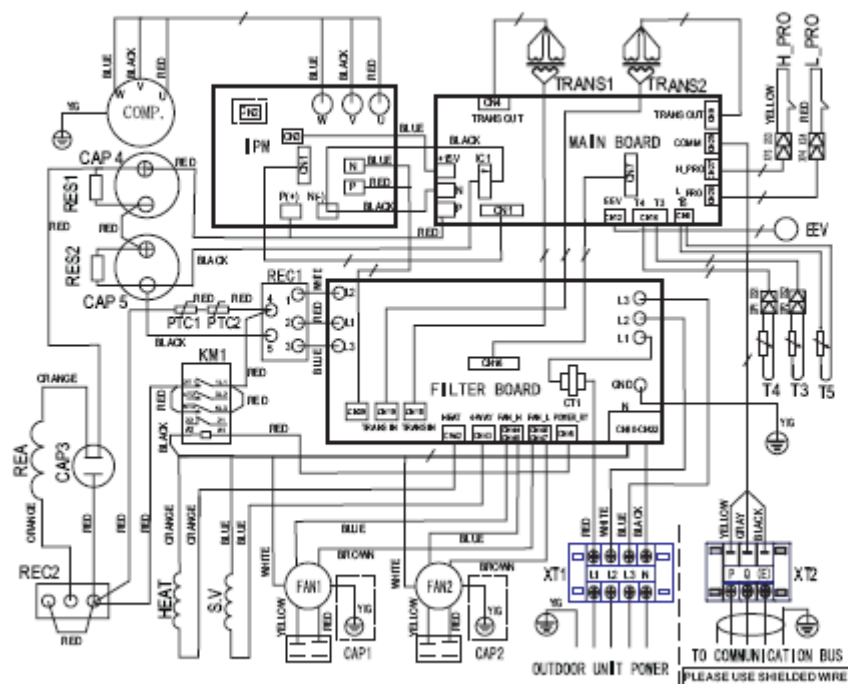


HCSI 1082 XR



HCSI 1412 XR、HCSI 1762 XR

WIRING DIAGRAM (OUTDOOR UNIT) (202075790151)

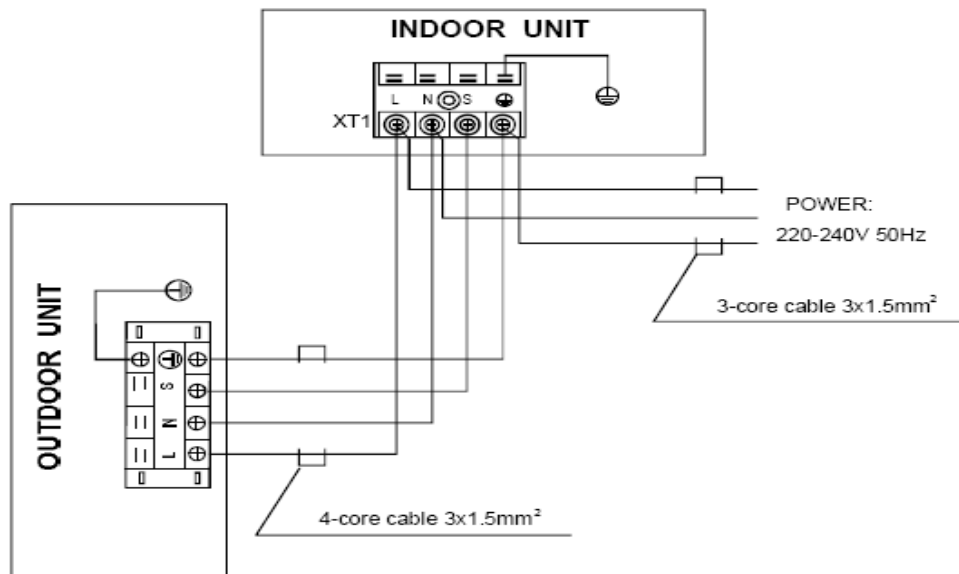


CODE	PART NAME
COMP	COMPRESSOR
CAP1-CAP5	CAPACITANCE
CT1,CT2	CURRENT DETECTOR
EEV	SOLENOID VALVE
FAN1/FAN2	OUTDOOR FAN MOTOR
HEAT	CRANKCASE HEATING
H-PRO	HIGH PRESSURE SWITCH
L-PRO	LOW PRESSURE SWITCH
KM1	AC CONTACTOR
PTC1/PTC2	PTC ELEMENT
REA	REACTOR
REC1/REC2	RECTIFIER
RES1/RES2	RESISTANCE
S.V	4-WAY VALVE
TRANS1,TRANS2	TRANSFORMER
T3	CONDENSER TEMPERATURE SENSOR
T4	OUTDOOR AMBIENT TEMPERATURE SENSOR
T5	COMP. DISCHARGE TEMPERATURE SENSOR
XS1-XS2	CONNECTOR
XP1-XP2	CONNECTOR
XT1	4-WAY TERMINAL
XT2	SMALL 3-WAY TERMINAL

Malfunction Code for Outdoor unit

Display	Malfunction or Protection
E0	EEPROM malfunction
E2	Communication malfunction between indoor/outdoor units
E3	Communication malfunction of outdoor unit controller
E4	Outdoor unit temperature sensor malfunction
E5	Power voltage protection
P1	High pressure protection
P2	Low pressure protection
P3	Current protection
P4	Compressor discharge temperature protection
P5	Condenser high temperature protection
P6	Inverter module protection

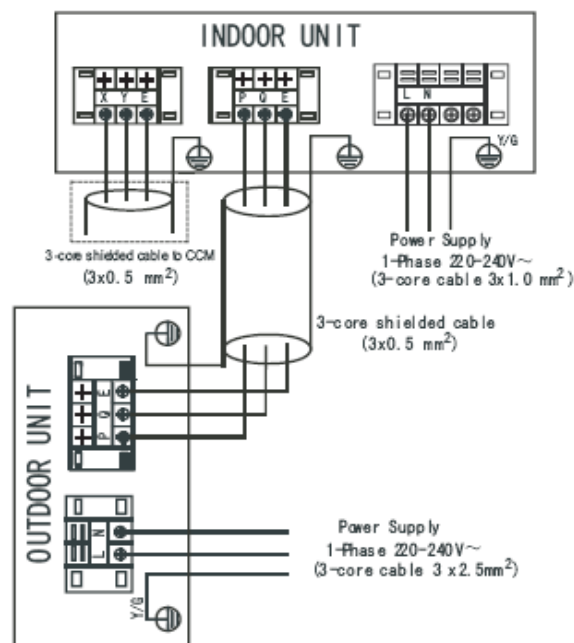
Field Wiring



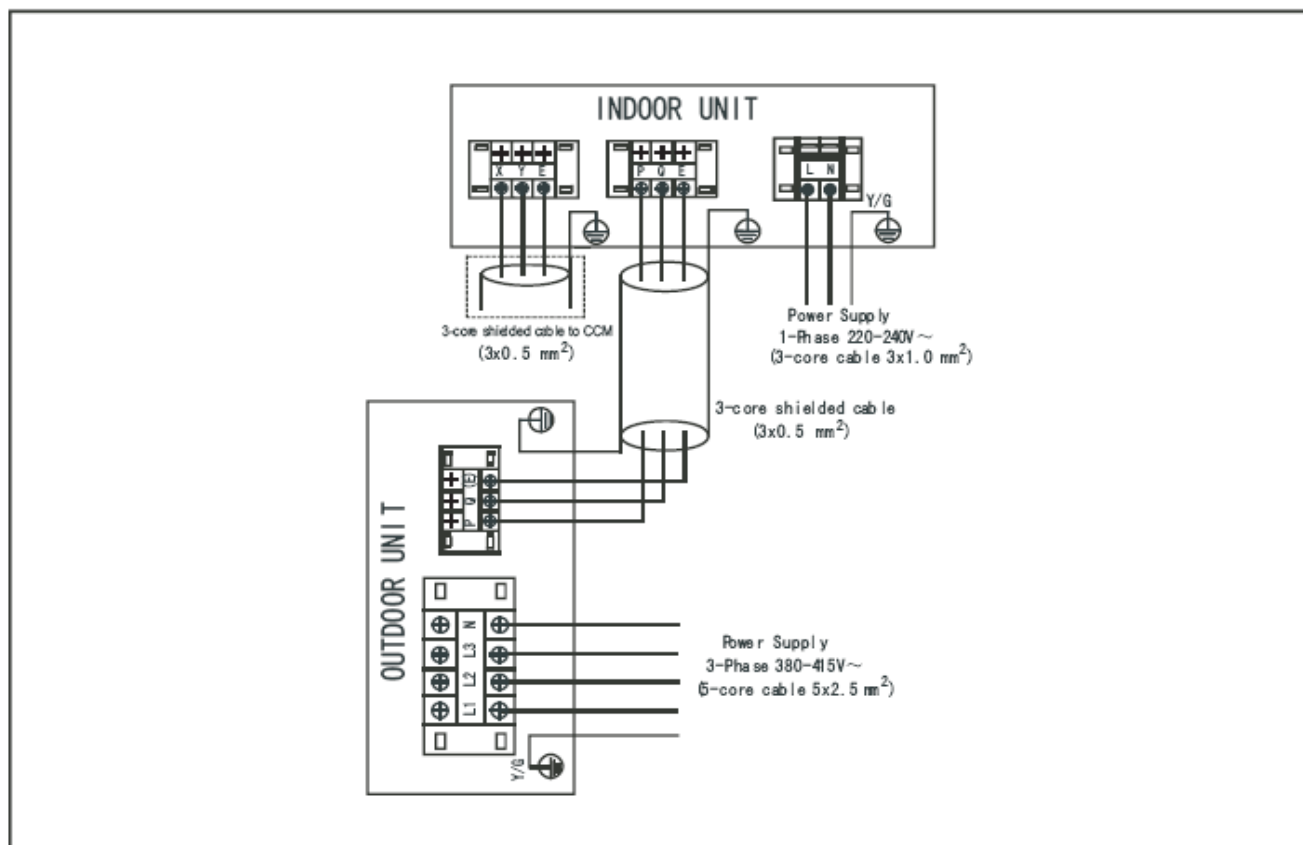
12000Btu/h(1 PHASE)

Air Conditioner Link-circuit (For R410a,Cooling& Heating)

For 351 Model (with 1-phase outdoor unit)



For 531-711-1081-1411 Models (with 1-phase outdoor unit)



For 1081- 1411-1761 Models (with 3-phase outdoor unit)

Electric Characteristics

Model	Outdoor Unit				Power Supply		Compressor	OFM	
	Hz V	voltage	Min.	Max.	TOCA	MFA	RLA	kW	FLA
HCKI 351 XR	50	220-240	198	254	20	16	5,3	0,024	0,27
HCKI 531 XR	50	220-240	198	254	20	30	12	0.053	0.59
HCKI 711 XR	50	220-240	198	254	20	30	12	0.053	0.67
HCKI 1081 XR	50	220-240	198	254	30	40	13.6	0.1×2	0.8
HCKI 1411 XR	50	220-240	198	254	30	40	13.6	0.1×2	0.8
HCSI 1082 XR	50	380~3N	342	440	20	30	6	0.2	1.4
HCSI 1412 XR	50	380~3N	342	440	20	30	8	0.1×2	0.751
HCSI 1762 XR	50	380~3N	342	440	20	30	8	0.1×2	0.751

Remark:

TOCA: Total Over-current Amps. (A)

MFA: Max. Fuse Amps. (A)

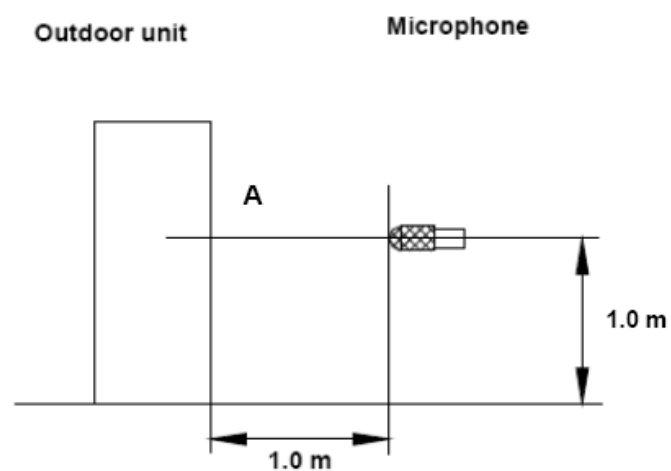
RLA: Rated Locked Amps. (A)

OFM: Outdoor Fan Motor.

FLA: Full Load Amps. (A)

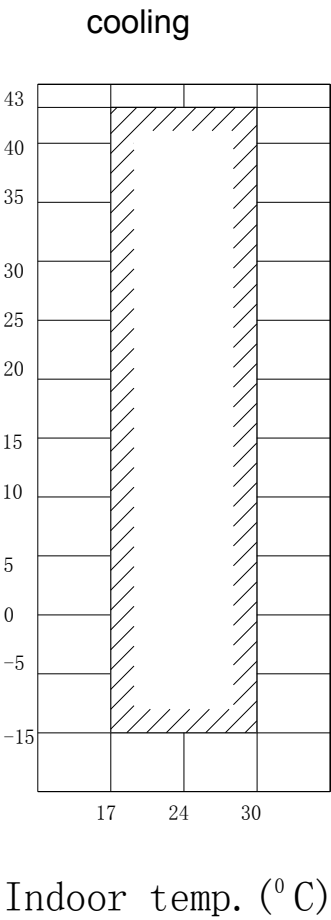
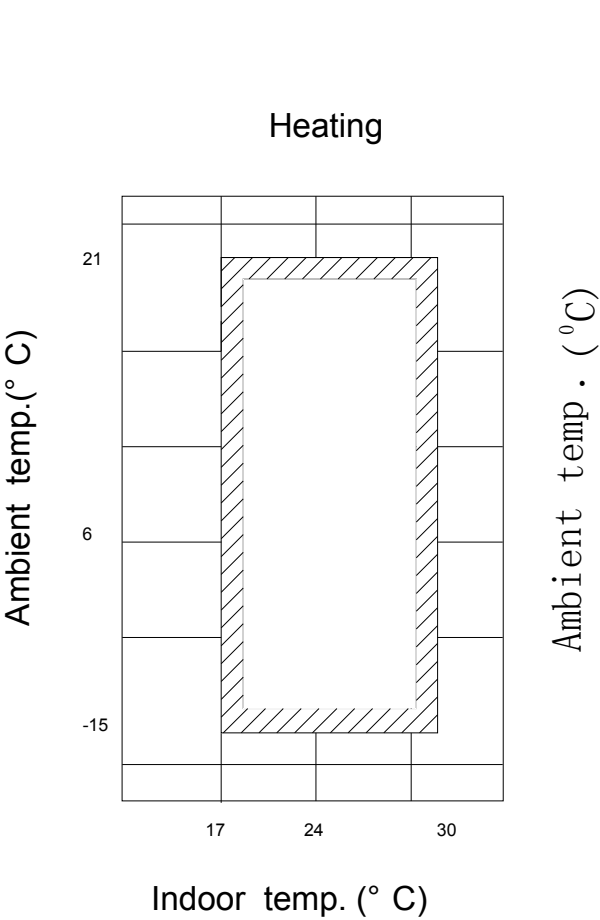
KW: Rated Motor Output (KW)

Sound Levels

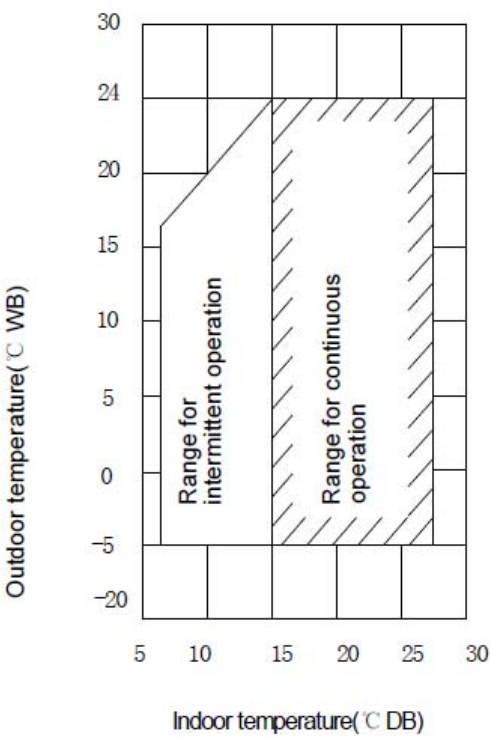
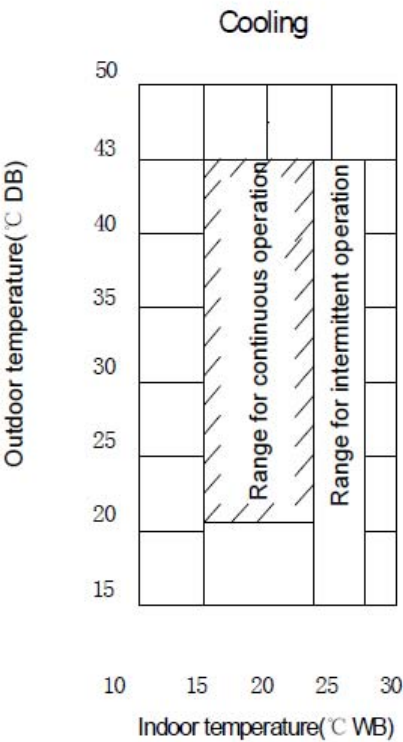


Model	Noise level dB(A)
	H/L
HCKI 351 XR	48/44
HCKI 531 XR	52/47
HCKI 711 XR	53/48
HCKI 1081 XR	57/52
HCKI 1411 XR	59/54
HCSI 1082 XR	55/50
HCSI 1412 XR	59/54
HCSI 1762 XR	59/54

Operation Limits



EXCEPT 351 MODELS (-5 + 43)

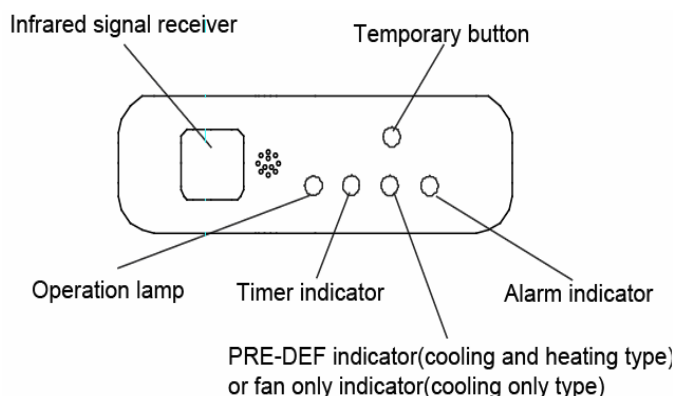


Troubleshooting

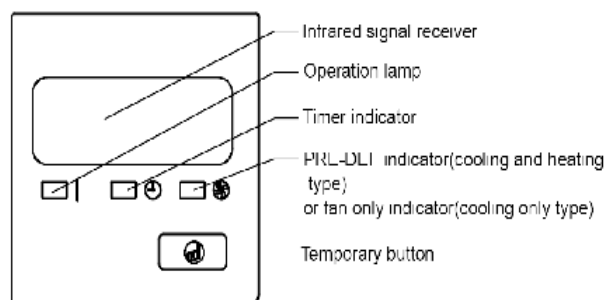
10.1 Indoor unit malfunction

10.1.1 Display board

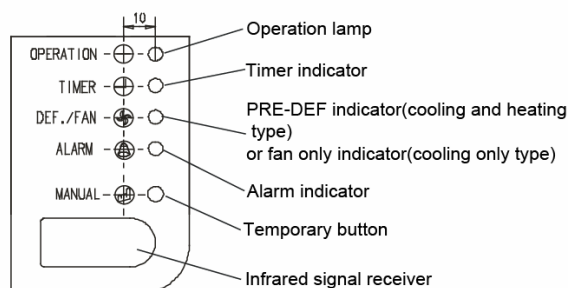
Duct type & Compact 4-way cassette



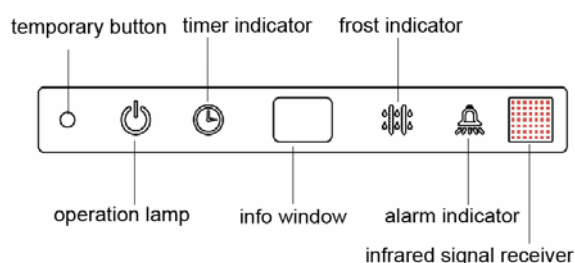
Console Type



Ceiling & Floor



Normal 4-way cassette



10.1.2 Troubleshooting

For Normal 4-way cassette

No	Malfunction	Operation lamp	Timer lamp	Defrosting lamp	Alarm lamp	Display
1	Communication malfunction between in-outdoor unit		LED2 Quick-flash			E1
2	Room temperature sensor malfunction	LED1 Quick-flash				E2
3	Pipe temperature sensor malfunction	LED1 Quick-flash				E3
4	Pipe temperature sensor malfunction	LED1 Quick-flash				E4
5	Water-level alarm				LED4 Quick-flash	EE
6	EEPROM malfunction	LED1 Slow-flash				E7
7	Mode conflicts malfunction			LED3 Quick-flash		E0
8	Outdoor malfunction				LED4 Slow-flash	Ed

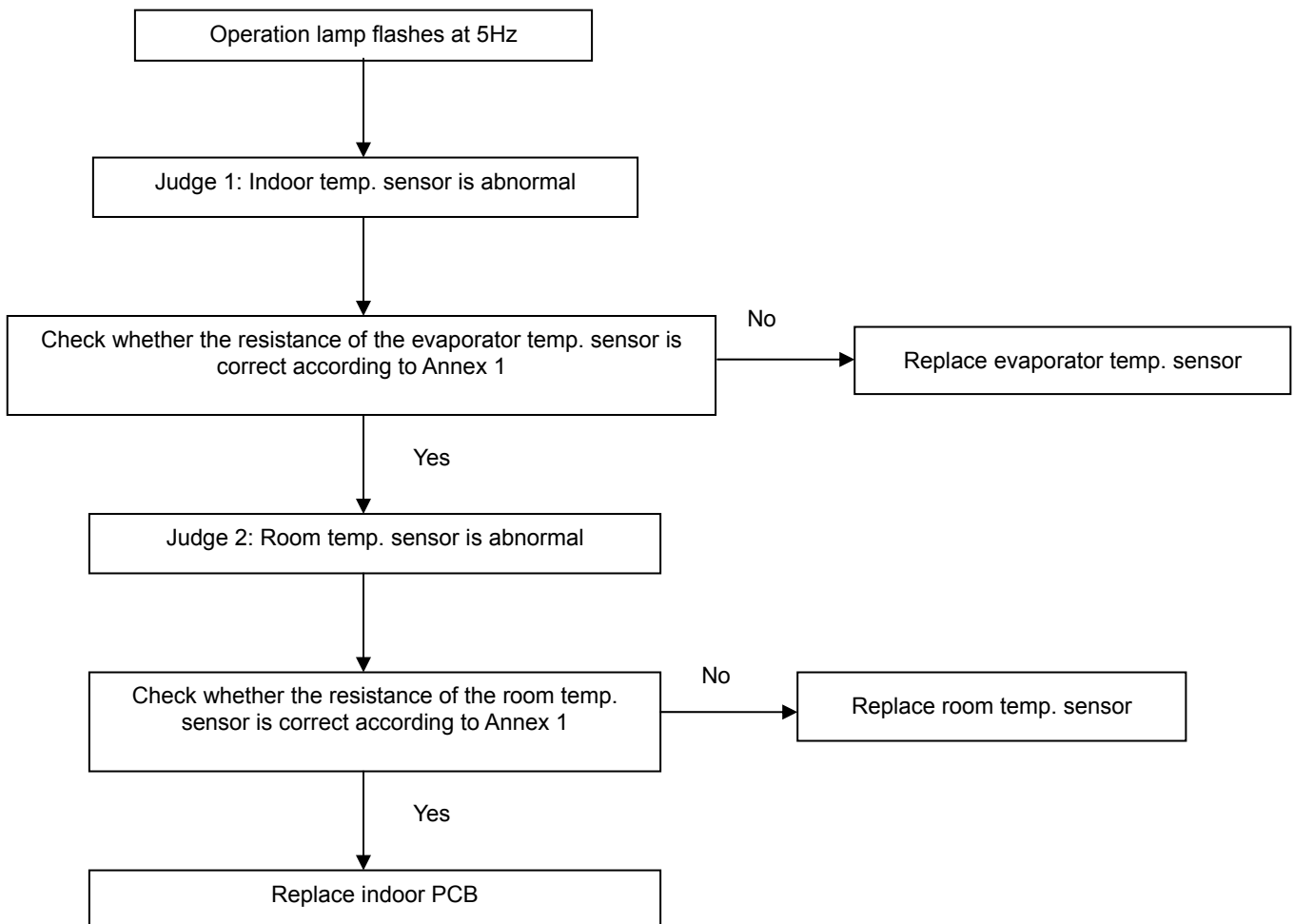
For ceiling & floor and duct type & compact 4-way cassette

No	Malfunction	Operation lamp	Timer lamp	Defrosting lamp	Alarm lamp
1	Communication malfunction between in-outdoor unit		LED2 Quick-flash		
2	Room temperature sensor malfunction	LED1 Quick-flash			
3	Water-level alarm				LED4 Quick-flash
4	Mode conflicts malfunction			LED3 Quick-flash	
5	Outdoor malfunction				LED4 Slow-flash

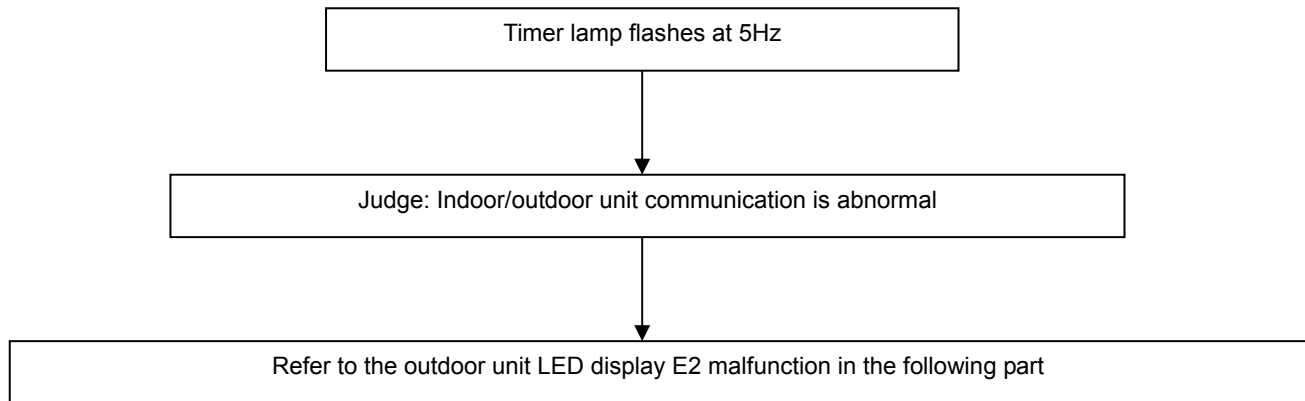
LED indication (Console)				
No	Running lamp	Timer lamp	Defrosting lamp	Malfunction
1	☆	×	×	Room temperature sensor checking channel is abnormal
2	×	×	☆	Evaporator sensor checking channel is abnormal
3	×	☆	×	In-outdoor unit communication checking channel is abnormal
4	☆	☆	×	EEPROM malfunction
5	☆	×	☆	Module protection
6	☆	☆	☆	Outdoor temperature sensors malfunction
7	☆	☆	●	Outdoor unit voltage protection
8	☆	●	×	Compressor discharge over-temperature protection
9	☆	●	●	Outdoor unit current protection

(× Extinguish, ☆ Flash at 5Hz, ● On)

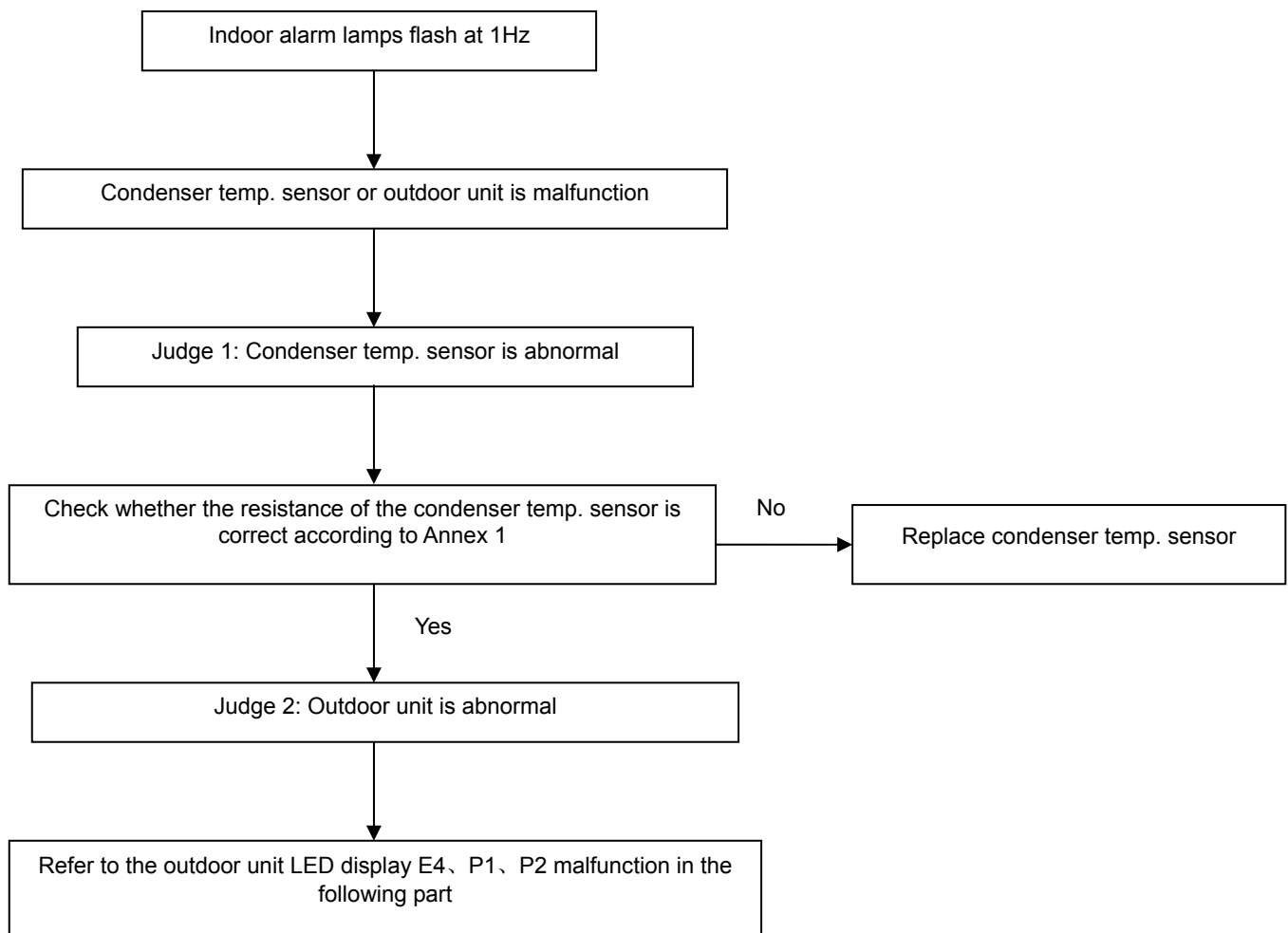
1. Operation lamp flashes



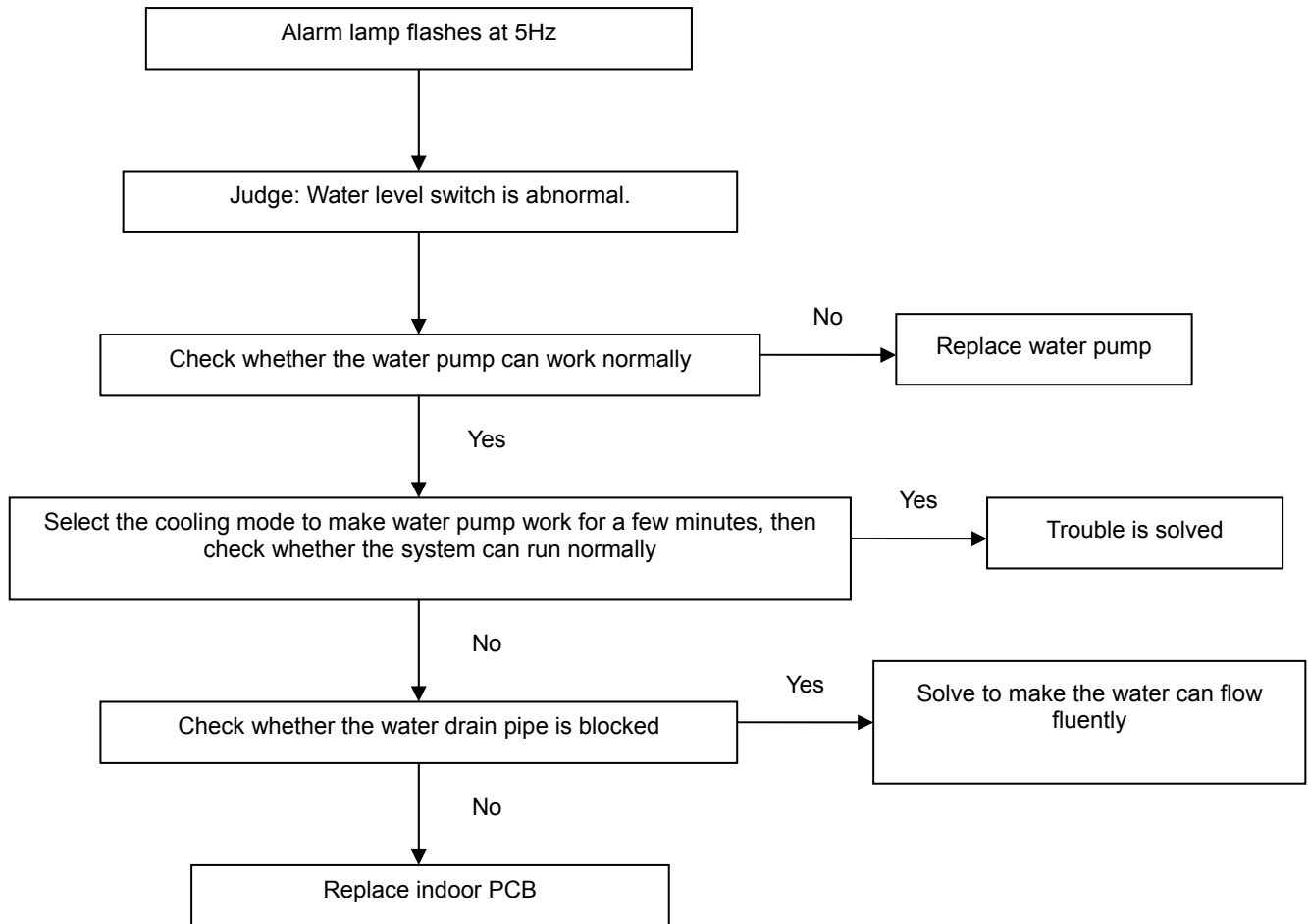
2. Timer lamp flashes



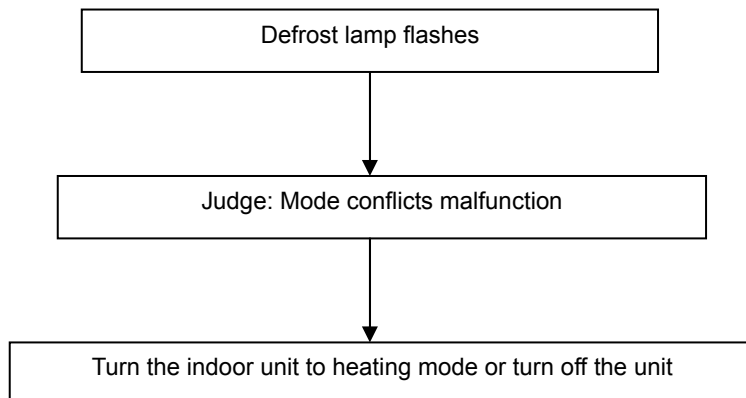
3. Alarm lamp slow-flash



4. Alarm lamp quick-flash



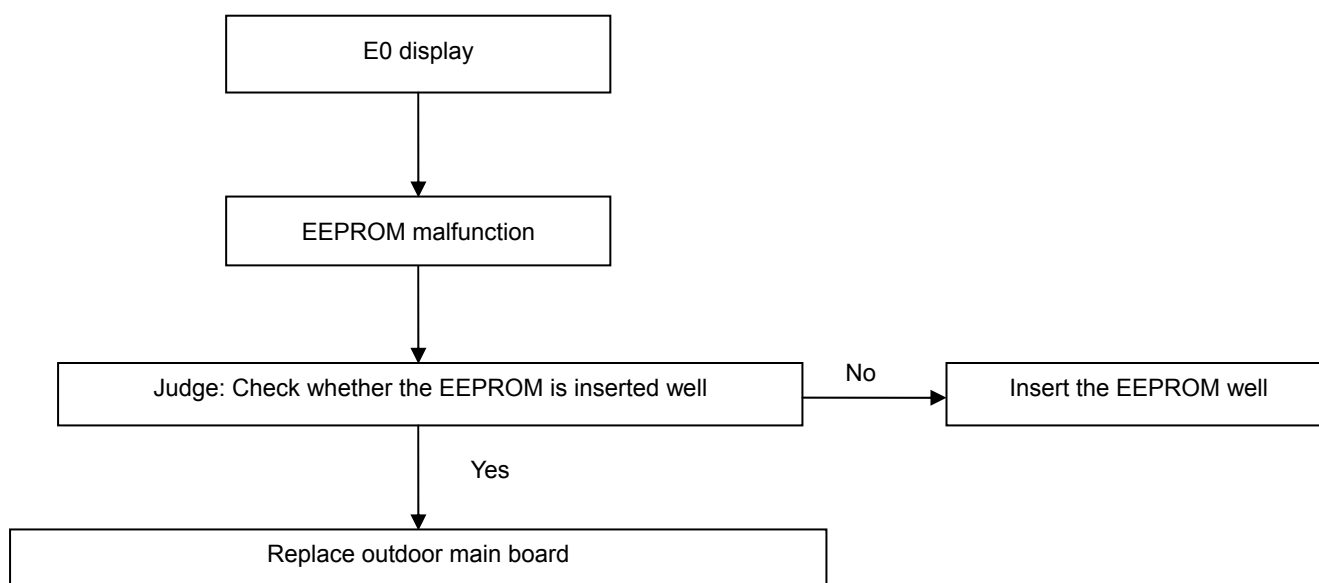
5. Defrost lamp flashes



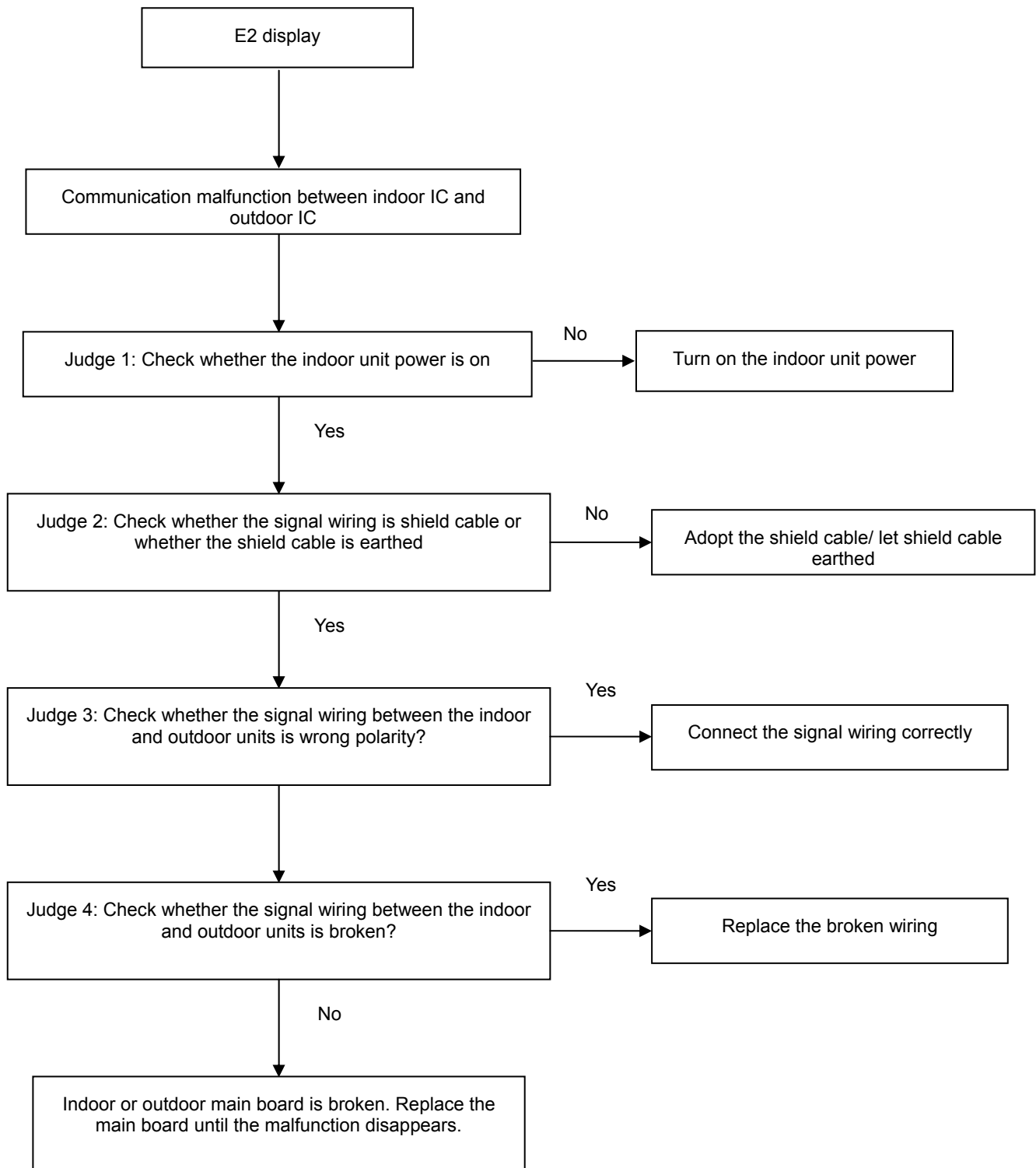
11.2 Outdoor unit malfunction

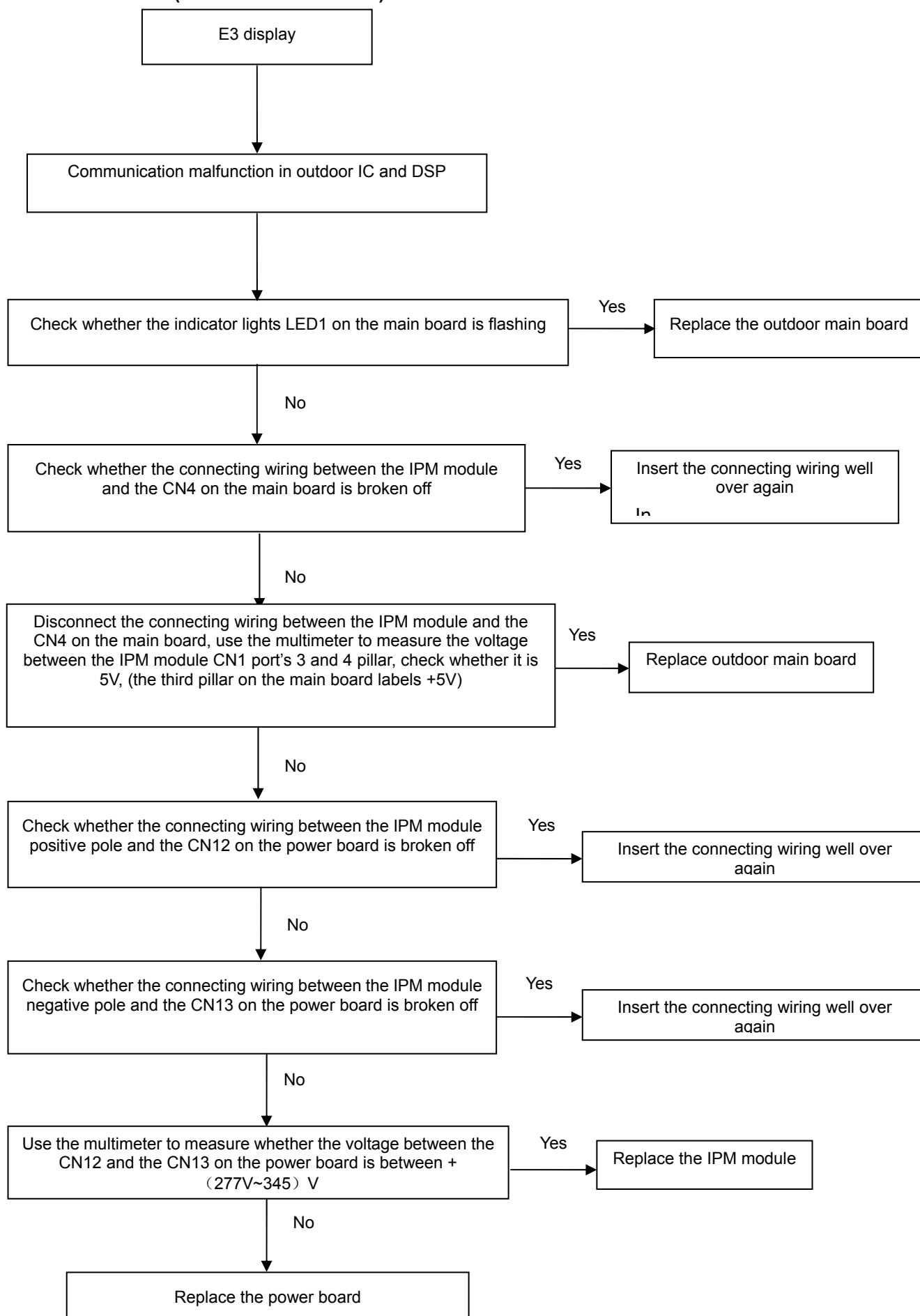
Display	Malfunction or Protection
E0	EEPROM malfunction
E2	Communication malfunction between indoor IC and outdoor IC
E3	Communication malfunction in outdoor IC and DSP
E4	Malfunction of outdoor temperature sensor
E5	Voltage protection of compressor
E6	PFC module protection (Only for 1081 & 1411 Models with 1 phase)
P0	Top temperature protection of compressor
P1	High pressure protection
P2	Low pressure protection
P3	Current protection of compressor
P4	Discharge temperature protection of compressor
P5	High temperature protection of condenser
P6	Module protection

