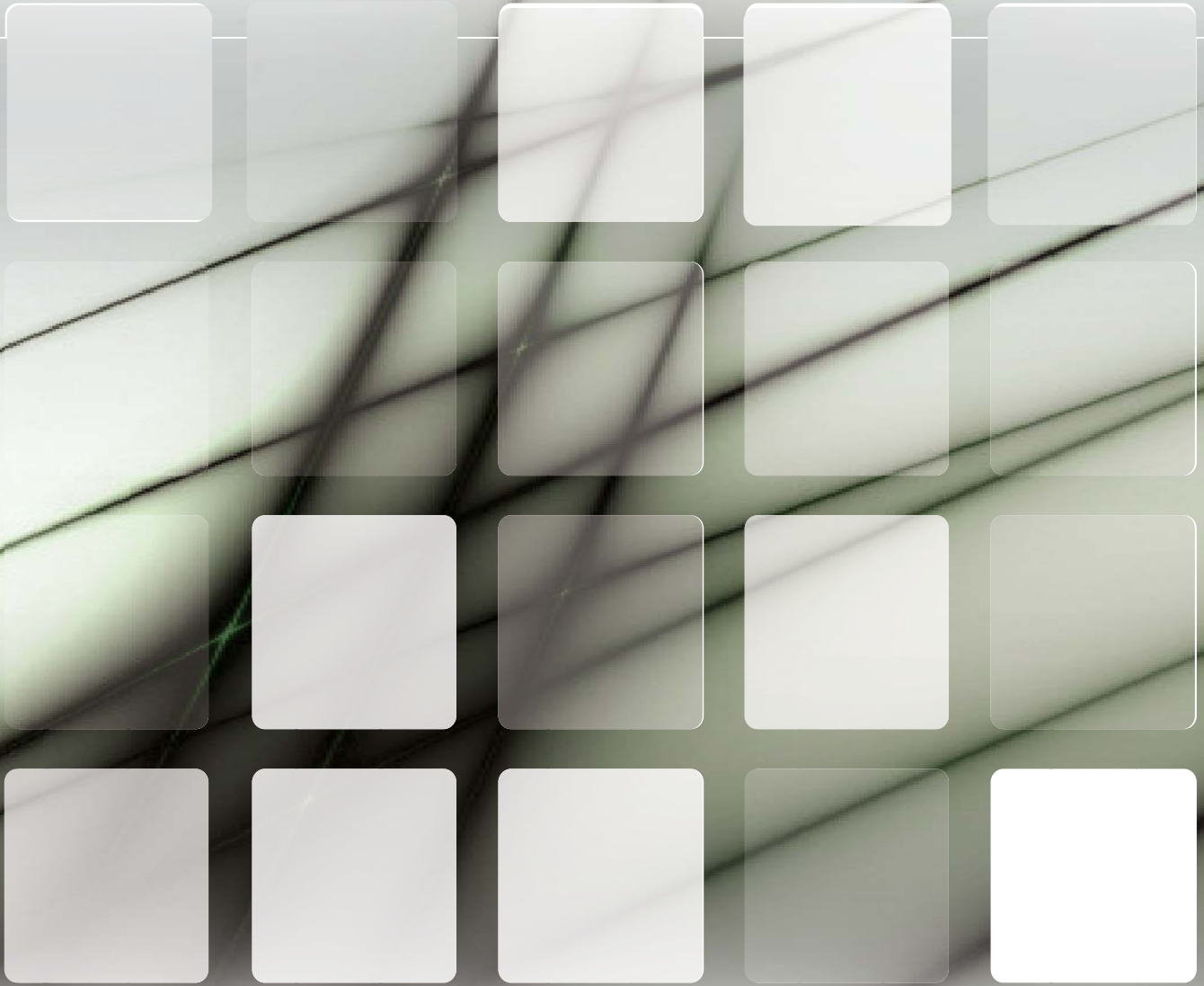


IEWB/ICHB Series

19 SEER Certified Mini Split

Technical Manual

115V & 208~230V/1/60Hz



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1. Safety Precautions

Read Safety Precautions Before Installation

Incorrect installation due to ignoring instructions can cause serious damage or injury.