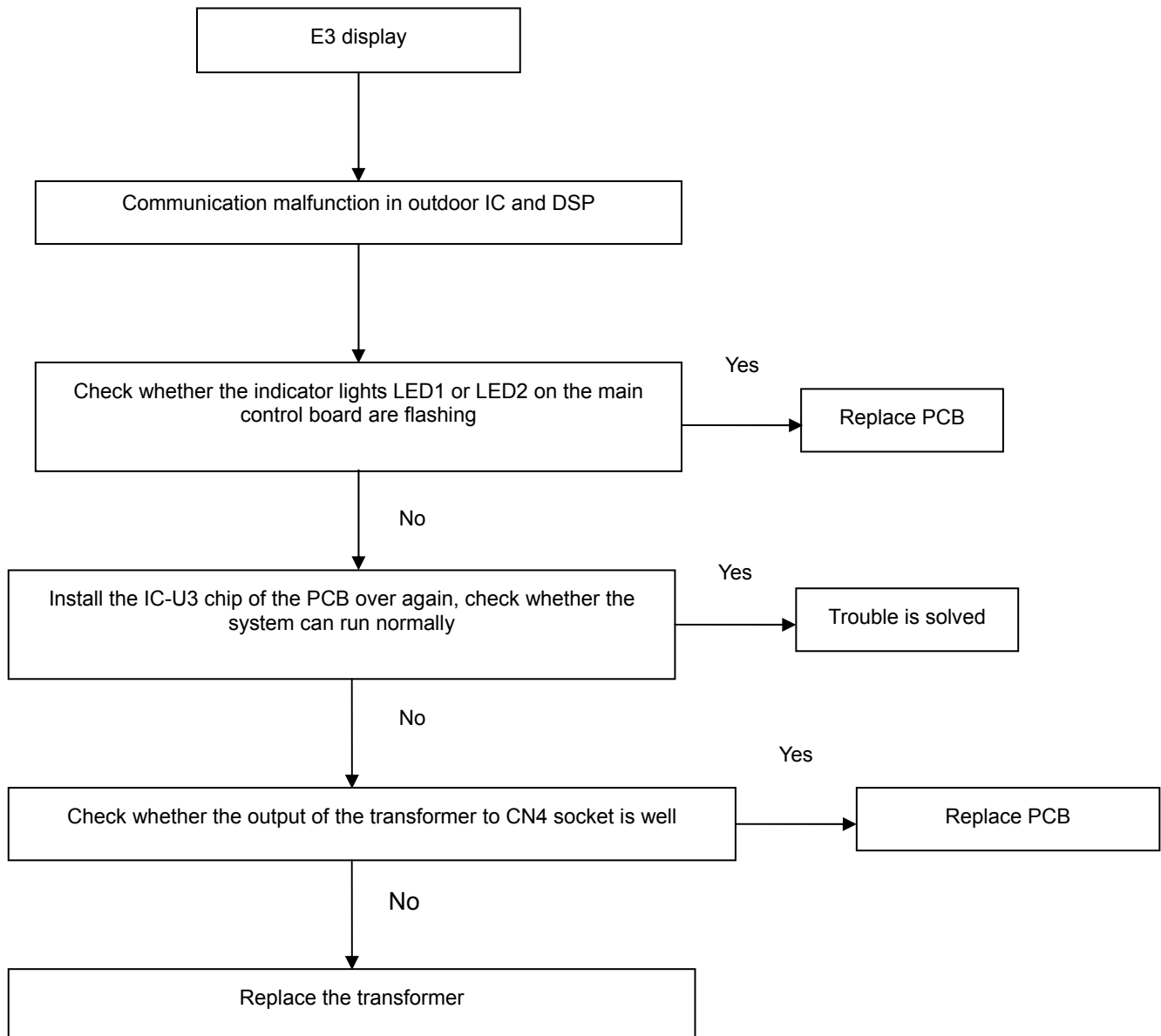
1. E0 malfunction

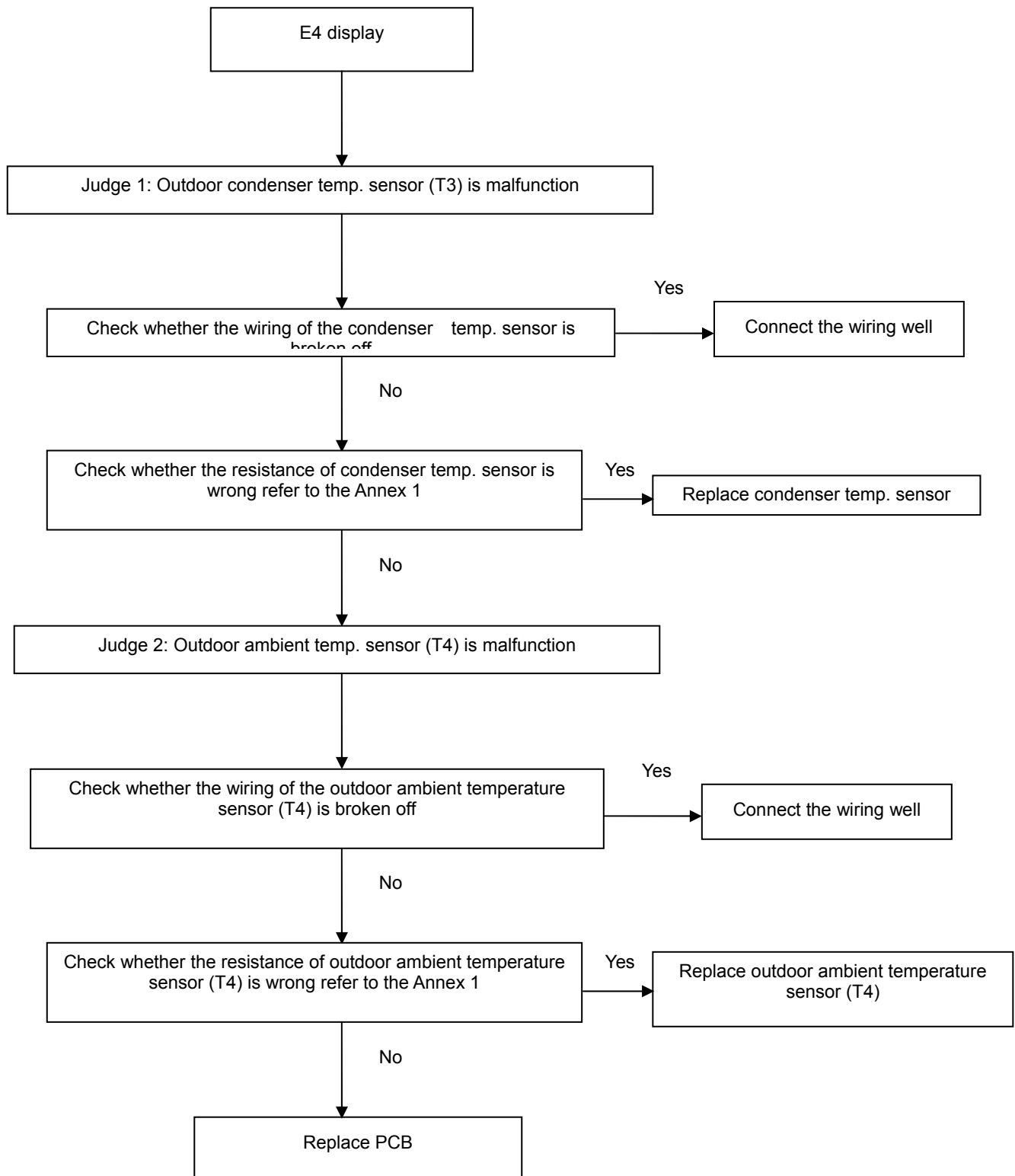


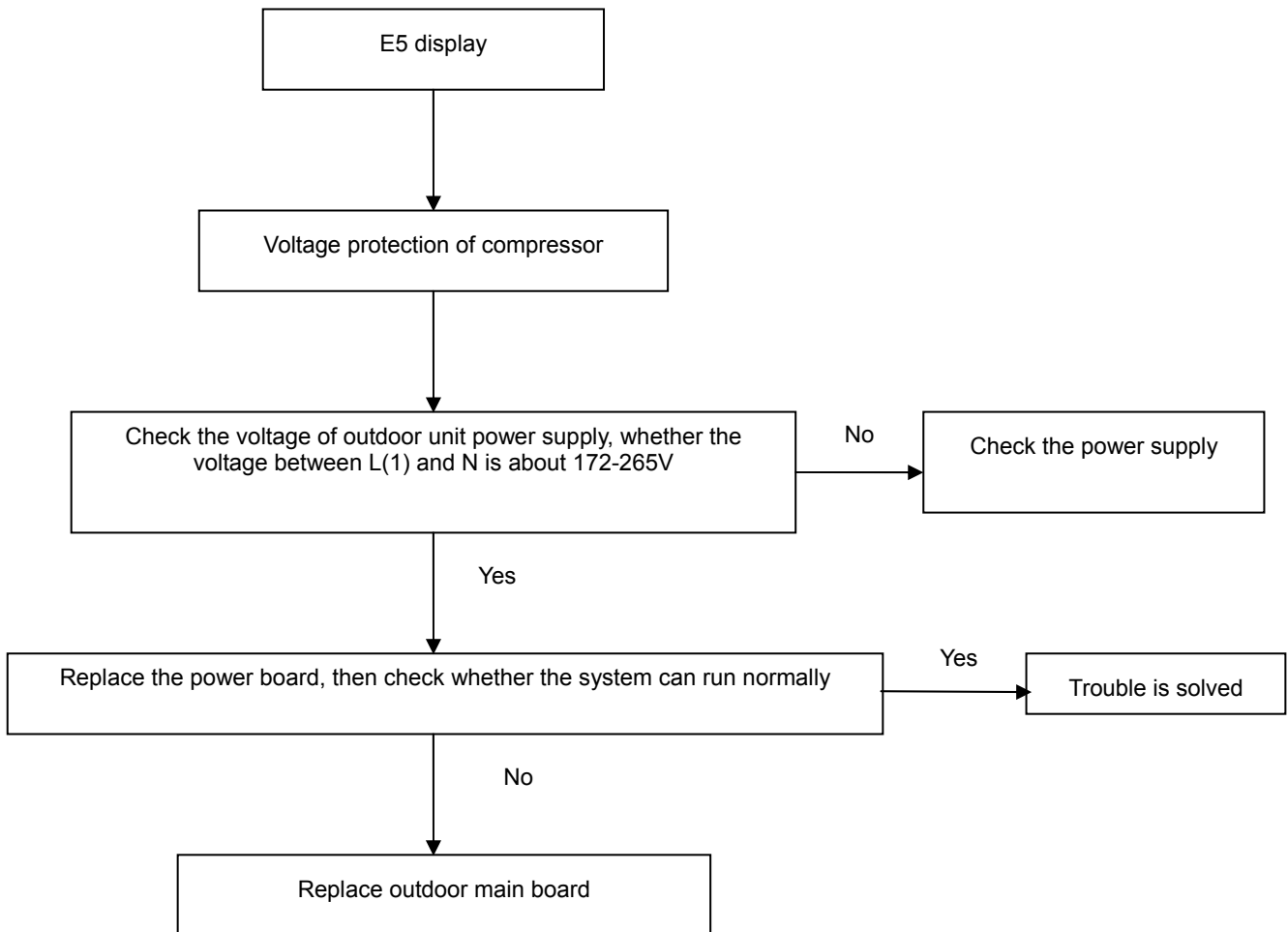
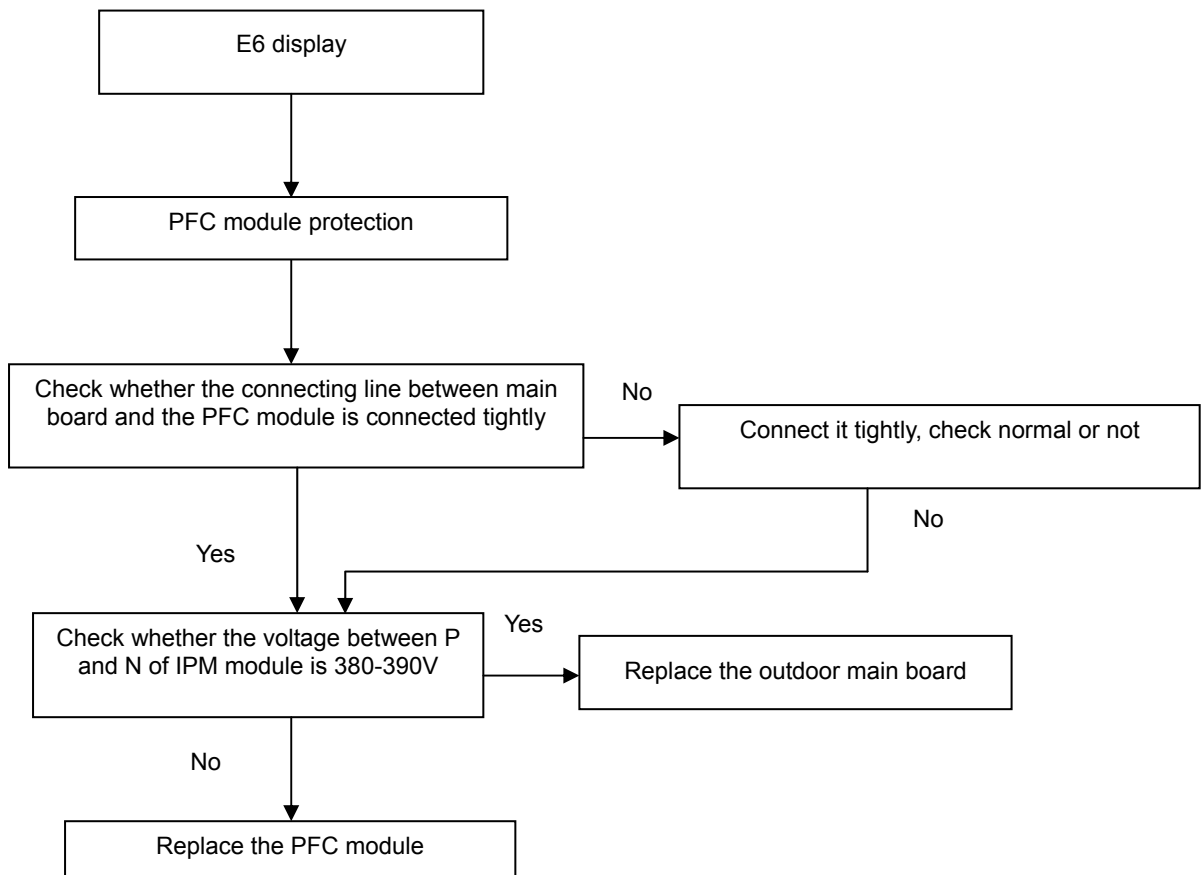
2. E2 malfunction



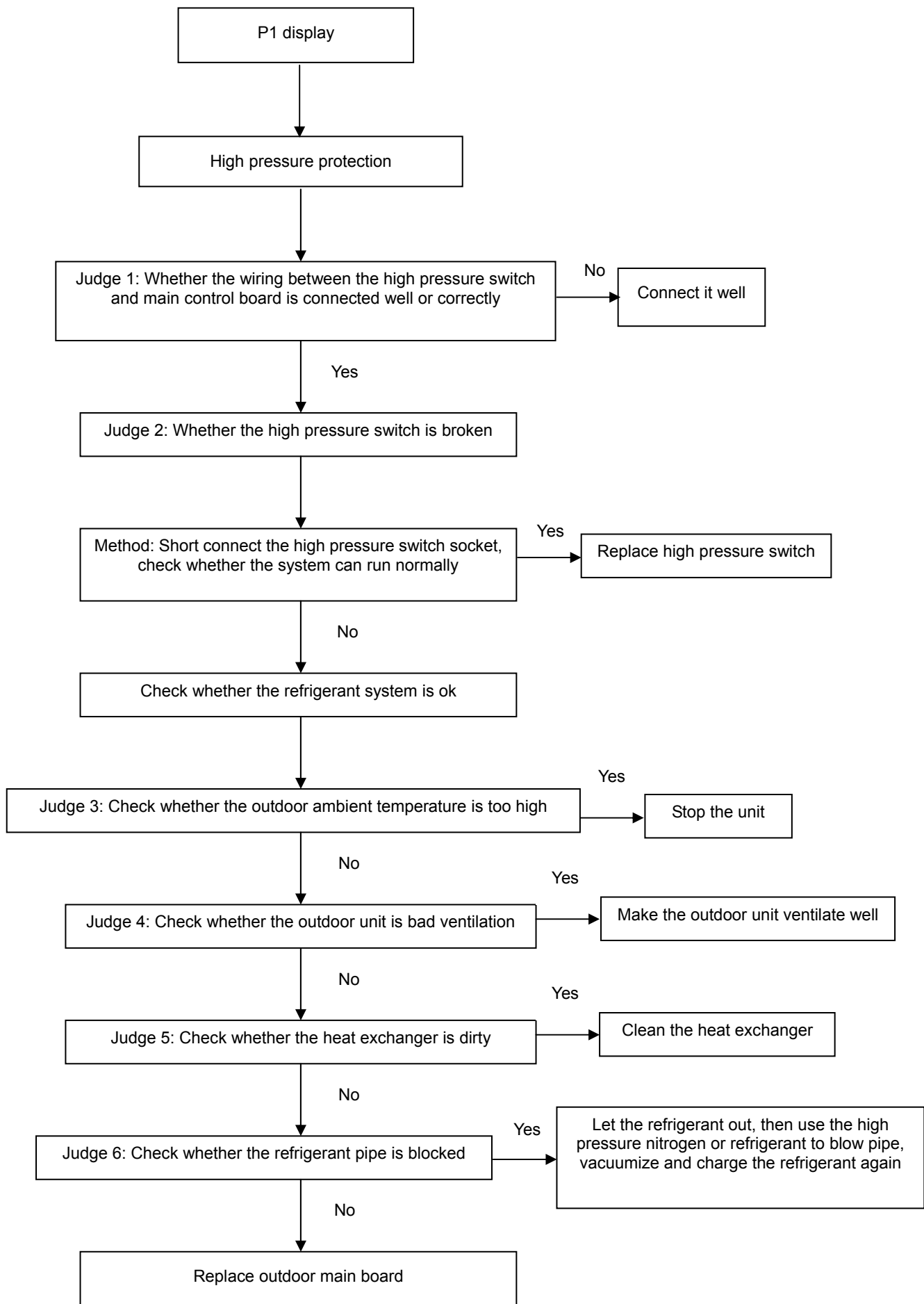
3. E3 malfunction (For 531 & 711 Models)

4. E3 malfunction (For 1082, 1412 & 1762 Models)

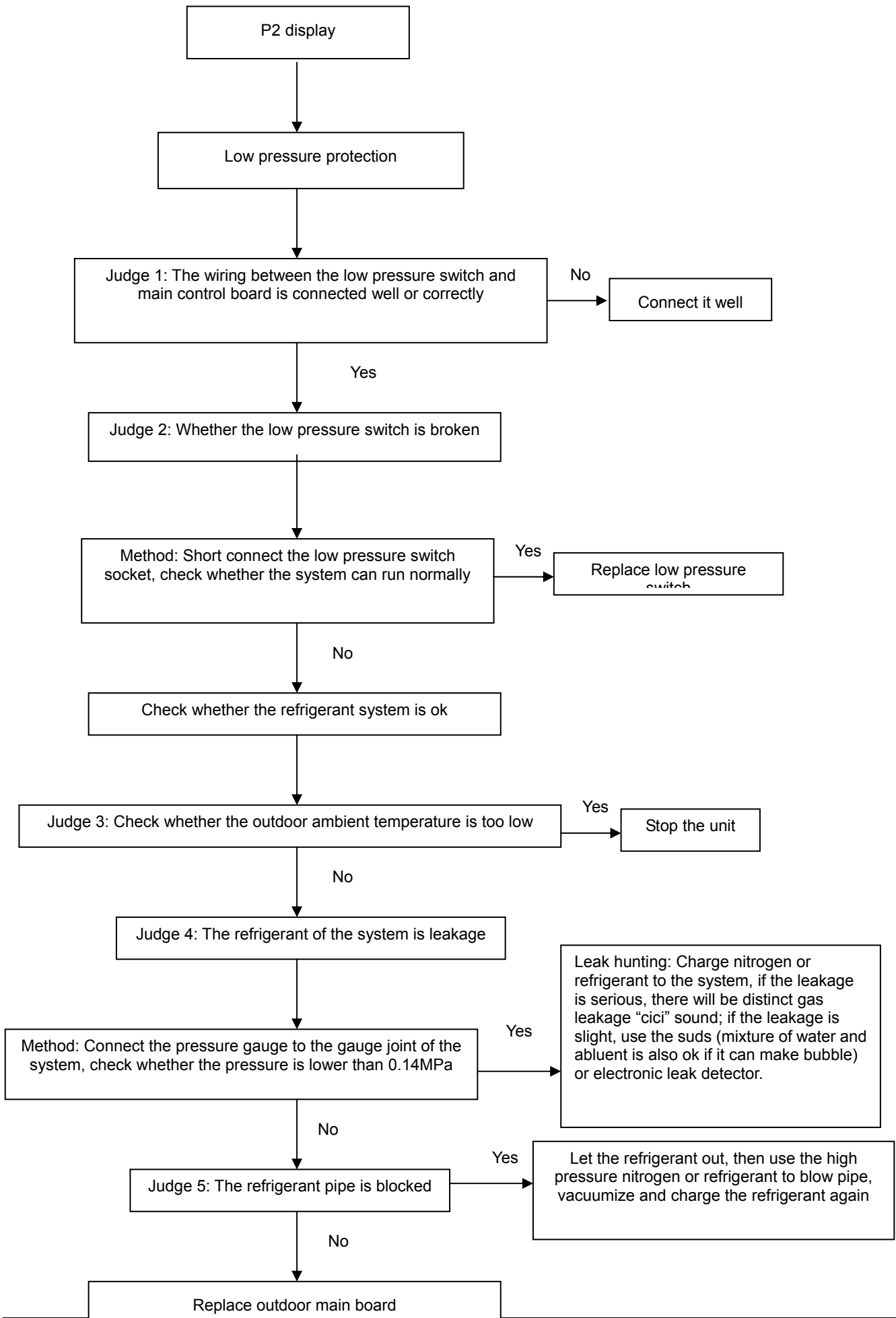
5. E4 malfunction

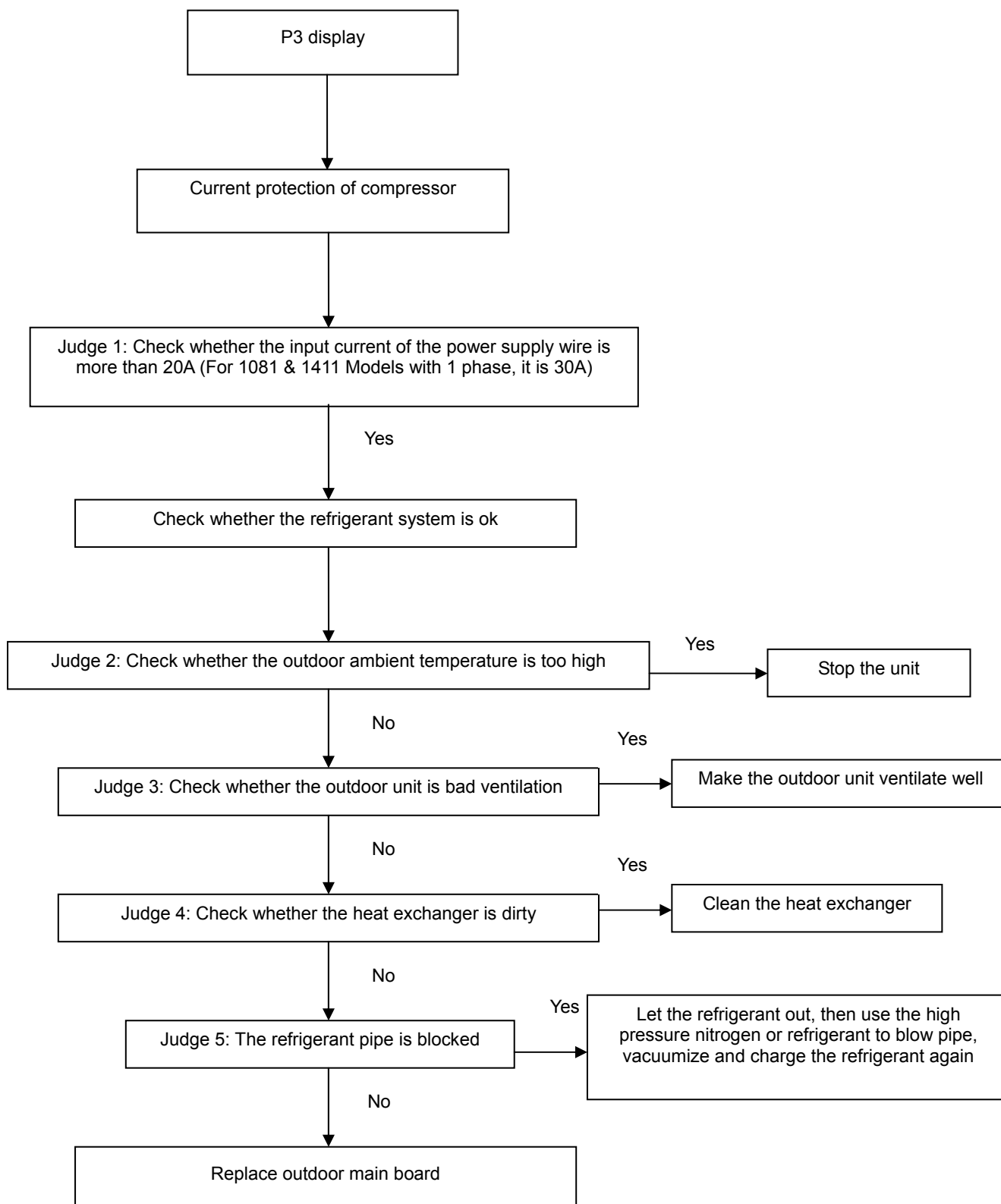
6. E5 malfunction**7. E6 malfunction (Only for 1081& 1411 Models with 1 phase)**

8. P1 malfunction



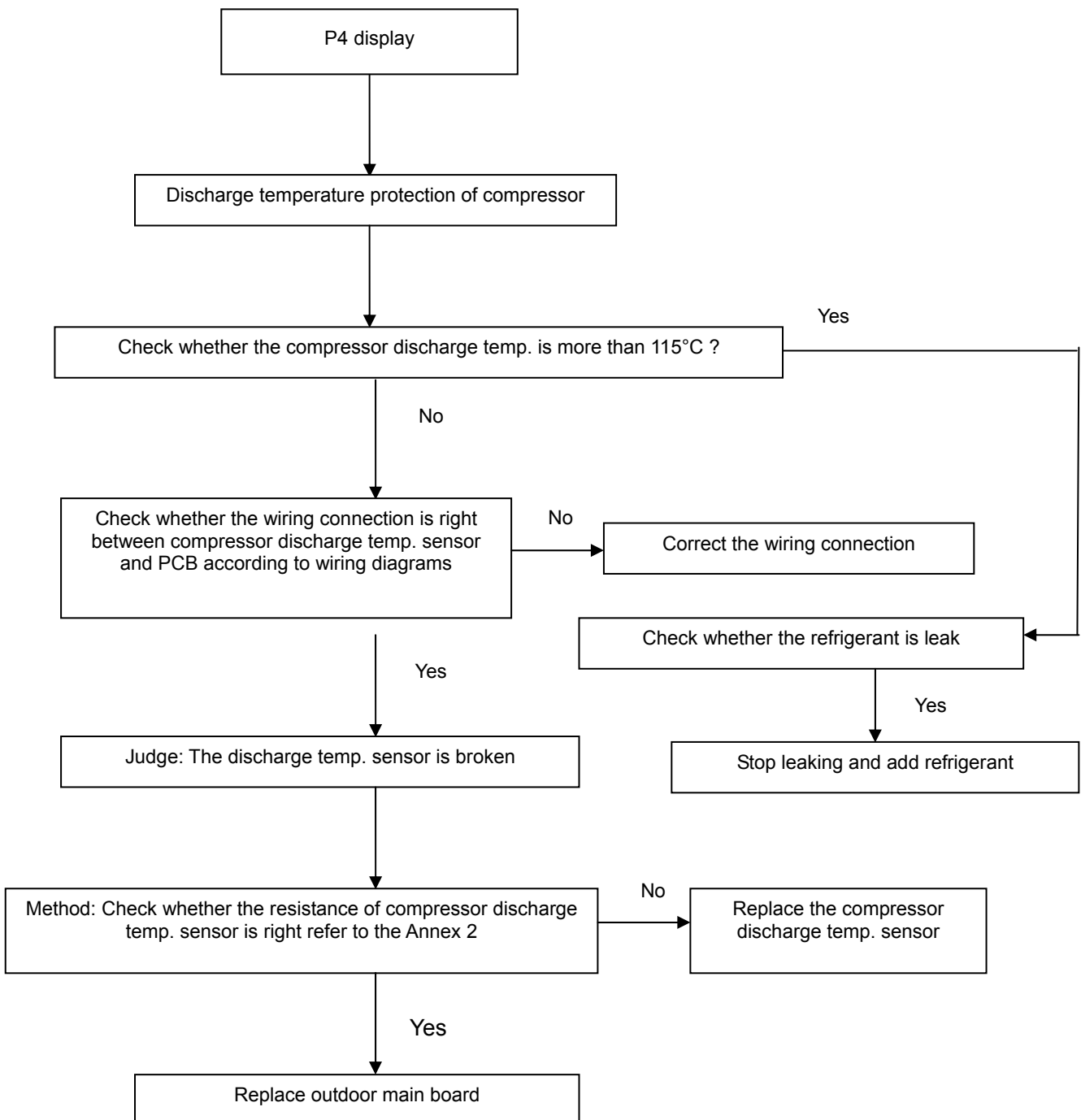
9. P2 malfunction



10. P3 malfunction

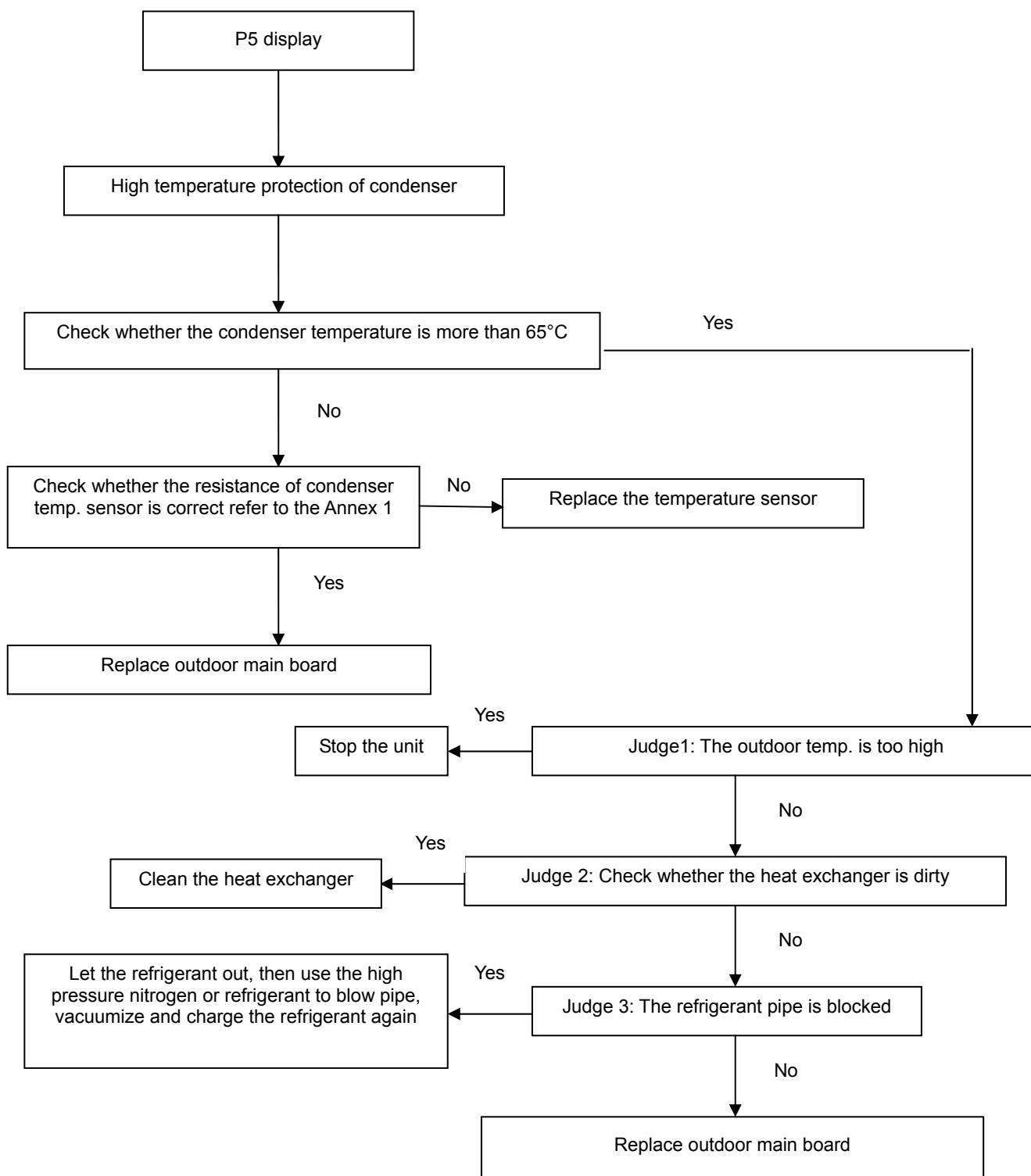
11. P4 malfunction

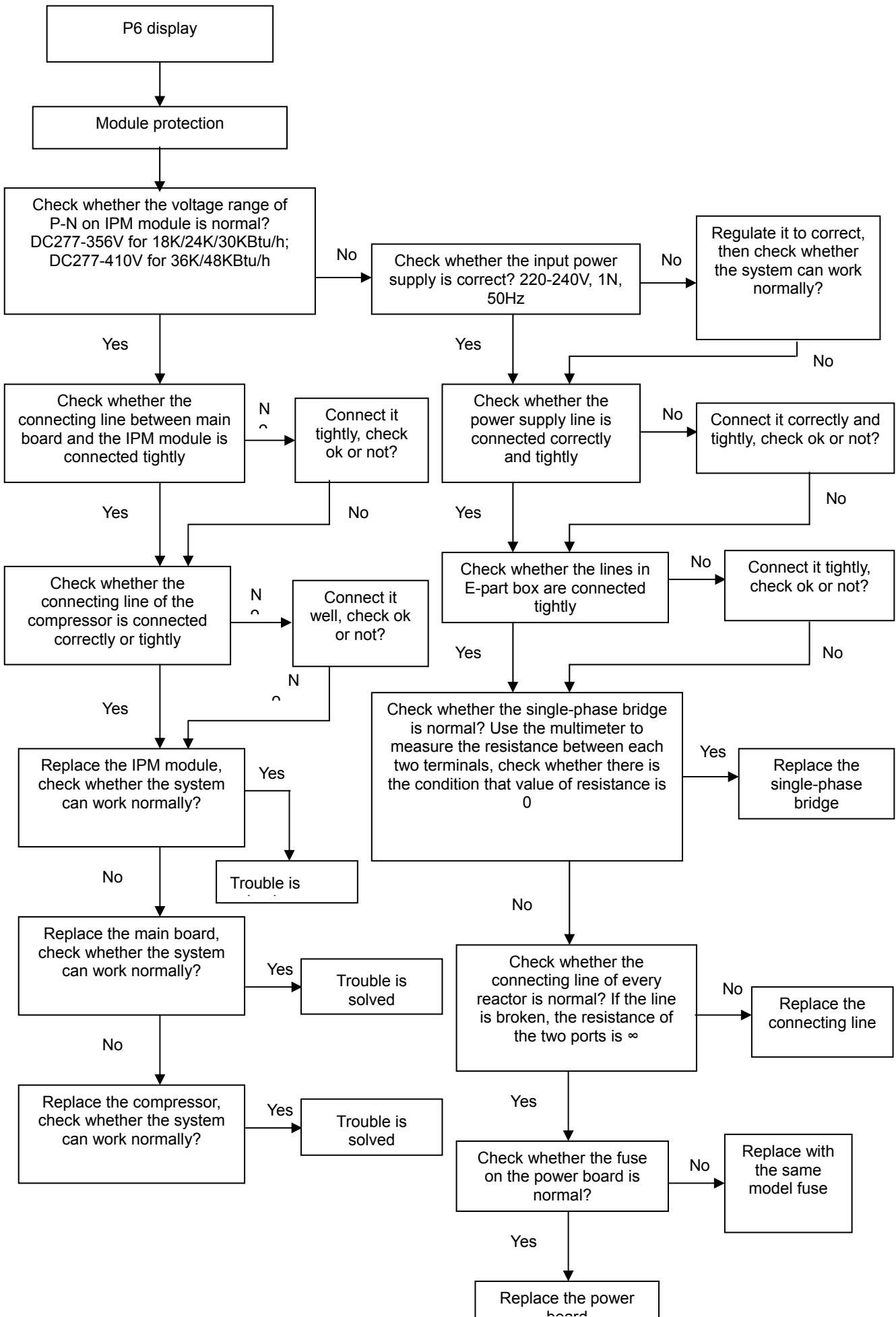
When compressor discharge temperature is higher than 115°C, the unit will stop, and unit runs again when compressor discharge temperature is lower than 90°C.



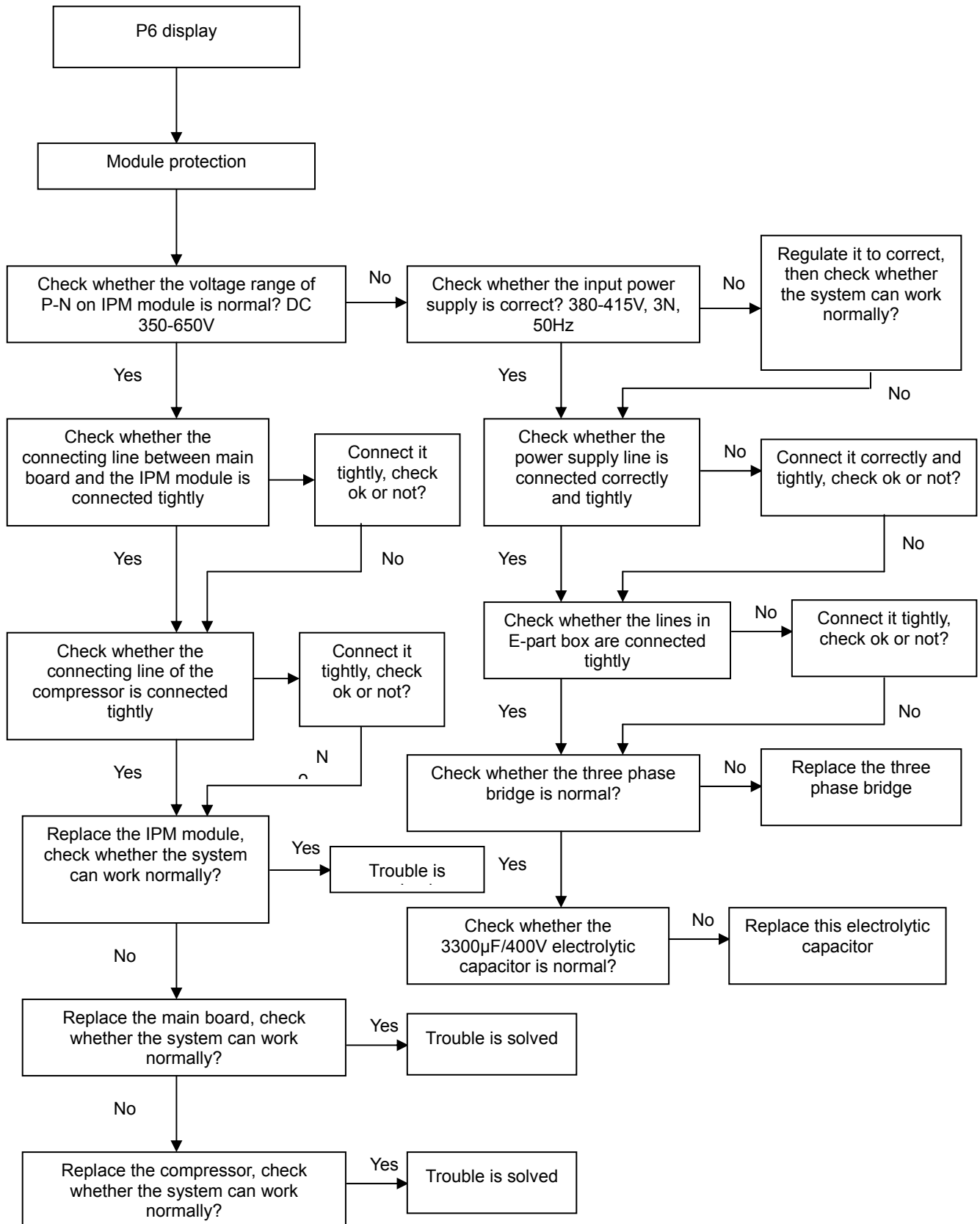
12. P5 malfunction

When condenser high temp. is more than 65°C, the unit will stop, and unit runs again when outdoor pipe temp. less than 52°C.



13. P6 malfunction (For single phase units)

14. P6 malfunction (For three phases units)



Part 4

Installation

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Ceiling and Floor Type Installation

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1. Precautions

- Be sure to be in conformity with the local, national and international laws and regulations.
 - Read "PRECAUTIONS" carefully before installation.
 - The following precautions include important safety items. Observe them and never forget.
 - Keep this manual with the owner's manual in a handy place for future reference.
- The safety precautions listed here are divided into two categories. In either case, important safety information is listed which must be read carefully.

WARNING

Failure to observe a warning may result in death.

CAUTION

Failure to observe a caution may result in injury or damage to the equipment.
After completing the installation, make sure that the unit operates properly during the start-up operation.
Please instruct the customer on how to operate the unit and keep it maintained. Also, inform customers that they should store this installation manual along with the owner's manual for future reference.

WARNING

Be sure only trained and qualified service personnel to install, repair or service the equipment.
Improper installation, repair, and maintenance may result in electric shocks, short-circuit, leaks, fire or other damage to the equipment.
Install according to this installation instructions strictly.
If installation is defective, it will cause water leakage, electrical shock fire.
When installing the unit in a small room, take measures against to keep refrigerant concentration from exceeding allowable safety limits in the event of refrigerant leakage.
Contact the place of purchase for more information. Excessive refrigerant in a closed ambient can lead to oxygen deficiency.
Use the attached accessories parts and specified parts for installation.
Otherwise, it will cause the set to fall, water leakage, electrical shock fire.
Install at a strong and firm location which is able to withstand the set's weight.
If the strength is not enough or installation is not properly done, the set will drop to cause injury.
The appliance must be installed 2.5m above floor.
The appliance shall not be installed in the laundry.
Before obtaining access to terminals, all supply circuits must be disconnected.
The appliance must be positioned so that the plug is accessible.
The enclosure of the appliance shall be marked by word, or by symbols, with the direction of the fluid flow.
For electrical work, follow the local national wiring standard, regulation and this installation instruction. An independent circuit and single outlet must be used.
If electrical circuit capacity is not enough or defect in electrical work, it will cause electrical shock fire.
Use the specified cable and connect tightly and clamp the cable so that no external force will be acted on the terminal.
If connection or fixing is not perfect, it will cause heat-up or fire at the connection.
Wiring routing must be properly arranged so that control board cover is fixed properly.
If control board cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electrical shock.
If the supply cord is damaged, it must be replaced by the manufacture or its service agent or similarly qualified person in order to avoid a hazard.
An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual current device (RCD) with the rating of above 10mA shall be incorporated in the fixed wiring according to the national rule.
When carrying out piping connection, take care not to let air substances go into refrigeration cycle.
Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury.
Do not modify the length of the power supply cord or use of extension cord, and do not share the single outlet with other electrical appliances.

Otherwise, it will cause fire or electrical shock.

Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes.

Improper installation work may result in the equipment falling and causing accidents.

If the refrigerant leaks during installation, ventilate the area immediately.

Toxic gas may be produced if the refrigerant comes into the place contacting with fire.

The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

After completing the installation work, check that the refrigerant does not leak.

Toxic gas may be produced if the refrigerant leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.

CAUTION

Ground the air conditioner.

Do not connect the ground wire to gas or water pipes, lightning rod or a telephone ground wire. Incomplete grounding may result in electric shocks.

Be sure to install an earth leakage breaker.

Failure to install an earth leakage breaker may result in electric shocks.

Connect the outdoor unit wires, and then connect the indoor unit wires.

You are not allowed to connect the air conditioner with the power source until wiring and piping the air conditioner is done.

While following the instructions in this installation manual, install drain piping in order to ensure proper drainage and insulate piping in order to prevent condensation.

Improper drain piping may result in water leakage and property damage.

Install the indoor and outdoor units, power supply wiring and connecting wires at least 1 meter away from televisions or radios in order to prevent image interference or noise.

Depending on the radio waves, a distance of 1 meter may not be sufficient enough to eliminate the noise.

The appliance is not intended for use by young children or infirm persons without supervision.

Young children should be supervised to ensure that they do not play with the appliance.

Don't install the air conditioner in the following locations:

- There is petrolatum existing.
- There is salty air surrounding (near the coast).
- There is caustic gas (the sulfide, for example) existing in the air (near a hot spring).
- The Volt vibrates violently (in the factories).
- In buses or cabinets.
- In kitchen where it is full of oil gas.
- There is strong electromagnetic wave existing.
- There are inflammable materials or gas.
- There is acid or alkaline liquid evaporating.
- Other special conditions.

2. Installation information

- To install properly, please read this "installation manual" at first.
- The air conditioner must be installed by qualified persons.
- When installing the indoor unit or its tubing, please follow this manual as strictly as possible.
- If the air conditioner is installed on a metal part of the building, it must be electrically insulated according to the relevant standards to electrical appliances.
- When all the installation work is finished, please turn on the power only after a thorough check.
- Regret for no further announcement if there is any change of this manual caused by product improvement.

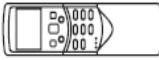
INSTALLATION ORDER

- Select the location;
- Install the indoor unit;
- Install the outdoor unit;
- Install the connecting pipe ;
- Connect the drain pipe;
- Wiring;
- Test operation.

3. Accessories

Please check whether the following fittings are of full scope. If there are some spare fittings , please restore them carefully.

Table 3-1

	Name	Shape	Quantity
Installation Fittings	1.Hook		2
	2.Hanging arm		2
Remote Controller & Its Frame	3. Remote controller		1
	4. Frame		1
	5. Mounting screw(ST2.9×10-C-H)		2
	6. Alkaline dry batteries (AM4)		2
Others	7. Owner's manual		1
	8. Installation manual		1

Cautions on remote controller installation:

Never throw or beat the controller.

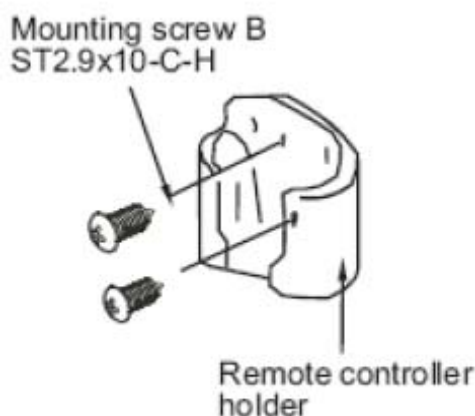
Before installation, operate the remote controller to determine its location in a reception range.

Keep the remote controller at least 1m apart from the nearest TV set or stereo equipment. (it is necessary to prevent image disturbances or noise interferences.)

Do not install the remote controller in a place exposed to direct sunlight or close to a heating source, such as a stove.

Note that the positive and negative poles are right positions when loading batteries.

This manual is subject to changes due to technological improvement without further notices.



Remote controller

4. Inspecting and handling the unit

At delivery, the package should be checked and any damage should be reported immediately to the carrier claims agent.

When handling the unit, take into account the following:

1.  Fragile, handle the unit with care.
2.  Keep the unit upright in order to avoid compressor damage.
3. Choose on before hand the path along which the unit is to be brought in.
4. Move this unit as originally package as possible.
4. When lifting the unit , always use protectors to prevent belt damage and pay attention to the position of the unit's centre of gravity.

5. Indoor unit installation

5.1 Installation place

The indoor unit should be installed in a location that meets the following requirements:

- There is enough room for installation and maintenance.
- The ceiling is horizontal, and its structure can endure the weight of the indoor unit.
- The outlet and the inlet are not impeded, and the influence of external air is the least.
- The air flow can reach throughout the room.
- The connecting pipe and drainpipe could be extracted out easily.
- There is no direct radiation from heaters.

CAUTION

Keep indoor unit, outdoor unit, power supply wiring and transmission wiring at least 1 meter away from televisions and radios. This is to prevent image interference and noise in those electrical appliances. (Noise may be generated depending on the conditions under which the electric wave is generated, even if 1 meter is kept.)

5.2 Install the main body

1 Installing Ø10 hanging screw bolts. (4 bolts)

- Please refer to the following figures for the distance measurement between the screw bolts.
- Please install with 10 hanging screw bolts.
- The handling to the ceiling varies from the constructions, consult the construction personnel for the specific procedures.
 - The size of the ceiling to be handled----- Do keep the ceiling flat. Consolidate the roof beam for possible vibration.

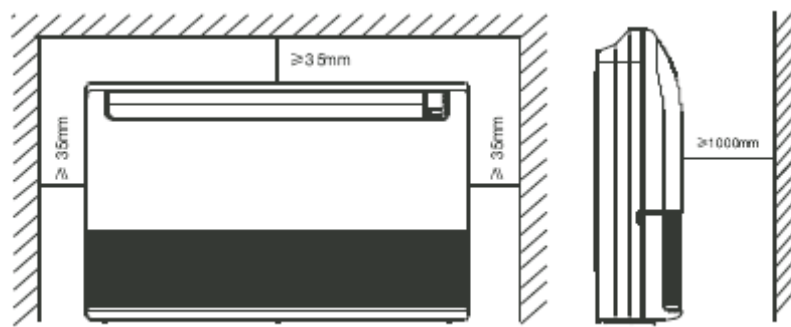


Fig.1-1

- Cut off the roof beam.
- Strengthen the place that has been cut off, and consolidate the roof beam.
- After the selection of installation location, position the refrigerant pipes, drain pipes indoor & outdoor wires to the connection places before hanging up the machine.
- The installation of hanging screw bolts.

WOODEN CONSTRUCTION

Put the square timber reversely over the roof beam, then install the hanging screw bolts.

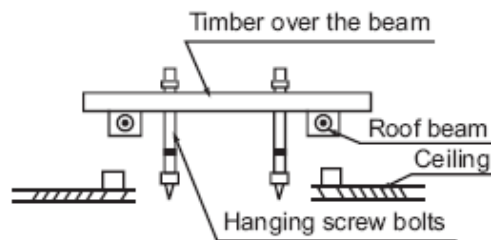


Fig.1-2

NEW CONCRETE BRICKS

Inlaying or embedding the screw bolts.

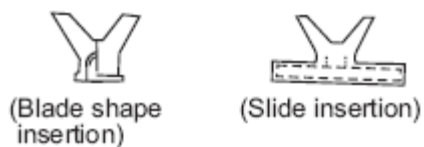


Fig.1-3

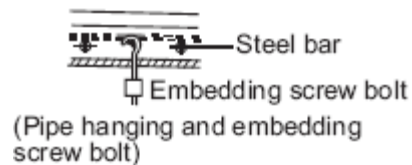


Fig.1-4

FOR ORIGINAL CONCRETE BRICKS

Install the hanging hook with expansible bolt into the concrete deep to 45~50mm to prevent loose.

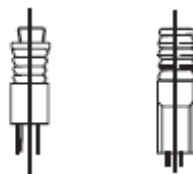


Fig.1-5

STEEL ROOF BEAM STRUCTURE

Install and use directly the supporting angle steel.

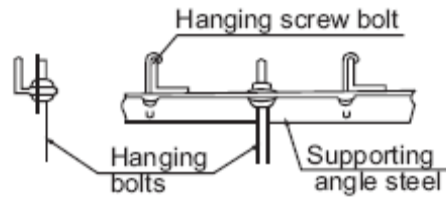


Fig.1-6

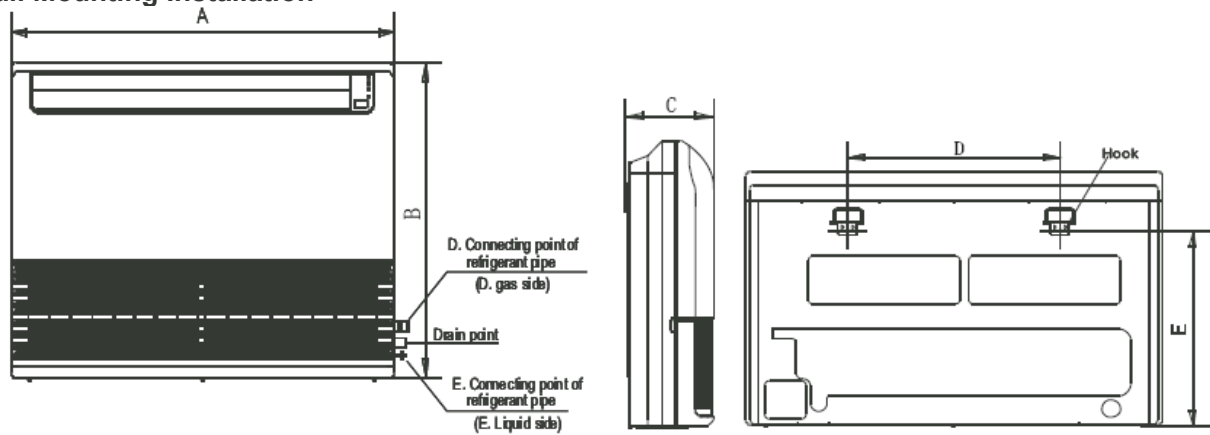
2 Wall Mounting Installation

Fig. 1-7

1. Fix the hook with tapping screw onto the wall. (Refer to Fig.1-8)

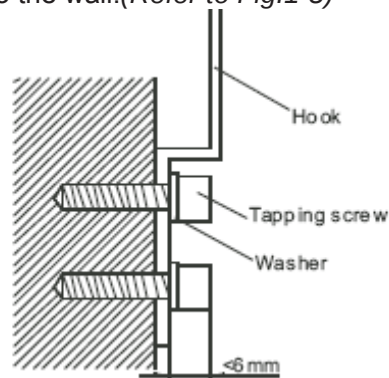


Fig.1-8

2. Hang the indoor unit on the hook.
- 3 Ceiling Installation

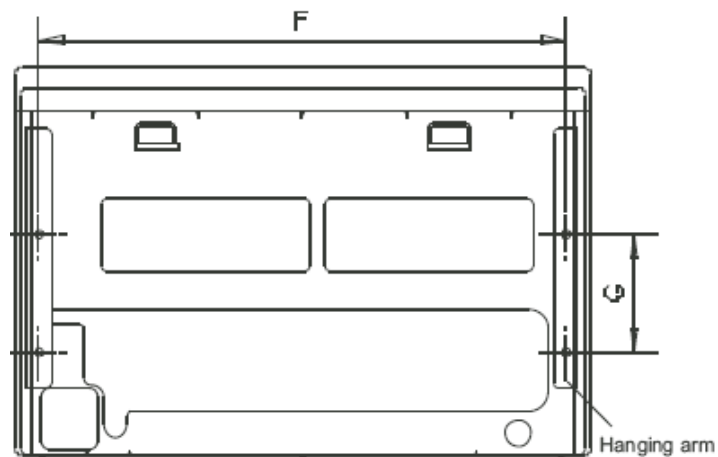


Fig.1-9

1. Remove the side board and the grille.(Refer to Fig. 1-10) (For 1411 and 1761 Models, do not remove the grille.)

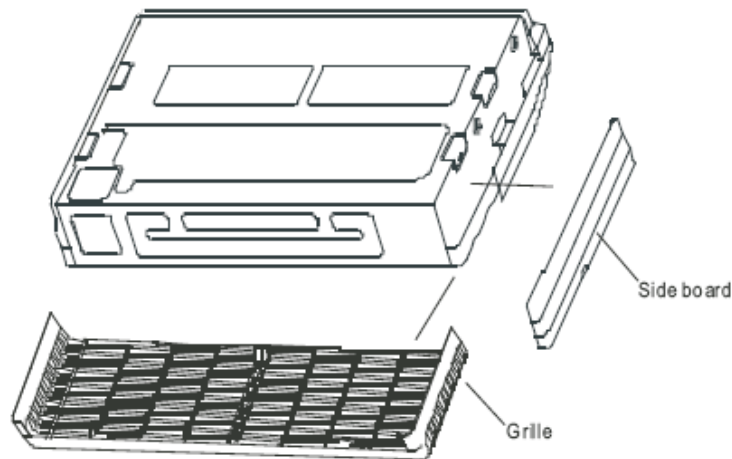


Fig. 1-10

2. Locate the hanging arm on the hanging screw bolt. (Refer to Fig. 1-11)
Prepare the mounting bolts on the unit.(Refer to Fig. 1-12)

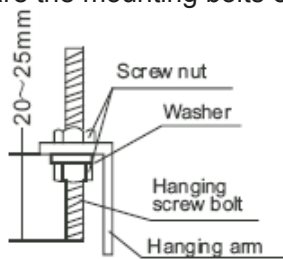


Fig.1-11

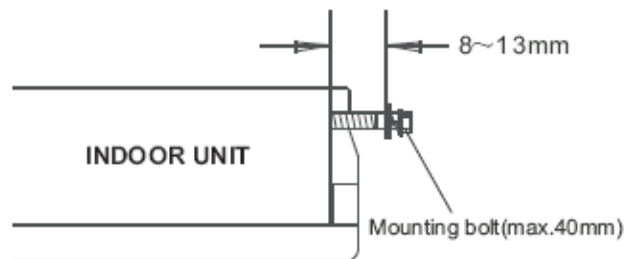
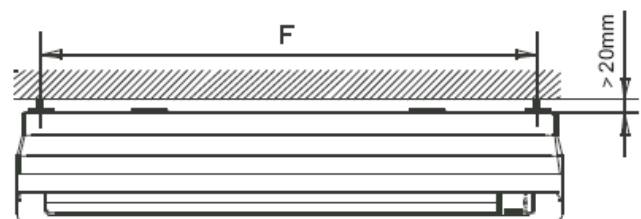
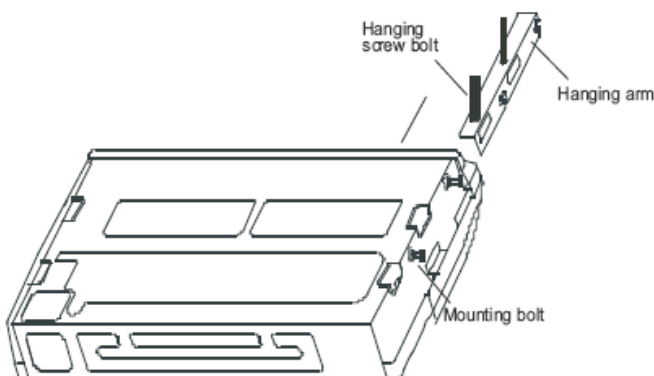


Fig.1-12

3. Hang the unit on the hanging arm by sliding backward. Securely tighten the mounting bolts on both sides. (Refer to Fig. 1-13)



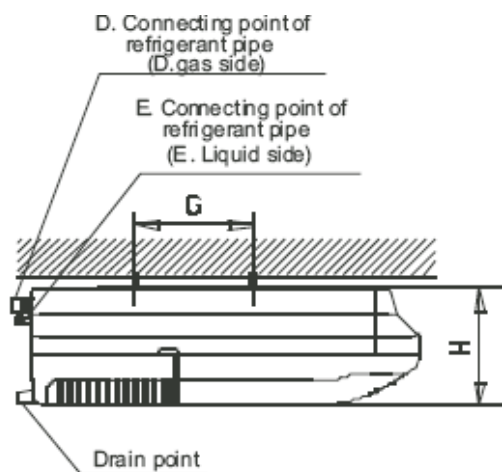


Fig. 1-13

ATTENTION

The figures above are based on 531 Model (18000Btu/h as rated capacity), which may differ from the unit you purchased.