The seriousness of potential damage or injuries is classified as either a WARNING or CAUTION.



Warning

This symbol indicates that ignoring instructions may cause death or serious injury.



Caution

This symbol indicates that ignoring instructions may cause moderate injury to you or damage to your appliance or other property.



Warning

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

I. Installation Warnings

- Ask an authorized dealer to install this air conditioner. Inappropriate installation may cause water leakage, electric shock, or fire.
- All repairs, maintenance and relocation of the unit must be performed by an authorized service technician. Inappropriate repairs can lead to serious injury or product failure.

II. Warnings for product use

- If an abnormal situation arises (like a burning smell), immediately turn off the unit and pull the power plug.
- Call your dealer for instructions to avoid electric shock, fire or injury.
- Do not insert fingers, rods or other objects into the air inlet or outlet. This may cause injury, since the fan may be rotating at high speeds.
- Do not use flammable sprays such as hair spray, lacquer or paint near the unit. This may cause fire or combustion.
- Do not operate the air conditioner in places near or around combustible gases. Emitted gas may collect around the unit and cause explosion.
- Do not operate the air conditioner in a wet room (e.g., bath room or laundry room). This can cause electrical shock and cause the product to deteriorate.
- Do not expose your body directly to cool air for a prolonged period of time.

III. Electrical Warnings

- Only use the specified power cord. If the power cord is damaged, it must be replaced by the manufacturer or certified service agent.
- Keep power plug clean. Remove any dust or grime that accumulates on or around the plug. Dirty plugs can cause fire or electric shock.
- Do not pull power cord to unplug unit. Hold the plug firmly and pull it from the outlet. Pulling directly on the cord can damage it, which can lead to fire or electric shock.
- Do not use an extension cord, manually extend the power cord, or connect other appliances to the same outlet as the air conditioner. Poor electrical connections, poor insulation, and insufficient voltage can cause fire.

IV. Cleaning and Maintenance Warnings

- Turn off the device and pull the plug before cleaning. Failure to do so can cause electrical shock.
- Do not clean the air conditioner with excessive amounts of water.
- Do not clean the air conditioner with combustible cleaning agents. Combustible cleaning agents can cause fire or deformation.



Caution

- If the air conditioner is used together with burners or other heating devices, thoroughly ventilate the room to avoid oxygen deficiency.
- Turn off the air conditioner and unplug the unit if you are not going to use it for a long time.
- Turn off and unplug the unit during storms.
- Make sure that water condensation can drain unhindered from the unit.
- Do not operate the air conditioner with wet hands. This may cause electric shock.
- Do not use device for any other purpose than its intended use.
- Do not climb onto or place objects on top of the outdoor unit.
- Do not allow the air conditioner to operate for long periods of time with doors or windows open, or if the humidity is very high.

2 Specifications

2.1 Model Reference

Refer to the following table to determine the specific indoor and outdoor unit model number of your purchased equipment.

Cooling only

Indoor unit model	Outdoor unit model	Capacity (Btu/h)	Power supply
IEWB009I1A-CWJ026CWA	ICHB009I1A-CTJ026GFA	9K	115V/60Hz/1Ph
IEWB012I1A-CWJ035CWA	ICHB012I1A-CTJ035GFA	12K	
IEWB009I2A-CWJ026CWA	ICHB009I0A-CTJ026GFA	9K	208~230V/60Hz/1Ph
IEWB012I2A-CWJ035CWA	ICHB012I0A-CTJ035GFA	12K	
IEWB018I2A-CWJ053CWA	ICHB018I0A-CTJ053GFA	18K	
IEWB024I2A-CWJ070CWA	ICHB024I0A-CTJ070GFA	24K	