5.3 The dimension of the unit**Table 5-1**

Capacity	A	B	C	D	E	F	G	H
351	990	660	206	505	506	907	200	203
531-711	990	660	206	505	506	907	200	203
1081	1280	660	206	795	506	1195	200	203
1411-1761	1670	680	244	1070	450	1542	200	240

6. Connect the drain pipe

■Install the drainpipe of the indoor unit

The outlet has PTI screw bread, Please use sealing materials and pipe sheath(fitting) when connecting PVC pipes.

CAUTION

- The drain pipe of indoor unit must be heat insulated, or it will condense dew, as well as the connections of the indoor unit.
- Hard PVC binder must be used for pipe connection, and make sure there is no leakage.
- With the connection part to the indoor unit, please be noted not to impose pressure on the side of indoor unit pipes.
- When the declivity of the drain pipe downwards is over 1/100, there should not be any winding.
- The total length of the drain pipe when pulled out transversely shall not exceed 20m, when the pipe is over long, a prop stand must be installed to prevent winding.
- Refer to the figures on the right for the installation of the pipes.

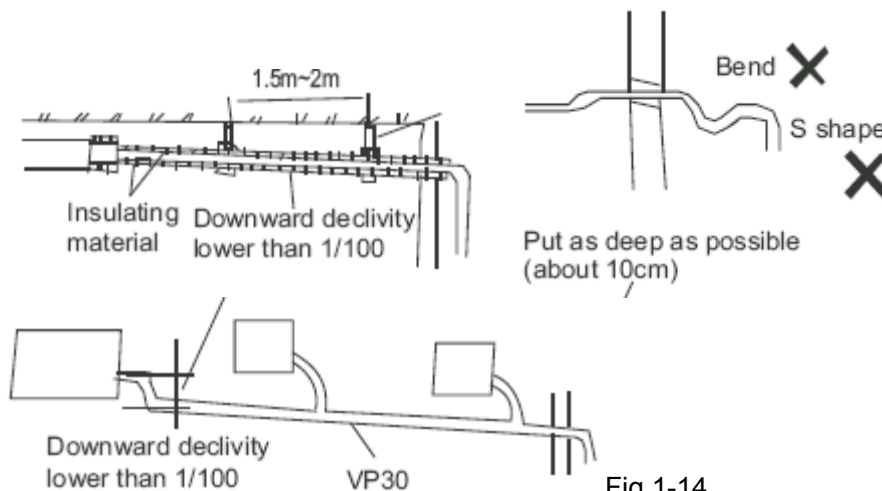


Fig.1-14

■Drainage test

- Check whether the drainpipe is unhindered.
- New built house should have this test done before paving the ceiling.

Duct Type Installation

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1. Precautions

■ Be sure to be in conformity with the local, national and international laws and regulations.

■ Read "PRECAUTIONS" carefully before installation.

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Install according to this installation instructions strictly.

If installation is defective, it will cause water leakage, electrical shock fire.

When installing the unit in a small room, take measures against to keep refrigerant concentration from exceeding allowable safety limits in the event of refrigerant leakage.

Contact the place of purchase for more information. Excessive refrigerant in a closed ambient can lead to oxygen deficiency.

Use the attached accessories parts and specified parts for installation.

Otherwise, it will cause the set to fall, water leakage, electrical shock fire.

Install at a strong and firm location which is able to withstand the set's weight.

If the strength is not enough or installation is not properly done, the set will drop to cause injury.

The appliance must be installed 2.5m above floor.

The appliance shall not be installed in the laundry.

Before obtaining access to terminals, all supply circuits must be disconnected.

The appliance must be positioned so that the plug is accessible.

The enclosure of the appliance shall be marked by word, or by symbols, with the direction of the fluid flow.

For electrical work, follow the local national wiring standard, regulation and this installation instruction. An independent circuit and single outlet must be used.

If electrical circuit capacity is not enough or defect in electrical work, it will cause electrical shock fire.

Use the specified cable and connect tightly and clamp the cable so that no external force will be acted on the terminal.

If connection or fixing is not perfect, it will cause heat-up or fire at the connection.

Wiring routing must be properly arranged so that control board cover is fixed properly.

If control board cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electrical shock.

If the supply cord is damaged, it must be replaced by the manufacture or its service agent or similarly qualified person in order to avoid a hazard.

An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual current device (RCD) with the rating of above 10mA shall be incorporated in the fixed wiring according to the national rule.

When carrying out piping connection, take care not to let air substances go into refrigeration cycle.

Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury.

Do not modify the length of the power supply cord or use of extension cord, and do not share the single outlet with other electrical appliances.

Otherwise, it will cause fire or electrical shock.

Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes. Improper installation work may result in the equipment falling and causing accidents.

If the refrigerant leaks during installation, ventilate the area immediately.

Toxic gas may be produced if the refrigerant comes into the place contacting with fire.

The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

After completing the installation work, check that the refrigerant does not leak.

Toxic gas may be produced if the refrigerant leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.

CAUTION

Ground the air conditioner.

Do not connect the ground wire to gas or water pipes, lightning rod or a telephone ground wire. Incomplete grounding may result in electric shocks.

Be sure to install an earth leakage breaker.

Failure to install an earth leakage breaker may result in electric shocks.

Connect the outdoor unit wires, and then connect the indoor unit wires.

You are not allow to connect the air conditioner with the power source until wiring and piping the air conditioner is done.

While following the instructions in this installation manual, install drain piping in order to ensure proper drainage and insulate piping in order to prevent condensation.

Improper drain piping may result in water leakage and property damage.

Install the indoor and outdoor units, power supply wiring and connecting wires at least 1 meter away from televisions or radios in order to prevent image interference or noise.

Depending on the radio waves, a distance of 1 meter may not be sufficient enough to eliminate the noise.

The appliance is not intended for use by young children or infirm persons without supervision.

Young children should be supervised to ensure that they do not play with the appliance.

Don't install the air conditioner in the following locations:

- There is petrolatum existing.
- There is salty air surrounding (near the coast).
- There is caustic gas (the sulfide, for example) existing in the air (near a hot spring).
- The Volt vibrates violently (in the factories).
- In buses or cabinets.
- In kitchen where it is full of oil gas.
- There is strong electromagnetic wave existing.
- There are inflammable materials or gas.
- There is acid or alkaline liquid evaporating.
- Other special conditions.

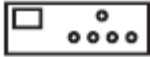
2. Installation information

- To install properly, please read this "installation manual" at first.
- The air conditioner must be installed by qualified persons.
- When installing the indoor unit or its tubing, please follow this manual as strictly as possible.
- If the air conditioner is installed on a metal part of the building, it must be electrically insulated according to the relevant standards to electrical appliances.
- When all the installation work is finished, please turn on the power only after a thorough check.
- Regret for no further announcement if there is any change of this manual caused by product improvement.

INSTALLATION ORDER

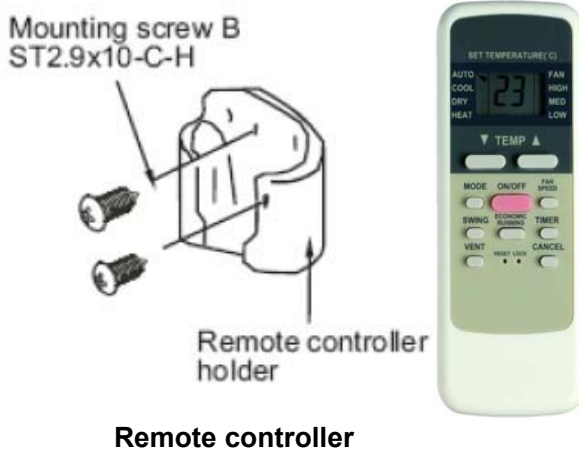
- Select the location;
- Install the indoor unit;
- Install the outdoor unit;
- Install the connecting pipe ;
- Connect the drain pipe;
- Wiring;
- Test operation.

3. Accessories

Name	Quantity	Shape	Usage
1.Pipe insulating material	2		(Heat resisting)
2.Drain elbow	1		To connect drain
3.Seal	1		To connect drain
4.Signal receiver display board	1		Receive Signal
5.Remote controller	1		_____
6.Frame	1		_____
7.Mounting screw(ST2.9×10-C-H)	2		_____
8.Alkaline dry batteries(AM4)	2		_____
9.Remote controller manual	1	_____	_____
10.Owner' s manual	1	_____	_____
11.Installation manual	1	This manual	_____

Cautions on remote controller installation

- Never throw or beat the controller.
- Before installation, operate the remote controller to determine its location in a reception range.
- Keep the remote controller at least 1m apart from the nearest TV set or stereo equipment. (It is necessary to prevent image disturbances or noise interferences.)
- Do not install the remote controller in a place exposed to direct sunlight or close to a heating source, such as a stove. Note that the positive and negative poles are in right positions when loading batteries.
- Note that the positive and negative poles are right positions when loading batteries.
- This manual is subject to changes due to technological improvement without further notices.



4. Inspecting and handling the unit

At delivery, the package should be checked and any damage should be reported immediately to the carrier claims agent.

When handling the unit, take into account the following:

- 1  Fragile, handle the unit with care.
- 2  Keep the unit upright in order to avoid compressor damage.
- 3 Choose on before hand the path along which the unit is to be brought in.
- 4 Move this unit as originally package as possible.
- 4 When lifting the unit, always use protectors to prevent belt damage and pay attention to the position of the unit's centre of gravity.

5. Indoor unit installation

5.1 Installation place

(refer to Fig.5-1 for specification.)

The indoor unit should be installed in a location that meets the following requirements:

- There is enough room for installation and maintenance.
- The ceiling is horizontal, and its structure can endure the weight of the indoor unit.
- The outlet and the inlet are not impeded, and the influence of external air is the least.
- The air flow can reach throughout the room.
- The connecting pipe and drainpipe could be extracted out easily.
- There is no direct radiation from heaters.

CAUTION

Keep indoor unit, outdoor unit, power supply wiring and transmission wiring at least 1 meter away from televisions and radios. This is to prevent image interference and noise in those electrical appliances. (Noise may be generated depending on the conditions under which the electric wave is generated, even if 1 meter is kept.)

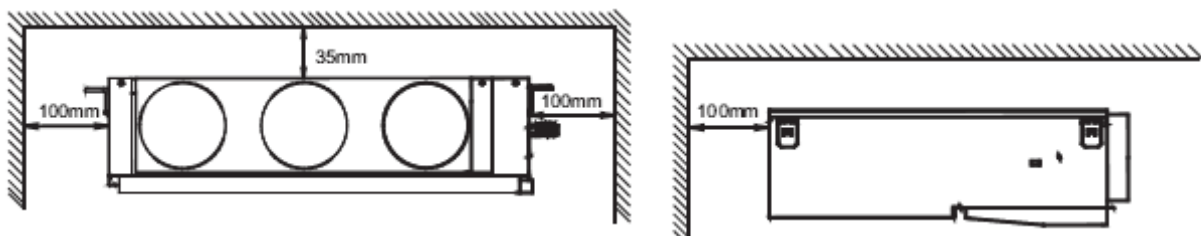


Fig.2-1

NOTE

Notes before Installation

Identify the correct transporting route.

Move the air conditioner in its original package as possible as you can.

If the unit should be installed on the metal part of the building, electric insulation is necessary and make sure that it comply with the relevant technical standard of electric equipment.

5.2 Install the main body

5.2.1 Installing f10 hanging screw bolts. (4 bolts)

- Please refer to the following figure for the hanging screw bolts distance
- Please install with f10 hanging screw bolts.
- The handling to the ceiling varies from the constructions, consult the construction person for the specific condition.
- The size of the ceiling to be handled ... do keep the ceiling flat. Consolidate the roof beam for possible vibration.

- Cut off the roof beam.
- Strengthen the place cut off, and consolidate the roof beam.
- After the selection of installation location, position the refrigerant pipes, drain pipes, indoor & outdoor wires to the connection places before hanging up the machine.
- The installation of hanging screw bolts.

WOODEN CONSTRUCTION

Put the square timber transversely over the roof beam, then install the hanging screw bolts.

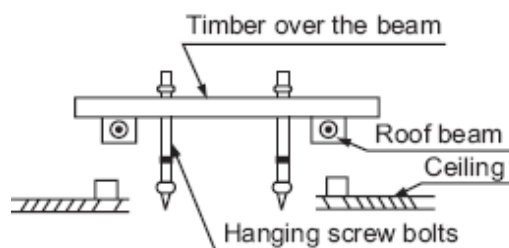


Fig.2-2

New concrete bricks

Inlaying or embedding the screw bolts.

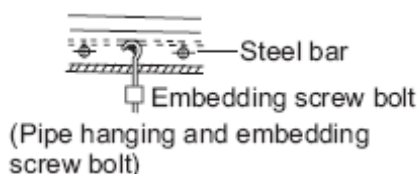
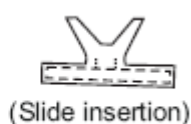
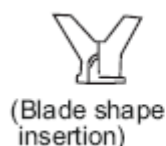


Fig.2-3

Fig.2-4

For original concrete bricks

Install the hanging hook with expansible bolt into the concrete deep to 45~50mm to prevent loose.

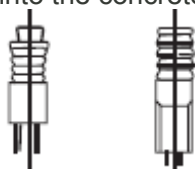


Fig.2-5

Steel roof beam structure

Install and use directly the supporting angle steel.

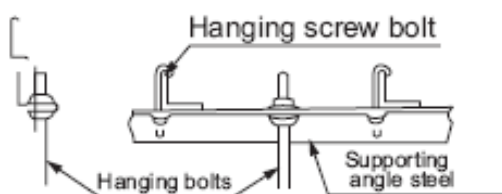


Fig.2-6

5.2.2 Overhanging the indoor unit

- Overhang the indoor unit onto the hanging screw bolts with block.
- Position the indoor unit in a flat level by using the level indicator, unless it may cause leakage.

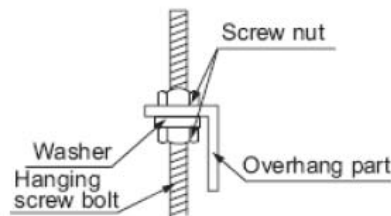


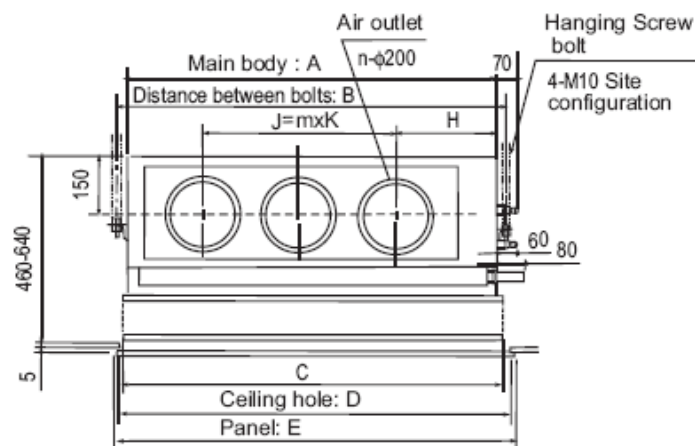
Fig.2-7

Installing the dust proof net and canvas air passage

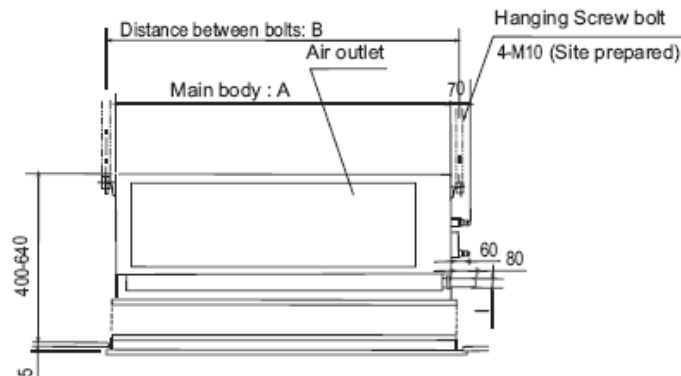
- Install the dust proof net according to the installation manual;
- Install the canvas air passage underneath the dust proof net.

Pipe connection

- The static pressure in the outside of the unit is 39.2Pa (maximum 98Pa), the length of the air pipe attached is determined by this parameter.
- The positioning of ceiling whole and indoor unit and hanging screw bolts



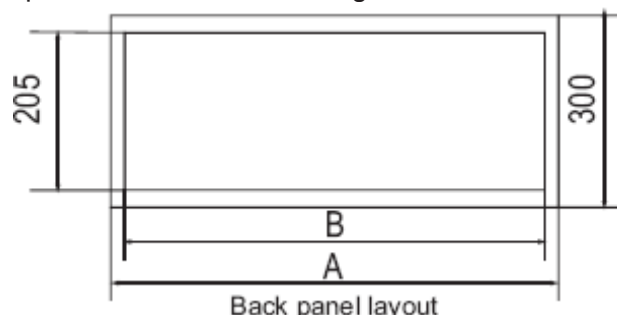
(Take 1081 type as example) Fig.2-8



(For 531~1761 Models) Fig.2-9

NOTE

This chart is based on 1081 type, So, a little differences may exist on the outlook and functions from yours. In case of air return from back, please refer to the following:



Back panel layout (For 531~1411 Models) Fig.2-10

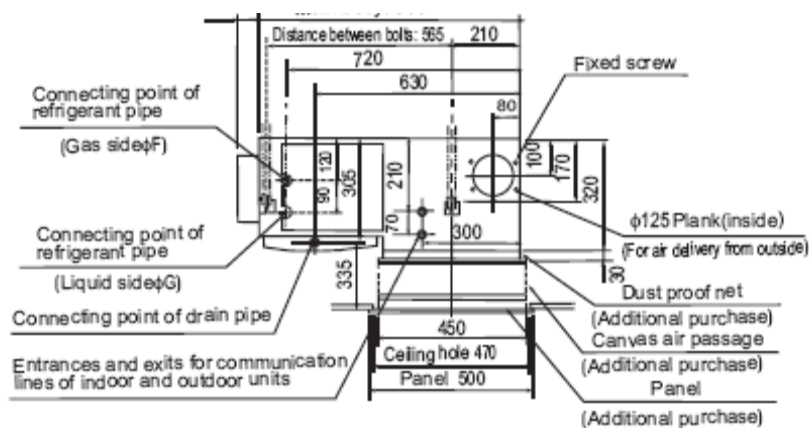


Fig.2-11

■ When using a back-air installation, please refer to the following:

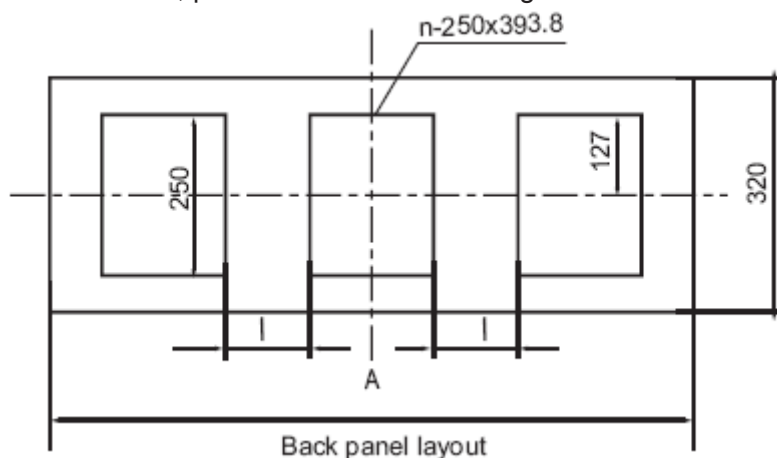


Fig.2-12

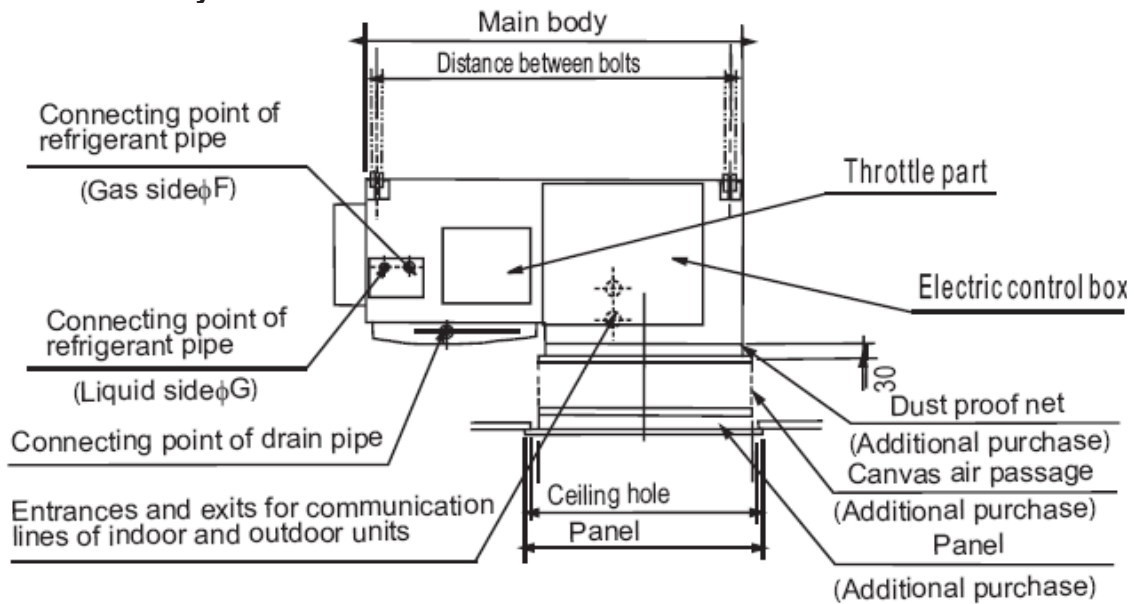
Table 5-1

MODE	A	B	C	D	E	F	G	H	I	J	K	L	m	n	Refrigerant
HUBI 531 XR	1000	1052	1112	1085	1470	12.7	6.35	252	24.5	580	290	721	2	3	R410A
HUBI 711 XR	1000	1052	1112	1085	1470	16	9.53	252	24.5	580	290	721	2	3	
HUBI 1081 XR	1350	1400	1380	1400	1430	16	9.53	252	35	930	310	721	3	4	

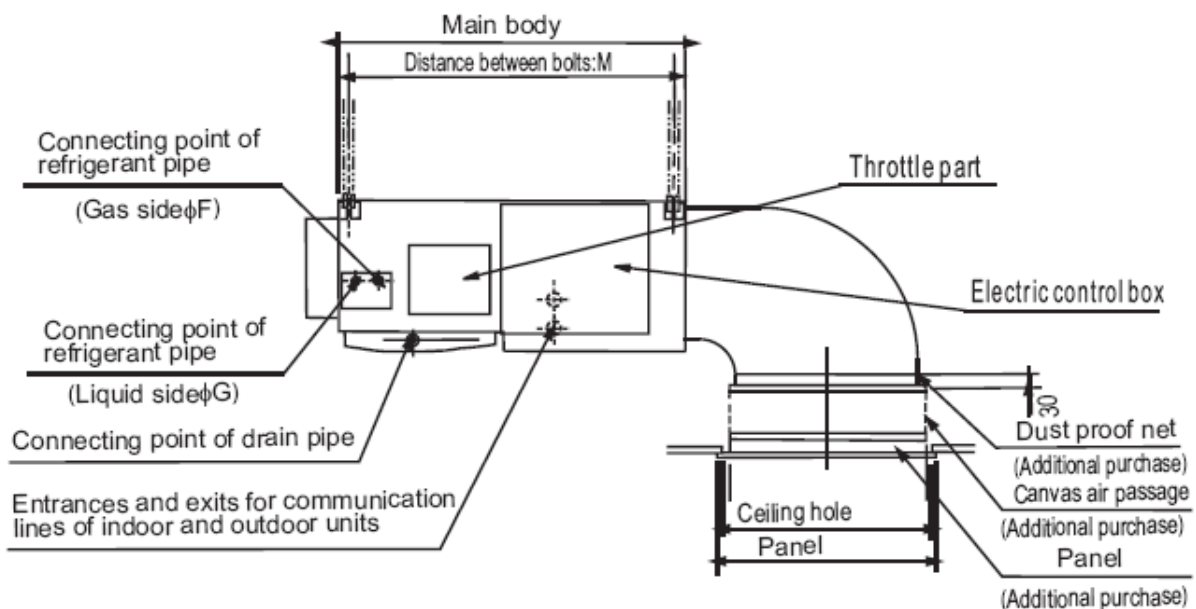
Table 5-2

MODE	A	B	C	D	E	F	G	H	I	J	K	m	n	p	Refrigerant
HUBI 1411 XR	1350	1400	1380	1400	1430	16	9.53	252	35	930	310	3	4	4	R410A
HUBI 1761 XR	1350	1400	1380	1400	1430	16	9.53	252	35	930	310	3	4	4	

5.3 Install the main body



(For 531~1761 Models) Fig.2-13



(For 531~1761 Models) Fig.2-14

5.4 Panel installation

5.4.1. Unload inner frame.

- Slide the knob, release the buckle from the outside frame hole, then unload the inner frame.

5.4.2. Hang the outside frame on the main body with face down. (4 places at 4 corners).

- Hang the belt on the hook of the main body.

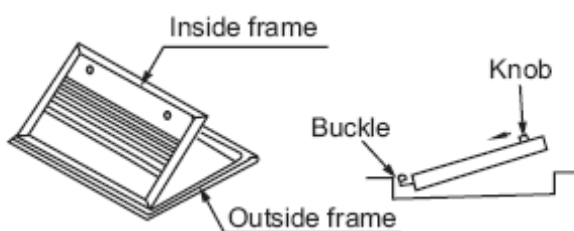


Fig.2-15

Note: The signal wire of the remote control receiver must be drawn out through the canvas air passage.

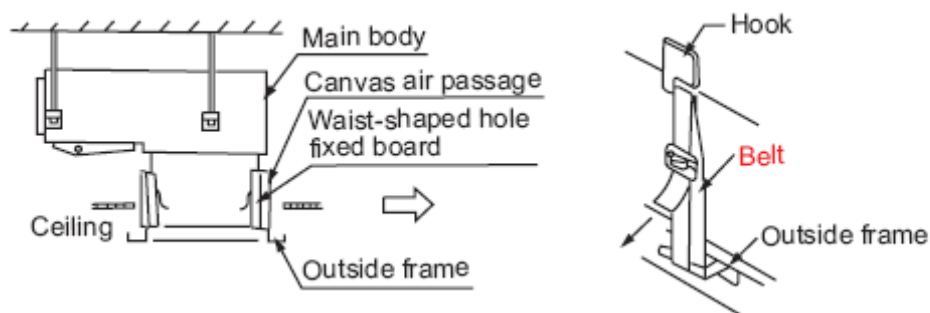


Fig.2-16

5.4.3. Fix the outside frame and the canvas air passage with screws.

- Screw must be fixed on from the bottom to the top.

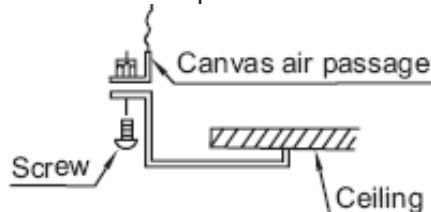


Fig.2-17

5.4.4. Hang up the outside frame until it sticks to the ceiling tightly.

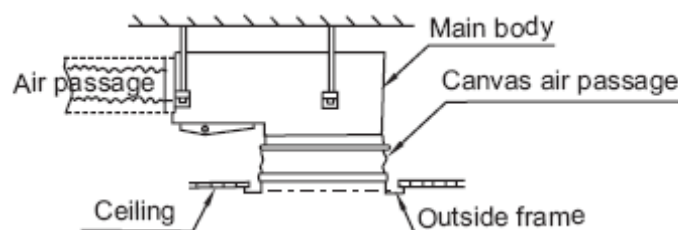
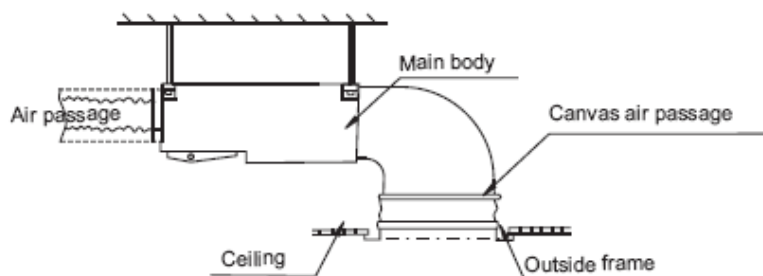


Fig.2-18



(For 531~1411)

Fig.5-19

5.4.5. Fix the main body and the outside frame with the fix board of waist-shape hole (in two places).

- Hang one side of the fix board of the waist-shaped hole on the hook of the main body.
- Tighten the other side of the board with screw to the outside frame.
- Cut off the surplus part of the board with pliers.
- Bend the top of the broken end.

Note: when hanging up the outside frame with the fix board of waist-shaped hole and the belt stick the outside frame tightly to the ceiling and fix it.

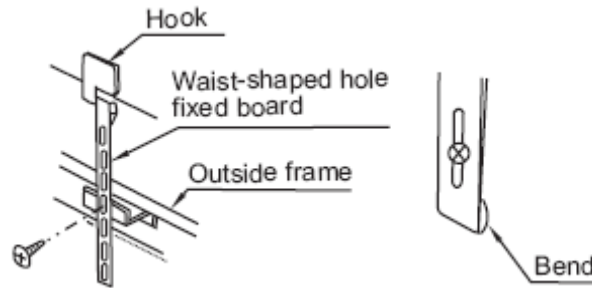


Fig.2-20

5.4.6. Install the inner frame on the outside frame (the inverse sequence of unloading the inner frame).

Note: Connect the remote control receiver with the indoor unit signal wires and fix it.

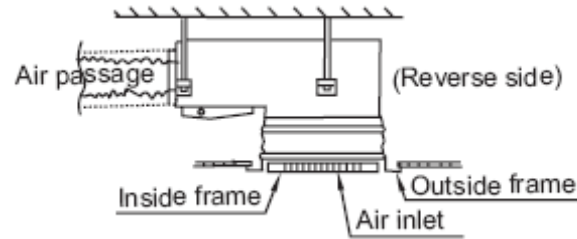


Fig.2-21

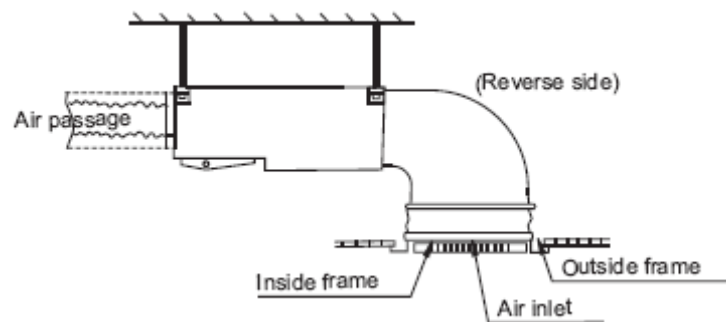


Fig.2-22

5.4.7. Install remote controller.

6. Connect the drain pipe

6.1 Install the drain pipe

The outlet has PTI screw bread, Please use sealing materials and pipe sheath(fitting) when connecting PVC pipes.

- The drain pipe of indoor unit must be heat insulated, or it will condense dew, as well as the connections of the indoor unit.
- Hard PVC binder must be used for pipe connection, and make sure there is no leakage.
- With the connection part to the indoor unit, please be noted not to impose pressure on the side of indoor unit pipes.
- When the declivity of the drain pipe downwards is over 1/100, there should not be any winding.
- The total length of the drain pipe when pulled out transversely shall not exceed 20m, when the pipe is over long, a prop stand must be installed to prevent winding.
- Refer to the figures on the right for the installation of the pipes.

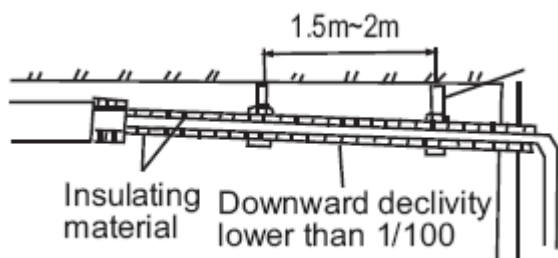


Fig.2-23

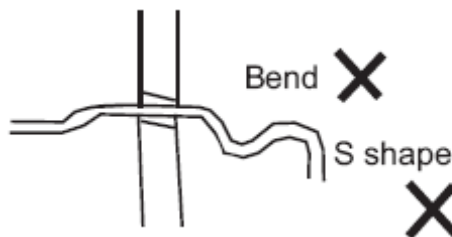


Fig.2-24

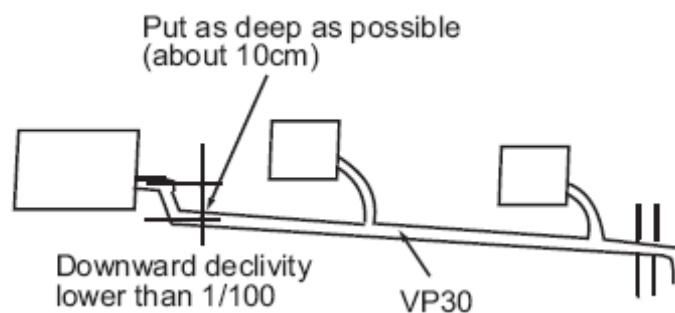


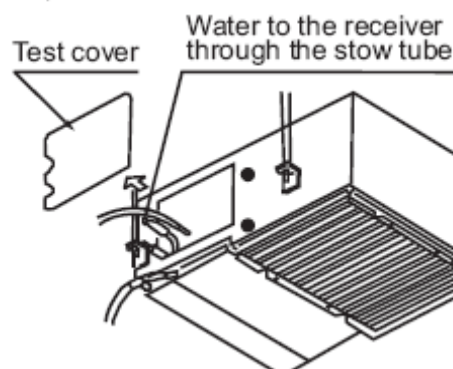
Fig.2-25

6.2 Drainage test

■ Check whether the drainpipe is unhindered.

■ New built house should have this test done before paving the ceiling.

- Remove the test cover, and stow water of about 2000ml to the water receiver through the stow tube.(Refer to Fig.2-26)



(Take 1081 type as example) Fig.2-26

Four-way Cassette Type Installation

1. Precautions	163
2. Installation information	165
3. Accessories	166
4. Indoor unit installation	167
5. Connect the drain pipe	172

1. Precautions

■ Be sure to be in conformity with the local, national and international laws and regulations.

■ Read "PRECAUTIONS" carefully before installation.

■ The following precautions include important safety items. Observe them and never forget.

■ Keep this manual with the owner's manual in a handy place for future reference.

The safety precautions listed here are divided into two categories. In either case, important safety information is listed which must be read carefully?

WARNING

Failure to observe a warning may result in death.

CAUTION

Failure to observe a caution may result in injury or damage to the equipment.

After completing the installation, make sure that the unit operates properly during the start-up operation. Please instruct the customer on how to operate the unit and keep it maintained. Also, inform customers that they should store this installation manual along with the owner's manual for future reference.

WARNING

Be sure only trained and qualified service personnel to install, repair or service the equipment.

Improper installation, repair, and maintenance may result in electric shocks, short-circuit, leaks, fire or other damage to the equipment.

Install according to this installation instructions strictly.

If installation is defective, it will cause water leakage, electrical shock fire.

When installing the unit in a small room, take measures against to keep refrigerant concentration from exceeding allowable safety limits in the event of refrigerant leakage.

Contact the place of purchase for more information. Excessive refrigerant in a closed ambient can lead to oxygen deficiency.

Use the attached accessories parts and specified parts for installation.

Otherwise, it will cause the set to fall, water leakage, and electrical shock fire.

Install at a strong and firm location which is able to withstand the set's weight.

If the strength is not enough or installation is not properly done, the set will drop to cause injury.

The appliance must be installed 2.5m above floor.

The appliance shall not be installed in the laundry.

Before obtaining access to terminals, all supply circuits must be disconnected.

The appliance must be positioned so that the plug is accessible.

The enclosure of the appliance shall be marked by word, or by symbols, with the direction of the fluid flow.

For electrical work, follow the local national wiring standard, regulation and this installation instruction. An independent circuit and single outlet must be used.

If electrical circuit capacity is not enough or defect in electrical work, it will cause electrical shock fire.

Use the specified cable and connect tightly and clamp the cable so that no external force will be acted on the terminal.

If connection or fixing is not perfect, it will cause heat-up or fire at the connection.

Wiring routing must be properly arranged so that control board cover is fixed properly.

If control board cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electrical shock.

If the supply cord is damaged, it must be replaced by the manufacture or its service agent or similarly qualified person in order to avoid a hazard.

An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual current device (RCD) with the rating of above 10mA shall be incorporated in the fixed wiring according to the national rule.

When carrying out piping connection, take care not to let air substances go into refrigeration cycle.

Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury.

Do not modify the length of the power supply cord or use of extension cord, and do not share the single outlet with other electrical appliances.

Otherwise, it will cause fire or electrical shock.

Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes.

Improper installation work may result in the equipment falling and causing accidents.

If the refrigerant leaks during installation, ventilate the area immediately.

Toxic gas may be produced if the refrigerant comes into the place contacting with fire.

The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

After completing the installation work, check that the refrigerant does not leak.

Toxic gas may be produced if the refrigerant leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.

CAUTION

Ground the air conditioner.

Do not connect the ground wire to gas or water pipes, lightning rod or a telephone ground wire. Incomplete grounding may result in electric shocks.

Be sure to install an earth leakage breaker.

Failure to install an earth leakage breaker may result in electric shocks.

Connect the outdoor unit wires, and then connect the indoor unit wires.

You are not allow to connect the air conditioner with the power source until wiring and piping the air conditioner is done.

While following the instructions in this installation manual, install drain piping in order to ensure proper drainage and insulate piping in order to prevent condensation.

Improper drain piping may result in water leakage and property damage.

Install the indoor and outdoor units, power supply wiring and connecting wires at least 1 meter away from televisions or radios in order to prevent image interference or noise.

Depending on the radio waves, a distance of 1 meter may not be sufficient enough to eliminate the noise.

The appliance is not intended for use by young children or infirm persons without supervision.

Don't install the air conditioner in the following locations:

- There is petrolatum existing.
- There is salty air surrounding (near the coast).
- There is caustic gas (the sulfide, for example) existing in the air (near a hot spring).
- The Volt vibrates violently (in the factories).
- In buses or cabinets.
- In kitchen where it is full of oil gas.
- There is strong electromagnetic wave existing.
- There are inflammable materials or gas.
- There is acid or alkaline liquid evaporating.
- Other special conditions.

2. Installation information

- To install properly, please read this "installation manual" at first.
- The air conditioner must be installed by qualified persons.
- When installing the indoor unit or its tubing, please follow this manual as strictly as possible.
- If the air conditioner is installed on a metal part of the building, it must be electrically insulated according to the relevant standards to electrical appliances.
- When all the installation work is finished, please turn on the power only after a thorough check.
- Regret for no further announcement if there is any change of this manual caused by product improvement.

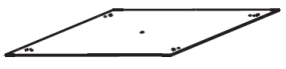
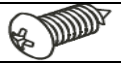
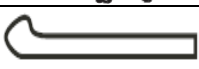
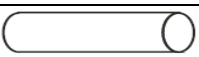
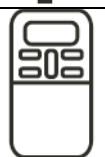
INSTALLATION ORDER

- Select the location;
- Install the indoor unit;
- Install the outdoor unit;
- Install the connecting pipe ;
- Connect the drain pipe;
- Wiring;
- Test operation.

3. Accessories

Please check whether the following fittings are of full scope. If there are some spare fittings, please restore them carefully.

Table 3-1

	Name	Shape	Quantity
Installation Fittings	1. Expansible hook		4
	2. Installation hook		4
	3. Installation paper board		1
	4. Bolt M5		4
Tubing & Fittings	5. Connecting pipe group		1
	6. Binding tape		6
	7. Soundproof / insulation sheath		2
Drainpipe Fittings	8. Out-let pipe sheath		1
	9. Out-let pipe clasp		1
	10. Tightening band		20
	11. Drain joint		1
	12. Seal ring		1
Protect Pipe Fittings	13. Wall conduit		1
	14. Wall conduit cover		1
Remote controller & Its Frame	15. Remote controller		1
	16. Frame		1
	17. Mounting screw(ST2.9 10-C-H)		2
	18. Alkaline dry batteries (AM4)		2
Others	19. Owner's manual		1
	20. Installation manual		1
	21. Net work winding		1

4. Indoor unit installation

4.1 Figure 1

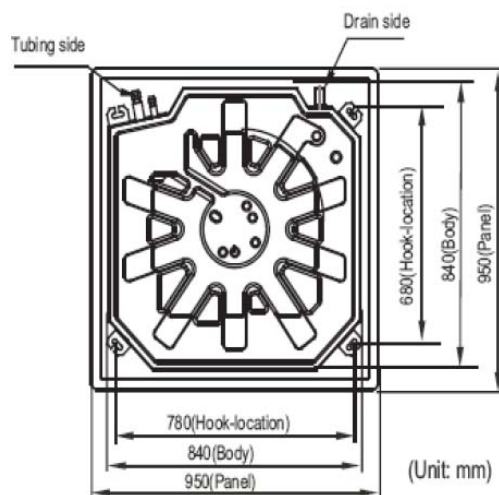


Fig.4-1

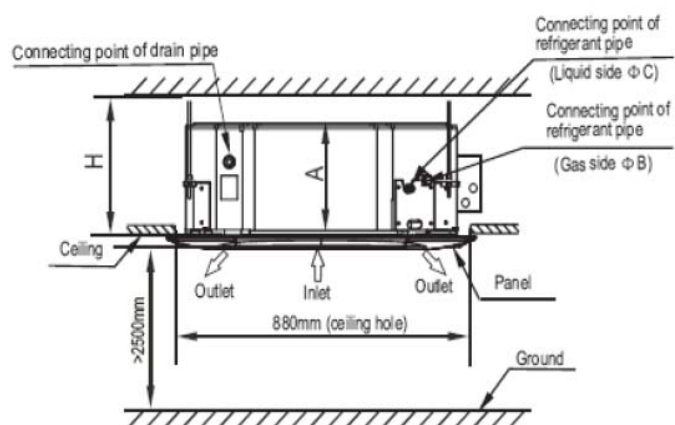


Fig.4-2

MODEL	A	B	C	H
HTBI 711 XR	230	Φ16	Φ9.53	> 260
HTBI 1081 XR	300	Φ16	Φ9.53	> 330
HTBI 1411 XR	300	Φ16	Φ9.53	> 330

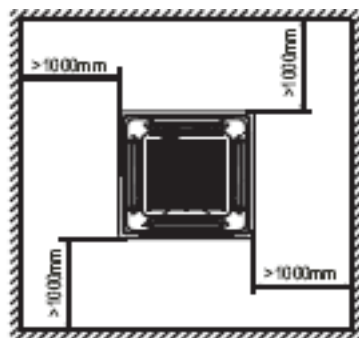


Fig.4-3

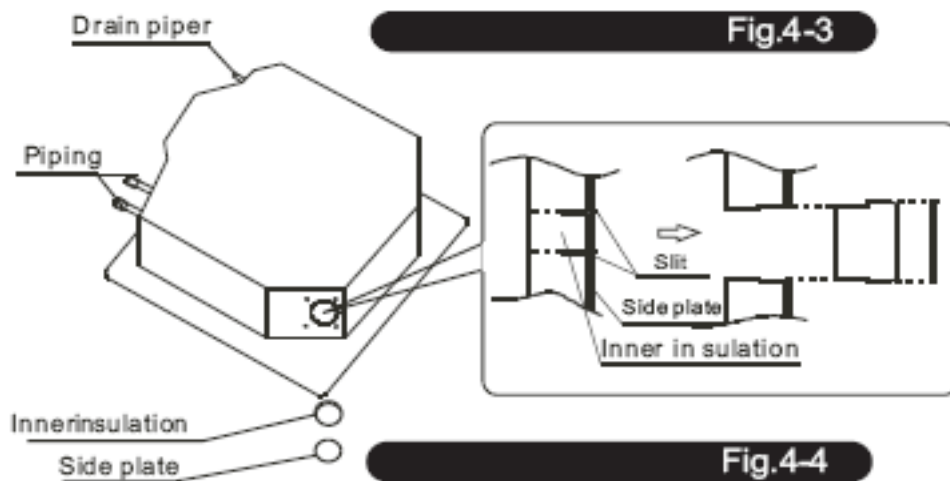


Fig.4-4

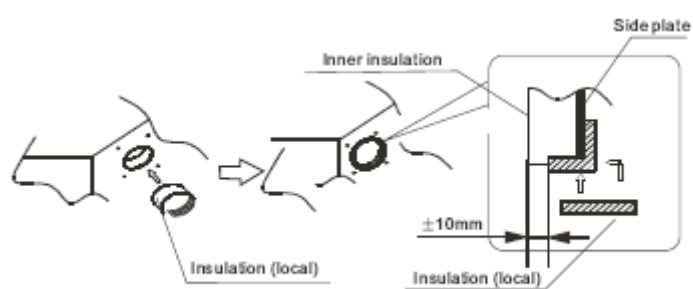


Fig.4-5

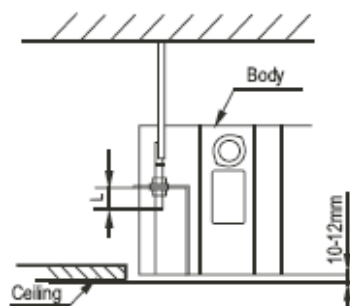


Fig.4-6



Fig.4-7

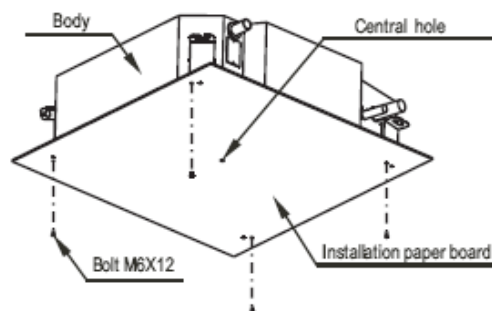


Fig.4-8

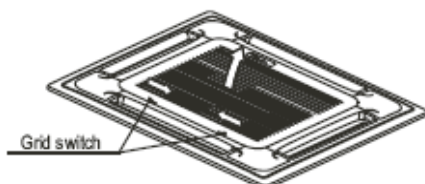


Fig.4-9

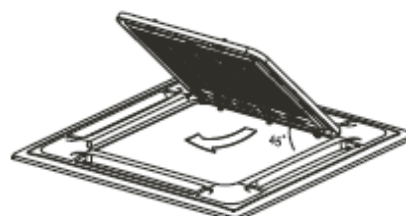


Fig.4-10

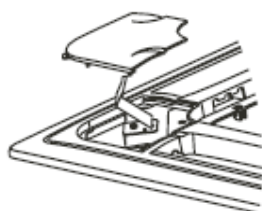


Fig.4-11

NOTE

All the pictures in this manual are for explanation purpose only. They may be slightly different from the air conditioner you purchased (depend on model).The actual shape shall prevail.

4.2 Figures 2

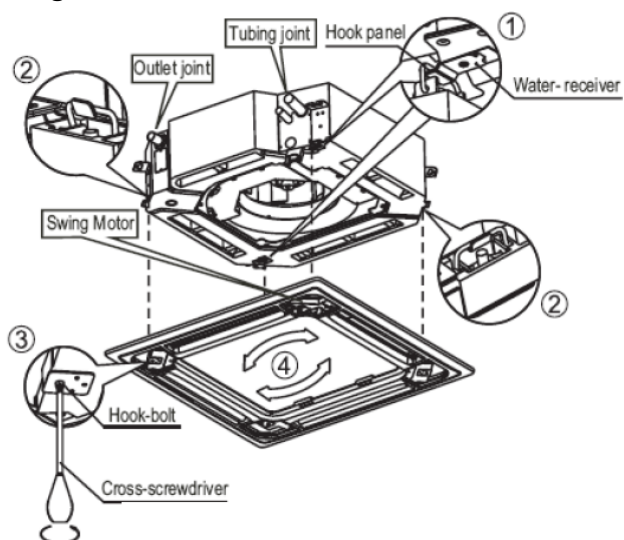


Fig.4-12

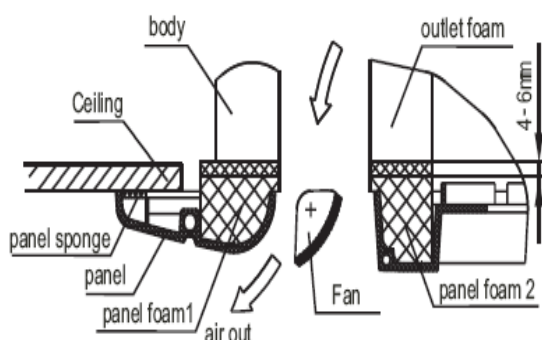


Fig.4-13

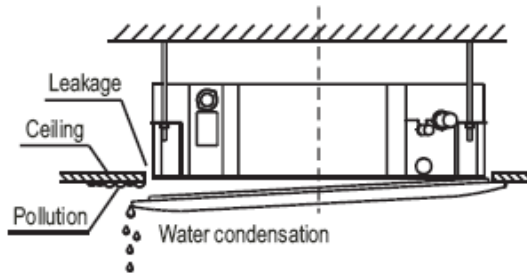


Fig.4-14

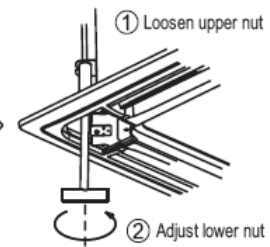
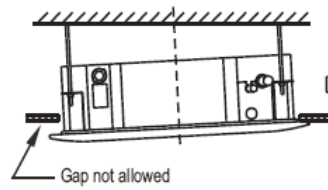


Fig.4-15

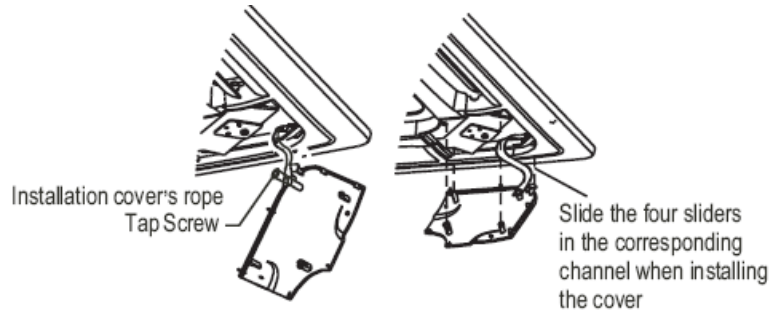


Fig.4-16

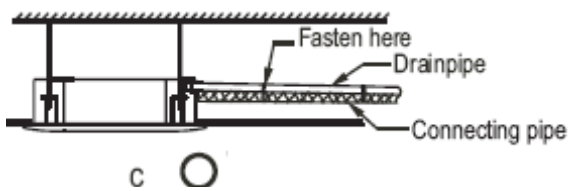
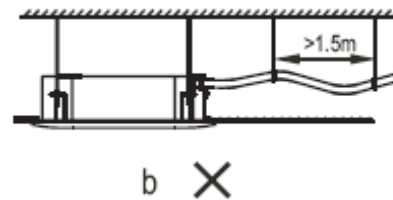
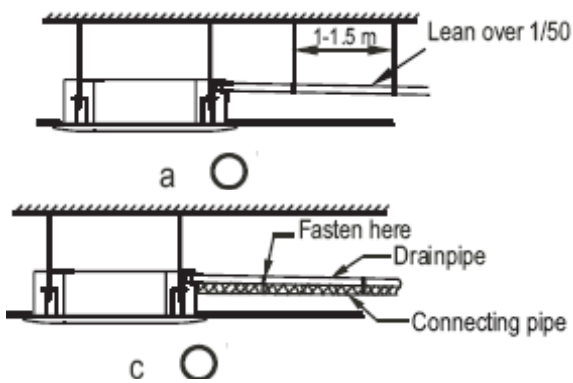


Fig.4-17

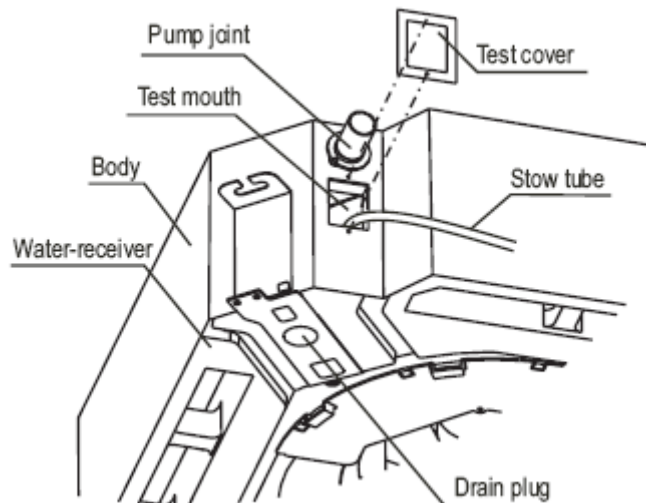


Fig.4-18

NOTE

All the pictures in this manual are for explanation purpose only. They may be slightly different from the air conditioner you purchased (depend on model).The actual shape shall prevail.

4.3 Install the Panel

CAUTION

Never put the panel face down on floor or against the wall, or on bulgy objects.□
Never crash or strike it.

4.3.1 Remove the air-in grill.

- Slide two grill switches toward the middle at the same time, and then pull them up. *(Refer to Fig.4-9)*
- Draw the grill up to an angle of about 45, and remove it. *(Refer to Fig.4-10)*

4.3.2 Remove the installation covers at the four corners

- Wrench off the bolts, loose the rope of the installation covers, and remove them. *(Refer to Fig.4-11)*

4.3.3 Install the panel

- Align the swing motor on the panel to the tubing joints of the body properly. *(Refer to Fig.4-12)*
- Fix hooks of the panel at swing motor and its opposite sides to the hooks of corresponding water receiver. *(Refer to Fig.4-12.1)* then hang the other two panel hooks onto corresponding hangers of the body. *(Refer to Fig.4- 12.2)*

CAUTION

Do not coil the wiring of the swing motor into the seal sponge.

- Adjust the four panel hook screws to keep the panel horizontal, and screw them up to the ceiling evenly. *(Refer to Fig.4-12.3)*
- Keep fastening the screws under the panel hooks, until the thickness of the sponge between the body and the panel's outlet has been reduced to about 4~6mm. The edge of the panel should contact with the ceiling well. *(Refer to Fig.4-13)*
- Malfunction described in Fig.4-14 can be caused by inappropriate tightness the screw.
- If the gap between the panel and ceiling still exists after fastening the screws, the height of the indoor unit should be modified again. *(Refer to Fig.4-15-left)*
- You can modify the height of the indoor unit through the openings on the panel's four corners, if the lift of the indoor unit and the drainpipe is not influenced *(refer to Fig.4-16-right)*.

4.3.4 Hang the air-in grill to the panel, then connect the lead terminator of the swing motor and that of the control box with corresponding terminators on the body respectively.

4.3.5 Relocate the air-in grill in the procedure of reversed order.

4.3.6 Relocate the installation cover.

- Fasten the rope of installation cover on the bolt of the installation cover. *(Refer to Fig.4-16-left)*
- Press the installation cover into the panel slightly. *(Refer to Fig.4-16-right)*

5. Connect the drain pipe

Install the drainpipe

- You can use a polyethylene tube as the drainpipe (out-dia.37-39mm, in-dia.32mm). It could be bought at local market or from your dealer.
- Set the mouth of the drainpipe onto the root of the body's pump-pipe, and clip the drainpipe and the out-let pipe sheath (fittings) together firmly with the out-let pipe clasp (fitting).
- The body's pump pipe and the drainpipe (especially the indoor part) should be covered evenly with the out-let pipe sheath (fittings) and be bound tightly with the constrictor to prevent condensation caused by entered air.
- To prevent water from flowing backwards into the air conditioner while the air conditioner stops, please lean the drainpipe down toward outdoor (outlet-side) at a degree of over 1/ 50. And please avoid any bulge or water deposit. (Refer to fig.4-17.a in the figure page)
- Do not drag the drainpipe violently when connecting to prevent the body from being pulled. Meanwhile, one support point should be set every 1~1.5m to prevent the drainpipe from yielding (Refer to fig.4-17.a in the figure page). Or you can tie the drainpipe with the connecting pipe to fix it.(Refer to fig.4-17.c in the figure page)
- In the case of prolonged drainpipe, you had better tighten its indoor part with a protection tube to prevent it from loosening.
- If the outlet of the drainpipe is higher than the body's pump joint, the pipe should be arranged as vertically as possible. And the lift distance must be less than 200mm, otherwise the water will overflow when the air conditioner stops.(Refer to fig.4-18 in the figure page)
- The end of the drainpipe should be over 50mm higher than the ground or the bottom of the drainage chute, and do not immerse it in water. If you discharge the water directly into sewage, be sure to make a U-form aqua seal by bending the pipe up to prevent the smelly gas entering the house through the drain pipe.
- Drainage test
 - Check whether the drainpipe is unhindered.
 - New built house should have this test done before paving the ceiling.
 - Remove the test cover, and stow water of about 2000ml to the water receiver through the stow tube. (Refer to fig.4-19 in the figure page)
 - Turn on the power, and operate the air conditioner under the "COOLING" mode. Listen to the sound of the drain pump. Check whether the water is discharger well (a lag of 1min is allowed before discharging, according to the length of the drain pipe), and check whether water leaks from the joints.
 - Stop the air conditioner, turn off the power, and reset the test cover to its original position.

NOTE:

The drain plug is used to empty the water-receiver for maintenance of the air conditioner. Please stuff it imposition at all times during operation to avoid leakage.

Compact Four-way cassette Type Installation

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2. Installation information	176
3. Accessories	177
4. Indoor unit installation	178
5. Connect the drain pipe	181

1. Precautions

■ Be sure to be in conformity with the local, national and international laws and regulations.

■ Read "PRECAUTIONS" carefully before installation.

■ The following precautions include important safety items. Observe them and never forget.

■ Keep this manual with the owner's manual in a handy place for future reference.

The safety precautions listed here are divided into two categories. In either case, important safety information is listed which must be read carefully?

WARNING

Failure to observe a warning may result in death.

CAUTION

Failure to observe a caution may result in injury or damage to the equipment.

After completing the installation, make sure that the unit operates properly during the start-up operation. Please instruct the customer on how to operate the unit and keep it maintained. Also, inform customers that they should store this installation manual along with the owner's manual for future reference.

WARNING

Be sure only trained and qualified service personnel to install, repair or service the equipment.

Improper installation, repair, and maintenance may result in electric shocks, short-circuit, leaks, fire or other damage to the equipment.

Install according to this installation instructions strictly.

If installation is defective, it will cause water leakage, electrical shock fire.

When installing the unit in a small room, take measures against to keep refrigerant concentration from exceeding allowable safety limits in the event of refrigerant leakage.

Contact the place of purchase for more information. Excessive refrigerant in a closed ambient can lead to oxygen deficiency.

Use the attached accessories parts and specified parts for installation.

Otherwise, it will cause the set to fall, water leakage, and electrical shock fire.

Install at a strong and firm location which is able to withstand the set's weight.

If the strength is not enough or installation is not properly done, the set will drop to cause injury.

The appliance must be installed 2.5m above floor.

The appliance shall not be installed in the laundry.

Before obtaining access to terminals, all supply circuits must be disconnected.

The appliance must be positioned so that the plug is accessible.

The enclosure of the appliance shall be marked by word, or by symbols, with the direction of the fluid flow.

For electrical work, follow the local national wiring standard, regulation and this installation instruction. An independent circuit and single outlet must be used.

If electrical circuit capacity is not enough or defect in electrical work, it will cause electrical shock fire.

Use the specified cable and connect tightly and clamp the cable so that no external force will be acted on the terminal.

If connection or fixing is not perfect, it will cause heat-up or fire at the connection.

Wiring routing must be properly arranged so that control board cover is fixed properly.

If control board cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electrical shock.

If the supply cord is damaged, it must be replaced by the manufacture or its service agent or similarly qualified person in order to avoid a hazard.

An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual current device (RCD) with the rating of above 10mA shall be incorporated in the fixed wiring according to the national rule.

When carrying out piping connection, take care not to let air substances go into refrigeration cycle.

Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury.

Do not modify the length of the power supply cord or use of extension cord, and do not share the single outlet with other electrical appliances.

Otherwise, it will cause fire or electrical shock.

Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes. Improper installation work may result in the equipment falling and causing accidents.

If the refrigerant leaks during installation, ventilate the area immediately.

Toxic gas may be produced if the refrigerant comes into the place contacting with fire.

The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

After completing the installation work, check that the refrigerant does not leak.

Toxic gas may be produced if the refrigerant leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.

CAUTION

Ground the air conditioner.

Do not connect the ground wire to gas or water pipes, lightning rod or a telephone ground wire. Incomplete grounding may result in electric shocks.

Be sure to install an earth leakage breaker.

Failure to install an earth leakage breaker may result in electric shocks.

Connect the outdoor unit wires, and then connect the indoor unit wires.

You are not allow to connect the air conditioner with the power source until wiring and piping the air conditioner is done.

While following the instructions in this installation manual, install drain piping in order to ensure proper drainage and insulate piping in order to prevent condensation.

Improper drain piping may result in water leakage and property damage.

Install the indoor and outdoor units, power supply wiring and connecting wires at least 1 meter away from televisions or radios in order to prevent image interference or noise.

Depending on the radio waves, a distance of 1 meter may not be sufficient enough to eliminate the noise.

The appliance is not intended for use by young children or infirm persons without supervision.

Don't install the air conditioner in the following locations:

- There is petrolatum existing.
- There is salty air surrounding (near the coast).
- There is caustic gas (the sulfide, for example) existing in the air (near a hot spring).
- The Volt vibrates violently (in the factories).
- In buses or cabinets.
- In kitchen where it is full of oil gas.
- There is strong electromagnetic wave existing.
- There are inflammable materials or gas.
- There is acid or alkaline liquid evaporating.
- Other special conditions.

2. Installation information

- To install properly, please read this "installation manual" at first.
- The air conditioner must be installed by qualified persons.
- When installing the indoor unit or its tubing, please follow this manual as strictly as possible.
- If the air conditioner is installed on a metal part of the building, it must be electrically insulated according to the relevant standards to electrical appliances.
- When all the installation work is finished, please turn on the power only after a thorough check.
- Regret for no further announcement if there is any change of this manual caused by product improvement.

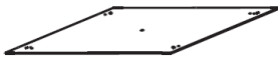
INSTALLATION ORDER

- Select the location;
- Install the indoor unit;
- Install the outdoor unit;
- Install the connecting pipe ;
- Connect the drain pipe;
- Wiring;
- Test operation.

3. Accessories

Please check whether the following fittings are of full scope. If there are some spare fittings, please restore them carefully.

Table 3-1

	Name	Shape	Quantity
Installation Fittings	1. Expansible hook		4
	2. Installation hook		4
	3. Installation paper board		1
	4. Bolt M5		4
Tubing & Fittings	5. Connecting pipe group		1
	6. Binding tape		6
	7. Soundproof / insulation sheath		2
Drainpipe Fittings	8. Out-let pipe sheath		1
	9. Out-let pipe clasp		1
	10. Tightening band		20
	11. Drain joint		1
	12. Seal ring		1
Protect Pipe Fittings	13. Wall conduit		1
	14. Wall conduit cover		1
Remote controller & Its Frame	15. Remote controller		1
	16. Frame		1
	17. Mounting screw(ST2.9 10-C-H)		2
	18. Alkaline dry batteries (AM4)		2
Others	19. Owner's manual		1
	20. Installation manual		1
	21. Net work winding		1

4. Indoor unit installation

4.1 Figure 1 HTFI 351-531 XR

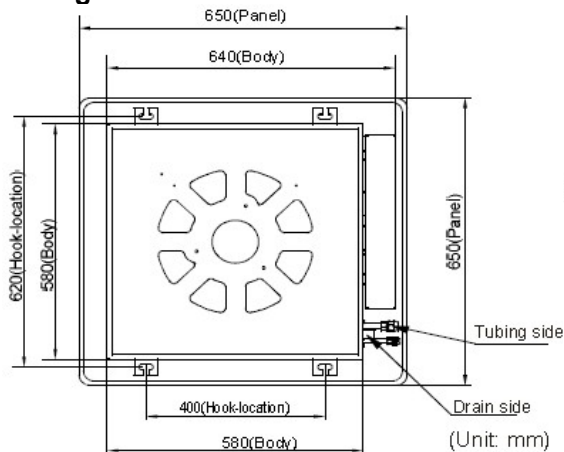


Fig. 4.1

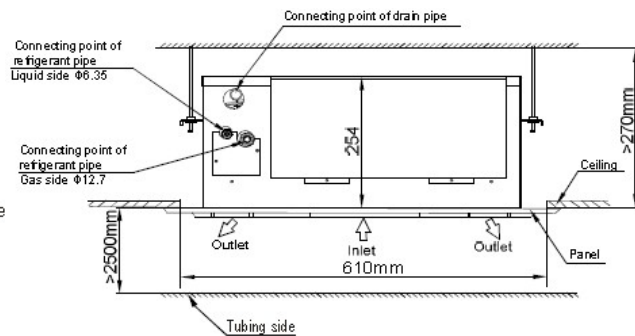


Fig. 4.2

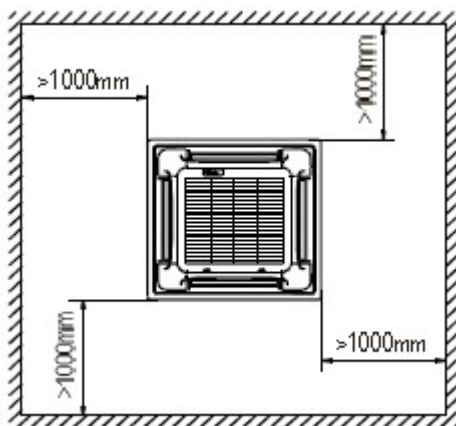


Fig. 4.3

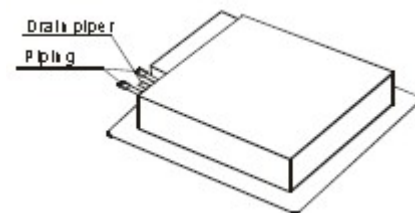


Fig. 4.4

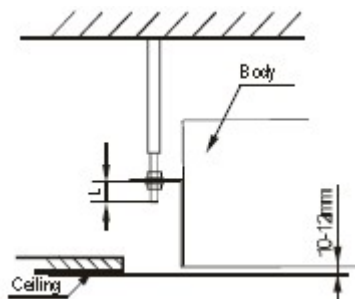


Fig. 4.5



Fig 4.6

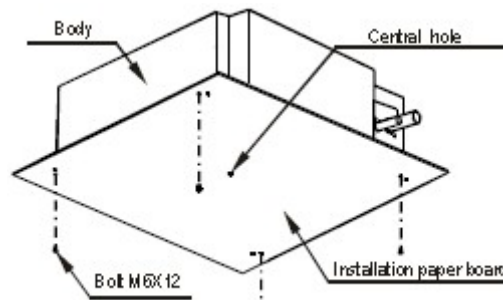


Fig 4.7



Fig. 4.8

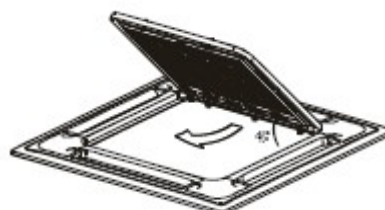


Fig. 4.9

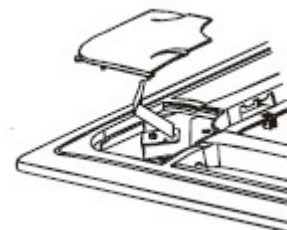


Fig. 4.10

NOTE

All the pictures in this manual are for explanation purpose only. They may be slightly different from the air conditioner you purchased (depend on model). The actual shape shall prevail.

4.2 Figures 2

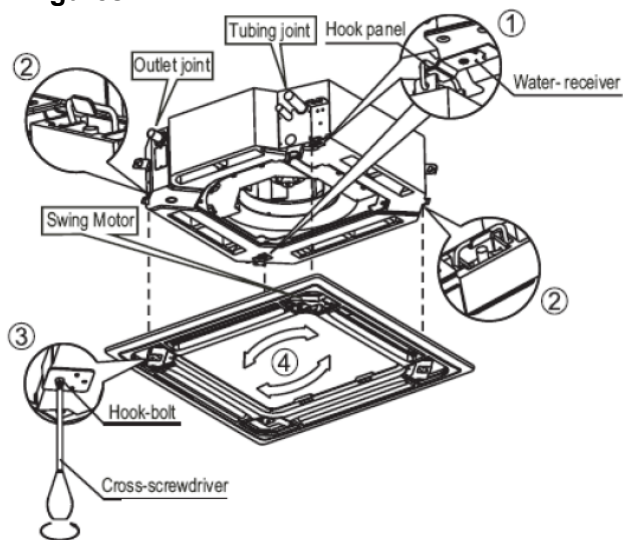


Fig.4-11

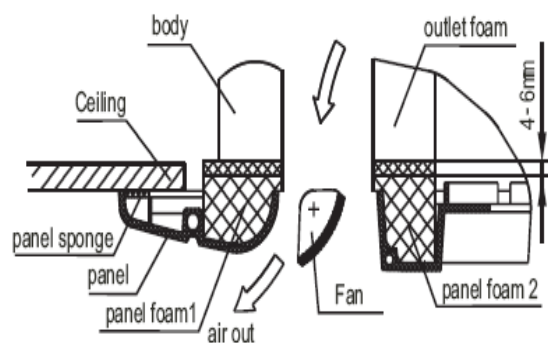


Fig.4-12

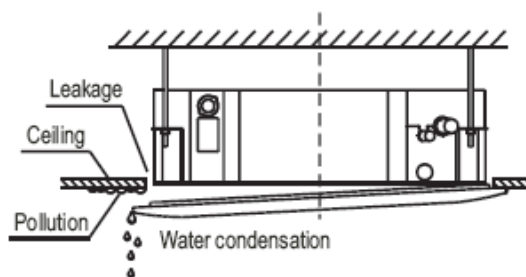


Fig.4-13

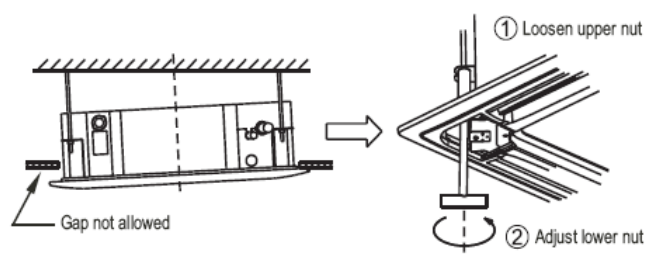


Fig.4-14

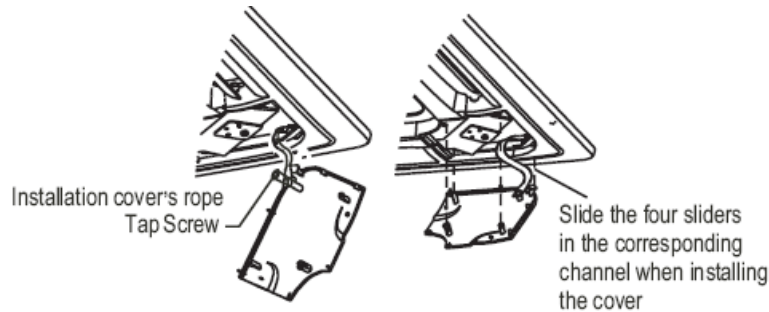


Fig.4-15

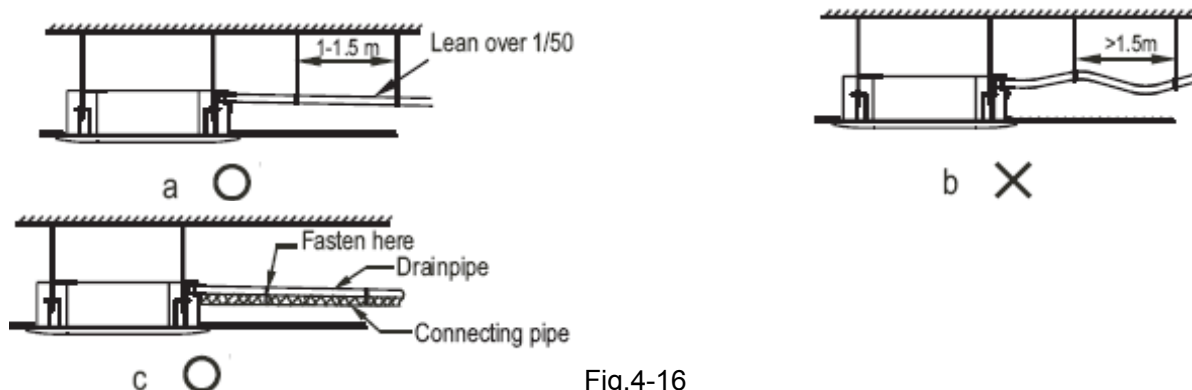


Fig.4-16

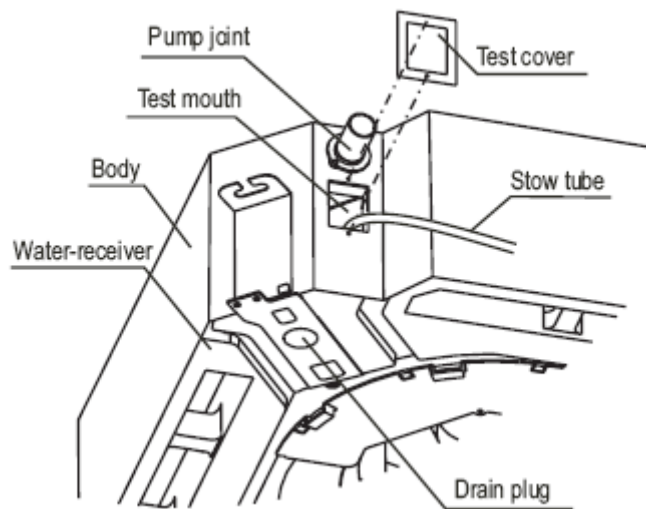


Fig.4-17

NOTE

All the pictures in this manual are for explanation purpose only. They may be slightly different from the air conditioner you purchased (depend on model).The actual shape shall prevail.

4.3 Install the Panel**CAUTION**

Never put the panel face down on floor or against the wall, or on bulgy objects.

Never crash or strike it.

4.3.1 Remove the air-in grill.

- Slide two grill switches toward the middle at the same time, and then pull them up.
- Draw the grill up to an angle of about 45°, and remove it.

4.3.2 Remove the installation covers at the four corners

- Wrench off the bolts, loose the rope of the installation covers, and remove them.

4.3.3 Install the panel

- Align the swing motor on the panel to the tubing joints of the body properly.
- Fix hooks of the panel at swing motor and its opposite sides to the hooks of corresponding water receiver, then hang the other two panel hooks onto corresponding hangers of the body.

CAUTION

Do not coil the wiring of the swing motor into the seal sponge.

- Adjust the four panel hook screws to keep the panel horizontal, and screw them up to the ceiling evenly.
- Keep fastening the screws under the panel hooks, until the thickness of the sponge between the body and the panel's outlet has been reduced to about 4~6mm. The edge of the panel should contact with the ceiling well.
- Malfunction described in Fig.4-13 can be caused by inappropriate tightness the screw.
- If the gap between the panel and ceiling still exists after fastening the screws, the height of the indoor unit should be modified again.
- You can modify the height of the indoor unit through the openings on the panel's four corners, if the lift of the indoor unit and the drainpipe is not influenced.

4.3.4 Hang the air-in grill to the panel, then connect the lead terminator of the swing motor and that of the control box with corresponding terminators on the body respectively.**4.3.5 Relocate the air-in grill in the procedure of reversed order.****4.3.6 Relocate the installation cover.**

- Fasten the rope of installation cover on the bolt of the installation cover.
- Press the installation cover into the panel slightly.

5. Connect the drain pipe

Install the drainpipe

- You can use a polyethylene tube as the drainpipe (out-dia.37-39mm, in-dia.32mm). It could be bought at local market or from your dealer.
- Set the mouth of the drainpipe onto the root of the body's pump-pipe, and clip the drainpipe and the out-let pipe sheath (fittings) together firmly with the out-let pipe clasp (fitting).
- The body's pump pipe and the drainpipe (especially the indoor part) should be covered evenly with the out-let pipe sheath (fittings) and be bound tightly with the constrictor to prevent condensation caused by entered air.
- To prevent water from flowing backwards into the air conditioner while the air conditioner stops, please lean the drainpipe down toward outdoor (outlet-side) at a degree of over 1/ 50. And please avoid any bulge or water deposit.
- Do not drag the drainpipe violently when connecting to prevent the body from being pulled. Meanwhile, one support point should be set every 1~1.5m to prevent the drainpipe from yielding. Or you can tie the drainpipe with the connecting pipe to fix it.
- In the case of prolonged drainpipe, you had better tighten its indoor part with a protection tube to prevent it from loosening.
- If the outlet of the drainpipe is higher than the body's pump joint, the pipe should be arranged as vertically as possible. And the lift distance must be less than 200mm, otherwise the water will overflow when the air conditioner stops.
- The end of the drainpipe should be over 50mm higher than the ground or the bottom of the drainage chute, and do not immerse it in water. If you discharge the water directly into sewage, be sure to make a U-form aqua seal by bending the pipe up to prevent the smelly gas entering the house through the drain pipe.

■ Drainage test

- Check whether the drainpipe is unhindered.
- New built house should have this test done before paving the ceiling.
- ① Remove the test cover, and stow water of about 2000ml to the water receiver through the stow tube.
- ② Turn on the power, and operate the air conditioner under the "COOLING" mode. Listen to the sound of the drain pump. Check whether the water is discharger well (a lag of 1min is allowed before discharging, according to the length of the drain pipe), and check whether water leaks from the joints.
- ③ Stop the air conditioner, turn off the power, and reset the test cover to its original position.

NOTE:

The drain plug is used to empty the water-receiver for maintenance of the air conditioner. Please stuff it imposition at all times during operation to avoid leakage.

Console Type Installation

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1. Installation Place

1.1 The indoor Unit

- 1) There is enough room for installation and maintenance.
- 2) The air outlet and the air inlet are not impeded, and the influence of external air is the least.
- 3) The air flow can reach throughout the room.
- 4) The connecting pipe and drainpipe could be extracted out easily.
- 5) There is no direct radiation from heaters

1.2 The Outdoor Unit

- 1) There is enough space for installation and maintenance.
- 2) The air outlet and the air inlet are not impeded, and can not be reached by strong wind.
- 3) The place is dry and ventilative.
- 4) The support is flat and horizontal and can stand the weight of the outdoor unit. And no additional noise or vibration.
- 5) Your neighborhood will not feel uncomfortable with the noise or expelled air.
- 6) There is no leakage of combustible gas.
- 7) It is easy to install the connecting pipe or cables.

Caution:

Location in the following places may cause malfunction of the machine. (If unavoidable, please consult your local dealer.)

- a. There exists petrolatum.
- b. There is salty air surrounding (near the coast).
- c. There is caustic gas (the sulfide, for example) existing in the air (near a hot spring).
- d. The Volt vibrates violently (in the factories).
- e. In buses or cabinets.
- f. In kitchen where it is full of oil gas.
- g. There is strong electromagnetic wave existing.
- h. There are inflammable materials or gas.
- i. There is acid or alkaline liquid evaporating.
- j. Other special conditions

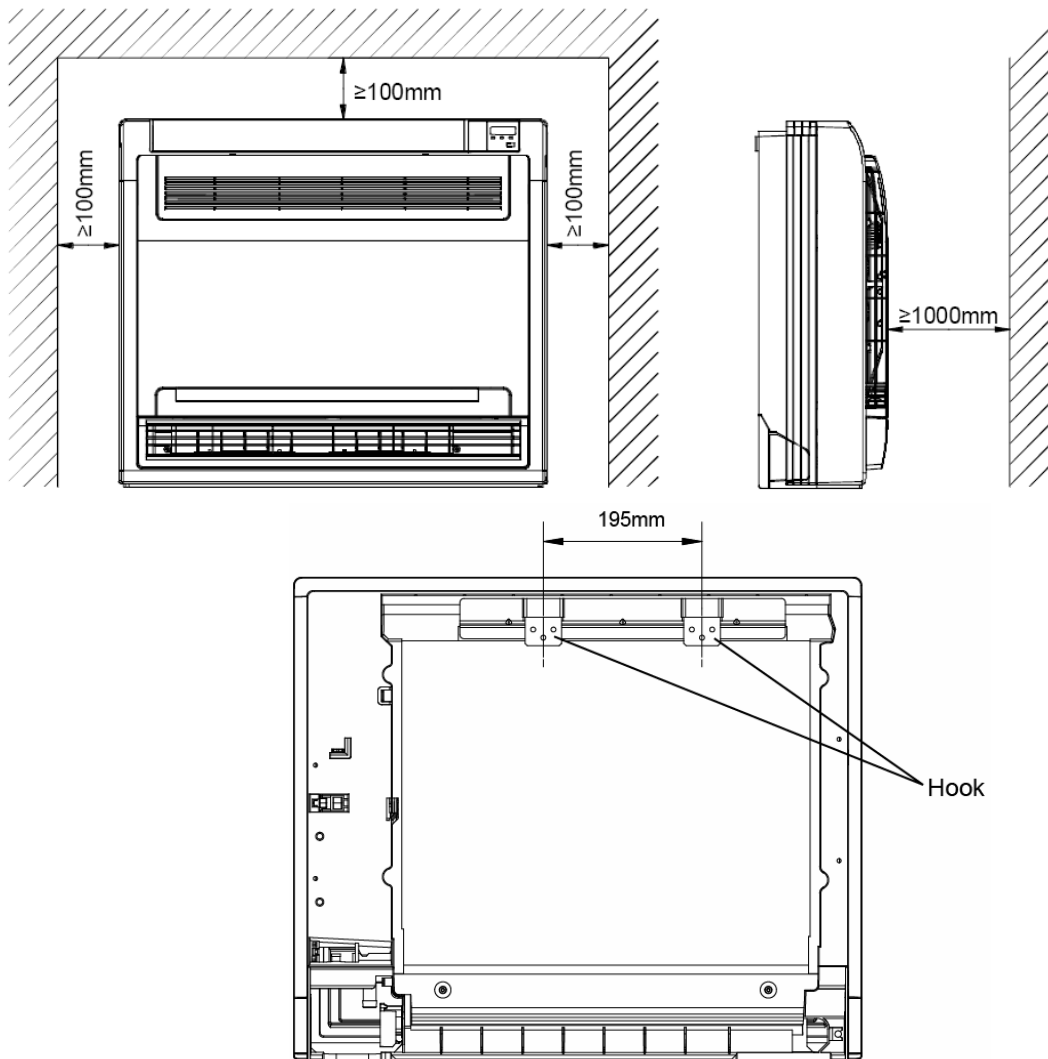
1.3 Notes before Installation

- 1) Select the correct carry-in path.
- 2) Move this unit as originally packaged as possible.
- 3) If the air conditioner is installed on a metal part of the building, it must be electrically insulated according to the relevant standards to electrical appliances.

2. Installation of Indoor Unit

2.1 Service Space

- The indoor unit should be installed in a location that meets the following requirements:
- There is enough room for installation and maintenance. (Refer to the following figure)

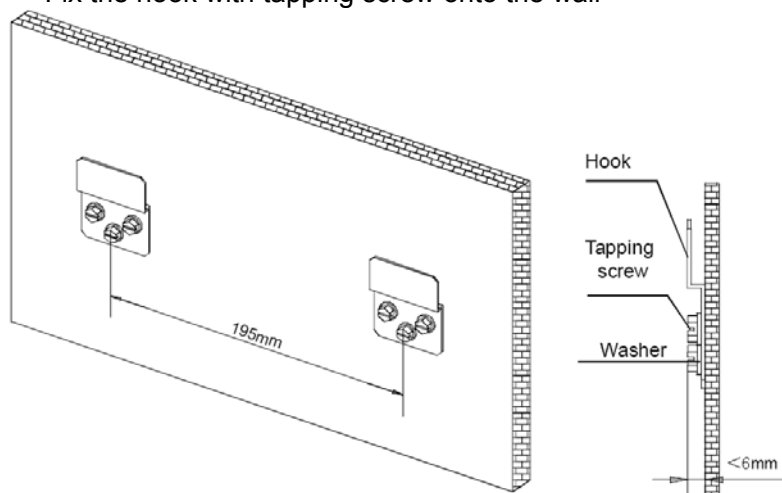


- The outlet and the inlet are not impeded, and the influence of external air is the least.
- The air flow can reach throughout the room.
- The connecting pipe and drainpipe could be extracted out easily.
- There is no direct radiation from heaters.

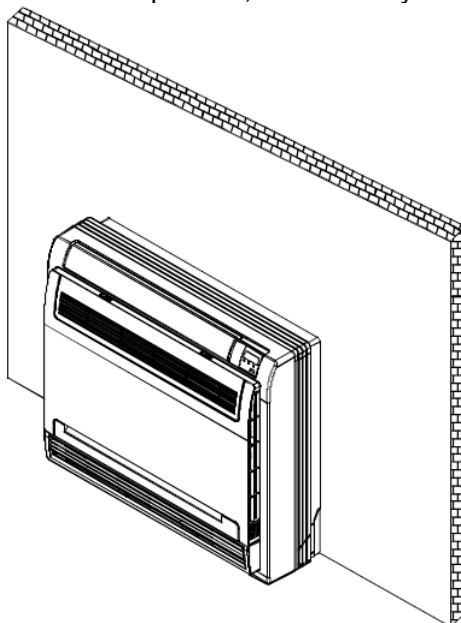
Caution: Keep indoor unit, outdoor unit, power supply wiring and transmission wiring at least 1 meter away from televisions and radios. This is to prevent image interference and noise in those electrical appliances. (Noise may be generated depending on the conditions under which the electric wave is generated, even if 1 meter is kept.)

2.2 Installation the main body

- Fix the hook with tapping screw onto the wall



- Hang the indoor unit on the hook.
(The bottom of body can touch with floor or suspended, but the body must install vertically.)



3. Refrigerant circuit

Check whether the height drop between the indoor unit and outdoor unit, the length of refrigerant pipe, and the number of the bends meet the following requirements:

Capacity(Btu/h)	351	531
The max height	5m	10
The length of refrigerant pipe	Less than 10m	Less than 20m
The number of bends	Less than 5m	Less than 8m

3.1 The Procedure of Connecting Pipes

Caution:

- All field piping must be provided by a licensed refrigeration technician and must comply with the relevant local and national codes.
 - Do not let air, dust, or other impurities fall in the pipe system during the time of installation.
 - The connecting pipe should not be installed until the indoor and outdoor units have been fixed already.
 - Keep the connecting pipe dry, and do not let moisture in during installation.
 - Execute heat insulation work completely on both sides of the gas piping and the liquid piping. Otherwise, this can sometimes result in water leakage.
1. Drill a hole in the wall (suitable just for the size of the wall conduit), then set on the fittings such as the wall conduit and its cover.
 2. Bind the connecting pipe and the cables together tightly with binding tapes.
 3. Pass the bound connecting pipe through the wall conduct from outside. Be careful of the pipe allocation to do on damage to the tubing.
 4. Connect the pipes. Refer to "How to Connect the pipes" for details.
 5. Expel the air with a vacuum pump. Refer to "How to expel the air with a vacuum pump" for details.
 6. Open the stop valves of the outdoor unit to make the refrigerant pipe connecting the indoor unit with the outdoor unit in fluent flow.
 7. Check the leakage. Check all the joints with the leak detector or soap water.
 8. Cover the joints of the connecting pipe with the soundproof / insulating sheath (fittings), and bind it well with the tapes to prevent leakage.

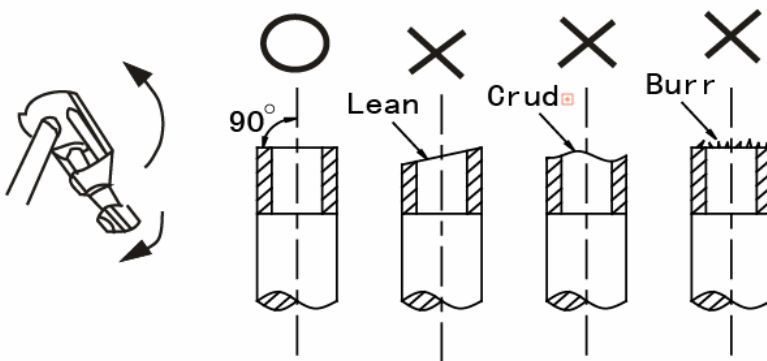
Caution:

- Be sure to with insulating materials cover all the exposed parts of the flare pipe joints and refrigerant pipe on the liquid-side and the gas-side. Ensure that there is no gap between them.
- Incomplete insulation may cause water condensation.

How to connect the pipes

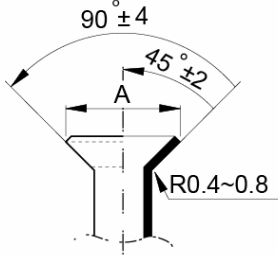
3.2 Flaring:

Cut a pipe with a pipe cutter.



Insert a flare nut into a pipe and flare the pipe.

Refer to the following table for the dimension of flare nut spaces.

Pipe gauge	Tightening torque	Flare dimension (A)		Flare shape
		Min	Max	
Φ6.4	14.2 ~ 17.2 N.m (144 ~ 176 kgf.cm)	8.3	8.7	
Φ9.5	32.7 ~ 39.9 N.m (333 ~ 407 kgf.cm)	12.0	12.4	
Φ12.7	49.5 ~ 60.3 N.m (504 ~ 616 kgf.cm)	15.4	15.8	
Φ15.9	61.8 ~ 75.4 N.m (630 ~ 770 kgf.cm)	18.6	19.0	
Φ19.1	97.2 ~ 118.6 N.m (990 ~ 1210 kgf.cm)	22.9	23.3	

3.3 Connect the indoor unit at first, then the outdoor unit.

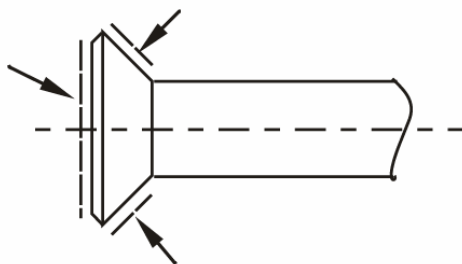
- Bend the tubing in proper way. Do not harm to them.

Bend the pipe with thumb

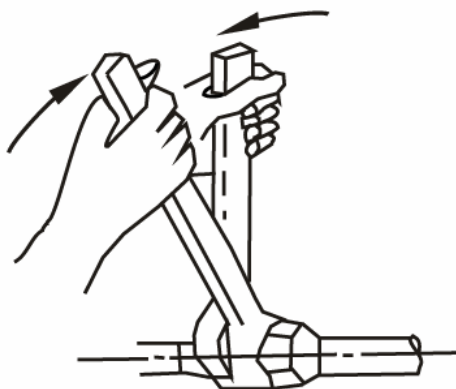


min-radius 100mm

- The bending angle should not exceed 90°.
- Bending position is preferably in the middle of the bendable pipe. The larger the bending radius the better it is.
- Do not bend the pipe more than three times.
- When connecting the flare nut, coat the flare both inside and outside with either oil or ester oil and initially tighten by hand 3 or 4 turns before tightening firmly.



- Be sure to use both spanner and torque wrench together when connecting or disconnecting pipes to the unit.



Caution:

- Too large torque will harm the bell mouthing and too small will cause leakage.
- After the connecting work is finished, be sure to check that there is no gas leak.

3.4 How to expel the air with a vacuum pump

Stop valve operation introduction

1. Opening stop valve

- 1) Remove the cap and turn the valve counter clock-wise with the hexagon wrench.
- 2) Turn it until the shaft stops. Do not apply excessive force to the stop valve. Doing so may break the valve body, as the valve is not a backseat type. Always use the special tool.
- 3) Make sure to tighten the cap securely.

2. Closing stop valve

- 1) Remove the cap and turn the valve clockwise with the hexagon wrench.
- 2) Securely tighten the valve until the shaft contacts the main body seal.

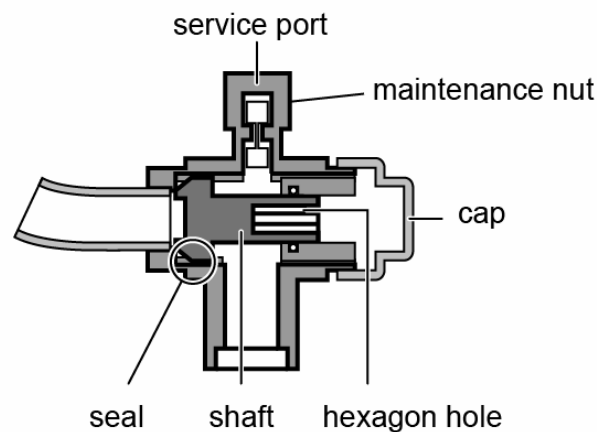
Make sure to tighten the cap securely.

For the tightening torque, refer to the table below.

Tightening torque N M (Turn clockwise to close)					
Stop Valve size	Shaft (valve body)		Cap (Valve lid)	Maintenance nut	
φ6.4	5.4 ~ 6.6	Hexagonal wrench 4 mm	13.5 ~ 16.5	11.5 ~ 13.9	
φ9.5			18 ~ 22		
φ12.7	8.1 ~ 9.9	Hexagonal wrench 6mm	23 ~ 27		
φ15.9	13.5 ~ 16.5		36 ~ 44		
φ22.2	27 ~ 33	Hexagonal wrench 10 mm	36 ~ 44		
φ25.4					

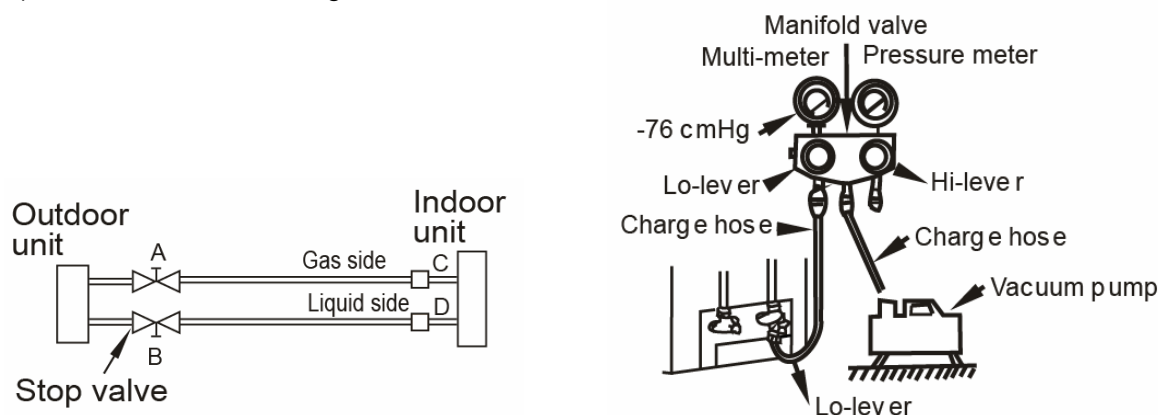
Caution:

- Always use a charge hose for service port connection.
- After tightening the cap, check that no refrigerant leaks are present



3.5 Using the vacuum pump

- 1) Loosen and remove the maintenance nuts of stop valves A and B, and connect the charge hose of the manifold valve to the service port of stop valve A. (Be sure that stop valves A and B are both closed)
- 2) Connect the joint of the charge hose with the vacuum pump.
- 3) Open the Lo-lever of the manifold valve completely.
- 4) Turn on the vacuum pump. At the beginning of pumping, loosen the maintenance nut of stop valve B a little to check whether the air comes in (the sound of the pump changes, and the indicator of compound meter turns below zero). Then fasten the maintenance nut.
- 5) When the pumping has finished, close the Lo-lever of the manifold valve completely and turn off the vacuum pump. Make pumping for 15 minutes or more and check that the compound meter indicates -76cmHg (-1X10 Pa)
- 6) Loosen and remove the cap of stop valves A and B to open stop valve A and B completely, then fasten the cap.
- 7) Disassemble the charge hose from the service port of stop valve A, and fasten the nut.



3.6 Additional Refrigerant Charge

Caution:

- Refrigerant cannot be charged until field wiring has been completed.
- Refrigerant may only be charged after performing the leak test and the vacuum pumping.
- When charging a system, care shall be taken that its maximum permissible charge is never exceeded, in view of the danger of liquid hammer.
- Charging with an unsuitable substance may cause explosions and accidents, so always ensure that the appropriate refrigerant is charged.
- Refrigerant containers shall be opened slowly.
- Always use protective gloves and protect your eyes when charging refrigerant.

The outdoor unit is factory charged with refrigerant. Calculate the added refrigerant according to the diameter and the length of the liquid side pipe of the outdoor unit/indoor unit connection.

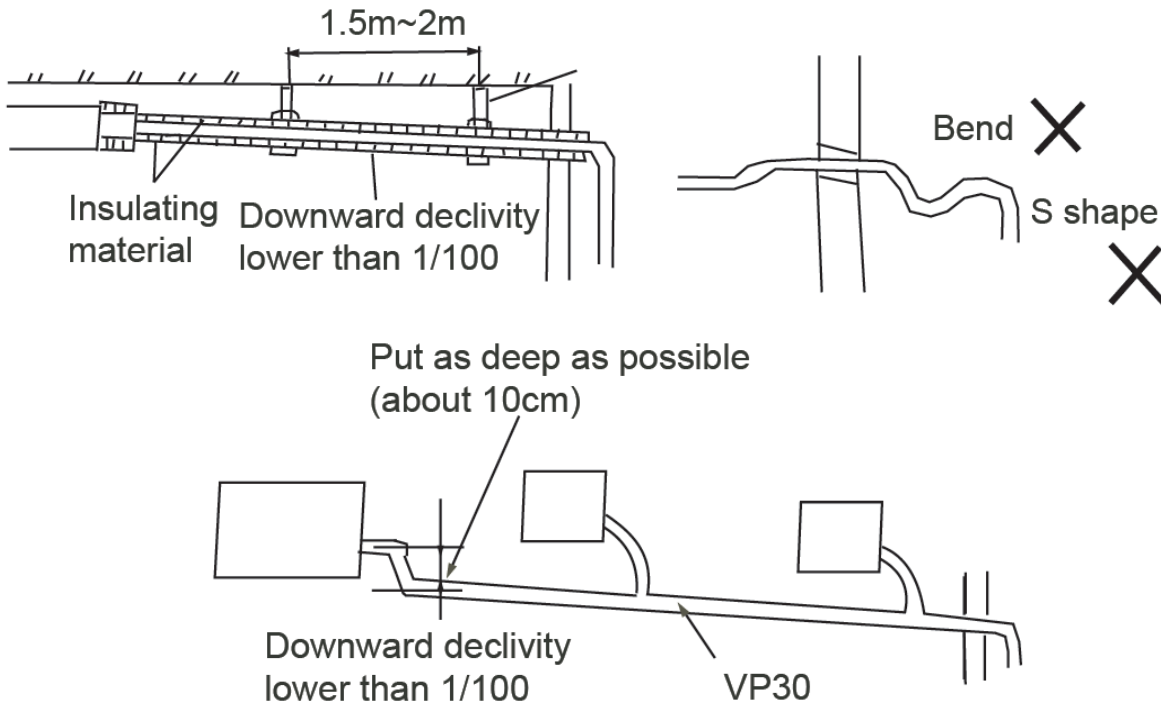
	Ø6.4	Ø9.5
Less than 5m (One-way)	--	--
Added Refrigerant When Over 5m(One-way)	11g/m×L	30g/m×L

4. Connect the Drain Pipe

4.1 Install the drainpipe of the indoor unit

Caution:

- 1) The drain pipe of indoor unit must be heat insulated, or it will condense dew, as well as the connections of the indoor unit.
- 2) Hard PVC binder must be used for pipe connection, and make sure there is no leakage.
- 3) With the connection part to the indoor unit, please be noted not to impose pressure on the side of indoor unit pipes.
- 4) When the declivity of the drain pipe downwards is over 1/100, there should not be any winding.
- 5) The total length of the drain pipe when pulled out transversely shall not exceed 20m, when the pipe is over long, a prop stand must be installed to prevent winding.
- 6) Refer to the figures on the right for the installation of the pipes.