Heat pump

Indoor unit model	Outdoor unit model	Capacity (Btu/h)	Power supply
IEWB009J1A-CWJ026CWA	ICHB009J1A-CTJ026GFA	9K	115V/60Hz/1Ph
IEWB012J1A-CWJ035CWA	ICHB012J1A-CTJ035GFA	12K	
IEWB009J0A-CWJ026CWA	ICHB009J0A-CTJ026GFA	9K	208~230V/60Hz/1Ph
IEWB012J0A-CWJ035CWA	ICHB012J0A-CTJ035GFA	12K	
IEWB018J2A-CWJ053CWA	ICHB018J0A-CTJ053GFA	18K	
IEWB024J0A-CWJ070CWA	ICHB024J0A-CTJ070GFA	24K	

2.2 Pipe length and drop height

The length of refrigerant piping will affect the performance and energy efficiency of the unit. Nominal efficiency is tested on units with a pipe length of 5 meters (16.5ft). A minimum pipe run of 3 meters is required to minimize vibration & excessive noise.

Refer to the table below for specifications on the maximum length and drop height of piping.

Capacity (Btu/h)	Standard length	Max. pipe length	Max. high drop	Additional refrigerant
9K	5m	25m	10m	R410a, 15g/m
12K	5m	25m	10m	R410a, 15g/m
18K	5m	30m	20m	R410a, 15g/m
24K	5m	30m	20m	R410a, 30g/m

Note: Oil trap should be set every 10m of vertical distance.

2 Specifications

Cooling Only: 115V

OMEGA Models	Outdoor Unit	Model	ICHB00911A-CTJ026GFA	ICHB01211A-CTJ035GFA	
	Indoor Unit	Model	IEWB00911A-CWJ026CWA	IEWB01211A-CWJ035CWA	
Indoor power supply		V/Ph/Hz	115-1-60		
Cooling	Capacity	Tons	0.8	1.0	
		Btu/h	9000	11800	
	Capacity MIN - MAX		Btu/h	3400-11300	3450-12800
	EER			11.00	10.60
	SEER			19.0	19.0
Energy Star			NO	NO	
Minimum circuit ampacity (MCA)		A	11.0	15.0	
Maximum current rating of overcurrent protection (MOP)		A	15.0	15.0	
Max.fuse		A	15.0	15.0	
Compressor	Type		DC/Rotary	DC/Rotary	
	Model		ASN98D22UFZ	ASN98D22UFZ	
	Brand		GMCC	GMCC	
	Capacity	kW	3.095	3.095	
	Power input	W	790	790	
	Current input	A	5.4	5.4	
Outdoor fan motor	Type		DC	DC	
	Model		DRN-310-34-8-1	DRN-310-34-8-1	
	Brand		Weiling	Weiling	
	Power input	W	40	50	
	Current input	A	0.8	0.8	
	Power output	W	34	34	
	Capacitor	μF	-	-	
	Speed	r/min	800/650/500	900/650/500	
Insulation class		E	E		
Outdoor coil	Number of rows		1	1	
	Fin type		Hydrophilic	Hydrophilic	
	Tube type		inner grooved	inner grooved	
Refrigerant	Type		R410A	R410A	
	Charge	g/oz	830/29.3	830/29.3	
Throttle part			Capillary	Capillary	
Minimum circuit ampacity (MCA)		A	0.4	0.4	
Maximum current rating of overcurrent protection (MOP)		A	1	1	
Max.fuse		A	5	5	
Indoor fan motor	Model		YDK-20-4P1-1	YDK-20-4P1-1	
	Brand		Weiling	Weiling	
	Power input	W	40	45	
	Current input	A	0.6	0.6	
	Power output	W	13	13	
	Capacitor	μF	-	-	
	Insulation class		E	E	
	RLA	A	0.3	0.3	
Speed (H/M/L)	r/min	1180/1050/750	1220/1100/800		
Indoor coil	Number of rows		2	2	
	Tube type		inner grooved	inner grooved	
Outdoor air flow		CFM	1088	1176	
Indoor air flow		CFM	300	380	
Outdoor noise	power level	dB(A)	51	53	
	pressure level		40	42	
Indoor noise	power level (H)	dB(A)	39	42	
Outdoor unit	Dimension(W*H*D)	mm	760*495*305	760*495*305	
		in	29.92×19.49×12.01	29.92×19.49×12.01	
	Packing(W*H*D)	mm	850×550×350	850×550×350	
		in	33.46×21.65×13.78	33.46×21.65×13.78	
	Net/Gross weight	kg	24/26	24/26	
		lbs	52.9/57.3	52.9/57.3	
Indoor unit	Dimension(W*H*D)	mm	715×295×198	864×300×200	
		in	28.15×11.61×7.8	34.02×11.81×7.87	
	Packing(W*H*D)	mm	785×370×285	950×380×290	
		in	31.5×14.96×11.42	37.4×14.96×11.42	
	Net/Gross weight	kg	8.5/10.5	9.5/11.5	
		lbs	18.7/23.2	20.9/25.4	
Refrigerant piping	Liquid side/Gas side	mm	Φ6.35-Φ9.52	Φ6.35-Φ9.52	
		in	1/4-3/8	1/4-3/8	
	Max. pipe length	ft (m)	82 (25)	82 (25)	
Ambient temp	cooling	°C	0~50	0~50	
		°F	32~122	32-122	
Operation temp	cooling	°C	15.5~32	15.5~32	
		°F	60~90	60~90	