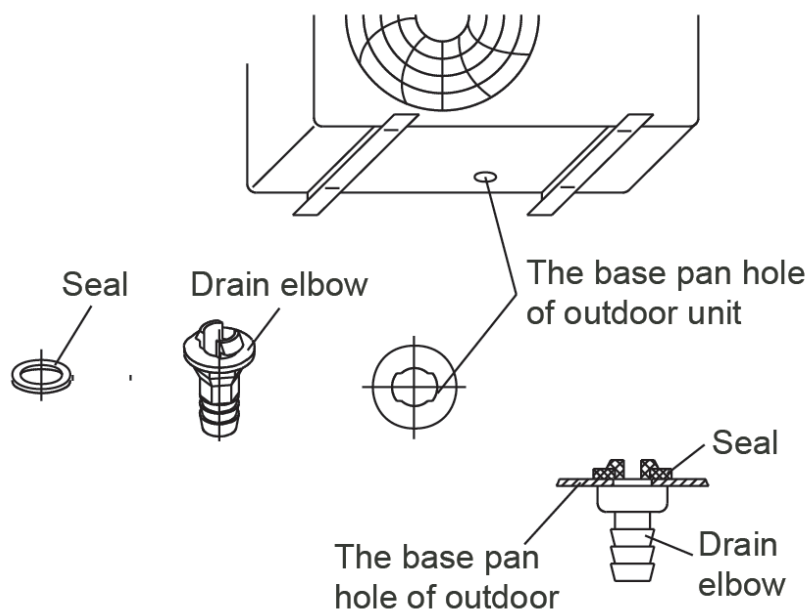


4.2 Drainage test

- 1) Check whether the drainpipe is unhindered.
- 2) New built house should have this test done before paving the ceiling.

4.3 Drain Elbow Installation

Fit the seal into the drain elbow, then insert the drain elbow into the base pan hole of outdoor unit, rotate 90° to securely assemble them. Connect the drain elbow with an extension drain hose (Locally purchased), in case of the condensate draining off the outdoor unit during the heating mode. (Refer to below chart)



5. Wiring

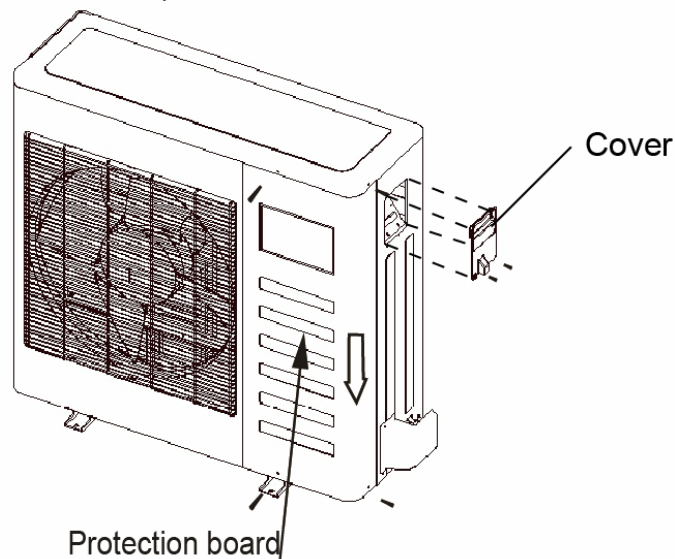
5.1 HFII 351 XR and HFII 531 XR

Caution:

- 1) The appliance shall be installed in accordance with national wiring regulations.
- 2) The air conditioner should use separate power supply with rated voltage.
- 3) The external power supply to the air conditioner should have ground wiring, which is linked to the ground wiring of the indoor and outdoor unit.
- 4) The wiring work should be done by qualified persons according to circuit drawing.
- 5) An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual current device (RCD) with the rating of above 10mA shall be incorporated in the fixed wiring according to the national rule.
- 6) Be sure to locate the power wiring and the signal wiring well to avoid cross-disturbance.
- 7) Do not turn on the power until you have checked carefully after wiring.

5.1.1 Connect the cable

1. Disassemble the bolts from the cover.(If there isn't a cover on the outdoor unit, disassemble the bolts from the maintenance board, and pull it in the direction of the arrow to remove the protection board.



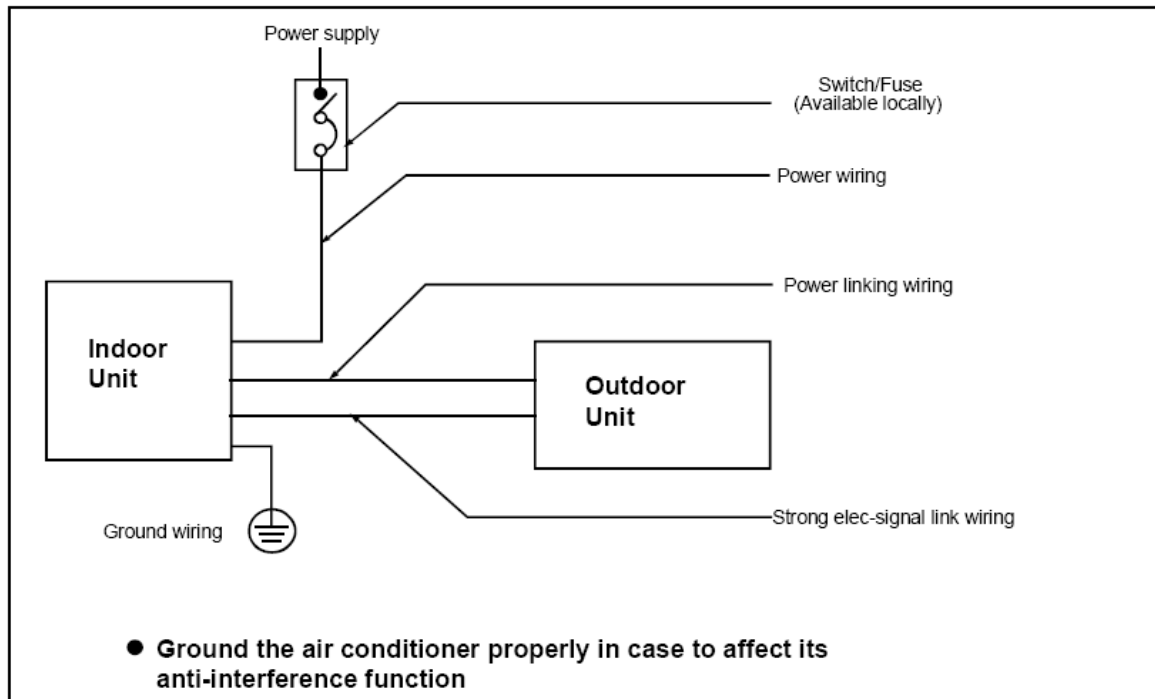
2. Connect the connective cables to the terminals as identified with their respective matched numbers on the terminal block of indoor and outdoor units.
3. Re-install the cover or the protection board.

5.1.2 The Specification of Power

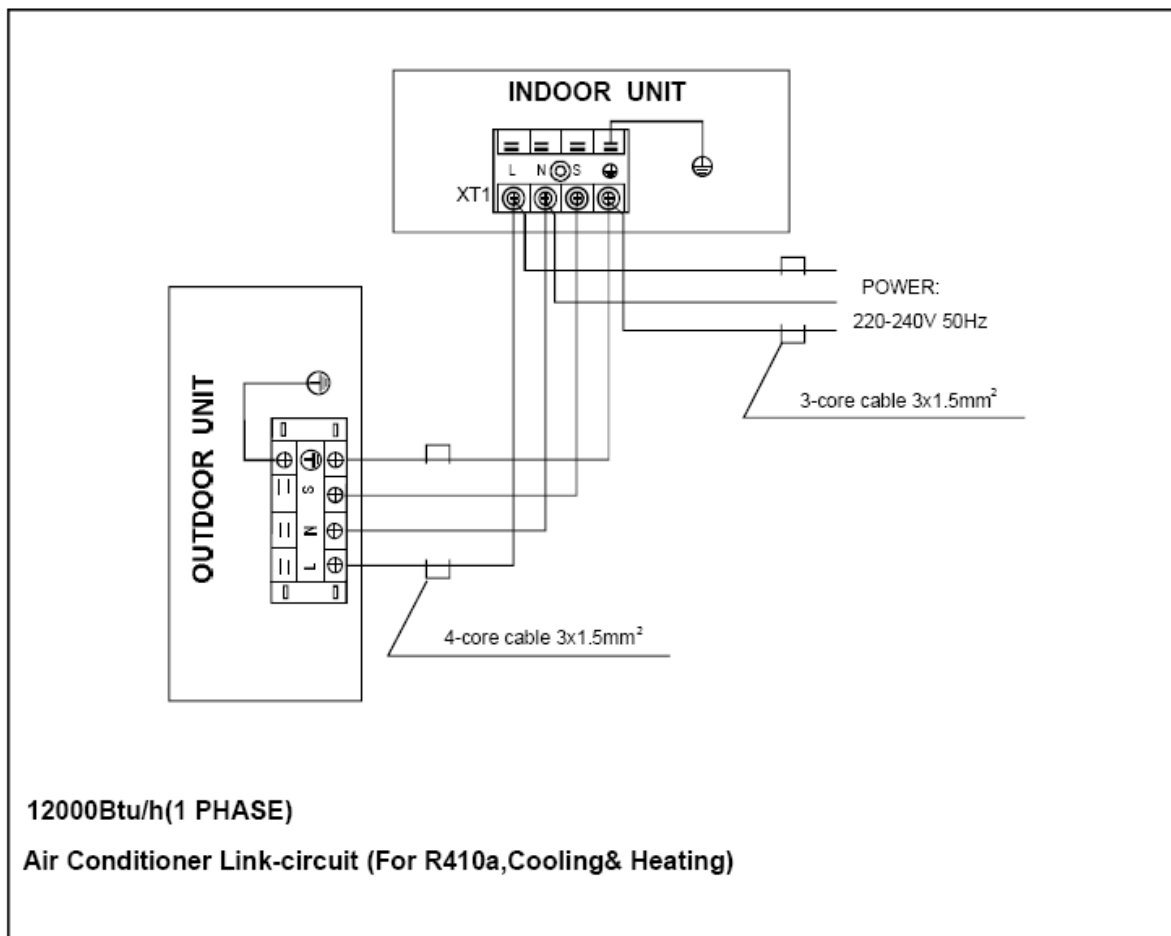
Capacity		351	531
Indoor unit power	Phase	1-Phase	1-Phase
	Frequency and voltage	220-240V~ 50Hz	220-240V~ 50Hz
	Power wiring	3X1.5	3X2.5
	Circuit breaker(A)	20	20
Indoor / Outdoor connection wiring (mm ²)		4-CORE Wire 4X1.5	4-CORE Wire 4X1.5

5.1.3 Wiring figure

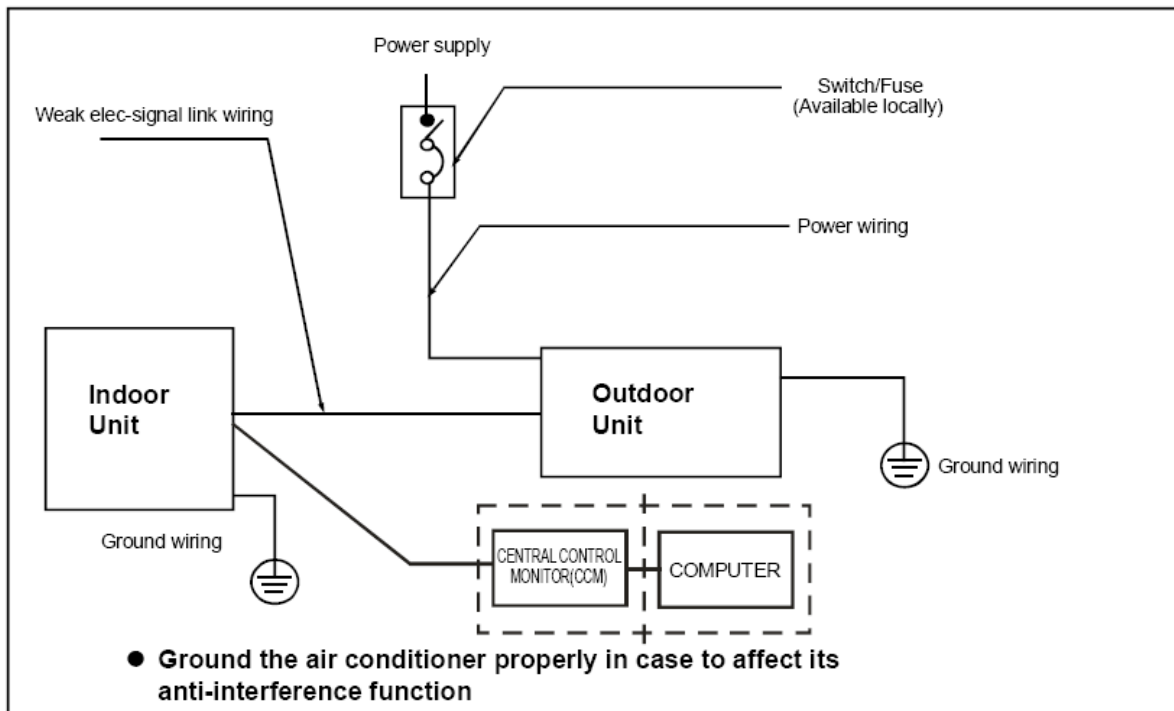
Installing wiring chart, refer to link circuit chart for details.



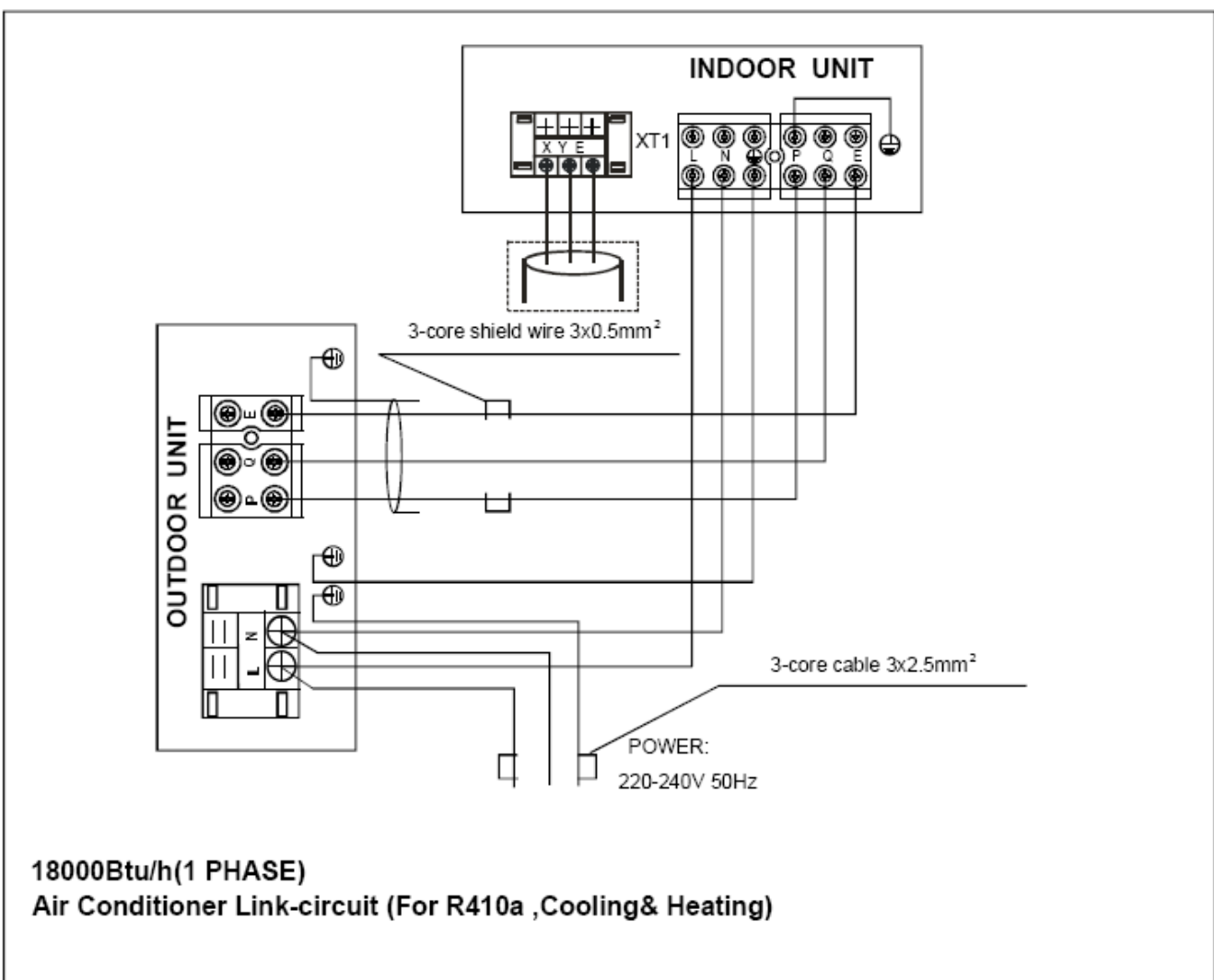
(For 12000Btu/h)



Installing wiring chart, refer to link circuit chart for details.



(For 18000Btu/h)



Note:

All the pictures in this manual are for explanation purpose only. They may be slightly different from the air conditioner you purchased (depend on model).The actual shape shall prevail.

6. Test Operation

1. The test operation must be carried out after the entire installation has been completed.
2. Please confirm the following points before the test operation:
 - The indoor unit and outdoor unit are installed properly.
 - Tubing and wiring are correctly completed.
 - The refrigerant pipe system is leakage-checked.
 - The drainage is unimpeded.
 - The heating insulation works well.
 - The ground wiring is connected correctly.
 - The length of the tubing and the added stow capacity of the refrigerant have been recorded.
 - The power voltage fits the rated voltage of the air conditioner.
 - There is no obstacle at the outlet and inlet of the outdoor and indoor units.
 - The gas-side and liquid-side stop valves are both opened.
 - The air conditioner is pre-heated by turning on the power.
3. According to the user's requirement, install the remote controller frame where the remote controller's signal can reach the indoor unit smoothly.

4. Test operation

Set the air conditioner under the mode of "COOLING" with the remote controller, and check the following points. If there is any malfunction, please resolve it according to the chapter "Troubleshooting" in the "Owner's Manual".

1) The indoor unit

- a. Whether the switch on the remote controller works well.
- b. Whether the buttons on the remote controller works 10.well.
- c. Whether the air flow louver moves normally.
- d. Whether the room temperature is adjusted well.
- e. Whether the indicator lights normally.
- f. Whether the temporary buttons works well.
- g. Whether the drainage is normal.
- h. Whether there is vibration or abnormal noise during operation.
- l. Whether the air conditioner heats well in the case of the HEATING/COOLING type.

2) The outdoor unit

- a. Whether there is vibration or abnormal noise during operation.
- b. Whether the generated wind, noise, or condensed of by the air conditioner have influenced your neighborhood.
- c. Whether any of the refrigerant is leaked.

Caution:

A protection feature prevents the air conditioner from being activated for approximately 3 minutes when it is restarted immediately after shut off.

Outdoor Installation

1. Installation Place	197
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3. Install the connecting pipe.....	199

1. Installation Place

- The outdoor unit should be installed in the location that meets the following requirements:
- There is enough room for installation and maintenance.
- The air outlet and the air inlet are not impeded, and can not be reached by strong wind.
- It must be a dry and well ventilating place.
- The support is flat and horizontal and can stand the weight of the outdoor unit. And will no additional noise or vibration.
- Your neighborhood will not feel uncomfortable with the noise or expelled air.
- It is easy to install the connecting pipes or cables.
- Determine the air outlet direction where the discharged air is not blocked.
- There is no danger of fire due to leakage of inflammable gas.
- The piping length between the outdoor unit and the indoor unit may not exceed the allowable piping length.
- In the case that the installation place is exposed to strong wind such as a seaside, make sure the fan operating properly by putting the unit lengthwise along the wall or using a dust or shield.(Refer to Fig.6-1)
- If possible, do not install the unit where it is exposed to direct sunlight.
- If necessary, install a blind that does not interfere with the air flow.
- During the heating mode, the water drained off the outdoor unit ,The condensate should be well drained away by the drain hole to an appropriate place, so as not to interfere other people.
- Select the position where it will not be subject to snow drifts, accumulation of leaves or other seasonal debris. If unavoidable, please cover it with a shelter.
- Locate the outdoor unit as close to the indoor unit as possible.
- If possible, please remove the obstacles nearby to prevent the performance from being impeded by too little of air circulation.
- The minimum distance between the outdoor unit and obstacles described in the installation chart does not mean that the same is applicable to the situation of an airtight room. Leave open two of the three directions (M, N, P) (refer to Fig.5-5)

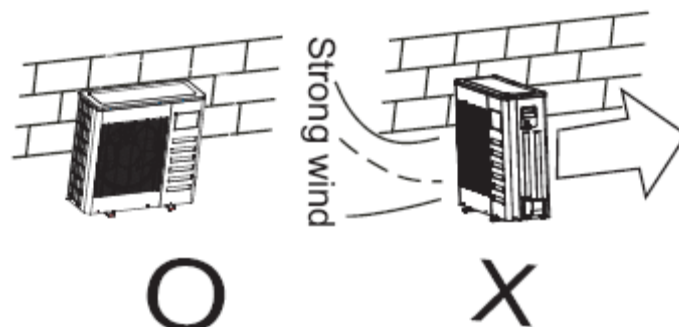


Fig.5-1

Note:

All the pictures in this manual are for explanation purpose only.

They may be slightly different from the air conditioner you purchased (depend on model).The actual shape shall prevail.

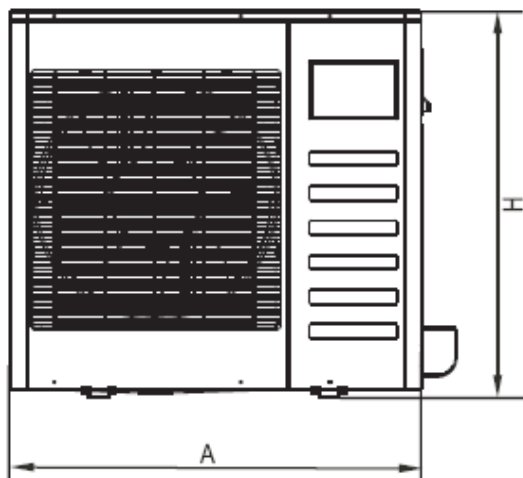


Fig.5-2

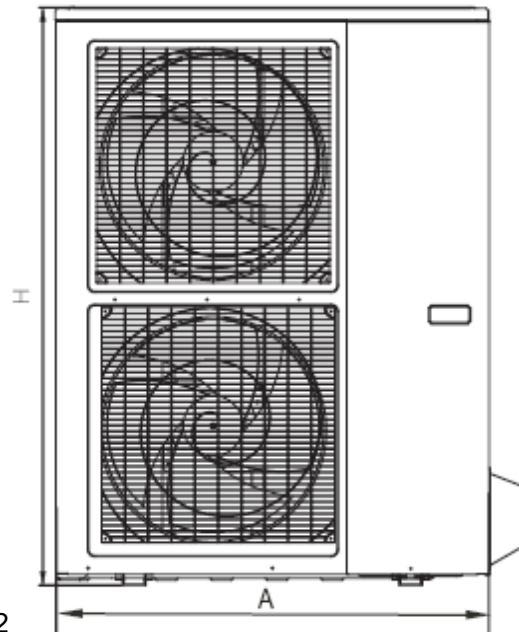


Fig.5-3

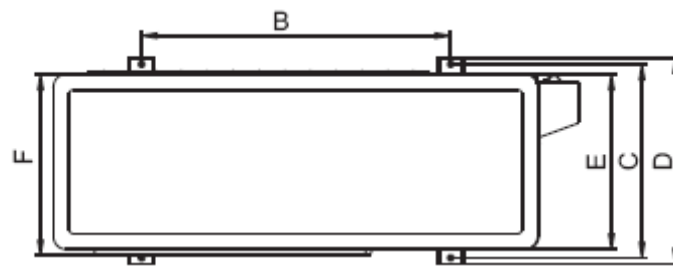


Fig.5-4

Table 6-1

mm

MODEL	A	B	C	D	E	F	H
HCKI 351 XR	761	530	290	315	270	279	593
HCKI 531 XR	842	560	335	360	312	324	695
HCKI 711 XR	895	590	333	355	302	313	862
HCSI 1082 XR	990	624	366	396	340	354	966
HCKI 1081 XR, HCKI 1411 XR, HCSI 1412 XR	940	600	376	400	340	360	1245
HCSI 1762 XR	940	600	376	400	340	360	1245

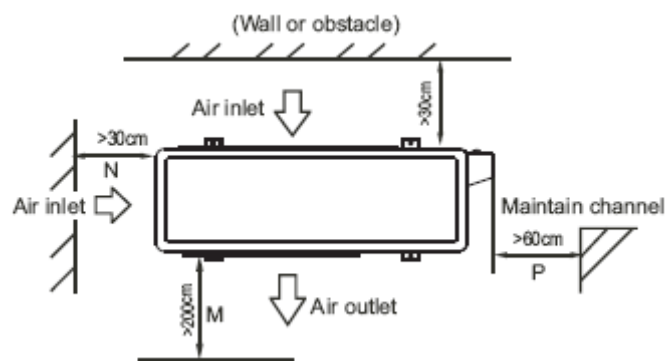


Fig.5-5

Note

All the pictures in this manual are for explanation purpose only. They may be slightly different from the air conditioner you purchased (depend on model).The actual shape shall prevail.

2. Moving and installation

- Since the gravity center of the unit is not at its physical center, so please be careful when lifting it with a sling.
- Never hold the inlet of the outdoor unit to prevent it from deforming.
- Do not touch the fan with hands or other objects.
- Do not lean it more than 45°, and do not lay it sidelong.
- Make concrete foundation according to the specifications of the outdoor units. (refer to Fig.6-6)
- Fasten the feet of this unit with bolts firmly to prevent it from collapsing in case of earthquake or strong wind. (refer to Fig.6-6)

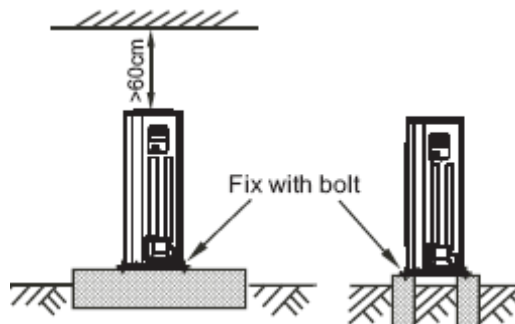


Fig.5-6

Note

All the pictures in this manual are for explanation purpose only.

They may be slightly different from the air conditioner you purchased (depend on model). The actual shape shall prevail.

3. Install the connecting pipe

Check whether the height drop between the indoor unit and outdoor unit, the length of refrigerant pipe, and the number of the bends meet the following requirements:

Table 7-1

MODEL		351	531	711	1081 1-Phase	1082 3-Phase	1411 1-Phase	1412 3-Phase	1762
The max height drop(m)	When outdoor unit is up	5	15	15	20	20	25	30	30
	When outdoor unit is below	5	9	9	12	12	20	20	20
The length of refrigerant pipe(m)			25	25	30	30	50	50	50
The number of bends(m)		Less than 15							

The outdoor unit is factory charged with refrigerant. Some systems require additional charging of refrigerant depending on pipe lengths. The additional refrigerant to be charged can be calculated from the following formula:

$$R = T \times (L - 5) \text{ m}$$

R (g): Additional refrigerant to be charged

T (g): The quantity of the charged refrigerant per meter

L (m): The length of the liquid pipe

Table 7-2

Capacity (Kw)	351	531	711	1081	1411	1761
T(g)	11	11	30	30	30	30

- Do not let air, dust, or other impurities fall in the pipe system during the time of installation.
- The connecting pipe should not be installed until the indoor and outdoor units have been fixed already.
- Keep the connecting pipe dry, and do not let moisture in during installation.
- Please record the quantity added and store it carefully for

3.1 The Procedure of Connecting Pipes

CAUTION

All field piping must be provided by a licensed refrigeration technician and must comply with the relevant local and national codes.

Do not let air, dust, or other impurities fall in the pipe system during the time of installation.

The connecting pipe should not be installed until the indoor and outdoor units have been fixed already.

Keep the connecting pipe dry, and do not let moisture in during installation.

Execute heat insulation work completely on both sides of the gas piping and the liquid piping. Otherwise, this can sometimes result in water leakage.

3.1.1. Measure the necessary length of the connecting pipe, and make it by the following way.

■ Connect the indoor unit at first, then the outdoor unit.

● Bend the tubing in proper way. Do not harm to them.

Bend the pipe with thumb



Fig.5-7

● Daub the surfaces of the flare pipe and the joint nuts with frozen oil, and wrench it for 3~4 rounds with hands before fasten the flare nuts.(Fig.5-8)

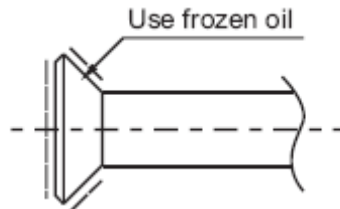


Fig.5-8

● Be sure to use two wrenches simultaneously when you connect or disconnect the pipes.

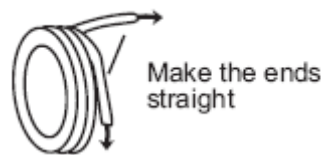


Fig.5-9

■ The stop valve of the outdoor unit should be closed absolutely (as original state). Every time you connect it, first loosen the nuts at the part of stop valve, then connect the flare pipe immediately (in 5 minutes). If the nuts have been loosened for a long time, dusts and other impurities may enter the pipe system and may cause malfunction later. So please expel the air out of the pipe with refrigerant before connection.

■ Expel the air(refer to the “Expel The Air”)after connecting the refrigerant pipe with the indoor unit and the outdoor unit. Then fasten the nuts at the repair-points.

■ Bend the connecting pipe of small wall thickness.

● Cut out a desired concave at the bending part of the insulating pipe.

● Then expose the pipe(cover it with tapes after bending).

● To prevent collapsing of deforming, please bend the pipe at its biggest radius.

● Use bender to get a small radius pipes.

NOTE

The bending angle should not exceed 90° .

Bending position is preferably in the middle of the bendable pipe. The larger the bending radius the better it is.

Do not bend the pipe more than three times.

Be sure to use the same insulating materials when you buy the brass pipe. (More than 9mm thick)

3.1.2. Locate the Pipe

■ Drill a hole in the wall (suitable just for the size of the wall conduit), then set on the fittings such as the wall conduit and its cover.

■ Bind the connecting pipe and the cables together tightly with binding tapes.

■ Pass the bound connecting pipe through the wall conduct from outside. Be careful of the pipe allocation to do on damage to the tubing.

3.1.3 Connect the pipes. Refer to "How to Connect the pipes" for details.

3.1.4 Expel the air with a vacuum pump. Refer to "How to expel the air with a vacuum pump" for details.

3.1.5 open the stop valves of the outdoor unit to make the refrigerant pipe connecting the indoor unit with the outdoor unit in fluent flow.

3.1.6 Check the leakage. Check all the joints with the leak detector or soap water.

3.1.7 Cover the joints of the connecting pipe with the soundproof / insulating sheath (fittings), and bind it well with the tapes to prevent leakage.

3.1.8. Refrigerant pipe connection

3.1.8.1 Expel the Air

3.1.8.1.1. Flaring

● Cut a pipe with a pipe cutter. (Refer to Fig.5-10)

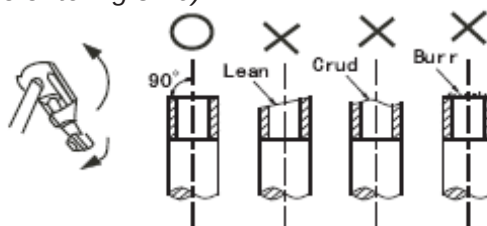


Fig.5-10

● Insert a flare nut into a pipe and flare the pipe.

3.1.8.1.2 Fasten the nut

● Put the connecting tubing at the proper position, wrench the nuts with hands then fasten it with a wrench. (refer to Fig.5-11)

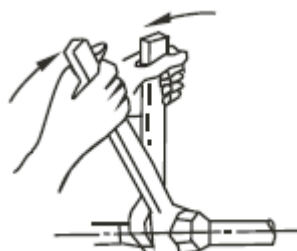


Fig.5-11

CAUTION

Too large torque will harm the bell mouthing and too small will cause leakage. Please determine the torque according to Table 8-1.

Table 8-1

Pipe gauge	Tightening torque	FLARE DIMENSION A_{min} (mm) MAX		Flare shape
$\phi 6.35$	14.2~17.2 N.m (144~176 kgf.cm)	8.3	8.7	
$\phi 9.53$	32.7~39.9 N.m (333~407 kgf.cm)	12.0	12.4	
$\phi 12.7$	49.5~60.3 N.m (504~616 kgf.cm)	15.4	15.8	
$\phi 16$	61.8~75.4 N.m (630~770 kgf.cm)	18.6	19.0	
$\phi 19$	97.2~118.6 N.m (990~1210 kgf.cm)	22.9	23.3	

3.1.8.1.3 Expel the air with a vacuum pump (Refer to Fig.5-12)

(Please refer to its manual for the way of using manifold valve)

● Using the vacuum pump

- 1 Loosen and remove the maintenance nuts of stop valves A and B, and connect the charge hose of the manifold valve to the service port of stop valve A. (Be sure that stop valves A and B are both closed)
- 2 Connect the joint of the charge hose with the vacuum pump
- 3 Open the Lo-lever of the manifold valve completely.

- 4 Turn on the vacuum pump. At the beginning of pumping, loosen the maintenance nut of stop valve B a little to check whether the air comes in (the sound of the pump changes and the indicator of compound meter turns below zero). Then fasten the maintenance nut.
- 5 When the pumping has finished, close the Lo-lever of the manifold valve completely and turn off the vacuum pump. Make pumping for 15 minutes or more and check that the compound meter indicates -76cmHg (-1X10 Pa)
- 6 Loosen and remove the cap of stop valves A and B to open stop valve A and B completely, then fasten the cap.
- 7 Disassemble the charge hose from the service port of stop valve A, and fasten the nut.

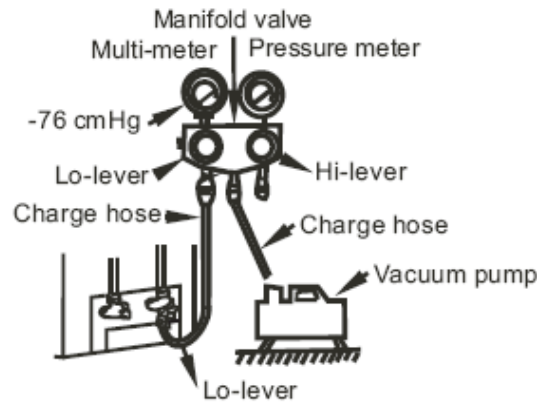


Fig.5-12

CAUTION

All the stop valves should be opened before test operation. Each air conditioner has two stop valves of different sizes on the side of the outdoor unit which operate as Lo-stop value, respectively. (Refer to Fig.8-4)

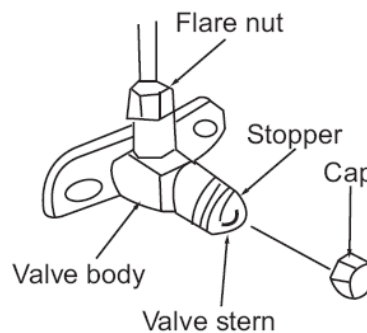


Fig.5-13

3.1.8.2 Check the Leakage

Check all the joints with the leak detector or soap water. (See Fig.8-5 as a reference illustration) in the chart

A.....Lo-stop valve

B.....Hi-stop valve

C,D..Joints of the connecting pipe to the indoor unit.

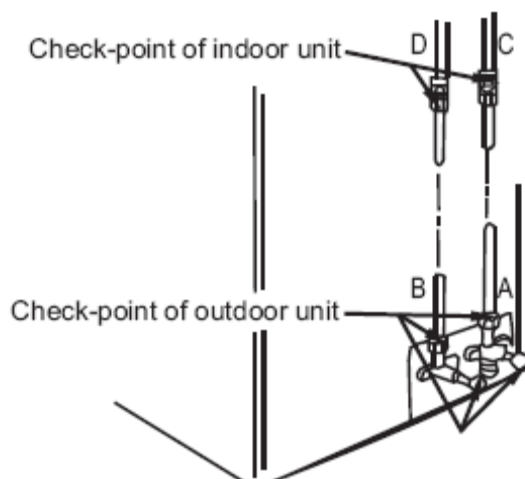


Fig.5-14

3.1.8.3 Insulation

- Be sure to with insulating materials cover all the exposed parts of the flare pipe joints and refrigerant pipe on the liquid-side and the gas-side. Ensure that there is no gap between them.
- Incomplete insulation may cause water condensation.

3.2 .Connect the drain pipe

Fit the seal into the drain joint, and then insert the drain joint into the base pan hole of outdoor, rotate 90 to securely assemble them.

Connect the drain joint with an extension drain hose (Locally purchased), in case of the condensate draining off the outdoor unit during the heating mode.

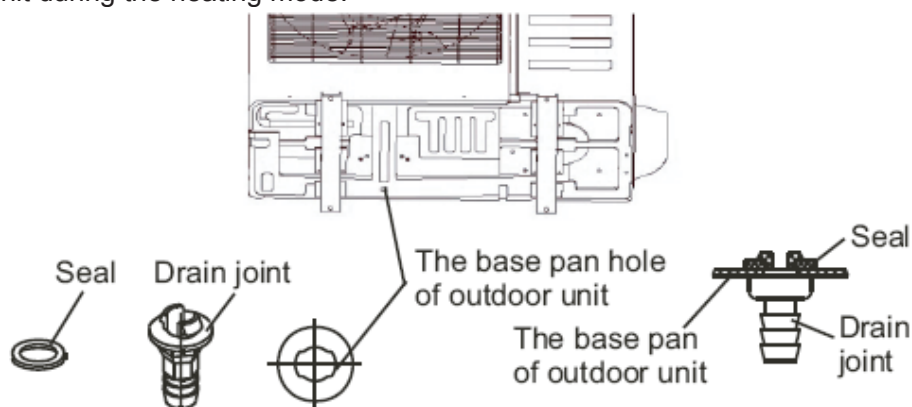


Fig.5-15

NOTE

All the pictures in this manual are for explanation purpose only. They may be slightly different from the air conditioner you purchased (depend on model).The actual shape shall prevail.

Wiring

1. Control.....	205
2. Wiring	206
3. Test operation.....	207

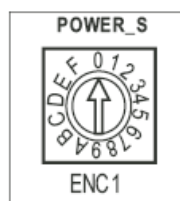
1. Control

- The capacity of the system and the network address of the air-conditioner can be set by the switches on the Main Control Board of the indoor unit.
- After the setting, be sure to cut down the main power supply switch, then turn it on again.
- Setting would be invalid without disconnecting the power.

1.1 Horsepower code set

The capacity of the indoor unit has been set before leaving the factory according to the below table.

Horsepower code



NC1	Toggle switch Code	Capacity
		351
Note: The capacity has been set before leaving the factory, anyone can't modify it except the maintenance person.	4	531
	5	711
	8	1081
	9	1411
	9	1761

1.2 Network address set

Every air-conditioner in network has only one network address to distinguish each other. Address code of air-conditioner in LAN is set by code switches S1 & S2 on the Main Control Board of the indoor unit, and the set range is 0-63.

Toggle switch set				Network address code
S1	S2			
		~		00~15
		~		16~31
		~		32~47
		~		48~63

2. Wiring

CAUTION

The appliance shall be installed in accordance with national wiring regulations.

The air conditioner should use separate power supply with rated voltage.

The external power supply to the air conditioner should have ground wiring, which is linked to the ground wiring of the indoor and outdoor unit.

The wiring work should be done by qualified persons according to circuit drawing.

An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual current device (RCD) with the rating of above 10mA shall be incorporated in the fixed wiring according to the national rule.

Be sure to locate the power wiring and the signals wiring well to avoid cross-disturbance.

Do not turn on the power until you have checked carefully after wiring.

NOTE

Remark per EMC Directive 89/336/EEC

For to prevent flicker impressions during the start of the compressor (technical process) ,following installation conditions do apply.

1. The power connection for the air conditioner has to be done at the main power distribution. The distribution has to be of a low impedance; normally there required impedance reaches at a 32 a fusing point.
2. No other equipment has to be connected with this power line.
3. For detailed installation acceptance please refer to your power supplier, if restrictions do apply for products like washing machines, air conditioners or electrical ovens.
4. For power details of the air conditioner refer to the rating plate of the product.
5. For any question contact your local dealer.

2.1 Connect the cable

■ Disassemble the bolts from the cover.(If there isn't a cover on the outdoor unit, disassemble the bolts from the maintenance board, and pull it in the direction of the arrow to remove the protection board.) (Refer to Fig.11-1)

■ Connect the connective cables to the terminals as identified with their respective marked numbers on the terminal block of indoor and outdoor units.

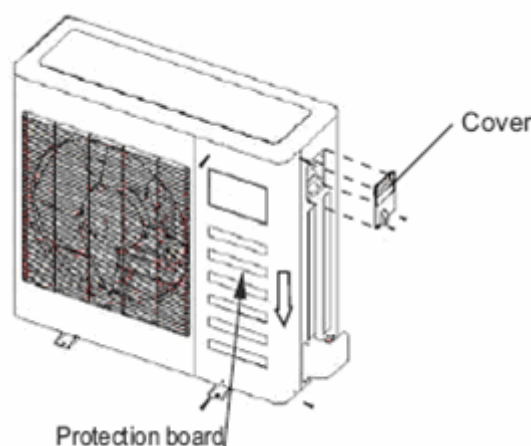
■ Re-install the cover or the protection board.

2.2 The Specification of Power

(Refer to Table 11-))

2.3 Wiring figure

(Refer to Fig.11-2~Fig.11-3)



NOTE

All the pictures in this manual are for explanation purpose only. They may be slightly different from the air conditioner you purchased (depend on model).The actual shape shall prevail.

3. Test operation

3.1. The test operation must be carried out after the entire installation has been completed.

3.2. Please confirm the following points before the test operation:

- The indoor unit and outdoor unit are installed properly.
- Tubing and wiring are correctly completed.
- The refrigerant pipe system is leakage-checked.
- The drainage is unimpeded.
- The heating insulation works well.
- The ground wiring is connected correctly.
- The length of the tubing and the added stow capacity of the refrigerant have been recorded.
- The power voltage fits the rated voltage of the air conditioner.
- There is no obstacle at the outlet and inlet of the outdoor and indoor units.
- The gas-side and liquid-side stop valves are both opened.
- The air conditioner is pre-heated by turning on the power.

3.3. According to the user's requirement, install the remote controller frame where the remote controller's signal can reach the indoor unit smoothly.

3.4. Test operation

- Set the air conditioner under the mode of "COOLING" with the remote controller, and check the following points. If there is any malfunction, please resolve it according to the chapter "Troubleshooting" in the "Owner's Manual".
- 1) The indoor unit
 - a. Whether the switch on the remote controller works well.
 - b. Whether the buttons on the remote controller works Well.
 - c. Whether the air flow louver moves normally.
 - d. Whether the room temperature is adjusted well.
 - e. Whether the indicator lights normally.
 - f. Whether the temporary buttons works well.
 - g. Whether the drainage is normal.
 - h. Whether there is vibration or abnormal noise during operation.
 - l. Whether the air conditioner heats well in the case of the HEATING/COOLING type.
- 2) The outdoor unit
 - a. Whether there is vibration or abnormal noise during operation.
 - b. Whether the generated wind, noise, or condensed of by the air conditioner have influenced your neighborhood.
 - c. Whether any of the refrigerants is leaked.

CAUTION

A protection feature prevents the air conditioner from being activated for approximately 3 minutes when it is restarted immediately after shut off.

■ The Specification of Power

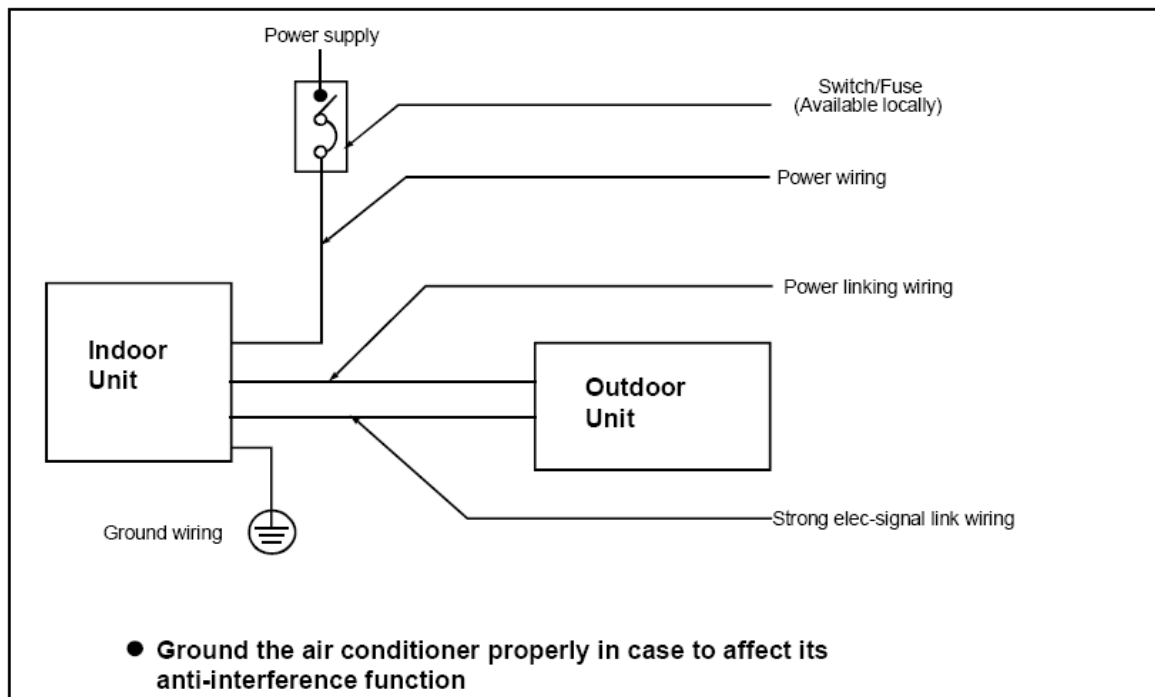
Table 11-1

Capacity		351 (with 1-Phase outdoor unit)	531-711 (with 1-Phase outdoor unit)	1081-1411 (with 1-Phase outdoor unit)	1081-1411-1761 (with 3-Phases outdoor unit)
Indoor unit power	PHASE	1-PHASE	1-PHASE	1-PHASE	1-PHASE
	FREQUENCY AND VOLT	220-240V~, 50Hz	220-240V~, 50Hz	220-240V~, 50Hz	220-240V~, 50Hz
	POWER WIRING(mm ²)	3x1.0	3x1.0	3x1.0	3x1.0
	CIRCUIT BREAKER/FUSE (A)	15	15	15	15
Outdoor unit power	PHASE	1-PHASE	1-PHASE	1-PHASE	3-PHASE
	FREQUENCY AND VOLT	220-240V~, 50Hz	220-240V~, 50Hz	220-240V~, 50Hz	380-415~, 50Hz
	POWER WIRING(mm ²)	3x1.5	3x2.5	3x2.5	5x2.5
	CIRCUIT BREAKER/FUSE (A)	20	30	40	30
INDOOR/OUTDOOR CONNECTING WIRING(Weak electric signal) (mm ²)		4-CORE Wire 4X1.5	3-core shielded wire 3x0.5	3-core shielded wire 3x0.5	3-core shielded wire 3x0.5

CAUTION

A protection feature prevents the air conditioner from being activated for approximately 3 minutes when it is restarted immediately after shut off.

Installing wiring chart, refer to link circuit chart for details.



(For 12000Btu/h)

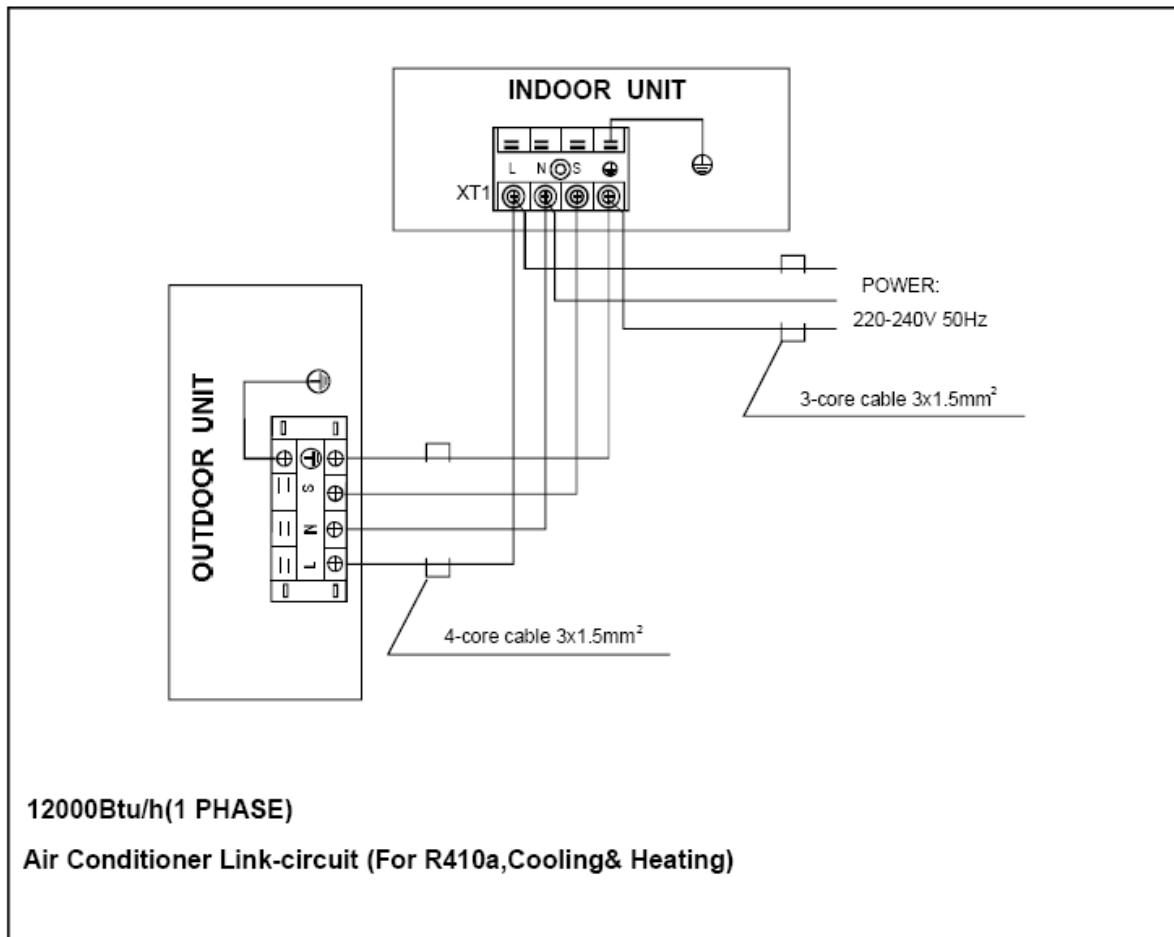
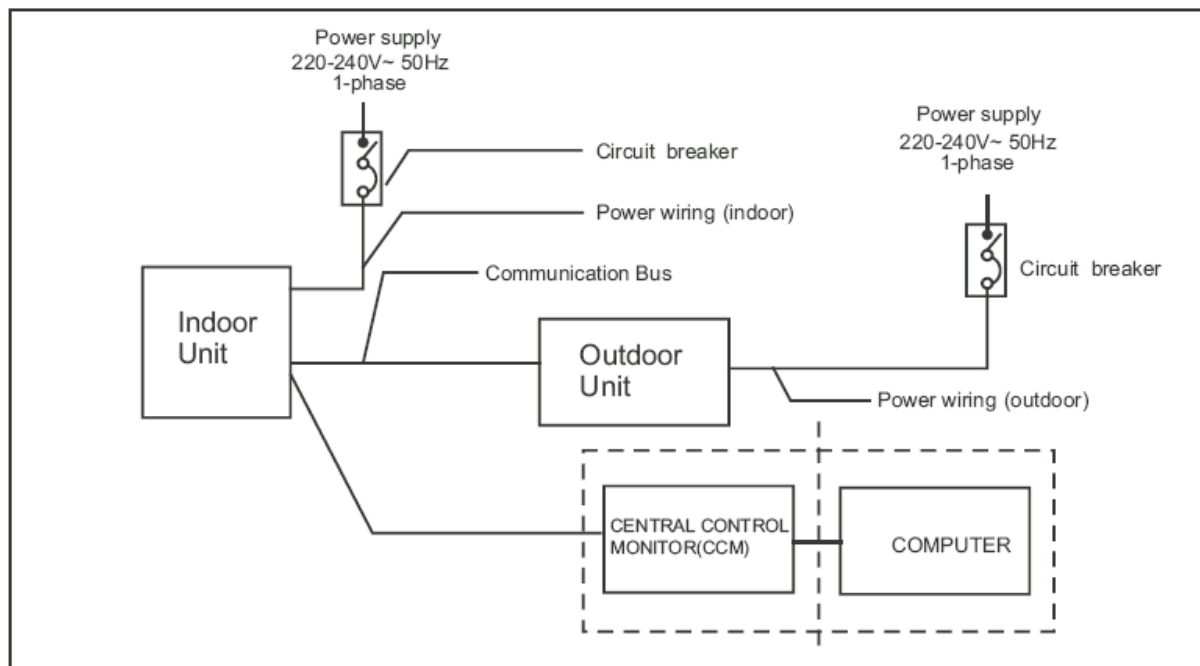
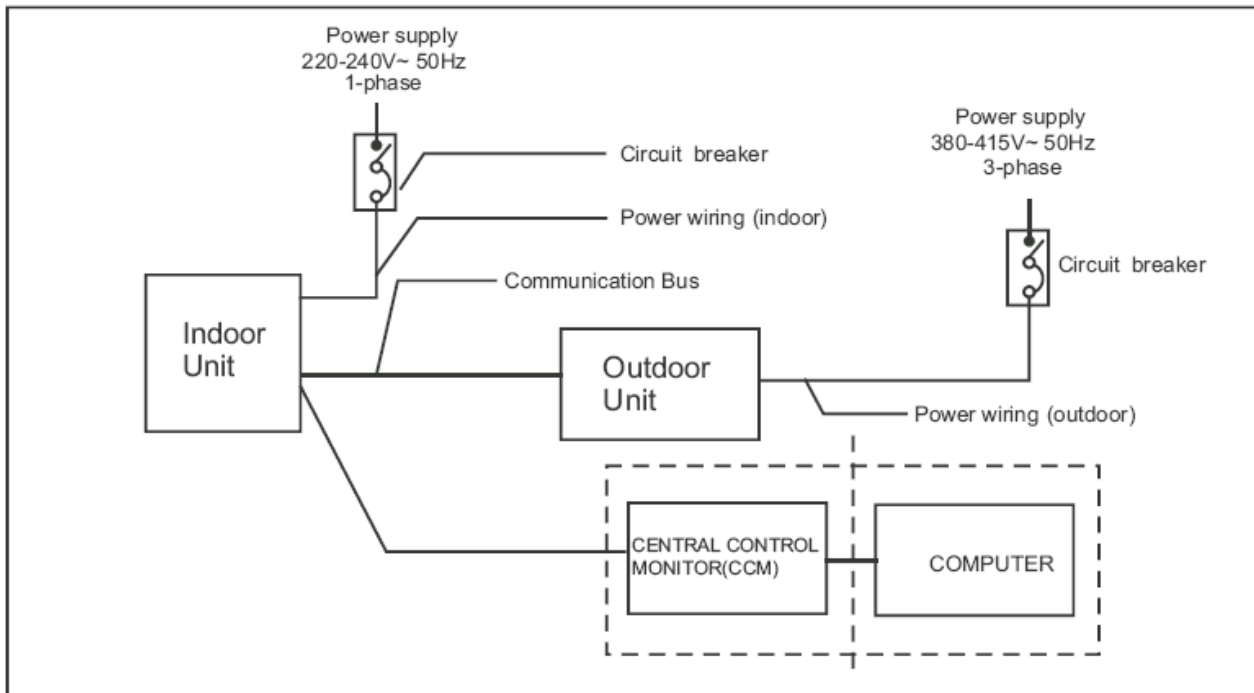


Fig.11-2



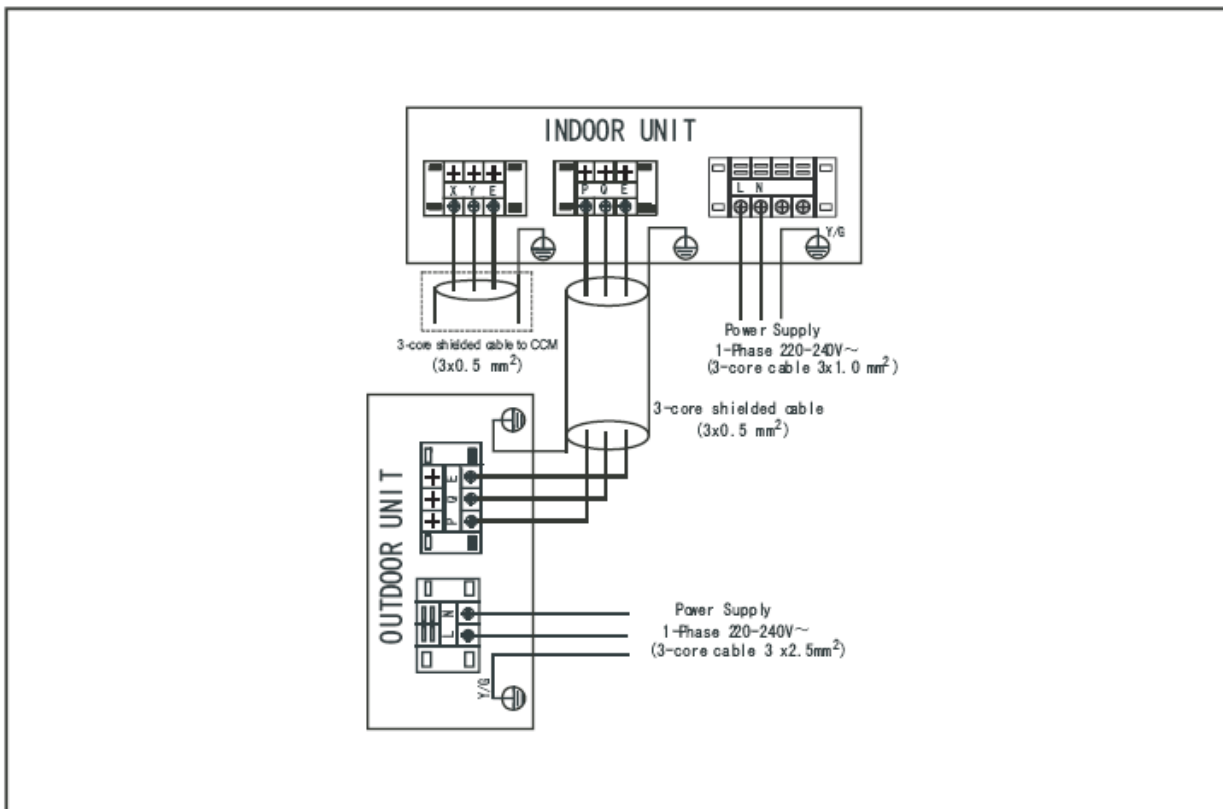
For 531-711-1081-1411 Models (with -1Phase outdoor unit)

Fig.11-3

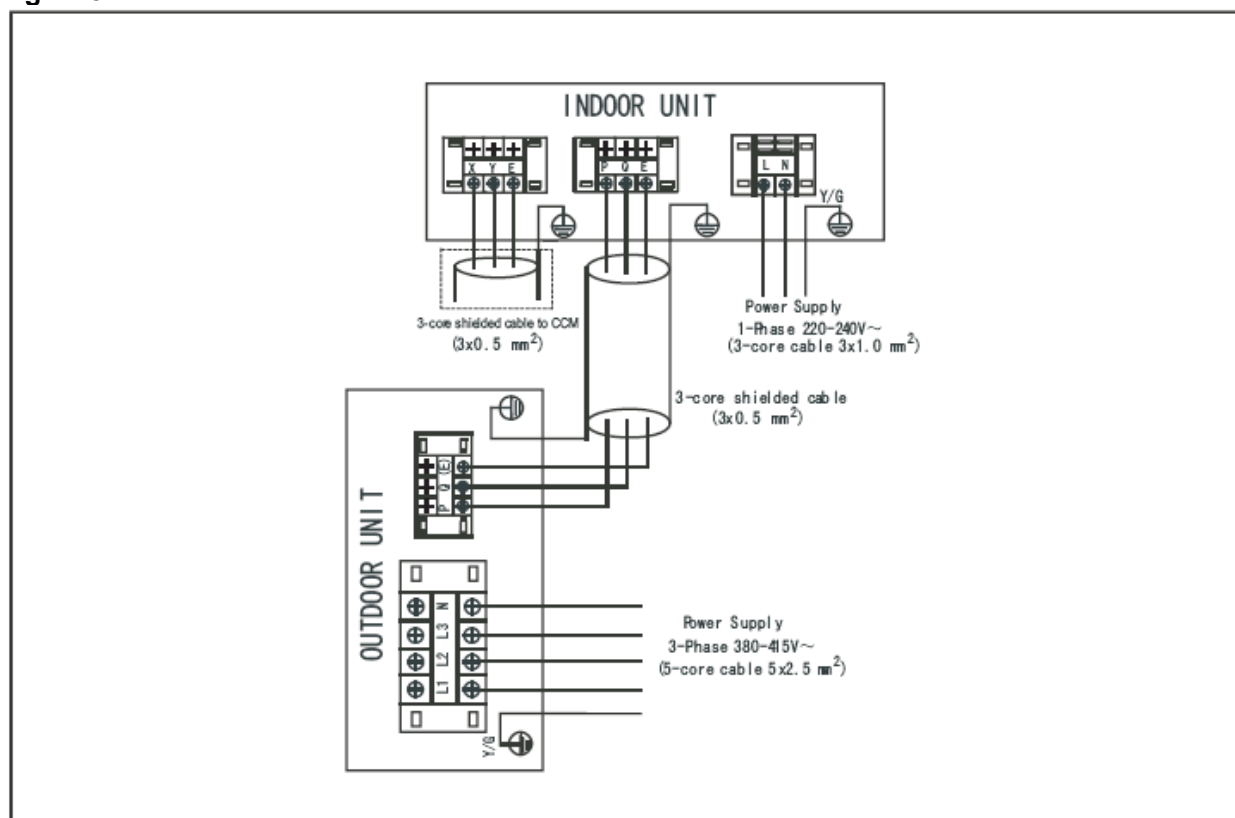
For 1081-1411-1761 Models (with -3Phase outdoor unit)

CAUTION

The wiring diagrams of the air-conditioner are shown as follows. When wiring, please choose the corresponding figure, or it may cause damage.

Fig.11-4

For 531-711-1081-1411 Models (with -1Phase outdoor unit)

Fig.11-5

For 1081-1411-1761 Models (with -3Phase outdoor unit)

Part 5

Control

1. Standard controller	212
2. Optional Controller	222

1. Standard controller

1.1 Wireless remote controller R51/E

There's one model R11HG/E for hereinafter type:

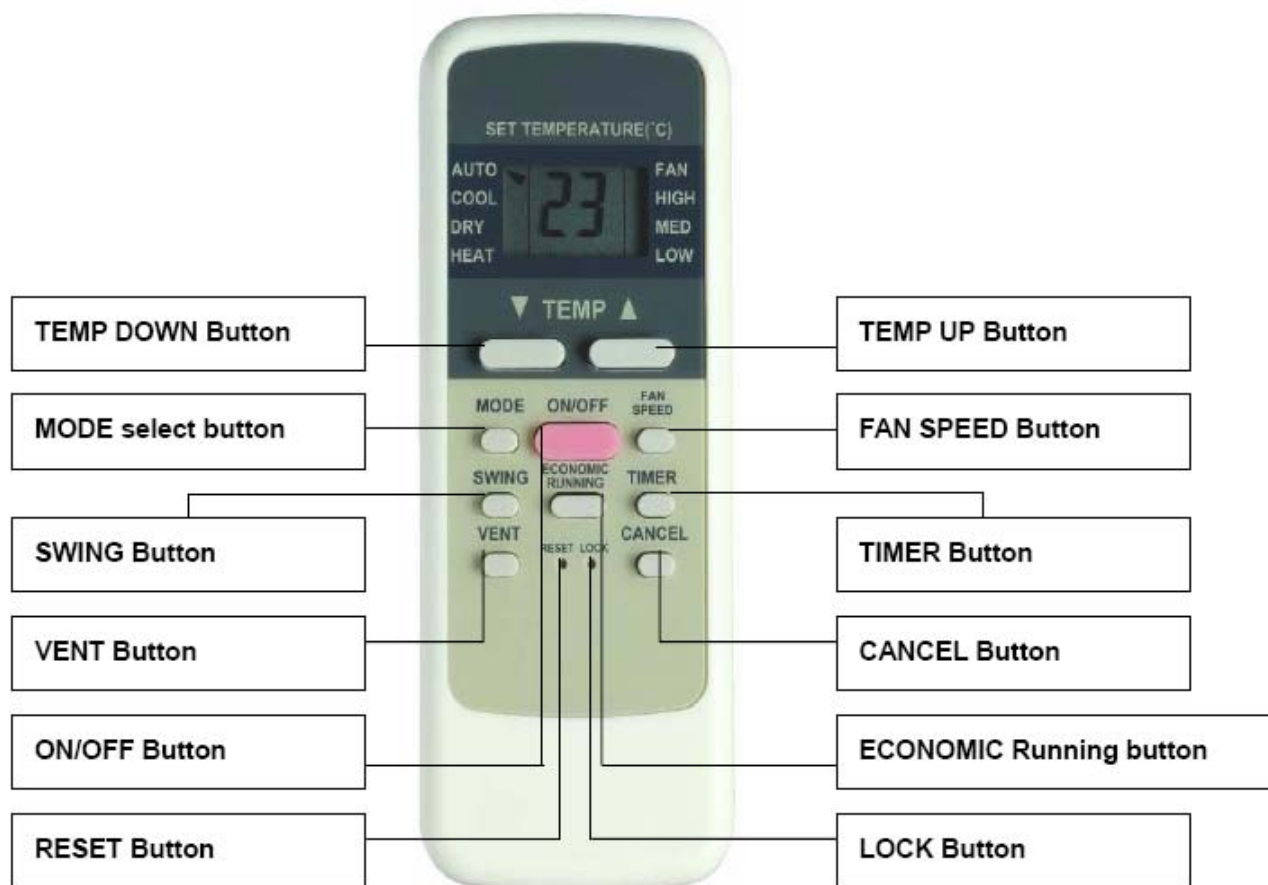
HUBI 531 XR、HUBI 711 XR、HUBI 1081 XR、HUBI 1411 XR、HUBI 1761 XR

The below is R51/E wireless remote controller

Remote Controller Specifications

Model	R51/E
Rated Voltage	3.0V
Lowest Voltage of CPU Emitting Signal	2.0V
Reaching Distance	8m (when using 3.0 voltage, it can get 11m)
Environment Temperature Range	-5℃～60℃

Introduction of Function Buttons on the Remote Controller



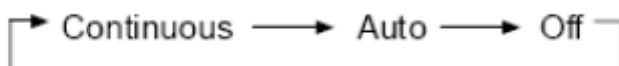
- 1. TEMP DOWN Button:** Push the TEMP DOWN button to decrease the indoor temperature setting or to adjust the timer in a counter-clockwise direction.
- 2. MODLE SELECT Button:** Each time you push the button, a mode is selected in a sequence that goes from AUTO, COOL, DRY, HEAT and FAN as the following figure indicates:



▲ NOTE: *HEAT only for Heat Pump*

- 3. SWING Button:** Push this switch button to change the louver angle.
- 4. RESET Button:** When the RESET button is pushed, all of the current settings are cancelled and the control will return to the initial settings.
- 5. ECONOMIC RUNNING Button:** Push this button to go into the Energy-Saving operation mode.
- 6. LOCK Button:** Push this button to lock in all the current settings. To release settings, push again.
- 7. CANCEL Button:** Push this button to cancel the TIMER settings.

- 8. TIMER Button:** This button is used to preset the time ON (start to operate) and the time OFF (turn off the operation)
- 9. ON/OFF Button:** Push this button to start the unit operation. Push the button again to stop the unit operation.
- 10. FAN SPEED Button:** This button is used for setting fan speed in the sequence that goes from AUTO, LOW, MED to HIGH, and then back to auto.
- 11. TEMP UP Button:** Push this button to increase the indoor temperature setting or to adjust the timer in a counter-clockwise direction.
- 12. VENT Button:** Push this button to set the ventilating mode. The ventilating mode will operate in the following sequence:



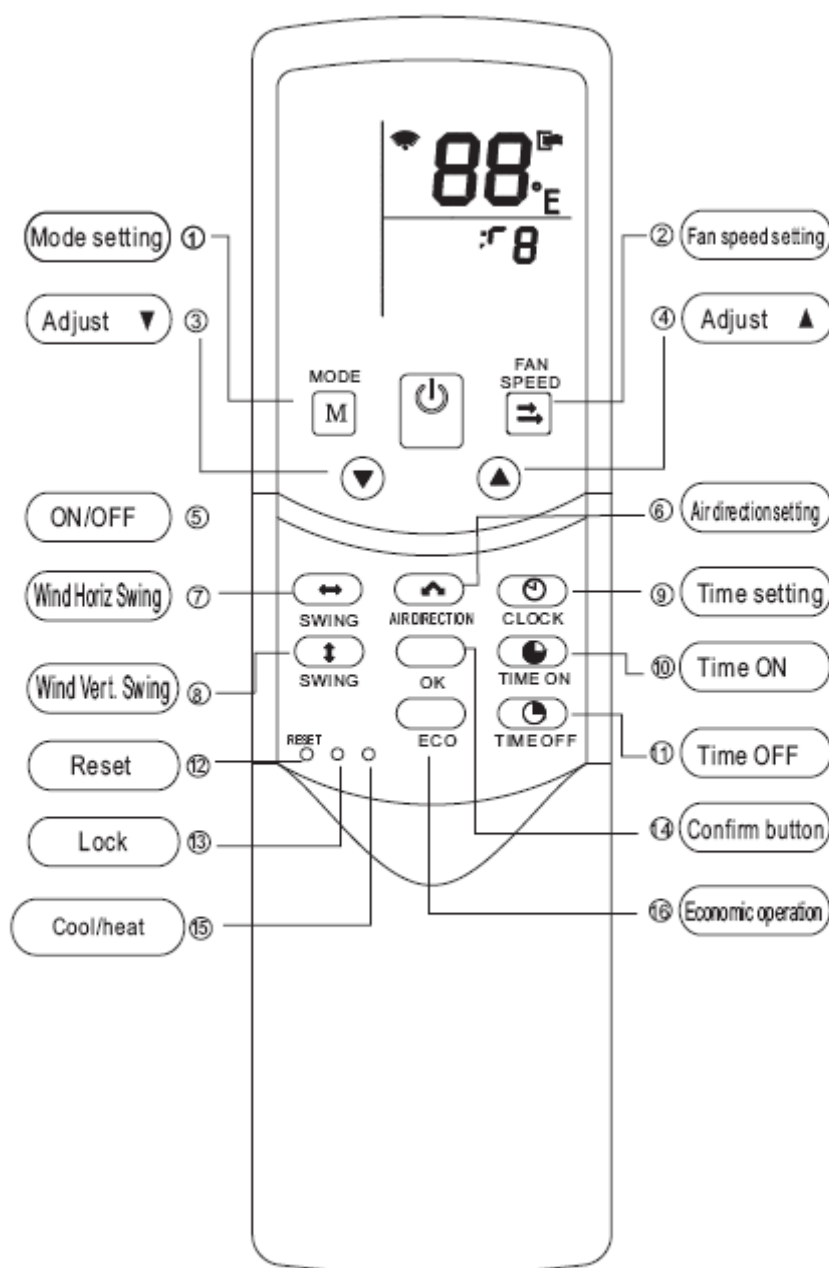
Ventilation Function is available for the Fresh Star Series.

1.2 Wireless remote controller R05/BGE

There's one model R05-BG/E for hereinafter type:

HSFI 351 XR、HSFI 531 XR、HSFI 711 XR、HSFI 1081 XR、HSFI 1411 XR、HSFI 1761 XR、HTBI 711 XR、HTBI 1081 XR、HTBI 1411 XR

The below is R05-BG/E wireless remote controller



Visual photo

Note:

1. The outline figure on cover is for reference only, which may differ from what you purchased.
2. Make sure to read chapter PRECAUTIONS before you operate the air conditioner.
3. The content is available for model R05/BG.
4. R05/BGE can be applicable for cool only type and cool & heat type air conditioners.

Precautions

Curtain, door or the similar objects will prevent the remote signal from being received by air conditioner.

Do not get the interior of remote controller wet.

It is forbidden to expose it to direct sunlight or locate it in the place with high temp.

Malfunction may occur if infrared signal receiver on air conditioner is exposed to sunlight.

Please shelter the signal receiver from sunlight with curtain.

Please remove the nearby electronic device for they may affect the performance of remote controller.

Do not put the used or different batteries into the remote controller, otherwise remote controller will fail to send signal.

Please remove the batteries before long period unused, otherwise the remote controller may be damaged.

If pressing the button reset the remote controller, which indicates low battery, please replace the batteries.

If no receiving sound is heard from indoor unit or on remote controller does not flash, please replace the batteries.

Effective transmitting distance of remote controller is 8m, please aim the signal sending part to the receiver on air conditioner.

Model and specification

Model	R05/BGE
Rated voltage	3.0V(2pieces of LR03 7# batteries)
Min voltage for sending signal of CPU	2.4V
Effective receiving distance	8m~11m
Operation condition	-5~60℃

Buttons and their functions

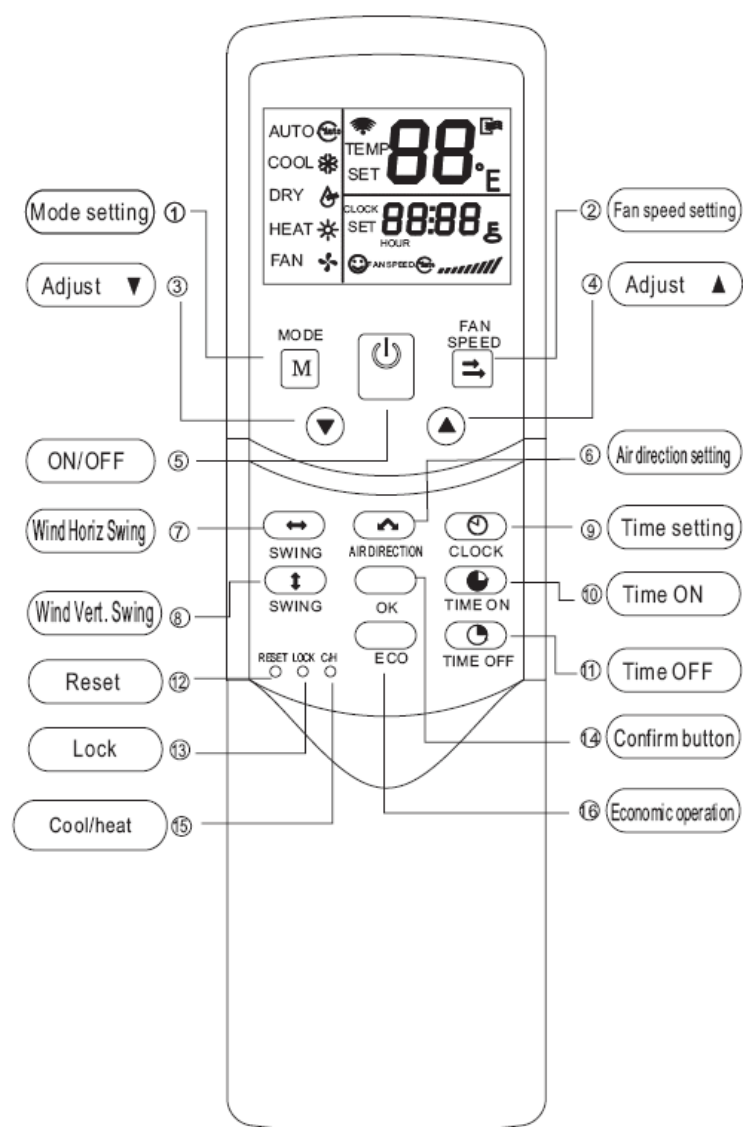
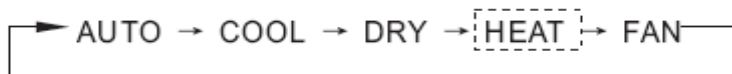


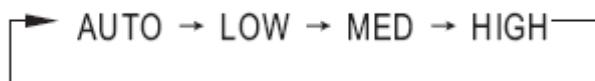
Chart 1

1. MODE: Once pressing, running mode will be selected in the following sequence:



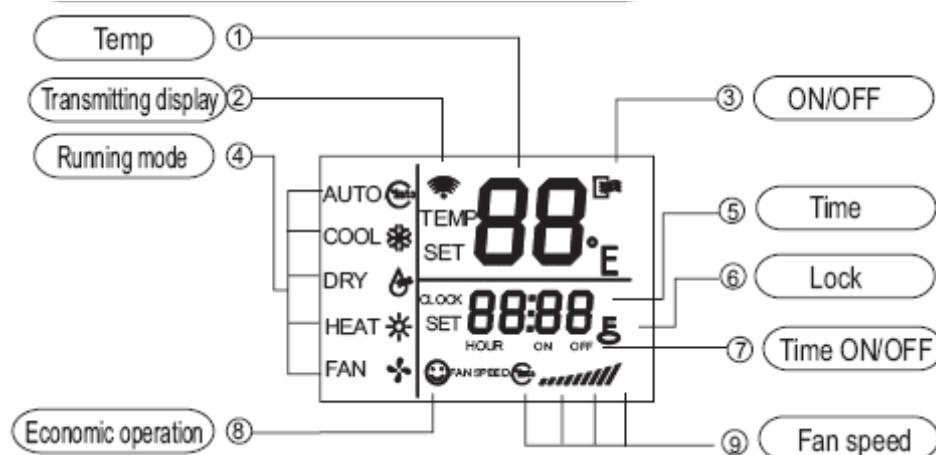
NOTE: No heating mode for cool only type unit.

2. FAN SPEED: Fan speed will be selected in following sequence once pressing this button:



3. Adjust: Decrease the set temp. Keeping pressing will decrease the temp with 1°C per 0.5s.
4. Adjust: Increase the set temp. Keeping pressing will increase the temp with 1°C per 0.5s.
5. ON/OFF: For turning on or turning off the air conditioner.
6. AIR DIRECTION: Activate swing function of air deflector. Once pressing, air deflector will turn 6°C. For normal operation and better cooling and heating effect, deflector will not turn to the degree which is the state of deflector when the unit is turned off.(Only available when remote controller is used with corresponding unit.)
7. Wind Horizontal Swing: Activate or turn off wind horizontal swing function. (Only available when remote controller is used with corresponding unit.)
8. Wind Vertical Swing: Activate or turn off wind vertical swing function. (Only available when remote controller is used with corresponding unit.)
9. CLOCK: Display the current time. (12:00 is displayed when resetting or electrifying for the first time.) Press CLOCK for 5s, icon indicating hour will flash with 0.5s. Press it again, icon indicating minute will flash with 0.5s. and are used to adjust the figure. Setting or modification is effective only by pressing OK button to make confirmation.
10. TIME ON: For time ON setting. Once pressing this button, the time will increase by 0.5 hour. When the set time exceeds 10 hours, pressing the button will increase the time by 1 hour. Adjusting the figure to 0.00 will cancel time ON setting.
11. TIME OFF: For time OFF setting. Once pressing this button, the time will increase by 0.5 hour. When the set time exceeds 10 hours, pressing the button will increase the time by 1 hour. Adjust the figure to 0.00 will cancel time ON setting.
12. RESET (inner located): Press this button with a needle of 1mm to cancel the current setting and reset remote controller.
13. LOCK (inner located): Press this button with a needle of 1mm to lock or unlock the current setting.
14. OK: Used to confirm the time setting and modification.
15. COOL/HEAT (inner located): Press this button with a needle of 1mm to shift mode between COOL only and COOL&HEAT. During setting, back light will be lightened. Factory default mode is COOL &HEAT.
16. ECO: Activate or turn off economic operation mode. It is suggested to turn on this function when sleeping. (Only available when remote controller is used with corresponding unit.)

Indicators and functions



1. Temp: Display the set temperature. Adjust temperature via and No display in this area if the unit is on FAN mode.

2. Transmitting display: The icon will flash once when the signal is sent by remote controller.
3. ON/FF: Icon is displayed when the remote controller is turned on, or vice versa.
4. Running mode: Press MODE to display current running mode. AUTO, COOL, DRY, HEAT and FAN can be selected. (HEAT function is invalid for cool only type unit.)
5. Time: Display the current set time. Press CLOCK for 5s, icon indicating hour will flash. Press this button again, icon indicating minute will flash. And are used to adjust the figure. Setting or modification is effective only by pressing OK button to make confirmation.
6. Lock: The icon will be lightened or off when pressing LOCK. In locked state, all the buttons are ineffective except button LOCK.
7. Time ON/OFF: In the state of time ON, icon ON will be lightened, which is the same to the state of time OFF. Setting timer ON and OFF simultaneously, both icons ON and OFF are displayed.
8. Fan speed: Press FAN SPEED to display the current wind speed. AUTO, LOW, MED and HIGH can be selected. The default state is high fan speed for the unit without medium fan speed.
9. Economic operation: This icon will be lightened or off when pressing ECO button.

NOTE: All the above icons will be displayed only when the remote controller is electrified for the first time or reset.

OPERATION INSTRUCTIONS

Install and replace batteries

Install 2 pieces of 7# alkaline batteries.

Slide the cover to install batteries and make sure to place them in right pole.

AUTO operation

Switch on the power and running indicator light on indoor unit flashes.

1. Press MODE to select AUTO.
2. Adjust temp via and. Generally the range is 17°C ~30°C.
3. Press ON/OFF and running indicator light on indoor unit is lightened. Air conditioner will work on AUTO mode and fan speed is AUTO which is nonadjustable.
4. ECO is effective on AUTO operation.

COOL/HEAT/FAN operation

1. Press MODE to select COOL, HEAT or FAN.
2. Adjust temp via and. Generally the range is 17°C ~30°C.
3. Press FAN SPEED to select AUTO, LOW, MED or HIGH.
4. Press ON/OFF and running indicator light on indoor unit is lightened. Air conditioner will work on the set mode. Stop operation via ON/OFF.

To adjust the figure. Setting or modification is effective only by pressing OK button to make confirmation.

NOTE: On FAN mode, temp is nonadjustable and ECO is ineffective. Procedure 2 is omitted.

DRY operation

1. Press MODE to select DRY.
2. Adjust temp via and. Generally the range is 17°C ~30°C.
3. Press ON/OFF and running indicator light on indoor unit is lightened. Air conditioner will work on DRY mode. Turn off the unit via ON/OFF.
4. On DRY mode, ECO and FAN SPEED are unavailable.

Timer operation

TIME ON and TIME OFF are used to turn on and turn off the unit at the set time respectively.

TIME ON operation

1. Press TIME ON, icon SET, HOUR and ON are lightened.
2. Press TIME ON again and adjust the time.
3. Keep pressing this button, the time will increase by 0.5 hour. When the set time exceeds 10 hours, pressing the button will increase the time by 1 hour.
4. 0.5s after setting, remote controller will send TIME ON command to the unit.

TIME OFF operation

1. Press TIME OFF, icon SET, HOUR and OFF are lightened.
2. Press TIME OFF again and adjust the time.
3. Keep pressing this button, the time will increase by 0.5 hour. When the set time exceeds 10 hours, pressing the button will increase the time by 1 hour.
4. 0.5s after setting, remote controller will send TIME OFF command to the unit.

Set TIME ON and TIME OFF simultaneously

1. Set TIME ON according to procedures 1 and 2 specified in TIME ON operation.
2. Set TIME OFF as the procedures 1 and 2 specified in TIME OFF operation.
3. If both the set time of TIME ON and TIME OFF not exceed 10 hours, time OFF operation will activated 0.5 hour later than time ON operation. If both the set time of TIME ON and TIME OFF exceed 10 hours, time OFF operation will be activated 1 hour later than time ON operation.
4. 0.5s after setting, remote controller will send TIME ON command to the unit.

Modification of timer operation

Press corresponding button and readjust the time of time ON and time OFF. Adjust the time figure to 0.00 to cancel the timer operation.

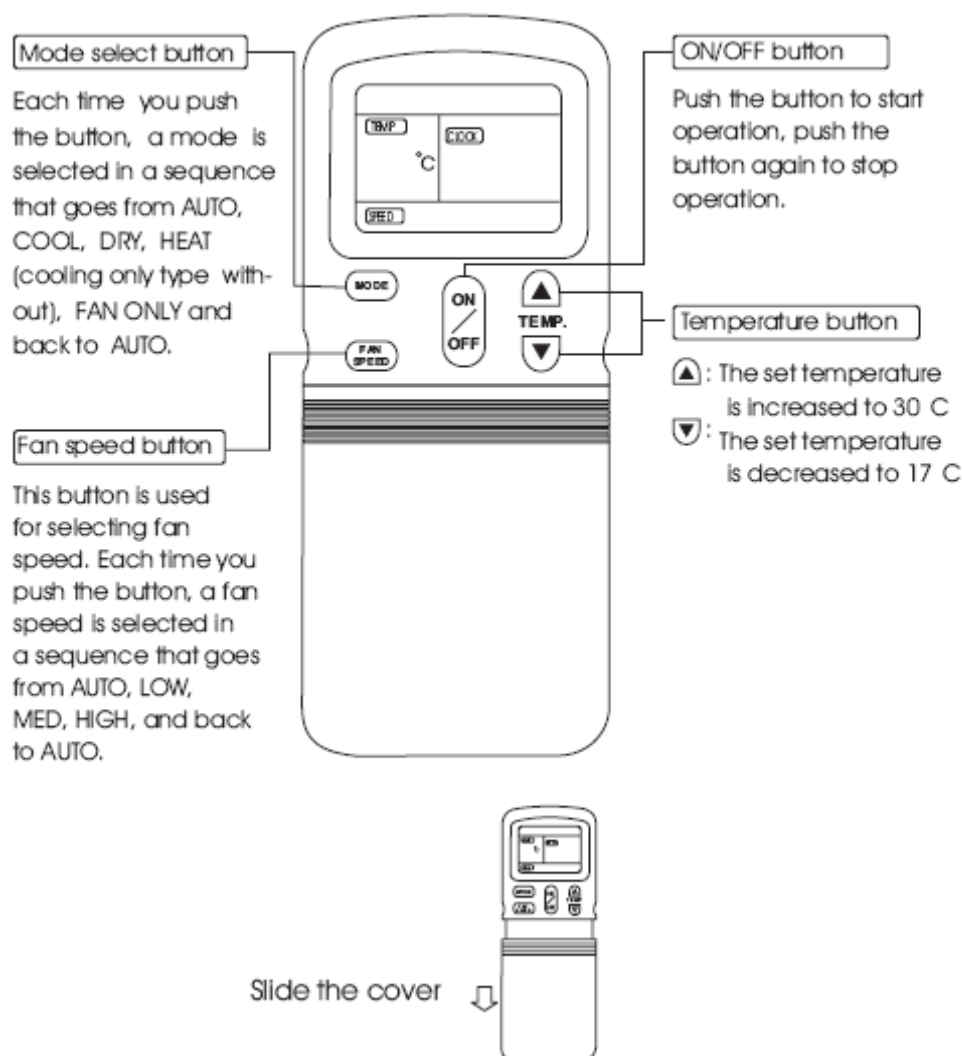
NOTE: The time set in timer operation is the relative figure based on the clock on remote controller. Adjusting clock is unavailable when TIME ON or TIME OFF is activated

1.3 Wireless remote controller R11HG/E

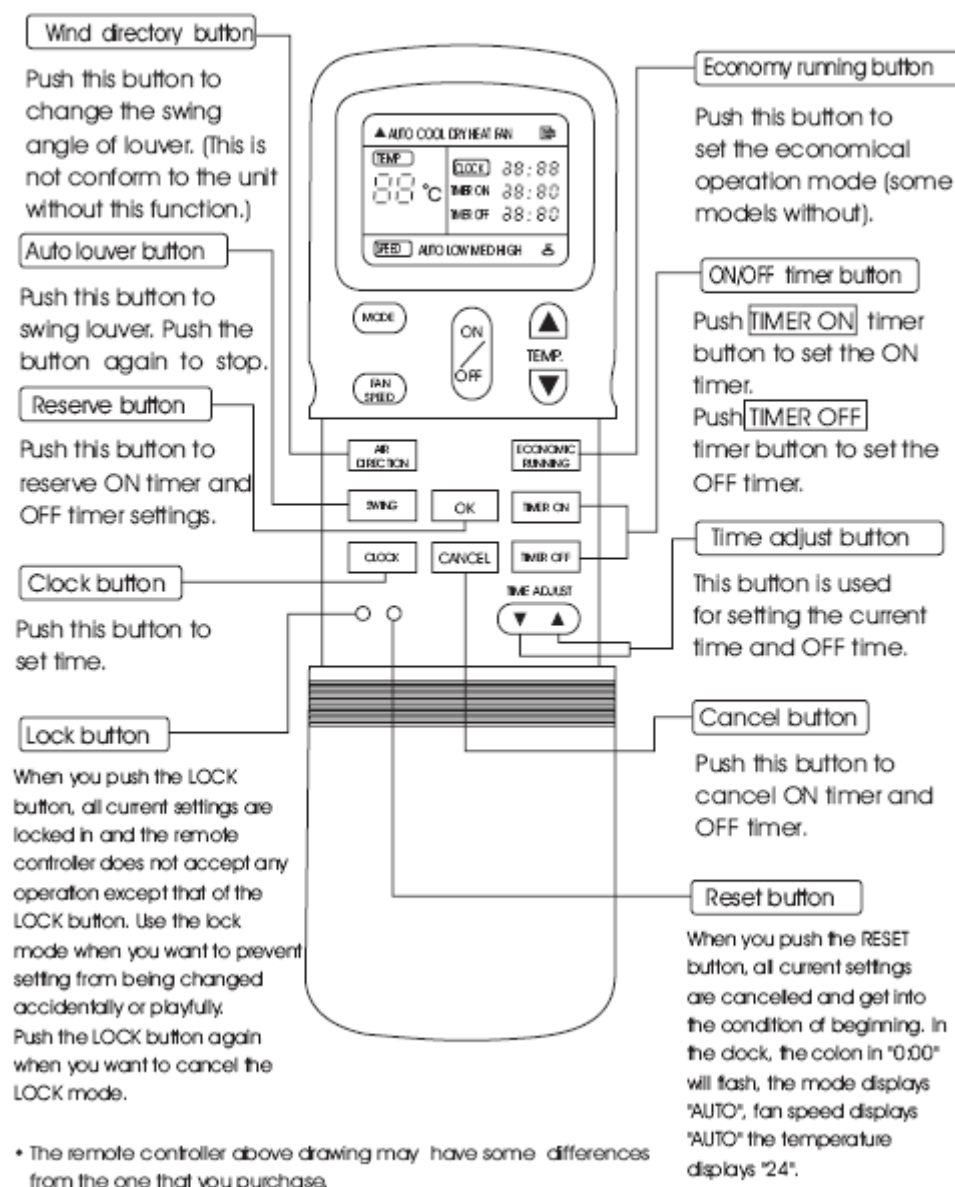
There's one model R11HG/E for hereinafter type:

HTFI 351 XR、HTFI 531 XR

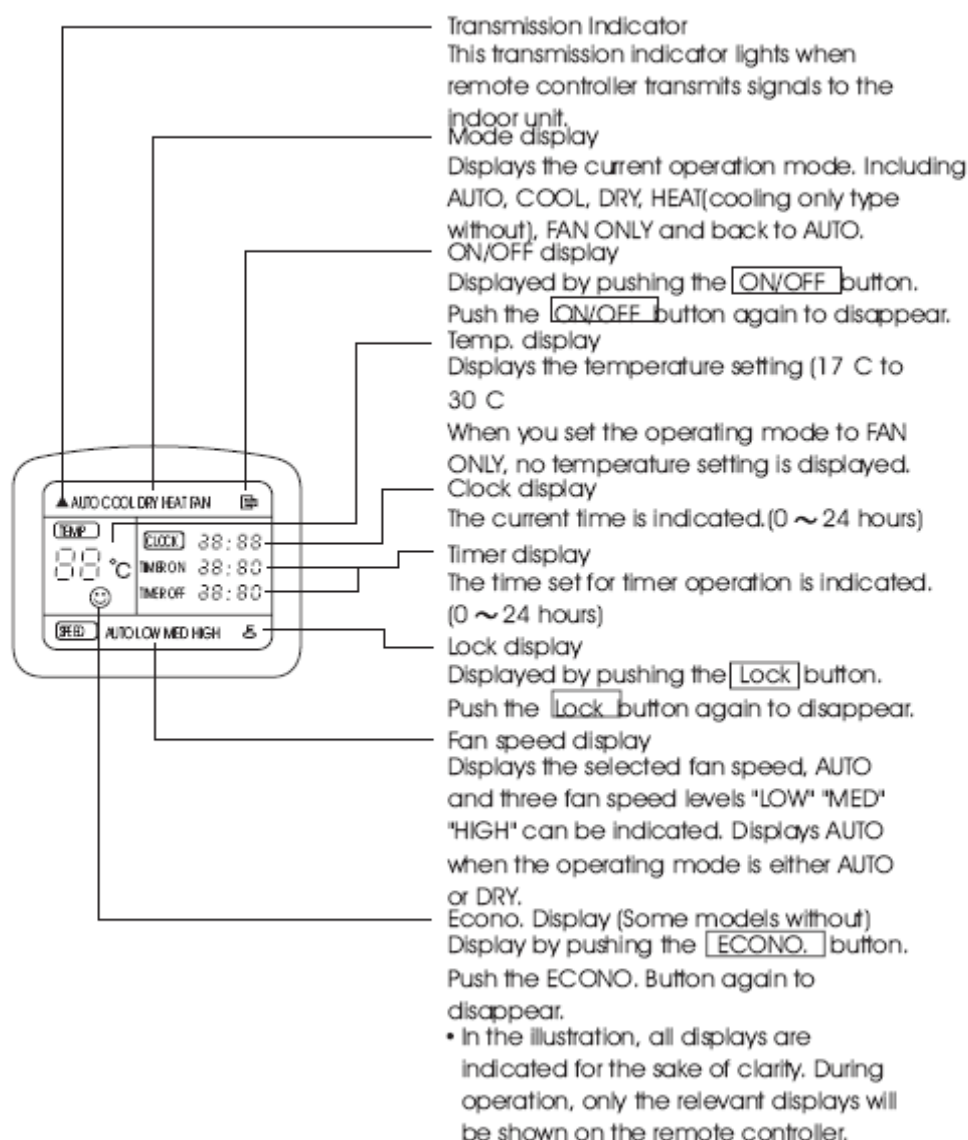
REMOTE CONTROLS AND THEIR FUNCTIONS



REMOTE CONTROLS AND THEIR FUNCTIONS



NAMES AND FUNCTIONS OF INDICATORS ON REMOTE CONTROLLER

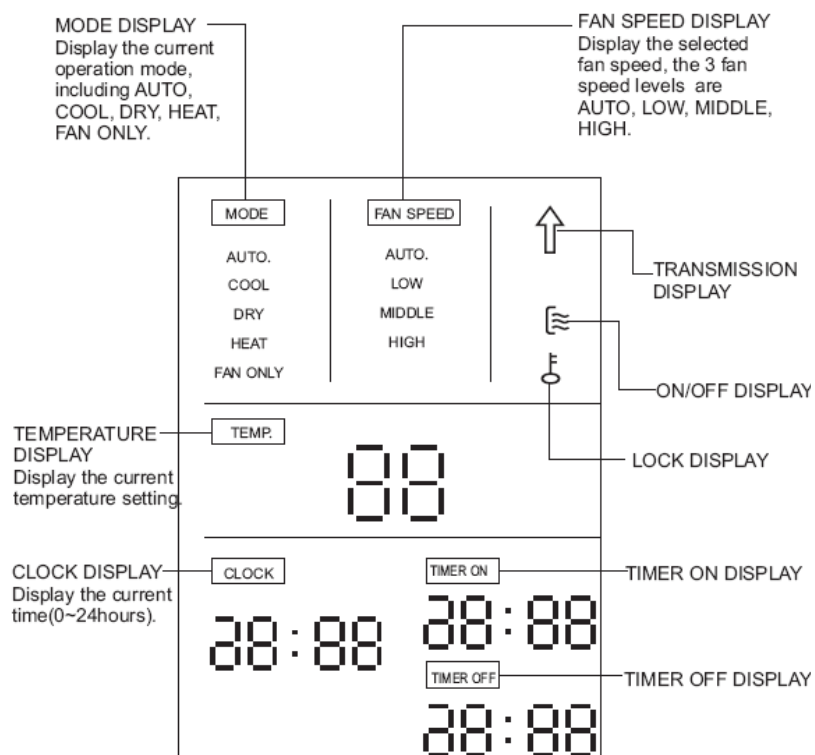


2. Optional Controller

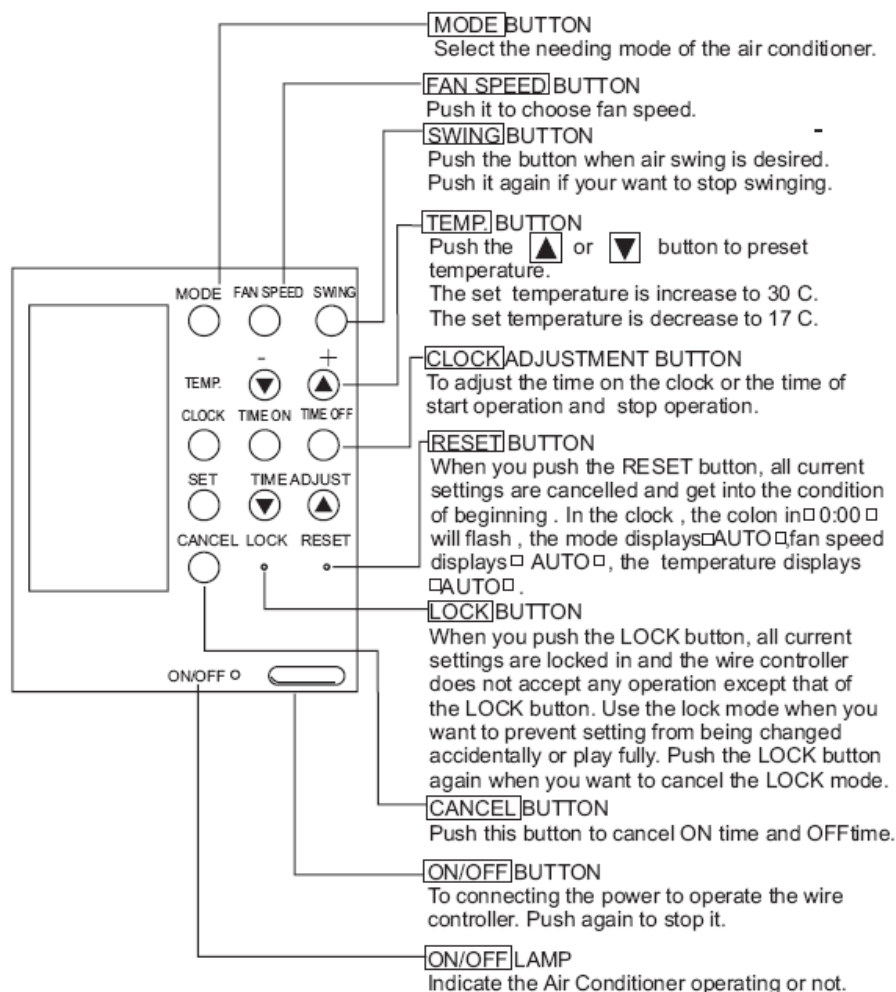
2.1 The below is KJR-01B wired remote controller



NAME AND FUNCTION OF INDICATORS ON THE WIRE CONTROLLER



WIRE CONTROLLER AND THEIR FUNCTIONS



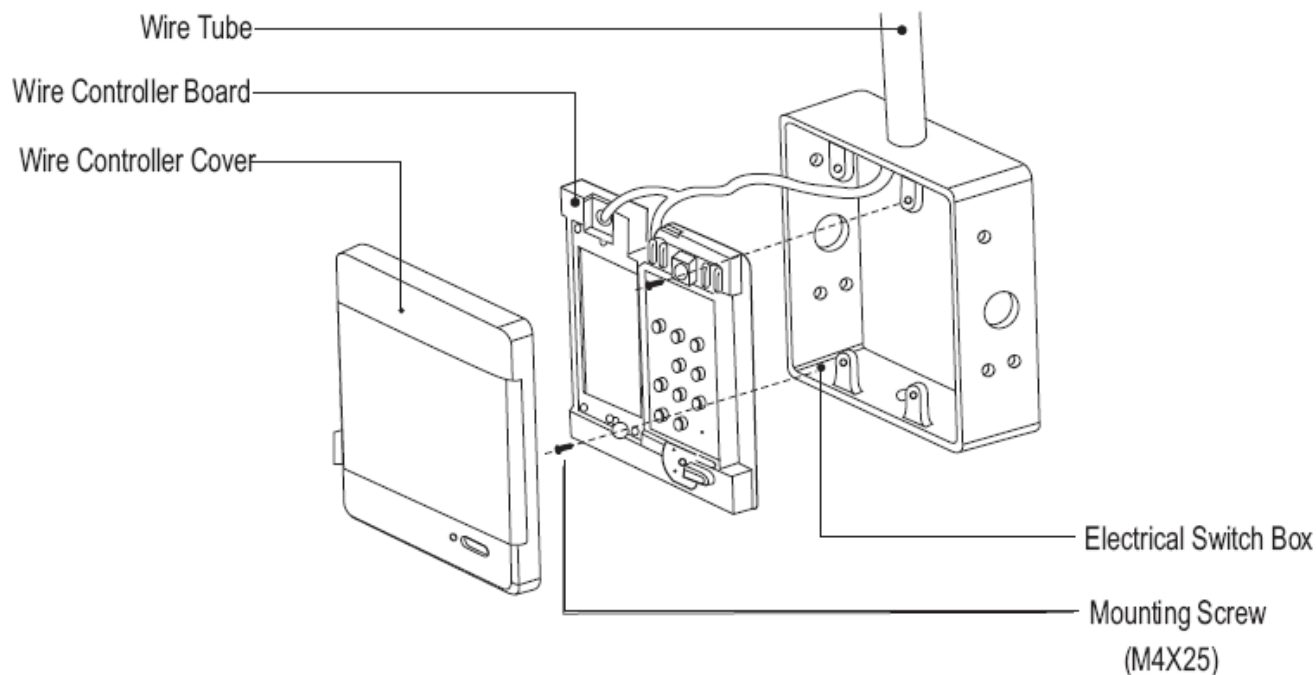
Installation

Installation into the wall

The diameter of Wire Controller wire must be suitable for its length.

Wiring Tube must be suitable for the wires.