2 Specifications

Cooling Only: 208~230V

OMEGA Models	Outdoor Unit	Model	ICHB00910A-CTJ026GFA	ICHB01210A-CTJ035GFA	ICHB01810A-CTJ053GFA	ICHB02410A-CTJ070GFA
	Indoor Unit	Model	IEWB00912A-CWJ026CWA	IEWB01212A-CWJ035CWA	IEWB01812A-CWJ053CWA	IEWB02412A-CWJ070CWA
Indoor power supply		V/Ph/Hz	208/230-1-60			
Cooling	Capacity	Tons	0.8	1.0	1.5	2.0
		Btu/h	9000	11800	18000	22000
	Capacity MIN - MAX	Btu/h	3400-11300	3450-12800	4260-19800	4800-26000
	EER		11.20	10.60	11.50	10.00
	SEER		19.0	19.0	19.5	19.0
Energy Star			NO	NO	NO	NO
Minimum circuit ampacity (MCA)		A	6.0	8.0	12.0	16.0
Maximum current rating of overcurrent protection (MOP)		A	6.0	10.0	15.0	20.0
Max.fuse		A	10.0	10.0	15.0	20.0
Compressor	Type		DC/Rotary	DC/Rotary	DC/Rotary	DC/Dual Rotary
	Model		KSN98D22UFZ	KSN98D22UFZ	KSN140D21UFZ	ATN150D30UFZA
	Brand		GMCC	GMCC	GMCC	GMCC
	Capacity	kW	3.095	3.095	4.370	4.500
	Power input	W	790	790	1135	1160
	Current input	A	5.4	5.4	7.5	8
Outdoor fan motor	Type		DC	DC	DC	DC
	Model		DRN-310-34-8-1	DRN-310-34-8-1	DRN-310-34-8-3	DRN-310-75-8
	Brand		Weiling	Weiling	Weiling	Weiling
	Power input	W	40	50	60	75
	Current input	A	0.4	0.4	0.5	0.5
	Power output	W	34	34	34	34
	Capacitor	μF	-	-	-	-
	Speed	r/min	800/650/500	900/650/500	900/650/520	1050/750/620
Outdoor coil	Insulation class		E	E	E	E
	Number of rows		1	1	2	2
	Fin type		Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic
Refrigerant	Tube type		inner grooved	inner grooved	inner grooved	inner grooved
	Type		R410A	R410A	R410A	R410A
	Charge	g/oz	830/29.3	830/29.3	1250/44.1	1400/49.4
Throttle part			Capillary	Capillary	EXV	EXV
Minimum circuit ampacity (MCA)		A	0.4	0.4	0.7	0.8
Maximum current rating of overcurrent protection (MOP)		A	1.0	1.0	1.0	1.0
Max.fuse		A	5	5	5	5