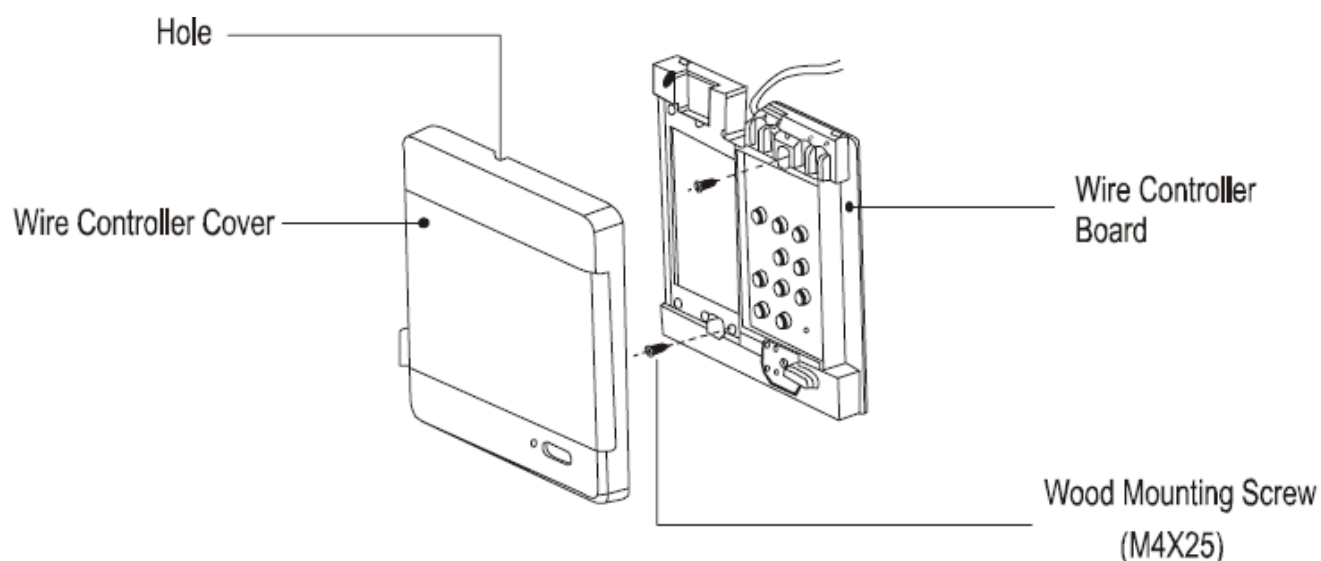
Turn a screwdriver at the concave on bottom panel of the Wire Controller to remove the Cover.



NOTE

- Never turn screws too tightly, or else the cover would be dented, or the Liquid Crystal breaks.
- Do not cut wires when installing Wire Controller cover.

Installation on the wall Cut a hole that can let a Three-core Rubber Insulating Screen Cable pass by from the middle of Wire Controller Top Cover before installation.

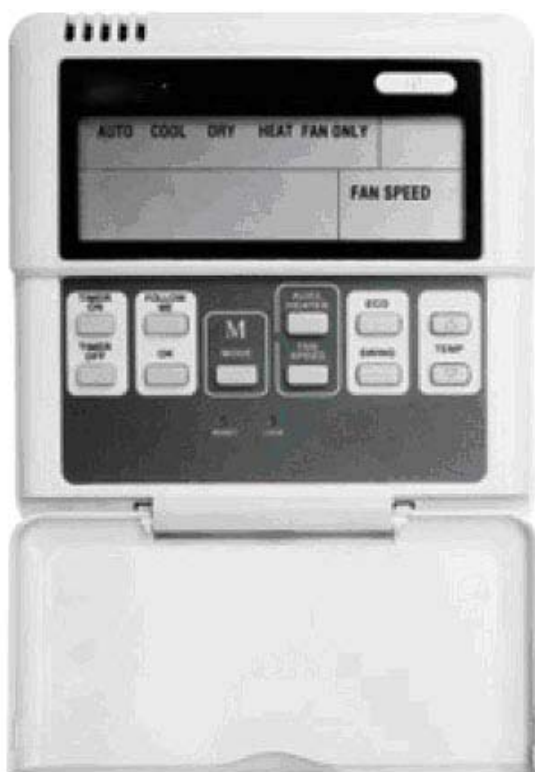


Refer to Electrical Switch Box Installation above for other installation information you need.
Use Clue around the Screen Cables and the Hole for sealing after installation completed.

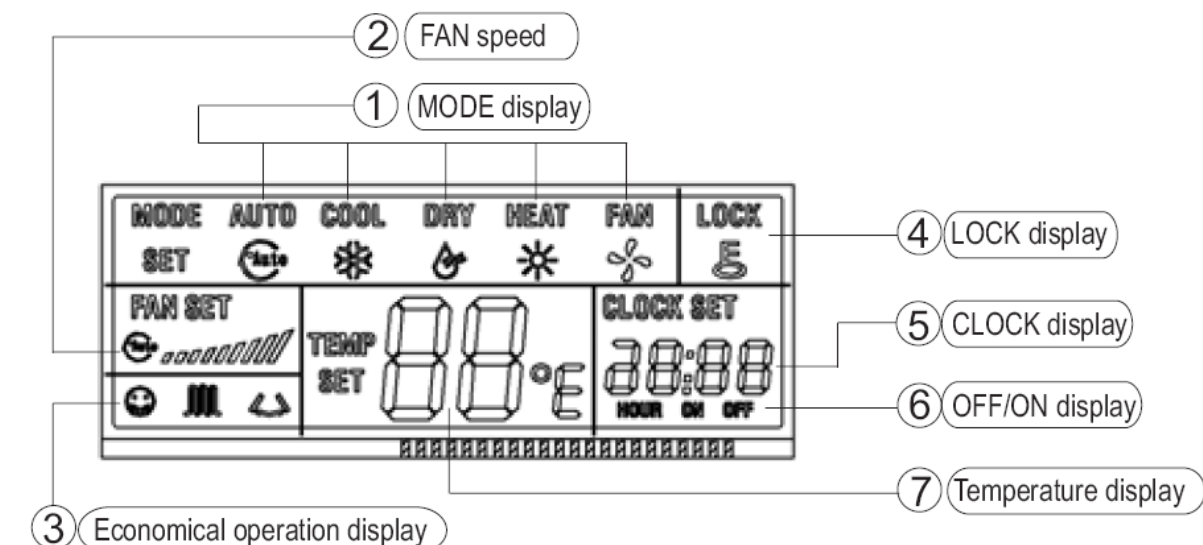
NOTE

- Never turn screws too tightly, or else the cover would be dented or the Liquid Crystal breaks.
- Do not cut wires when installing Wire Controller Cover.
- Please leave enough long cable for maintenance of the Wire Controller Board.

2.2 The below is KJR-10B wired remote controller



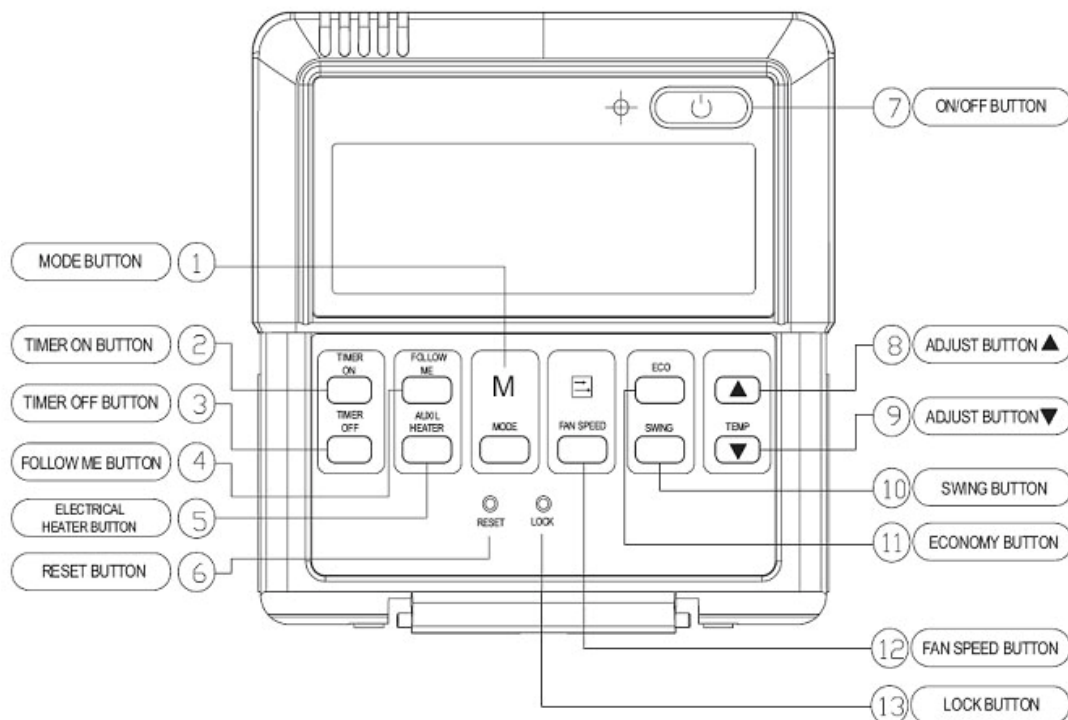
NAME AND FUNCTION OF LCD ON THE WIRE CONTROLLER



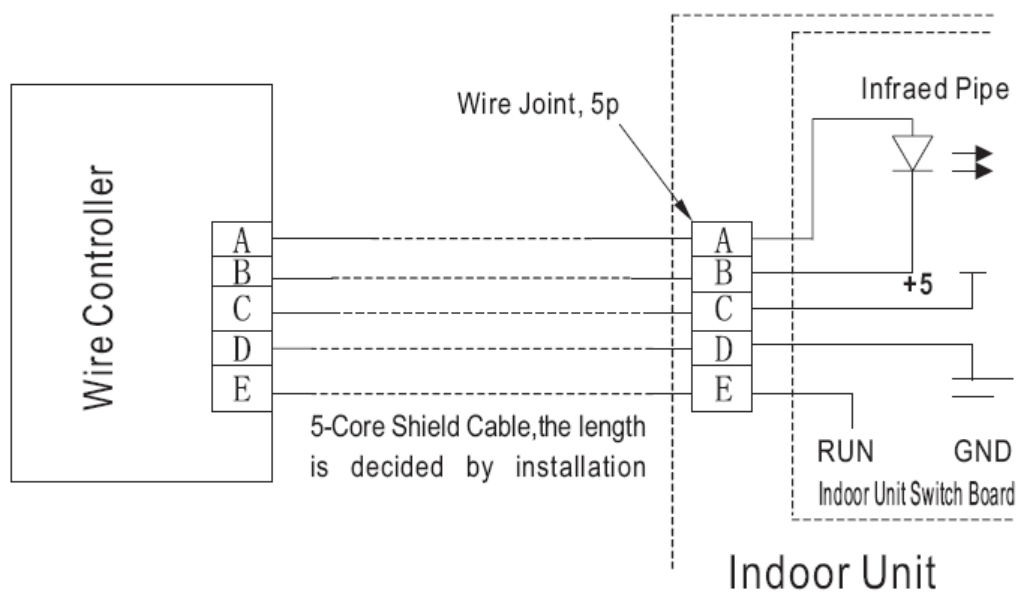
- 1 Mode select button (MODE):
Press MODE button to select "COOL", "DRY", "HEAT", or "FAN ONLY" mode. (HEAT is invalid for COOL ONLY wire controller.)
AUTO → COOLING → DEHUMIDIFY → HEATING → FAN
- 2 Fan speed button (FAN SPEED)
Press FAN SPEED to select fan speed from "AUTO", "LOW", "MED", and "HIGH". NOTE: some air conditioners have no MED fan speed, and then the MED is regarded as HIGH.
- 3 Economical operation displays:
Press ECONOMICAL to display economical operation, if press ECONOMICAL again then the display disappears
- 4 Lock display
Press LOCK to display the icon of LOCK. Press the button again then the icon of LOCK disappears. In the mode of LOCK, all the buttons are invalid except for LOCK button.

- 5 **CLOCK display.**
Usually display the clock set currently. Press the button CLOCK for 4 seconds, the HOUR part will flash, press button ▲ and ▼ to adjust HOUR. Press the button CLOCK again, the minute part flash, press button▲ or▼ to adjust MINUTE. After clock set or clock operation, it must press CONFIRM to complete the set.
- 6 **TIMER ON/OFF display:**
Display ON at the state of TIMER ON adjustment or after only set the TIMER ON; Display OFF at the state of TIMER OFF adjustment or after only set the TIMER OFF; Display ON/OFF if simultaneously set the mode of TIMER ON and TIMER OFF.
- 7 **Temperature display area:**
Usually display the set temperature. Press the buttons of and to set temperature, at the mode of FAN, there is no figure display in the area.

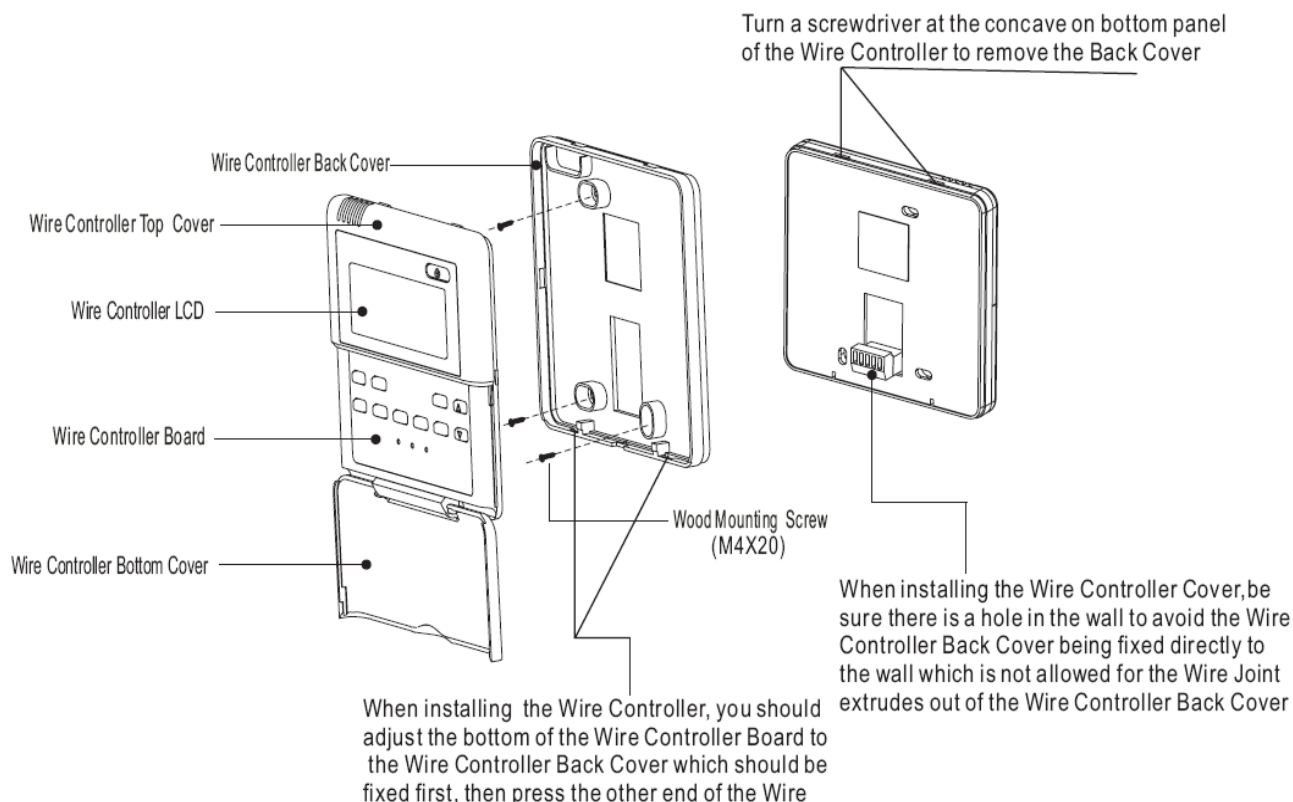
NAME AND FUNCTIONS OF BUTTONS ON WIRE CONTROLLER



- 1 **mode selection button:**
It is used to select mode, push the button one time, then the operation modes will change In turn as follows:
AUTO→ COOLING →DEHUMIDIFY →HEATING→ FAN
Remark: no heating mode if wire controller is set as the cool only.
- 2 **Timer on button:**
Push the button to set TIMER ON, each time you push the button the time moves forward by 0.5 hours. When the set time is over 10 hours, each time you push the button the time moves forward by 1 hour. If want to cancel the TIMER ON, then adjust the time of TIMER ON as 0.0
- 3 **Timer off button:**
Push the button to set TIMER OFF, each time you push the button the time moves forward by 0.5 hours. When the set time is over 10 hours, each time you push the button the time moves forward by 1 hour. If want to cancel the TIMER OFF, then adjust the time of TIMER OFF as 0.0
- 4 **CLOCK button:**
Normally display the clock set currently (display 12:00 for the first electrifying or resetting). When push the button for 4 seconds, the hour part on the clock display flashes every 0.5 seconds, then push button and to adjust hour; push the button CLOCK again, the minute part flashes every 0.5 seconds, then push and button to adjust minute. When set clock or alter clock setting, must push the confirm button to complete the setting

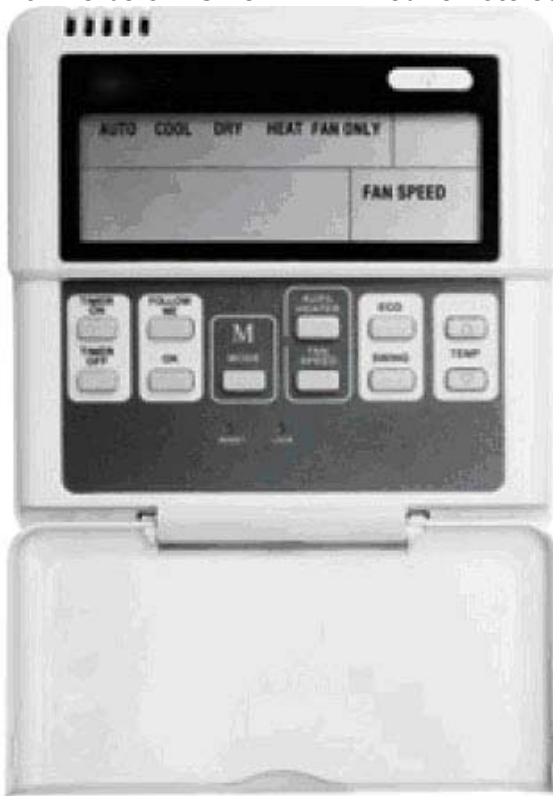
Installation**Wiring Principle Sketch:****Installation Notice:**

When the air conditioner needs the constant frequency wire Controller, be sure adding a Wire Joint with 5 terminal named A, B, C, D, E in indoor unit, and fixing a infrared emitter whose anode and cathode connecting with A and B near the receiver in the Indoor Unit Switch Board, then connecting the terminal +5v, GND, Run in the Switch Board to C,D,E respectively.

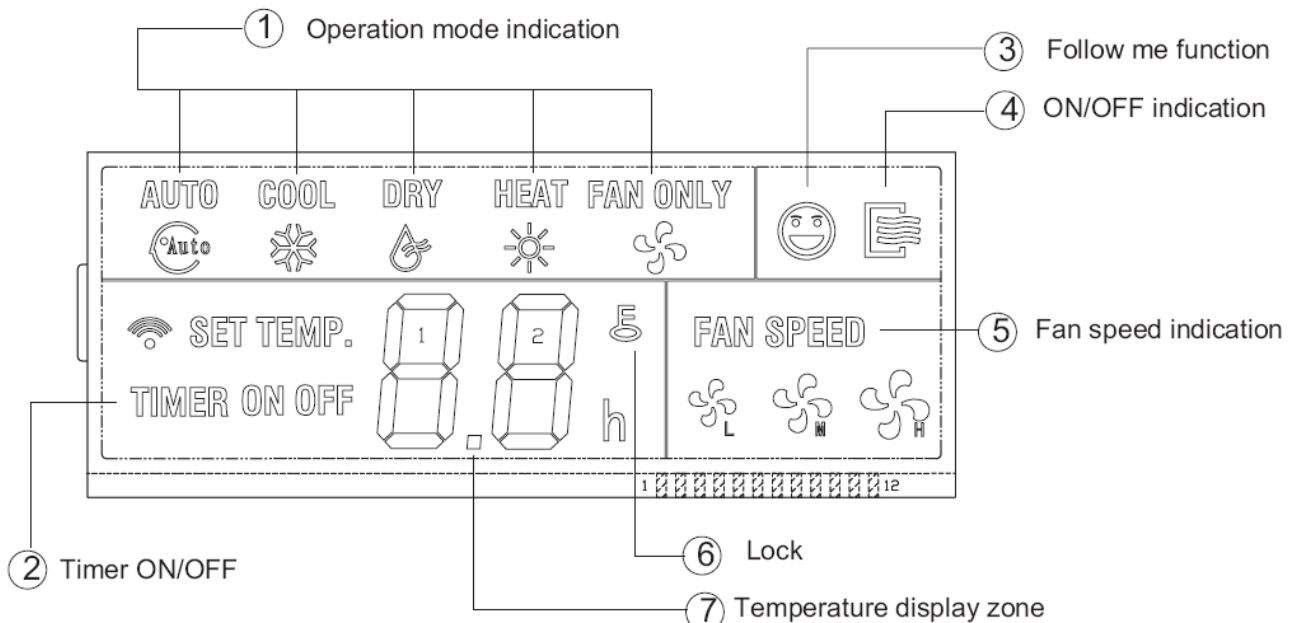
**NOTE**

Never turn screws too tightly, or else the cover would be dented or the Liquid Crystal breaks. Please leave enough long cable for maintenance of the Wire Controller Board.

2.3 The below is KJR-12B wired remote controller



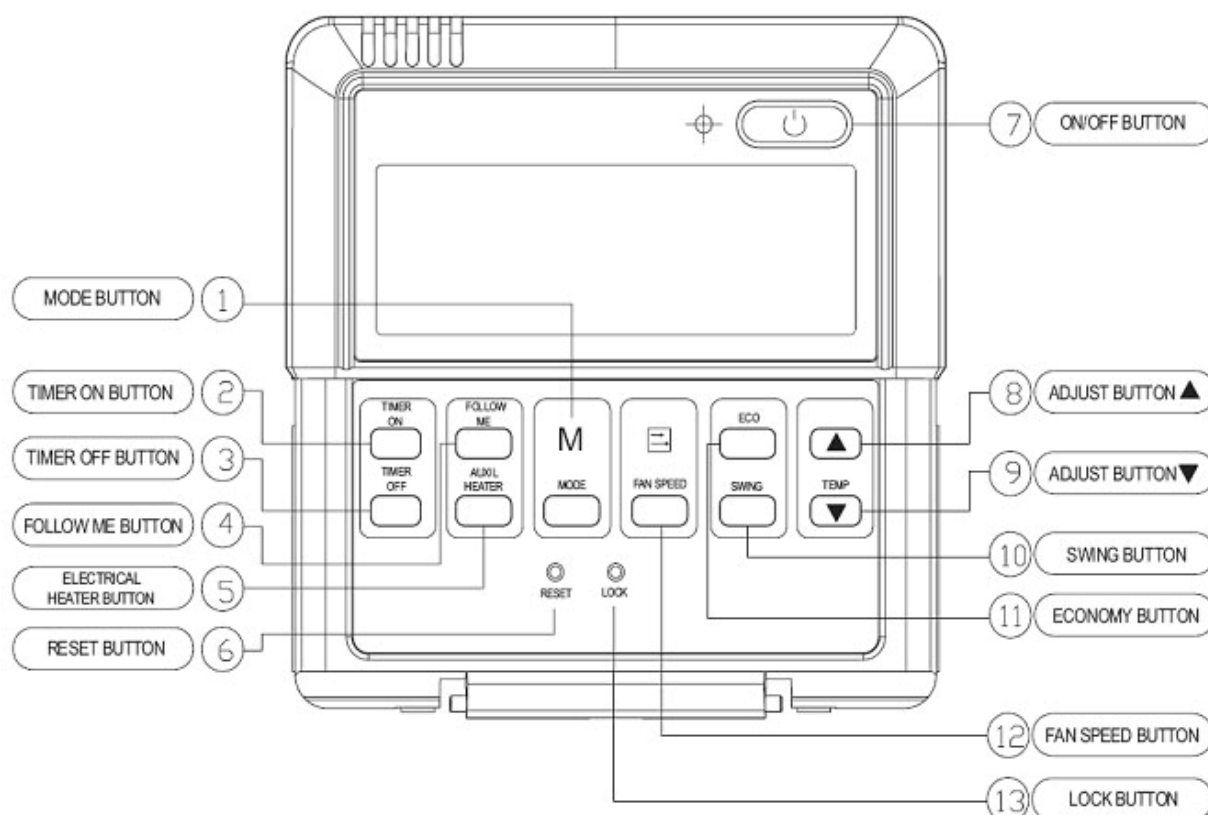
NAME AND FUNCTION OF INDICATORS ON THE CONTROLLER



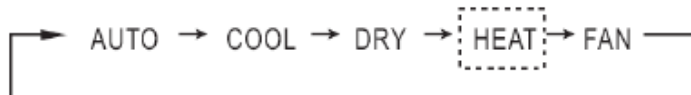
1. Operation mode indication: When press" MODE" button, the following mode can be selected in circle.
Auto Cool Dry Heat Fan only Auto.
Auto→ Cool→ Dry →Heat→ Fan only →Auto
For cooling only model, heat mode is skipped.
2. Timer: When adjust setting on time or only on time is set, the "ON" is lighted. When adjust setting off time or only off time is set, the" OFF" is lighted. If on and off timer are both set, the "ON" and "OFF" are both lighted.
3. Follow me function: There is a temperature sensor inside the wire controller, after setting temperature, it will compare the two temperatures, and the space of wire controller will be the same as setting temperature. It is available under cooling, heating, auto mode.
4. ON/OFF indication: When it is on, the icon display, otherwise it is extinguished.
5. Fan speed indication: There are four fan modes: low, middle, high, auto. For some models, no middle fan then the middle fan is seen as high speed.

6. Lock: When the "LOCK" button is pressed, the icon appears and other buttons is unable, press again, the icon disappears.
7. Temperature display zone: Generally it displays setting temperature; it can be adjusted by press temperature button▲and▼ .But in fan mode, no display here.

NAME AND OPERATION OF THE BUTTON ON THE WIRE CONTROLLER

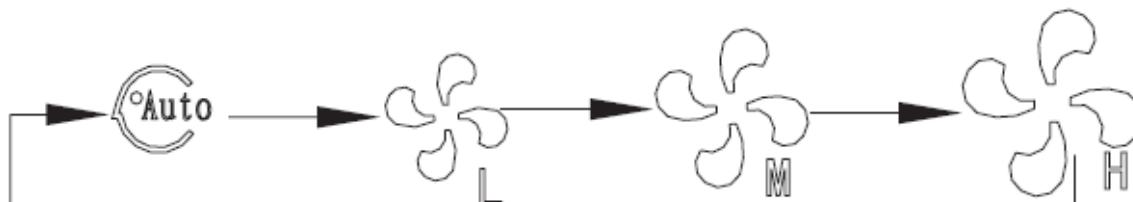


1. Mode button: When press this button, the operation mode change as the following sequence:



Remark: For the cooling only model, the heating mode is skipped.

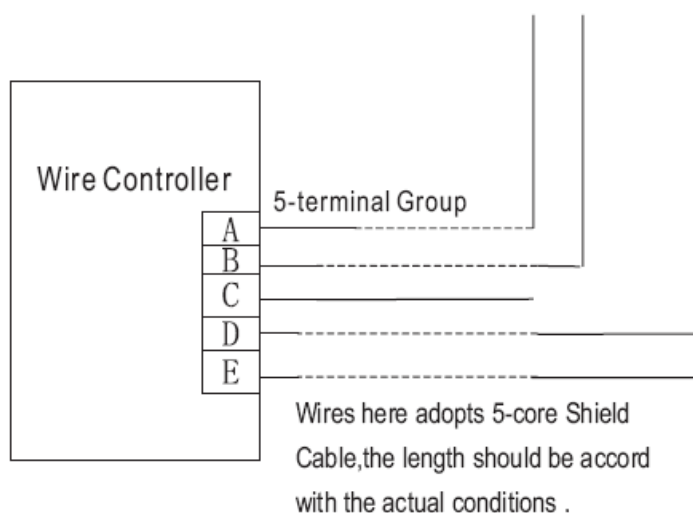
2. Timer on button: Press this button, timer on function is active. Then every press, the time increase 0.5h, after 10h, 1h incensement after each press. If cancel this Function, just set it to "0.0"
3. Timer off button: Press this button, timer off function is active. Then every press, the time increase 0.5h, after 10h, 1h increasement after each press. If cancel this function, just set it to "0.0" .
4. Follow me button: When under cool, heat and auto mode, press this button, follow me function is active. Press again, this function is ineffective.
5. Electrical heater button: If press this button in heat mode, electrical heater function become ineffective.
6. Reset button (hidden): Use a 1mm stick to press in the little hole , then the current setting is canceled . The wire controllers enter into original state.
7. ON/OFF button: When in off state, press this button, the indicator is on, the wire controller enter into on state, and send setting information to in door PCB. When in on state, press this button, the indicator is off, and send instruction. If timer on or timer off has been set, it cancel this setting then send instruction to stop the machine.
8. Adjust button: Set indoor temperature up. If press and hold on, it will increase at 1degree per 0.5 second.
9. Adjust button: Set indoor temperature down. if press and hold on, it will decrease at 1degree per 0.5 Second.
10. Swing button: First press, start swing function; second press, stop swing. (Match to some model with swing function).
11. Economy operation button: press this button, the indoor unit operates in economy mode, press again, exit this mode (it may be ineffective for some models)
12. Fan speed button: press this button consecutively; the fan speed will circle as follow:



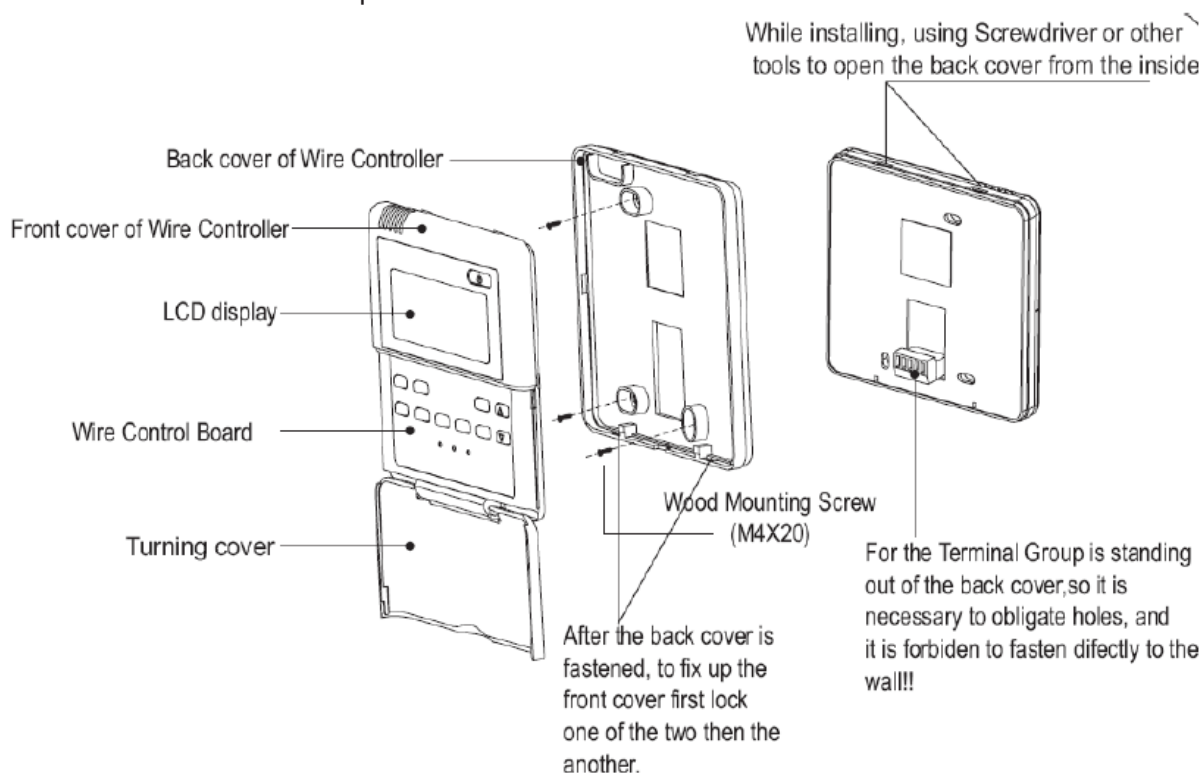
13. Lock button (hidden): When you push the LOCK button, all current settings are locked in and the wire controller does not accept any operation except that of the LOCK button. Use the lock mode when you want to prevent setting from being changed accidentally or play fully. Push the LOCK button again when you want to cancel the LOCK mode.

Installation

Wiring technique and principle:



Instruction for installing When it is necessary to use this controller, it needs to add a small 5-terminal Group and fasten a infrared emitter near to the receiver in the switch board. Connecting the anode and cathode to A 、 B of the Terminal Group, also connect +5V 、 GND、 RUN 、 of the switch board separately to the C、 D、 E of the 5-terminal Group.



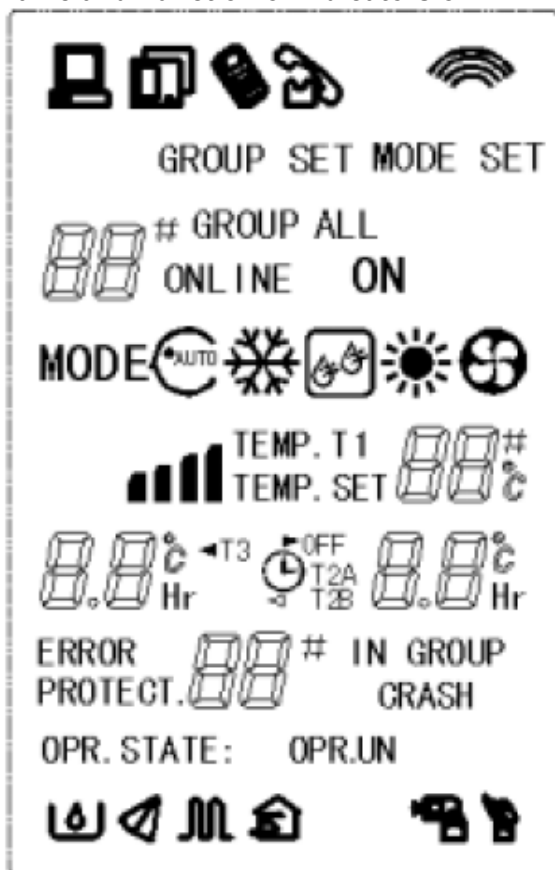
NOTE

- The connecting wire should be a little longer as to take away the switch board easily for maintenance.
- The connecting wire should be a little longer as to take away the controller easily for maintenance.

2.4 The below is MD-CCM01 indoor CCM



Name and Function of Indicators on CCM LCD Screen



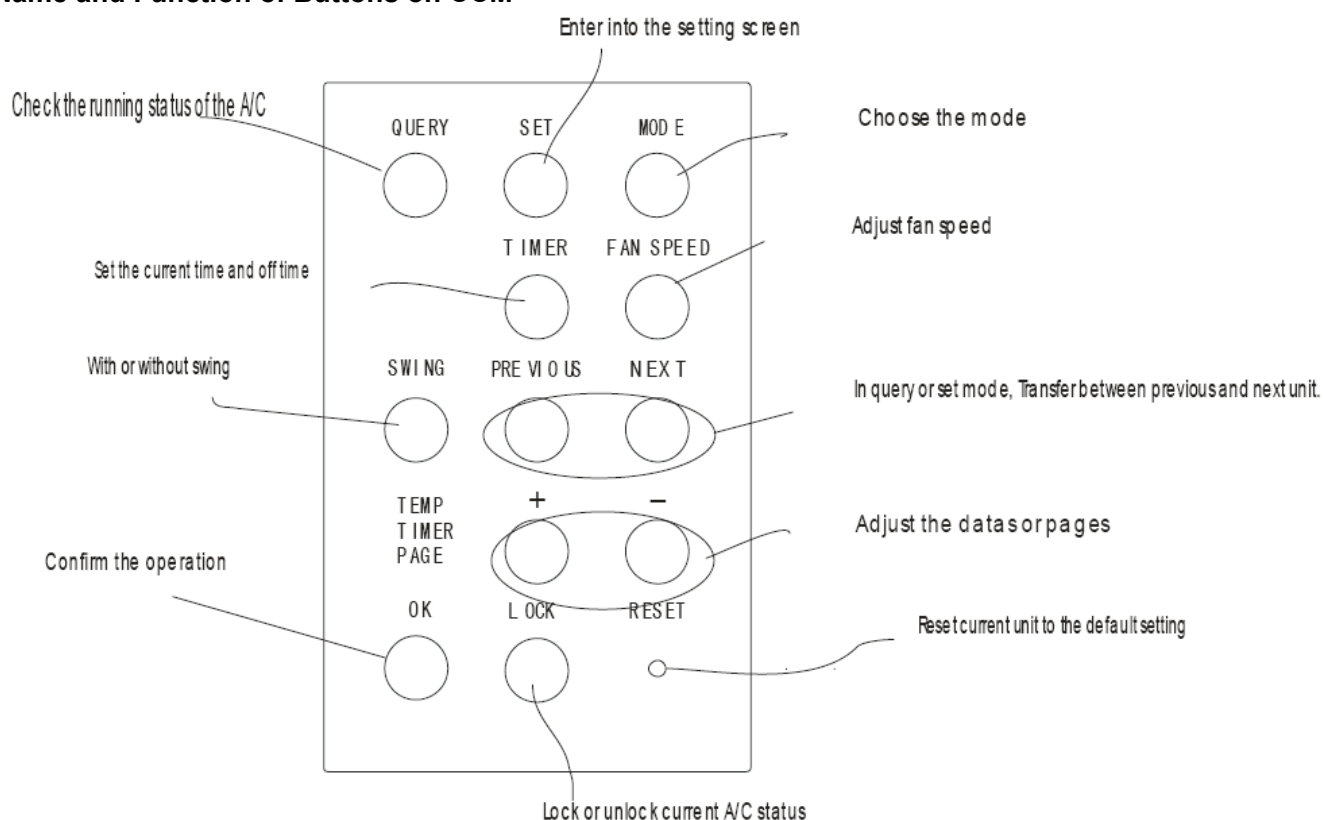
1) Common Display Data

Common display data will be indicated in all display pages.

- Figure  means CCM is in network control with PC or Gateway.
- Figure  means CCM is in communication connection with Function Module.
- Figure  means CCM is in communication connection with Message Remote Control Module.
- Figure  means CCM is in communication connection with Telephone Remote Control Module.
- If CCM is in normal communication with NIM, then (Blank), ●, ,  will be displayed in dynamic circulation. Otherwise, no any display.
- Lock Symbol  means the CCM is in Lock state or the buttons are in Lock state. ON means the buttons are in Lock state or both CCM and Buttons are in Lock state, and 0.5 second flash means the CCM is in Lock state.
- When setting page layout, if the selected air-conditioner is in Remote Controller Lock state (in case that several air-conditioners are in operation, if only one is in Remote Controller Lock state, then that means in Lock state.), symbol  will display steadily. If in Mode Lock state, symbol  will flash in 0.5Hz. If Remote Controller Lock state and Mode Lock state exist at the same time, symbol  will display steadily.

- 2) Display Data Treatment
Data Display area adopts 7-segment code, and there are 5 groups of 2-digital 7-segment display.
- TEMP.** Display
TEMP. Display is applicable to the following: Set Temp. Ts (17-30℃), Indoor Return Air Temp. T1, Evaporator Pipe Temp. T2A, Evaporator Middle Pipe Temp. T2B, Condenser Pipe Temp. T3. And the allowable data display range is 0℃--99℃. If higher than 99℃, then display 99℃. If lower than 0℃, then display 0℃. What's more, the real display range also has relationship with the PCB temperature checking range. If no effective data, then display “-“ and Unit symbol ℃ will be ON.
 - CURRENT** Display
CURRENT display is applicable to Compressor Current. The allowable range is 0A-99A. If no effective data, then display “-“ and Unit symbol mp **A** will be ON.
 - TIMER** Display
TIMER is used to display the time of TIMER ON and TIMER OFF. The unit symbol Hr will be ON at the same time.
 - ERROR** code display
ERROR is used to display malfunction warning data of the air-conditioner or the CCM. The display range of ERROR code is E0-EF, where, E means ERROR, 0-F means ERROR code, or Network ERROR display 00-0F#. If no EEROR, then display “E-“ and # will be ON.
 - PROTECT.** Code display
PROTECT. Is used to display malfunction warning data of the air-conditioner or the CCM. The display range of PROTECT. Code is P0-PF, where, P means PROTECT, 0-F means PROTECT. Code. If no PROTECT, then display “P-“ and # will be ON.
 - ADDRESS** display
ADDRESS is used to display the ADDRESS code of the present selected air-conditioner. The display range is 0-63, and at the same time # will be ON.
 - Number** Display of Online air-conditioners and **ON/OFF** air-conditioners It is used to display the number of online air-conditioners in **LAN** and **ON/OFF** air-conditioners at present. The display range is 0-64.
 - Auxiliary function** display
 Means ECONOMIC RUNNING,  means SWING,  means Auxiliary Heater,  means VENT.
 - Mode Confliction** Display
Function Confliction display will flash at interval 1 second.
- 3) **Stand-by Page** Display
Stand-by page data consist of several pages and the page number is not fixed.
Stand-by page can display the total number of air-conditioners in network, under ON state and under OFF state. If one or more air-conditioners in network have malfunction, or the CCM checks other malfunctions, the Stand-by page will display the first ERROR Code from small to big according to the number. Other malfunctions can be queried by buttons “+” and “-“. If no malfunction and one or more online air-conditioners in network are in ON state, the Stand-by page will display present main Running Mode, Set Temp. And Indoor Fan Speed. If no malfunction and all air-conditioners in network are in OFF state, ERROR Code nor Running mode will not be displayed.
- 4) **Query Page** Display
Query Page data consist of several pages and the page number is not fixed.
- When first entering into Query Page Display, the address of the first online air-conditioner will be selected in default and the data of the first page will be displayed.
 - The data of other pages can be displayed in circulation by pressing buttons “+” or “-“.
 - The running state data of different air-conditioners can be queried by pressing “Previous” or “Next” to select the address.
- 5) **Running Mode Setting Page** Display
Running Mode Setting Display only has one page. And display the selected mode, auxiliary function and the selected operation state.

Name and Function of Buttons on CCM



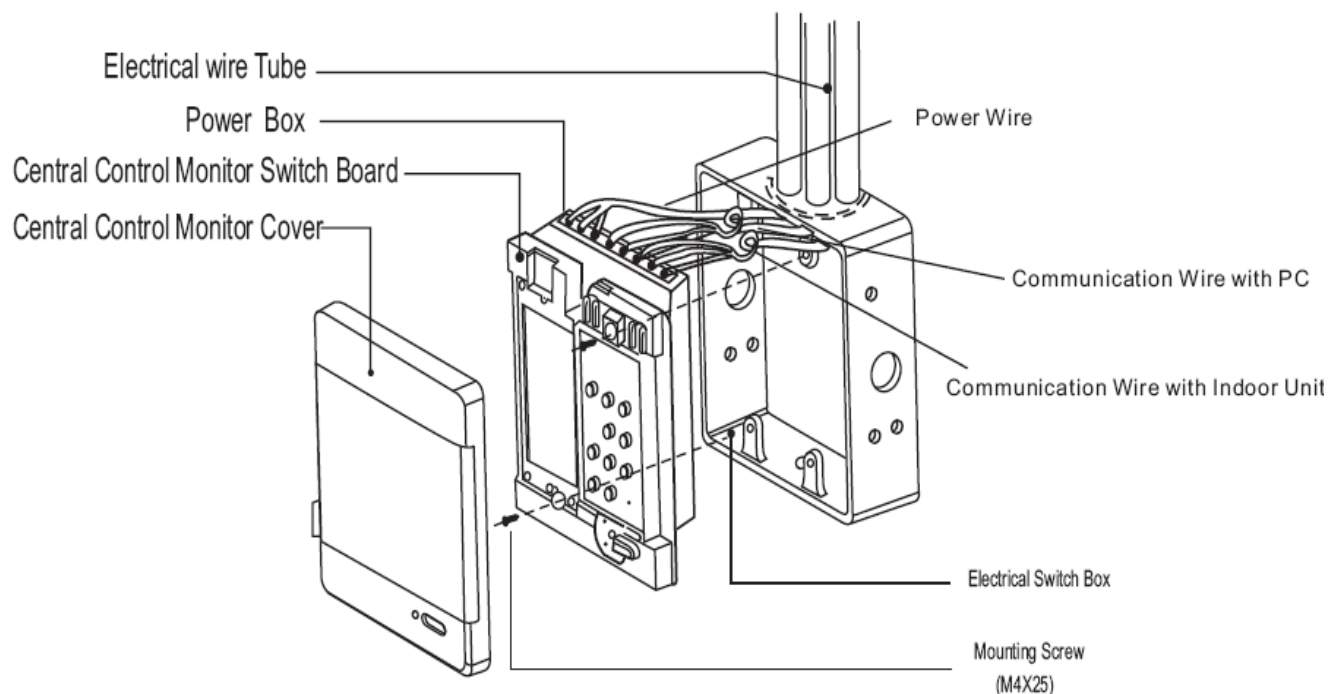
Installation

1. Adopt Electrical Switch Box

The diameter of Central Control Monitor wire must be suitable for its length.

Electrical wiring tube must be suitable for the wires.

Turn a screwdriver at the concave on bottom panel of the Central Control Monitor to remove the cover.



NOTE

- Never turn screws too tightly, otherwise the cover would be dented, or the Liquid Crystal would be broken.
- Do not cut wires when installing the cover of Central Control Monitor.

2. Installation of CCM and NIM

- (1) Terminal P, Q, E at the back of CCM are connected to the terminal P, Q, E of PC.

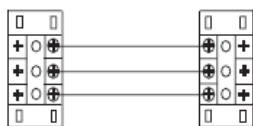
The CCM power connects 220V~ 50Hz power directly to the terminal L, N,  At the back of wire controller.

- (2) The communication cable of CCM and power cable should not be placed in the same electrical wire tube and the two tubes should have 300-500mm distance.
- (3) The length of CCM communication cable should not exceed 1200m.
- (4) The shield cable should try to avoid middle transfer connector. If have connectors, it had better to connect by terminal block.
- (5) After finishing connection, do not use megger to have the insulation check to the signal wire.

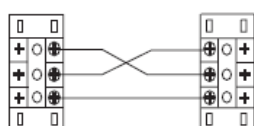
3. Wiring Method of CCM and NIM

The communication port between CCM and NIM has polarity, and terminal X, Y, E must connect to the responding X, Y, E. It is the same for the port between CCM and module of Rs485 to Rs232.