Indoor fan motor	Model		YDK-17-4P2	YDK-17-4P2	YDK-26-4P2	YDK-45-4P3
	Brand		Weiling	Weiling	lvzhi	Weiling
	Power input	W	40	45	60	110
	Current input	A	0.3	0.3	0.5	0.6
	Power output	W	13	13	30	58
	Capacitor	μF	-	-	2	-
	Insulation class		E	E	E	E
	RLA	A	0.3	0.3	0.5	0.6
Indoor coil	Speed (H/M/L)	r/min	1180/1050/750	1220/1100/800	1180/1050/900	1300/1200/900
	Number of rows		2	2	2	2
Outdoor air flow		CFM	1088	1176	1653	1853
Indoor air flow		CFM	300	380	530	680
Outdoor noise	power level	dB(A)	51	53	55	57
	pressure level	dB(A)	40	42	44	45
Indoor noise	power level (H)	dB(A)	39	42	45	48
Outdoor unit	Dimension(W*H*D)	mm	760*495*305	760*495*305	815*555*345	870*705*395
		in	29.92*19.49*12.01	29.92*19.49*12.01	32.09*21.85*13.58	34.25*27.76*15.55
	Packing(W*H*D)	mm	850*550*350	850*550*350	920*600*380	975*770*435
		in	33.46*21.65*13.78	33.46*21.65*13.78	36.22*23.62*14.96	38.39*30.31*17.13
	Net/Gross weight	kg	23/25	25/28	32/37	38.5/41.5
		lbs	50.7/55.1	55.2/61.9	70.7/81.8	85.1/91.7
Indoor unit	Dimension(W*H*D)	mm	715*295*198	864*300*200	972*320*215	1080*335*226
		in	28.15*11.61*7.8	34.02*11.81*7.87	38.27*12.6*8.46	42.52*13.19*8.9
	Packing(W*H*D)	mm	785*370*285	950*380*290	1070*410*310	1170*430*325
		in	31.5*14.96*11.42	37.4*14.96*11.42	42.13*16.14*12.2	46*16.9*12.8
	Net/Gross weight	kg	8.5/10.5	9.5/11.5	11.5/14.5	15/17
		lbs	18.7/23.2	20.9/25.4	25.4/32	33.0/37.4
Refrigerant piping	Liquid side/Gas side	mm	Φ6.35-Φ9.52	Φ6.35-Φ9.52	Φ6.35-Φ12.7	Φ9.52-Φ12.7
		in	1/4-3/8	1/4-3/8	1/4-1/2	3/8-1/2
	Max. pipe length	ft (m)	82 (25)	82 (25)	98.5 (30)	98.5 (30)
Ambient temp	cooling	°C	0~50	0~50	0~50	0~50
		°F	32-122	32-122	32-122	32-122
Operation temp	cooling	°C	15.5~32	15.5~32	15.5~32	15.5~32
		°F	60~90	60~90	60~90	60~90