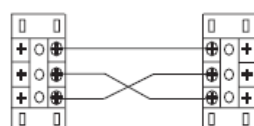
Correct connection



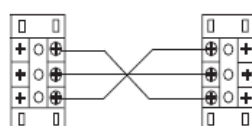
Incorrect connection



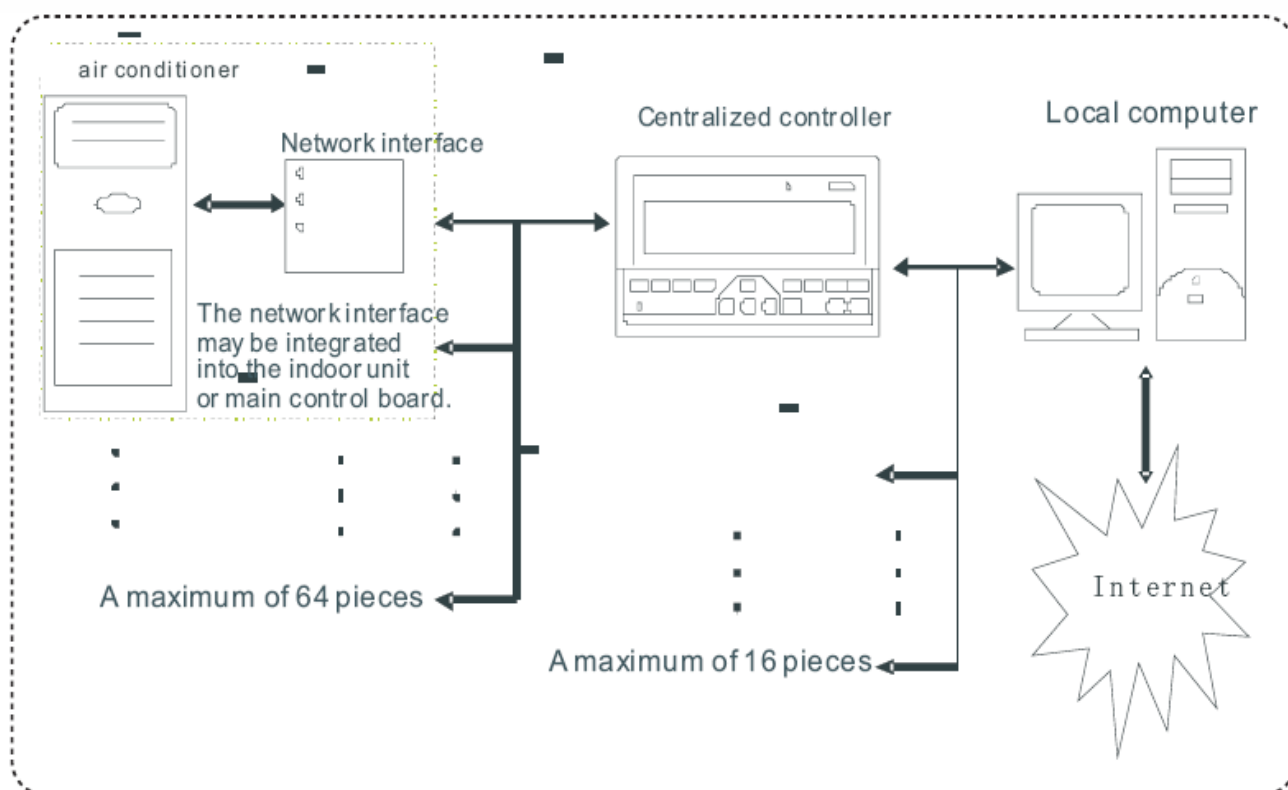
Incorrect connection



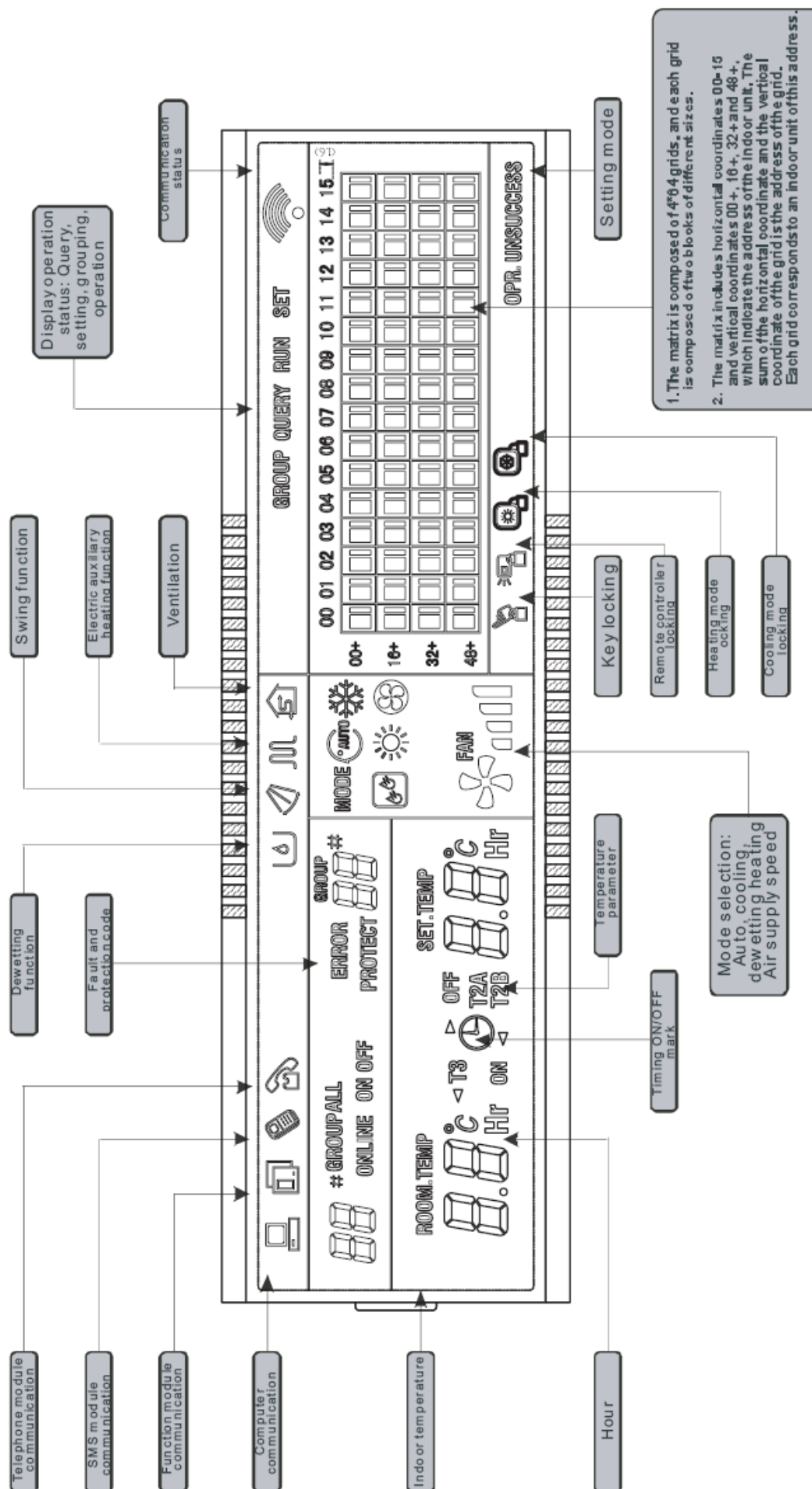
Incorrect connection



2.5 The below is MD-CCM03 indoor CCM



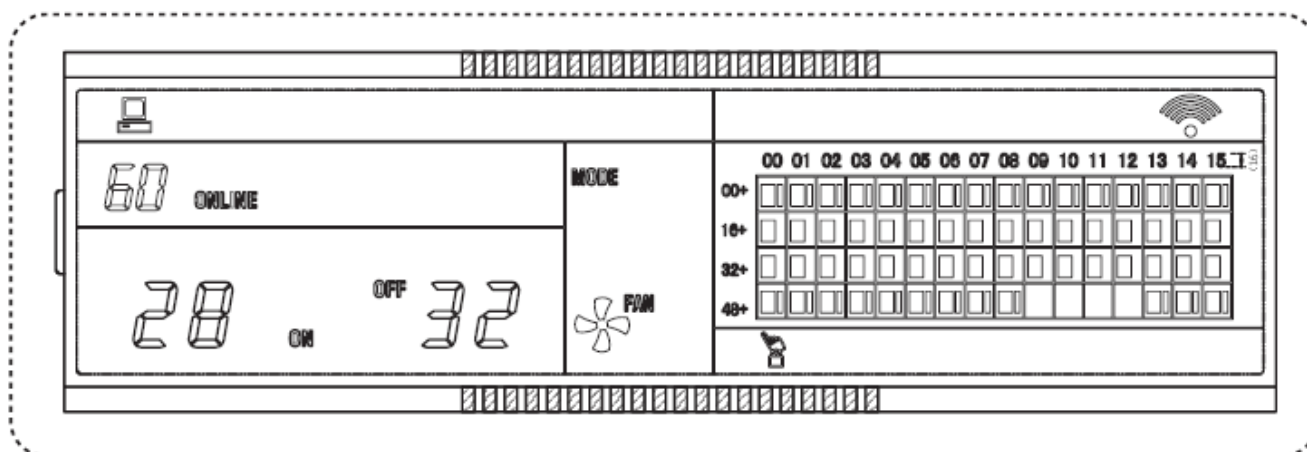
Full display of LCD



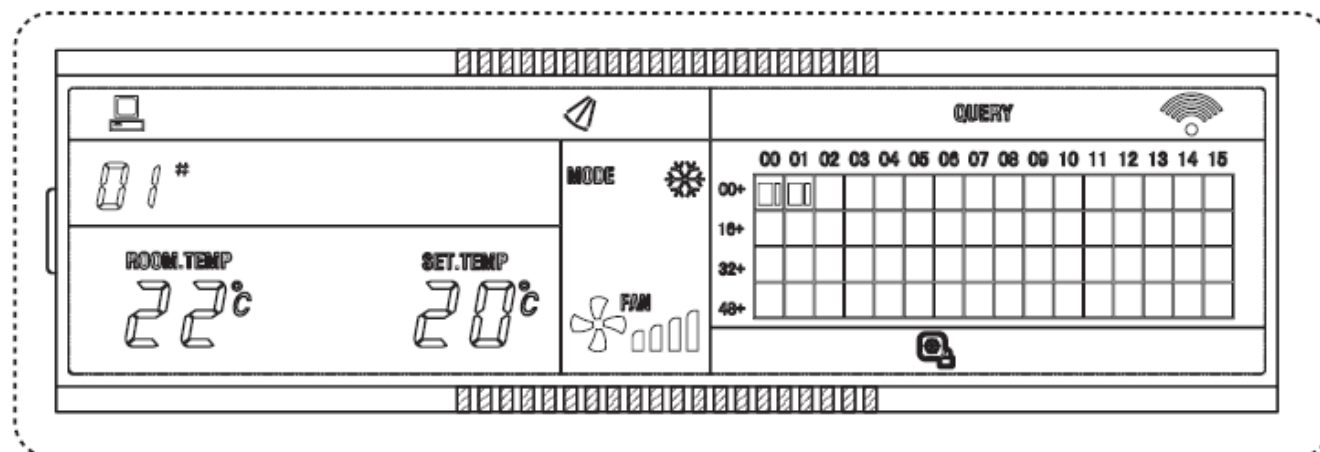
Liquid crystal matrix display description:

1. The liquid crystal matrix is composed of 4*64 grids, and each grid is composed of two blocks of different sizes (as shown in the above figure).
2. The matrix includes horizontal coordinates 00-15 on the upper side and vertical coordinates 00+, 16+, 32+ and 48+ on the left side, which indicate the address of the indoor unit. The sum of the horizontal coordinate and the vertical coordinate of the grid is the address of the grid. Each grid corresponds to an indoor unit of this address.
3. One grid is composed of two blocks of different sizes. The status indication table is as follows:

Status	Constantly on	Slow blink		Fast blink
Object				
Big black block	In-service	Selected		Out of service
Small black block	Power on		Fault of indoor unit	Power off

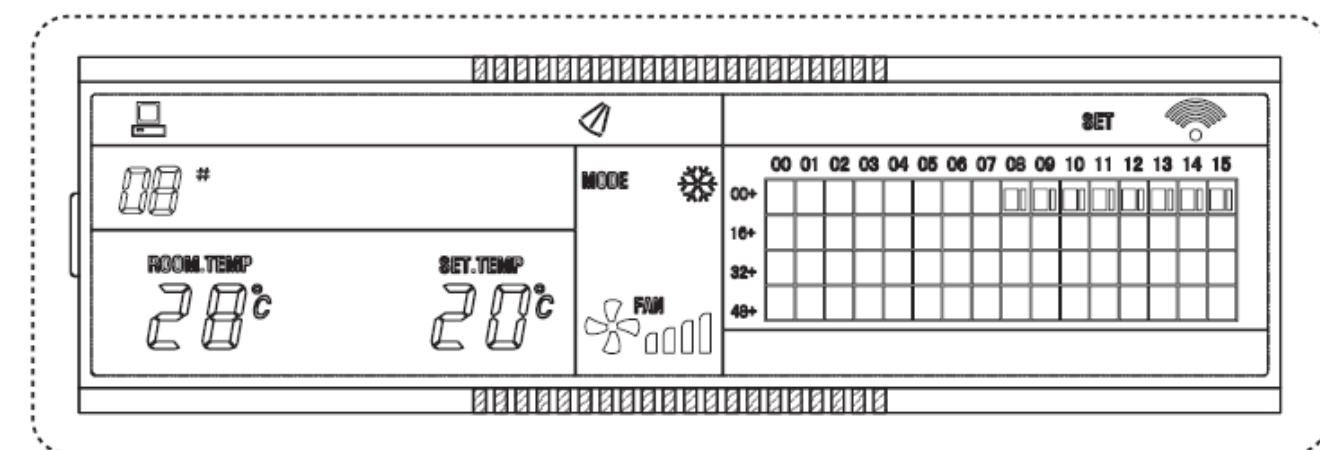
**LCD display description**

1. Description of the standby page
 - 1) The LCD displays the standby page, 60 air conditioners are in service, of which 28 are powered on and 32 off.
 - 2) In the matrix, the big dots of (00, 16+) and (15, 32+) are luminous, and the small dots are not luminous. It indicates the 32 air conditioners with the addresses from 16 to 47 are powered off.
 - 3) In the matrix, the big and small dots of (09, 48+) and (12, 48+) are not luminous. It indicates the four air conditioners with the addresses from 57 to 60 are outside the network.
 - 4) All other big and small dots in the matrix are luminous. It indicates all other air conditioners are in the network and powered on.
 - 5) The address of the air conditioner is sum of the coordinates. For example, the address of (09, 48+) is $09+48=57$.
 - 6) The centralized controller keypad is locked, and the centralized controller communicates with the computer normally.



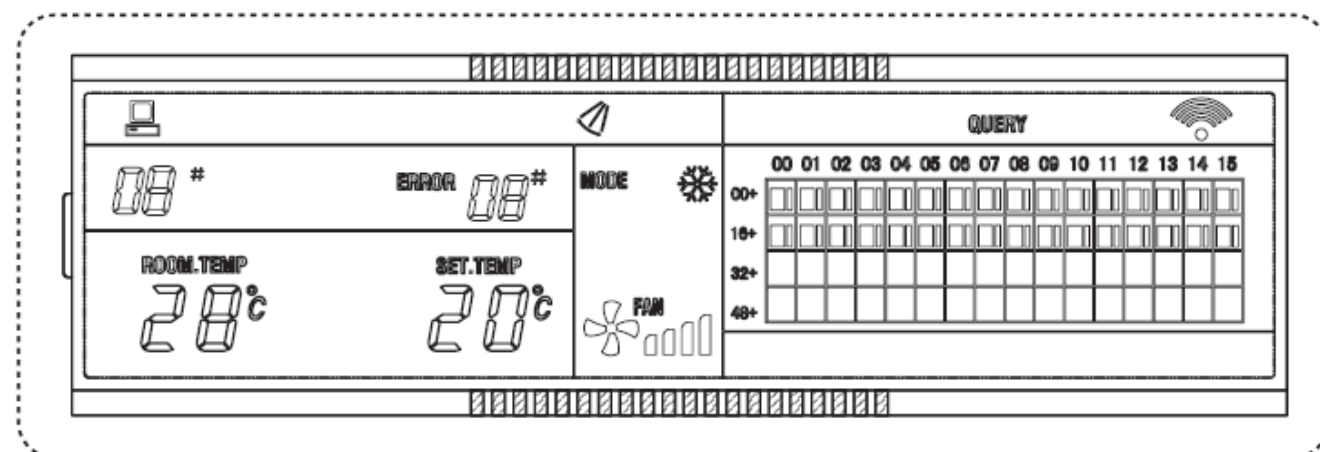
2. Description of the query page

- 1) The LCD displays the query page, and the air conditioner with the address of 08 is being queried. Mode of the air conditioner with the address 01 is: Cooling, strong air, swing on, indoor temperature 22° C, set temperature 20° C, cooling mode “lock” .
- 2) In the matrix, only the big and small black dots at (00, 00+) and (01, 00+) are luminous. It indicates the in-service and power-on status of the air conditioners with the addresses of 00 and 01.
- 3) The centralized controller communicates with the computer normally.



Description of the setting page

- 1) The LCD displays the setting page, and queries the air conditioner with the address of 08. The mode of the air conditioner with the address 08 is: Cooling, strong air, swing on, indoor temperature 28° C, set temperature 22° C, cooling.
- 2) In the matrix, only the big black dots from (08, 00+) to (16, 00+) are luminous. It indicates the air conditioners with the addresses from 08 to 16 are in service.
- 3) The centralized controller communicates with the computer normally.



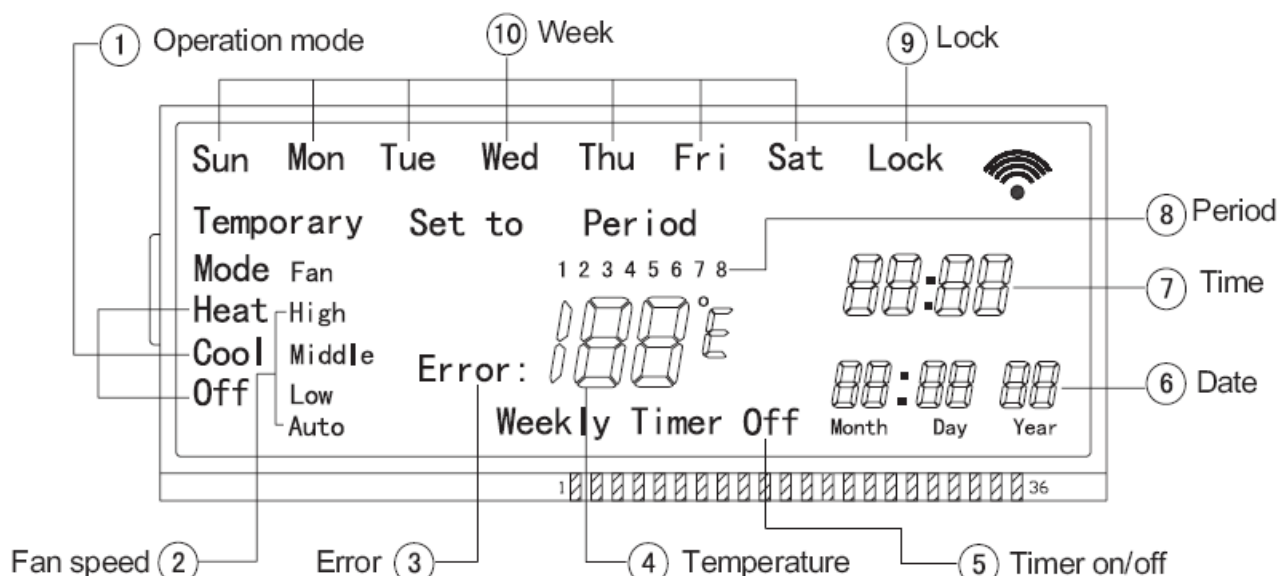
Fault page display description

- 1) Query the air conditioner with the address of 08 in the query page. The air conditioner with the address of 08 is faulty, and the fault code is 08. The big black dot below (08, 0+) blinks.
- 2) In the matrix, only the big and small black dots from (00, 00+) to (16, 15+) illuminate. It indicates the in-service status of the air conditioners with the addresses of 00 and 01.
- 3) The centralized controller communicates with the computer normally.

2.6 The below is MD-CCM04 weekly schedule timer

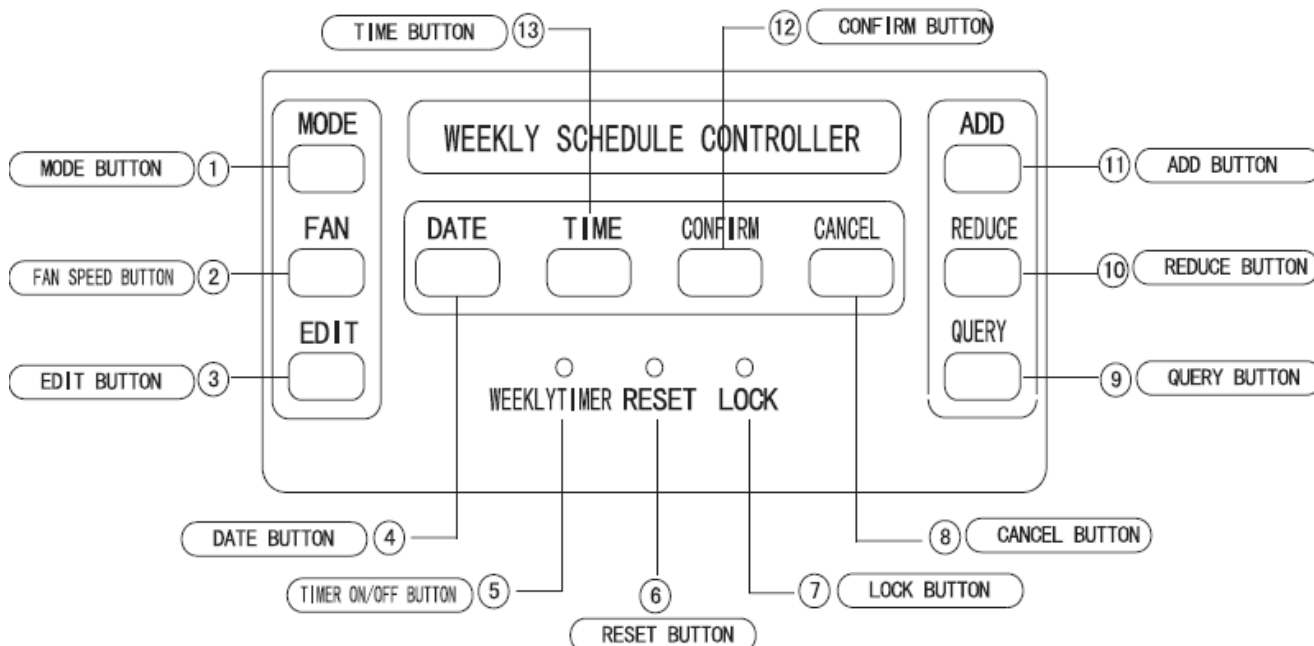


Name and Function of Indicators on the controller



1. Operation mode indication: When press "MODE" and "ADD" or "REDUCE" button, the following mode can be selected in circle: Cool→ Heat→ Off.
For cooling only model, heat mode should be skipped.
2. Fan speed indication: There are four fan modes: low, middle, high, auto. For some models, no middle fan then the middle fan is seen as high speed.
3. Fault indication.
4. Temperature indication.
5. Weekly Schedule Controller switch indication.
6. Date indication.
7. Time indication.
8. Period indication.
9. Lock indication.
10. Week indication.

NAME AND OPERATION OF THE BUTTON ON THE WIRE CONTROLLER

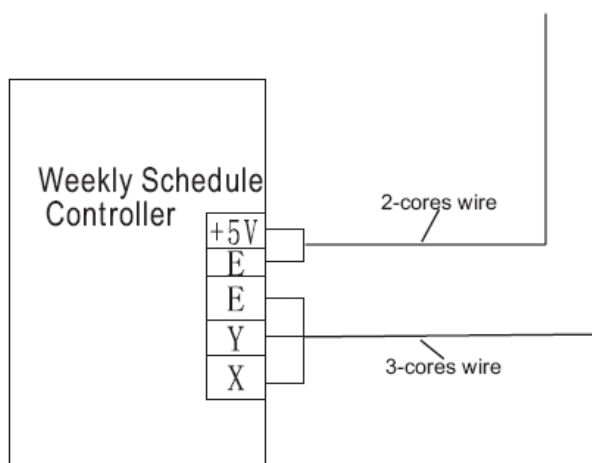


1. Mode button: When press this button and ADD or REDUCE button to select Heat or Cool or off, press Confirm to save and back.
Remark: For the cooling only model, the heating mode should be skipped.
2. Fan speed button: press this button and ADD or REDUCE Button to select of High or Middle or Low or Auto, press Confirm to save and back.
3. Edit button: When press this button, can setup Week and Date and Period.

4. Day button: press this button and ADD or REDUCE button to select of High or Middle or Low or Auto, press Confirm to save and back.
5. Timer on/off button: Press this button, can turn off the weekly timer function.
6. Reset button: When press this button, all of the display part of LCD will be light last 2 second when weekly timer has been electrified or reset. Following the lamp will be closed and last 1 second. So the system will come into normal display state and need to carry out initial setting.
7. Lock button: press this button, weekly timer come into lock mode, Press LOCK again, lock mode is unchained at once. Weekly timer lock mode state can not be canceled when weekly timer has come back to supply power after interruption of power supply.
8. Cancel button: It is for not saving and retreating, or to cancel the lock.
9. Query button: Press "Query" "Select" "query" "present" temperature value press "Cancel" to back, press "Confirm" time section parameters' setting :press "Add" or "reduce" to select several days from "Sun" to "Sat" 7 days, press "Confirm" "1" "~"8 "time section selection beginning from No.1 time section , setting mode、 fan's velocity、 starting time and end time, till 8 time sections are finished press "Confirm" to save press "Cancel" to retreat.
10. Reduce button: It is for reducing to numbers and moving left or up to the other.
11. Add button: It is for adding to numbers, and moving right or down to the other.
12. Confirm button: It is for confirm selection.
13. Time button: When press button, and press "Add" or "Reduce" to adjust the hours value , press "Confirm" adjust minutes: press "Add "or "Reduce" to adjust the minutes value, press "Confirm" to save and back.

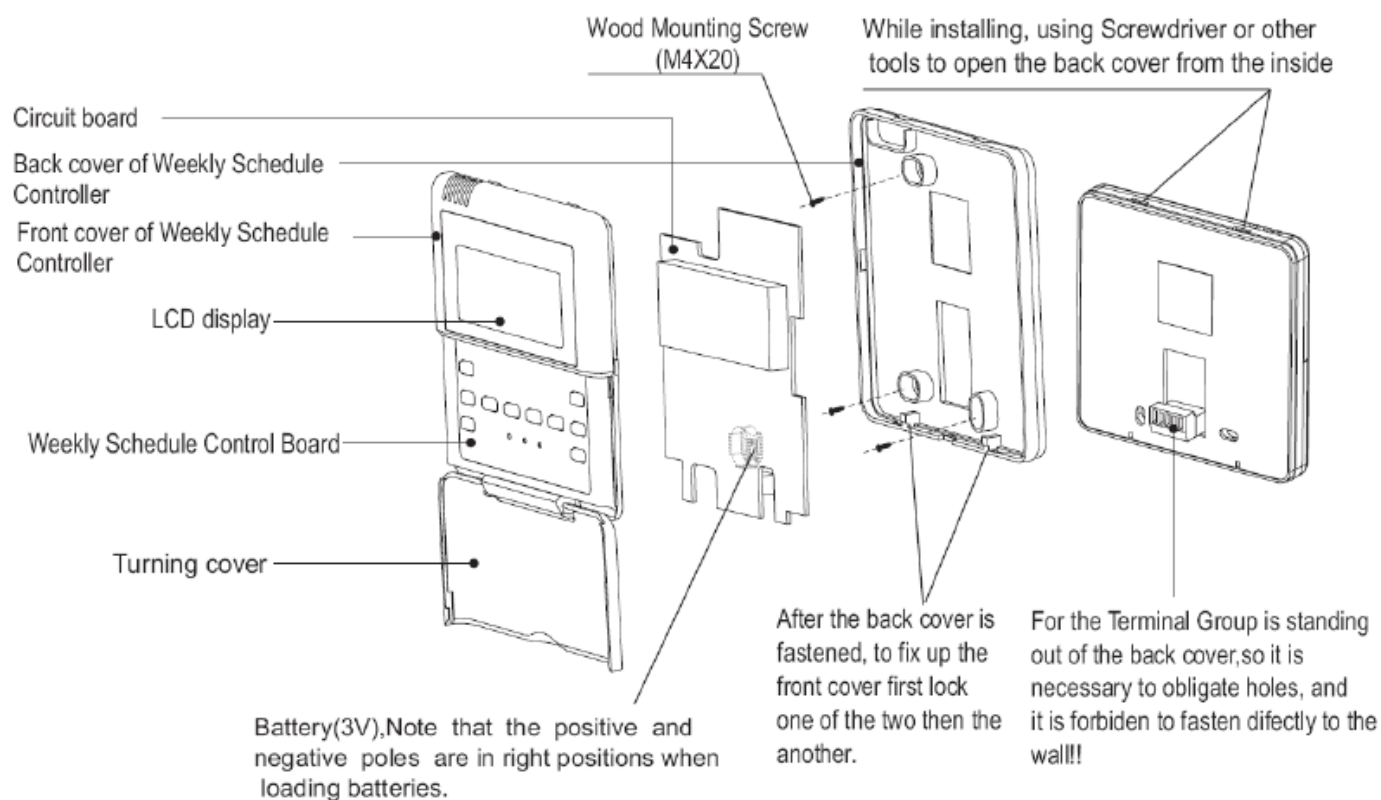
Installation

Wiring technique and principle:



Instruction for installing:

When a weekly schedule controller is needed, a small 2-cores wire and 3-cores wire should be added. Connect with the same color.



Note

- The connecting wire should be a little longer as to take away the switch board easily for maintenance.
- The connecting wire should be a little longer as to take away the controller easily for maintenance.

Part 6

Control Function

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1. Performance Index

No.	Item	Index
1	Applicable Voltage Range	175-253V~, 1ph, 342-418V~, 3ph
2	A/C Frequency	50Hz
3	PCB Working environment temperature	-7°C~ +43°C

2. Main Parts Introduction

2.1 Indoor Fan

High speed, Medium speed and low speed.
Breeze speed for anti-cold air.

2.2 Outdoor Fan

High speed and low speed. For 1081 Models (single phase) & 1411 & 1761 units there're two fans, separately controlled by relay.

2.3 Buzzer

- 2.3.1 It will buzz when its driving port in the main chip outputs high level.
- 2.3.2 it will buzz twice when the system is powered on.
- 2.3.2 It will buzz once when the main frame receives remote start-up signal, lasting 0.3sec
- 2.3.3 It will buzz once for 1 second when receiving turn-off signal.
- 2.3.4 It will buzz for 0.5 second once receiving other signal.

2.4 Indicator

- 2.4.1 There are 4 indicators: operating indicator, timer indicator, alarm indicator, defrosting indicator or pre-heating indicator.
- 2.4.2 LED indicates errors when protection is in effective.

2.5 Four-way Valve

It is controlled by relays. Normal working current is less than 1 amp.

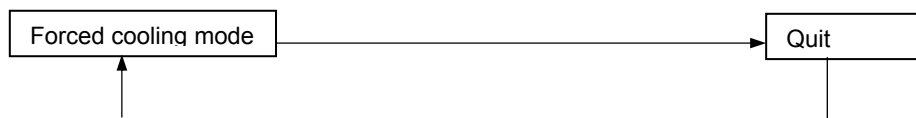
2.6 Crank Heater

It starts when $T_4 < 3^{\circ}\text{C}$ and the compressor shut down for more than 3 hours. Also it starts when $T_4 < 3^{\circ}\text{C}$ and reset the plug.
It will stop when $T_4 > 3^{\circ}\text{C}$ or compressor is on.

3. Operation Modes and Functions

3.1 Forced cooling

3.1.1 The forced cooling mode is controlled through “forced cooling” button on the outdoor PCB. The sequence is shown as below when “forced cooling” button is pressed each time



3.1.2 Forced Cooling mode

3.1.2.1 Under this mode, no remote control signal will be received.

3.1.2.2 The compressor is started up unconditionally and the rotating speed of indoor and outdoor fans is set to be in high and forced cooling operation.

3.1.2.3 Under this mode, the buzzer will buzz twice with each lasting 0.5 second at 0.5 interval. During the first 30 minutes of unconditional forced cooling operation, the operation indicator will blink at 0.5Hz. In the process of switchover to manual action mode, the buzzer buzzes for 0.5 second and the indicator is illuminated.

3.1.2.4 Under this mode, the corresponding protections are in effective (3- minute delayed start-up, over current, outdoor protection and evaporator low temperature protection.). Corresponding protection will act once any protection is in active. Push “Forced cooling” button once to end this mode and enter the remote control pending status. The buzzer will buzz for 1 second and the indicator turn off.

3.1.3 Push “Forced cooling” button to end this mode and switch over to REMOTE CONTROL mode.

3.2 Heating Mode

3.2.1 Four-way valve opens at once, while defrosting process closes.

3.2.2 Indoor Fan Action

3.2.2.1 Anytime remote switchover for fan speeds among high/medium/low/auto, (anti-cold air function takes priority).

3.2.2.2 Anti-cold air:

Switchover between fan speed and fine tune can be set according to temperature of evaporator pipe .

	Condition T= Indoor exchanger temp.	Indoor fan speed
Indoor exchanger temp. up	T<28°C	Off
	28°C <T<32°C	Breeze
	T>32°C	Setting fan speed
Indoor exchanger temp. down	T> 30°C	Setting fan speed
	15°C <T<30°C	Breeze
	T<15°C	Off

During anti-cold air period, if indoor fan is shut down, then pre-heating/defrosting lamp is on. Once indoor fan starts, pre-heating/defrosting lamp will be off.

3.2.3 Auto fan of indoor fan under heating mode.

Condition: (T =Indoor Temp.-Setting Temp.)

If current mode is low speed, in case of T<2°C, it changes to medium speed

If current mode is medium speed, in case of T<1°C, it changes to high speed

If current mode is high speed, in case of >2°C, it changes to medium speed

If current mode is medium speed, in case of >3°C, it changes to low speed.

3.3 Defrosting Mode (only available for heating mode)

3.3.1.1 Defrosting Conditions

3.3.1.1.1 Low temperature defrosting condition:

Accumulated operating time when temperature of outdoor heat exchanger coil T3 is below -2°C (For 36KBtu/h & 48KBtu/h with 1 phase, it's 0°C) reaches up to over 40 minutes.

3.3.1.1.2 High temperature defrosting condition:

Under high temperature protection of evaporator, the time when outdoor fan is shut down but compressor is not has been accumulated for up to 90 minutes. It is considered that defrosting is performed when either 3.3.1.1 or 3.3.1.2 is met.

3.3.1.2 Defrosting Action

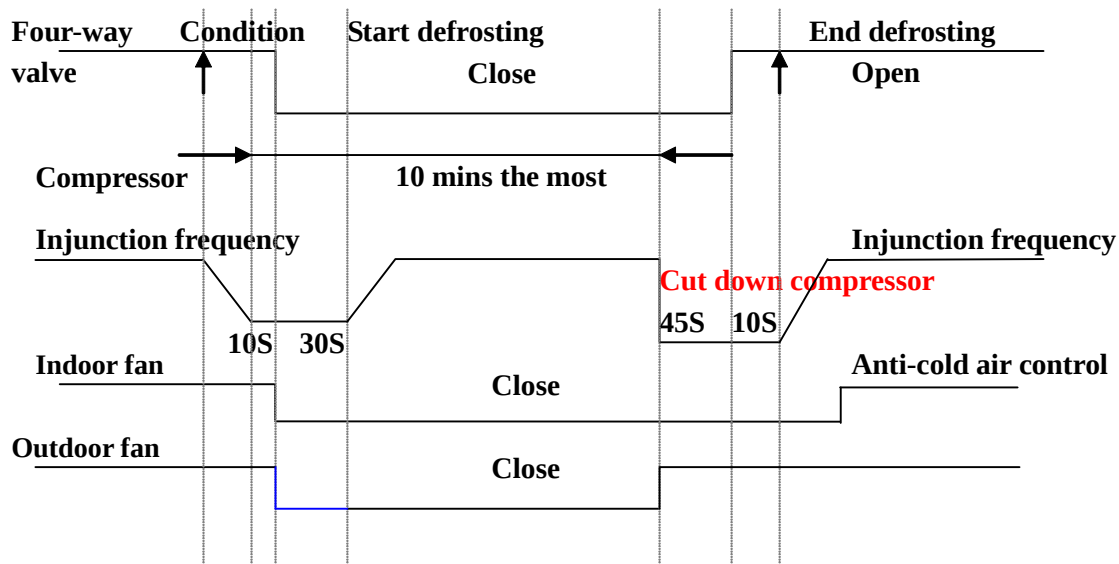
Four-way valve and outdoor fan are shut down. Indoor fan operates according to anti-cold air function. Compressor keeps on continuously. Defrosting lamp lights.

3.3.1.3 Ending of Defrosting Condition

It is considered that defrosting condition is ended when any of the conditions is met:

3.3.1.3.1 Time of defrosting reaches 10 minutes.

3.3.1.3.2 Temperature of outdoor coil T3 is up to 15°C.



3.3.1.4 Ending Action of Defrost

3.3.1.4.1 Outdoor fan and four-way valve are open.

3.3.1.4.2 Compressor keeps on continuously.

3.3.1.4.3 Indoor fan acts according to anti-cold air function.

3.3.1.4.4 Defrosting/pre-heating lamp remains on until indoor fan starts up.

3.4 Cooling Mode

3.4.1 Four-way valve is closed. If four-way valve is open before the machine enters cooling mode, then four-way valve will be closed at the first time the compressor starts under the cooling mode.

3.4.2 Action of Indoor Fan

3.4.2.1 HIGH/ MEDIUM /LOW/AUTO fan can be switched over for your comfort.

3.4.2.2 Auto fan under cooling mode.

Condition: (T =Indoor Temp.-Setting Temp.)

If current mode is high speed, in case of $T \leq 3^{\circ}\text{C}$, it changes to medium speed

If current mode is medium speed, in case of $T \leq 1^{\circ}\text{C}$, it changes to low speed

If current mode is low speed, in case of $>3^{\circ}\text{C}$, it changes to medium speed

If current mode is medium speed, in case of $>4^{\circ}\text{C}$, it changes to high speed.

3.5 Dehumidifying Mode

3.5.1 Dehumidifying mode is the cooling operation, under which the indoor fan is high and outdoor fan is low.

3.5.2 Protective condition is priority.

3.6 Auto Mode

- 3.6.1 Under auto mode, the indoor fan is set to be auto (refer to auto fan under cooling, heating).under Auto mode the setting temperature is rang from 17~30 °C.
- 3.6.2 When entering auto mode, the heating, fan only or cooling operation will be automatically chosen according to the room temperature T_a and the set temperature T_s .
 - 3.6.2.1 When $T_a < T_s - 1^{\circ}\text{C}$, it performs the heating operation with a set temperature of $T_s - 1^{\circ}\text{C}$ (refer to the heating mode). And the fan runs according to the corresponding mode.
 - 3.6.2.2 When $T_s + 2^{\circ}\text{C} \geq T_a \geq T_s - 1^{\circ}\text{C}$, control according to cooling auto fan with a set temperature of 23°C .
 - 3.6.2.3 When $T_a > T_s + 2^{\circ}\text{C}$, it performs the cooling operation with a set temperature of T_s (refer to the cooling mode).
- 3.6.3 After one mode is chosen, if the condition $T_a > T_s + 1^{\circ}\text{C}$ or $T_a < T_s - 1^{\circ}\text{C}$ lasts for 15 minutes, meanwhile the compressor doesn't start up within consecutive 15 minutes, the operation mode will be re-chosen according to the T_a and T_s .
- 3.6.4 Protective condition is activated.

3.7. Fan Only Mode

- 3.7.1 Under this mode, four-way valve, compressor and outdoor fan are shut down.
- 3.7.2 High/Low/ Medium/Auto fan can be switched over through manual control. Auto fan will be controlled in line with cooling auto fan with temperature set to be 23°C .
- 3.7.3 After entering fan mode, the operating indicator is on. If the model is cooling only mode, fan indicator is on at the same time.

4. Other Functions

4.1 LED Display

Operation lamp, timer lamp, defrosting/pre-heating lamp, and water level alarm lamp.

4.1.1 Operation Lamp

When the operation is recovering, it will blink at 1 Hz.

After the unit is on, the lamp will keep on.

After the unit is off, the lamp will be off.

When the unit is switched over from manual cooling to remote control, the lamp will be off.

4.1.2 Timer Lamp

During timer operation, it will be on.

4.1.3 Defrosting/Pre-Heating Lamp

When heat pump model performs defrosting or anti-cold air, it will be on.

4.1.4 Water Level Alarm Lamp

When water level is above the alarm level, it will blink at 5Hz.

4.2 Timer

Refer to remote controller manual for detail operation.

Note: The timer is valid for one operation of the A/C.

4.3 Louver Action

For cassette and ceiling type, press the “swing” button (horizontal and vertical), the louver will change a certain degree.

4.4 Drain pump

Adopt the water-level switch to control the action of drain pump.

Main action under different condition :(every 5 seconds the system will check the water level one time)

1. When the A/C operates with cooling (including auto cooling), dehumidifying, and forced cooling mode, the pump will start running immediately and continuously, till stop cooling.
2. When standing-by, heating and fan only (including auto heating and auto fan), once the water level increase and up to the control point, LED will alarm and compressor will be forced stop running, at the same time the drain pump open and continue checking the water level. If the water level fall down and LED disarmed (drain pump delay close 1 minute), the compressor restart (3 minutes delay protection prior) and operate with the last mode. Otherwise the entire system stop operating (including the pump) and LED remain alarming, this condition will not recover except power off.

5. Main protective functions:

5.1. 1 3-minute delay for the compressor start-up.

When first time powering on or after the stop of compressor, 3-minute delay will be needed to start the compressor.

When switch over between cooling/heating mode, the compressor stops automatically.

5.1.2 Evaporator protection against high temperature (heating mode)

Only available for heating mode, including auto heating mode.

※ Note: During protection, the indoor fan continues operating at a setting speed, while the anti-cold air function of heating and the compressor will be 3 minute delayed to shut down for protection.

5.1.3 Evaporator Protection against low temperature (cooling mode)

5.1.3.1 When the evaporator pipe temperature $\leq 2^{\circ}\text{C}$ and this lasts for 3 minutes, the compressor and outdoor fan will be shut off.

5.1.3.2 When the evaporator pipe temperature $\geq 7^{\circ}\text{C}$, it recovers.

5.1.3.3 The restart of the compressor shall execute the delay protection.

5.1.4 Anti-cold air protection

Only available in heating mode, including heating mode and heating operation under auto mode.

When the indoor temp. raises, if it is lower than 28°C , the indoor fan stops; if it is between $28-32^{\circ}\text{C}$, the indoor fan will run with low speed; and if it is higher than 32°C , the indoor fan will run with the setting speed. When the indoor temp. drops, if it is lower than 15°C , the indoor fan stops; if it is between $15-30^{\circ}\text{C}$, the indoor fan will run with low speed; and if it is higher than 30°C , the indoor fan will run with the setting speed.

5.1.5 Condenser high temperature protection

5.1.6.1 Only available to cooling (incl. cooling mode, cooling operation under auto mode) and dehumidifying mode.

5.1.6.2 Delay protection should be performed when the compressor restarts.

5.1.6 Outdoor protection

When outdoor protection happen, system will stop running and LED display corresponding contents.

5.1.7 Power supply electricity sequence protection

1. For 1 phase unit it owns a starting circuit. 1 second before startup, capacitor is switched on and then broken.

2. For 3 phase unit it must have the phase sequence and lacking of phase checking and protecting function. Etc.

6. System precision

- 1) Temperature sampling precision: $\pm 1^{\circ}\text{C}$
- 2) Current sampling precision: ± 1.5 amps
- 3) Timing sampling precision: ± 1 min/hour
- 4) Swing angle sampling precision: 0.7 degree

7. Point Check

There's a point-check button in the outdoor PCB, it cooperates with LED in the outdoor PCB to show the status of the outdoor unit. Each time the button is pressed, the data shown in the LED is different. The details are shown in the following:

- 0, Normal display
- 1, Running mode: 0---Stand by;2---Cooling;3---Heating;4---Forced cooling;
- 2, Running fan speed: 0---Turn off; 1---Low speed; 2---High speed;
- 3, Capacity demand
- 4, T3- Outdoor pipe temp. (Actual value)
- 5, TP-Discharge temp.(Actual value, if it is over 100,only display hundreds digit and tens digit)
- 6, T4-Ambient temp.(Actual value)
- 7, Current of compressor
- 8, Outdoor PMV opening degree
- 9, The last error or protection code (Display 00 if no error)
- 10, AD value of volt
- 11.--

8. Appendix

Appendix 1

Temp	Resistance (KΩ)			Resist.tol %		Temp.tol℃	
(□)	Rmax	R (t) Normal	Rmin	MAX(+)	MIN(-)	MAX(+)	MIN(-)
-20	116.539	106.732	96.920	9.19	9.19	1.59	1.59
-19	110.231	100.552	91.451	9.63	9.05	1.57	1.57
-18	103.743	94.769	86.328	9.47	8.91	1.56	1.55
-17	97.673	89.353	81.525	9.31	8.76	1.54	1.54
-16	91.990	84.278	77.017	9.15	8.62	1.53	1.52
-15	86.669	79.521	72.788	8.99	8.47	1.51	1.50
-14	81.684	75.059	68.815	8.83	8.32	1.49	1.48
-13	77.013	70.873	65.083	8.66	8.17	1.47	1.47
-12	72.632	66.943	61.574	8.50	8.02	1.45	1.45
-11	68.523	63.252	58.274	8.33	7.87	1.44	1.43
-10	64.668	59.784	55.169	8.17	7.72	1.42	1.41
-9	61.048	56.524	52.246	8.00	7.57	1.40	1.39
-8	57.649	53.458	49.492	7.84	7.42	1.38	1.37
-7	54.456	50.575	46.899	7.67	7.27	1.35	1.35
-6	51.456	47.862	44.455	7.51	7.12	1.33	1.32
-5	48.636	45.308	42.150	7.35	6.97	1.31	1.30
-4	45.984	42.903	39.977	7.18	6.82	1.29	1.28
-3	43.490	40.638	37.927	7.02	6.67	1.27	1.26
-2	41.144	38.504	35.992	6.86	6.52	1.25	1.24
-1	38.935	36.492	34.165	6.70	6.38	1.23	1.21
0	36.857	34.596	32.440	6.53	6.23	1.21	1.19
1	34.898	32.807	30.810	6.38	6.09	1.18	1.17
2	33.055	31.120	29.271	6.22	5.94	1.16	1.15
3	31.317	29.528	27.815	6.06	5.80	1.14	1.12
4	29.681	28.026	26.440	5.90	5.66	1.12	1.10
5	28.138	26.608	25.140	5.75	5.52	1.10	1.08
6	26.682	25.268	23.909	5.60	5.38	1.07	1.06
7	25.310	24.003	22.745	5.45	5.24	1.05	1.03
8	24.016	22.808	21.644	5.30	5.10	1.03	1.01
9	22.794	21.678	20.601	5.15	4.97	1.01	0.99
10	21.641	20.610	19.614	5.00	4.83	0.99	0.97
11	20.553	19.601	18.680	4.86	4.70	0.96	0.94
12	19.525	18.646	17.794	4.71	4.57	0.94	0.92
13	18.554	17.743	16.955	4.57	4.44	0.92	0.90
14	17.636	16.888	16.160	4.43	4.31	0.90	0.88
15	16.769	16.079	15.406	4.29	4.19	0.88	0.85
16	15.949	15.313	14.691	4.15	4.06	0.86	0.83
17	15.174	14.588	14.014	4.02	3.94	0.84	0.81
18	14.442	13.902	13.372	3.89	3.81	0.81	0.79
19	13.748	13.251	12.762	3.75	3.69	0.79	0.76
20	13.093	12.635	12.183	3.62	3.57	0.77	0.74
21	12.471	12.050	11.634	3.50	3.46	0.75	0.72
22	11.883	11.496	11.112	3.37	3.34	0.73	0.70
23	11.327	10.971	10.617	3.25	3.23	0.71	0.68
24	10.800	10.473	10.147	3.12	3.11	0.69	0.66
25	10.300	10.000	9.700	3.00	3.00	0.67	0.63

Temp	Resistance (KΩ)			Resist.tol %		Temp.tol℃	
(□)	Rmax	R (t) Normal	Rmin	MAX(+)	MIN(-)	MAX(+)	MIN(-)
26	9.848	9.551	9.255	3.11	3.10	0.69	0.66
27	9.418	9.125	8.834	3.21	3.19	0.72	0.69
28	9.010	8.721	8.434	3.31	3.29	0.75	0.71
29	8.621	8.337	8.055	3.41	3.38	0.77	0.74
30	8.252	7.972	7.695	3.51	3.47	0.80	0.77
31	7.900	7.625	7.353	3.61	3.57	0.83	0.79
32	7.566	7.296	7.029	3.70	3.66	0.85	0.82
33	7.247	6.982	6.721	3.80	3.74	0.88	0.84
34	6.944	6.684	6.428	3.89	3.83	0.91	0.87
35	6.656	6.401	6.150	3.98	3.92	0.93	0.90
36	6.381	6.131	5.886	4.08	4.00	0.96	0.93
37	6.119	5.874	5.634	4.17	4.09	0.98	0.95
38	5.870	5.630	5.395	4.26	4.17	1.01	0.98
39	5.631	5.397	5.167	4.34	4.26	1.03	1.01
40	5.404	5.175	4.951	4.43	4.34	1.06	1.03
41	5.188	4.964	4.745	4.52	4.42	1.09	1.06
42	4.982	4.763	4.549	4.60	4.50	1.12	1.09
43	4.785	4.571	4.362	4.69	4.58	1.14	1.12
44	4.596	4.387	4.183	4.77	4.66	1.17	1.14
45	4.417	4.213	4.014	4.85	4.74	1.19	1.17
46	4.246	4.046	3.851	4.93	4.81	1.22	1.20
47	4.082	3.887	3.697	5.02	4.89	1.25	1.23
48	3.925	3.735	3.550	5.10	4.97	1.28	1.25
49	3.776	3.590	3.409	5.18	5.04	1.30	1.28
50	3.632	3.451	3.274	5.25	5.12	1.33	1.30
51	3.495	3.318	3.146	5.33	5.19	1.35	1.33
52	3.363	3.191	3.023	5.41	5.26	1.41	1.36
53	3.237	3.069	2.905	5.49	5.34	1.43	1.38
54	3.116	2.952	2.793	5.56	5.41	1.46	1.41
55	3.001	2.841	2.685	5.64	5.48	1.48	1.44
56	2.890	2.734	2.582	5.71	5.55	1.51	1.46
57	2.784	2.632	2.484	5.79	5.62	1.54	1.49
58	2.682	2.534	2.390	5.86	5.69	1.56	1.52
59	2.585	2.440	2.299	5.93	5.76	1.59	1.54
60	2.491	2.350	2.213	6.01	5.83	1.62	1.57
61	2.401	2.264	2.130	6.08	5.90	1.64	1.60
62	2.315	2.181	2.051	6.15	5.96	1.67	1.62
63	2.233	2.102	1.975	6.22	6.03	1.70	1.65
64	2.154	2.026	1.903	6.29	6.10	1.72	1.68
65	2.077	1.953	1.833	6.36	6.16	1.75	1.70
66	2.004	1.883	1.766	6.42	6.23	1.77	1.73
67	1.934	1.816	1.702	6.49	6.29	1.80	1.76
68	1.867	1.752	1.641	6.56	6.35	1.83	1.78
69	1.802	1.690	1.582	6.62	6.41	1.85	1.81
70	1.740	1.631	1.525	6.69	6.48	1.88	1.84
71	1.680	1.574	1.471	6.75	6.54	1.91	1.86
72	1.622	1.519	1.419	6.82	6.60	1.93	1.89
73	1.567	1.466	1.369	6.88	6.66	1.96	1.92

Temp	Resistance (KΩ)			Resist.tol %		Temp.tol℃	
(□)	Rmax	R (t) Normal	Rmin	MAX(+)	MIN(-)	MAX(+)	MIN(-)
74	1.514	1.416	1.321	6.94	6.71	1.98	1.94
75	1.463	1.367	1.275	7.00	6.77	2.01	1.97
76	1.414	1.321	1.230	7.06	6.83	2.04	2.00
77	1.367	1.276	1.188	7.12	6.88	2.06	2.02
78	1.321	1.233	1.147	7.17	6.94	2.09	2.05
79	1.277	1.191	1.108	7.23	6.99	2.12	2.08
80	1.235	1.151	1.070	7.28	7.04	2.14	2.11
81	1.195	1.113	1.034	7.33	7.09	2.17	2.13
82	1.156	1.076	0.999	7.39	7.14	2.20	2.16
83	1.118	1.041	0.966	7.44	7.18	2.22	2.19
84	1.082	1.007	0.934	7.48	7.23	2.25	2.21
85	1.047	0.974	0.903	7.53	7.27	2.27	2.24
86	1.014	0.942	0.874	7.57	7.31	2.30	2.27
87	0.982	0.912	0.845	7.62	7.35	2.33	2.29
88	0.951	0.883	0.818	7.66	7.39	2.35	2.32
89	0.921	0.855	0.791	7.69	7.43	2.38	2.35
90	0.892	0.828	0.766	7.73	7.46	2.41	2.37
91	0.864	0.802	0.742	7.76	7.49	2.43	2.40
92	0.838	0.777	0.719	7.80	7.52	2.46	2.43
93	0.812	0.753	0.696	7.82	7.54	2.48	2.45
94	0.787	0.730	0.675	7.85	7.57	2.51	2.48
95	0.763	0.708	0.654	7.87	7.59	2.54	2.51
96	0.740	0.686	0.634	7.89	7.61	2.56	2.53
97	0.718	0.666	0.615	7.91	7.62	2.59	2.56
98	0.697	0.646	0.597	7.93	7.63	2.62	2.59
99	0.677	0.627	0.579	7.94	7.64	2.64	2.61
100	0.657	0.609	0.562	7.94	7.65	2.67	2.64
101	0.638	0.591	0.546	7.95	7.65	2.70	2.67
102	0.620	0.574	0.530	7.95	7.65	2.72	2.69
103	0.602	0.558	0.515	7.94	7.64	2.75	2.72
104	0.585	0.542	0.501	7.94	7.63	2.77	2.75
105	0.569	0.527	0.485	7.92	7.92	2.80	2.77

Appendix 2

Unit: □---K				Discharge temp. sensor table			
-20	542.7	20	68.66	60	13.59	100	3.702
-19	511.9	21	65.62	61	13.11	101	3.595
-18	483	22	62.73	62	12.65	102	3.492
-17	455.9	23	59.98	63	12.21	103	3.392
-16	430.5	24	57.37	64	11.79	104	3.296
-15	406.7	25	54.89	65	11.38	105	3.203
-14	384.3	26	52.53	66	10.99	106	3.113
-13	363.3	27	50.28	67	10.61	107	3.025
-12	343.6	28	48.14	68	10.25	108	2.941
-11	325.1	29	46.11	69	9.902	109	2.86
-10	307.7	30	44.17	70	9.569	110	2.781
-9	291.3	31	42.33	71	9.248	111	2.704
-8	275.9	32	40.57	72	8.94	112	2.63
-7	261.4	33	38.89	73	8.643	113	2.559
-6	247.8	34	37.3	74	8.358	114	2.489
-5	234.9	35	35.78	75	8.084	115	2.422
-4	222.8	36	34.32	76	7.82	116	2.357
-3	211.4	37	32.94	77	7.566	117	2.294
-2	200.7	38	31.62	78	7.321	118	2.233
-1	190.5	39	30.36	79	7.086	119	2.174
0	180.9	40	29.15	80	6.859	120	2.117
1	171.9	41	28	81	6.641	121	2.061
2	163.3	42	26.9	82	6.43	122	2.007
3	155.2	43	25.86	83	6.228	123	1.955
4	147.6	44	24.85	84	6.033	124	1.905
5	140.4	45	23.89	85	5.844	125	1.856
6	133.5	46	22.89	86	5.663	126	1.808
7	127.1	47	22.1	87	5.488	127	1.762
8	121	48	21.26	88	5.32	128	1.717
9	115.2	49	20.46	89	5.157	129	1.674
10	109.8	50	19.69	90	5	130	1.632
11	104.6	51	18.96	91	4.849		
12	99.69	52	18.26	92	4.703		
13	95.05	53	17.58	93	4.562		
14	90.66	54	16.94	94	4.426		
15	86.49	55	16.32	95	4.294	B(25/50)=3950K	
16	82.54	56	15.73	96	4.167		
17	78.79	57	15.16	97	4.045	R(90℃)=5KΩ±3%	
18	75.24	58	14.62	98	3.927		
19	71.86	59	14.09	99	3.812		