2.Specifications

Heat Pump: 115V

OMEGA MODEL	Outdoor Unit		Model	ICHB009J1A-CTJ026GFA	ICHB012J1A-CTJ035GFA
	Indoor Unit		Model	IEWB009J1A-CWJ026CWA	IEWB012J1A-CWJ035CWA
Indoor power supply			V/Ph/H	115-1-60	
Cooling	Capacity		Tons	0.8	1.0
			Btu/h	9000	11800
			Btu/h	3400~11300	3450~12800
	EER			11.00	10.60
	SEER			19.0	19.0
Heating	Capacity @ 47°F	Btu/h		9000	12000
	Capacity @ 17°F	Btu/h		7000	9000
	Capacity MIN - MAX	Btu/h		3000~11500	3800~13500
	COP @ 47°F	W/W		3.30	3.20
	HSPF			10.0	9.50
Energy Star				NO	NO
Minimum circuit ampacity (MCA)			A	11.0	15.0
Maximum current rating of overcurrent protection (MOP)			A	15.0	15.0
Max.fuse			A	15.0	15.0
Compressor	Type			DC/Rotary	DC/Rotary
	Model			KSN98D22UFZ (801401400179)	KSN98D22UFZ
	Brand			GMCC	GMCC
	Capacity	kW		3.095	3.095
	Power input	W		790	790
	Current input	A		5.4	5.4
Outdoor fan motor	Type			DC	DC
	Model			DRN-310-34-8-1	DRN-310-34-8-1
	Brand			Weiling	Weiling
	Power input	W		40	50
	Current input	A		0.8	0.8
	Power output	W		34	34
	Capacitor	μF		-	-
	Speed	r/min		800/650/500	900/650/500
Insulation class				E	E
Outdoor coil	Number of rows			1	1
	Fin type			Hydrophilic	Hydrophilic
	Tube type			inner grooved	inner grooved
Refrigerant	Type			R410A	R410A
	Charge	g/oz		830/29.3	830/29.3
Throttle part				Capillary	Capillary
Minimum circuit ampacity (MCA)			A	0.4	0.4
Maximum current rating of overcurrent protection (MOP)			A	1	1
Max.fuse			A	5	5
Indoor fan motor	Model			DR-310-13-8	DR-310-13-8
	Brand			Weiling	Weiling
	Power input	W		30	35
	Power input	A		0.6	0.6
	Power input	W		13	13
	Capacitor	μF		-	-
	Insulation class			E	E
	RLA			0.3	0.3
	Speed (H/M/L)	r/min		1180/1050/750	1220/1100/800
Speed (H/M/L)	r/min		1180/1050/900	1220/1100/900	
Indoor coil	Number of Rows			2	2
	Tube Type			inner grooved	inner grooved
Outdoor air flow			CFM	1088	1176
Indoor air flow			CFM	300	380
Outdoor noise	power level	dB(A)		51	53
	pressure level			40	42
Indoor noise	power level (H)	dB(A)		39	42
Outdoor unit	Dimension(W*H*D)		mm	805*495*305	805*495*305
			in	31.69×19.49×12.01	31.69×19.49×12.01
	Packing(W*H*D)		mm	850×550×350	850×550×350
			in	33.46×21.65×13.78	33.46×21.65×13.78
	Net/Gross weight		kg	25/28	25/28
			lbs	52.9/57.3	52.9/57.3
Indoor unit	Dimension(W*H*D)		mm	715×295×198	864×300×200
			in	28.15×11.61×7.8	34.02×11.81×7.87
	Packing(W*H*D)		mm	785×370×285	950×380×290
			in	31.5×14.96×11.42	37.4×14.96×11.42
	Net/Gross weight		kg	8.5/10.5	9.5/11.5
		lbs	18.7/23.2	20.9/25.4	
Refrigerant piping	Liquid side/Gas side		mm	Φ6.35-Φ9.52	Φ6.35-Φ9.52
			in	1/4-3/8	1/4-3/8
	Max. pipe length		ft (m)	82 (25)	82 (25)
	Max. high drop		ft (m)	33 (10)	33 (10)
Ambient temperature	Cooling	°C		0~50	0~50
		°F		32~122	32~122
	Heating	°C		-15~30	-15~30
		°F		5~86	5~86
Operation temperature	Cooling	°C		16~32	16~32
		°F		61~90	61~90
	Heating	°C		15.5~32	15.5~32
		°F		60~90	60~90

2 Specifications

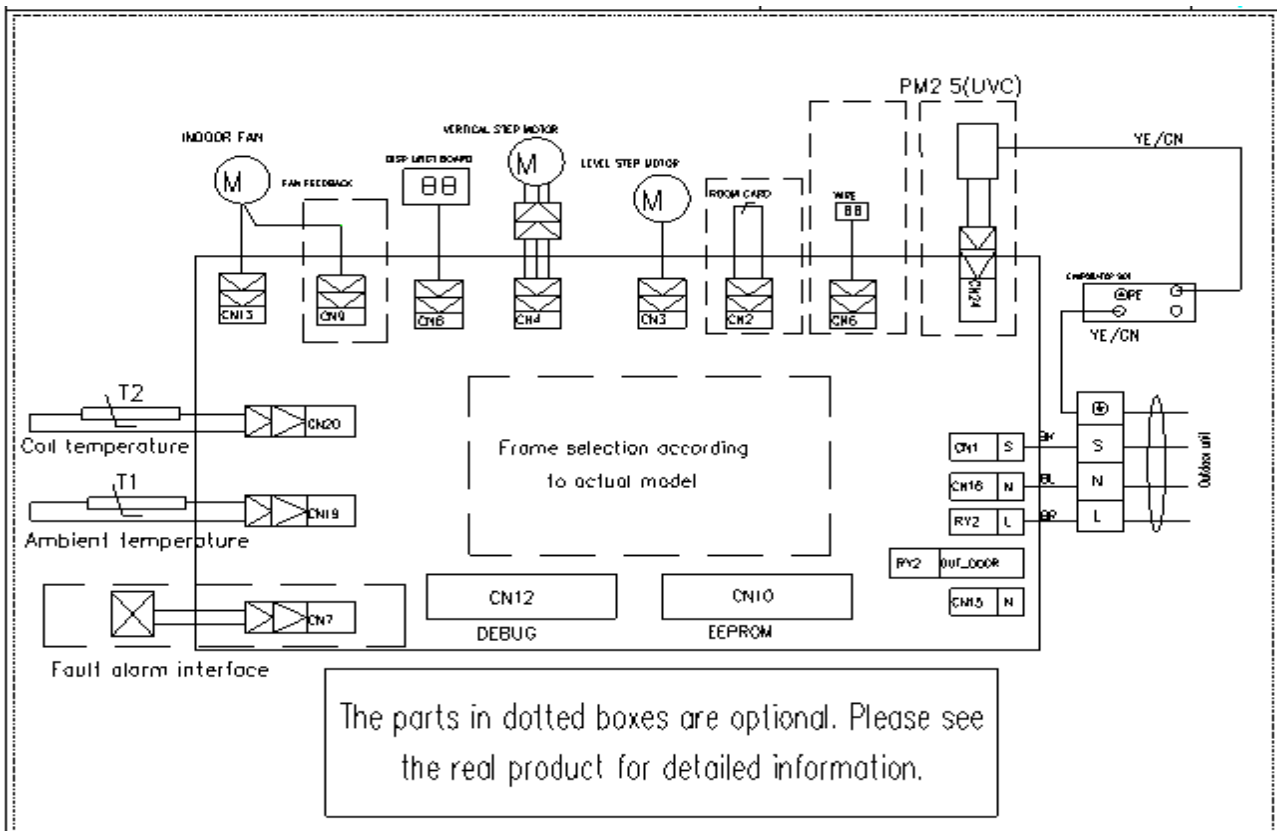
Heat Pump: 208~230V

OMEGA MODEL	Outdoor Unit	Model	ICHB009J0A-CTJ026GFA	ICHB012J0A-CTJ035GFA	ICHB018J0A-CTJ053GFA	ICHB024J0A-CTJ070GFA
	Indoor Unit	Model	IEWB009J0A-CWJ026CWA	IEWB012J0A-CWJ035CWA	IEWB018J2A-CWJ053CWA	IEWB024J0A-CWJ070CWA
Indoor power supply		V/Ph/Hz	208/230-1-60			
Cooling	Capacity	Tons	0.8	1.0	1.5	2
		Btu/h	9000	11800	18000	22000
		Btu/h	3400~11300	3450~12800	4260~19800	4800~26000
	EER	11.20	10.60	11.50	10	
SEER		19.0	19.0	18.0	17.5	
Heating	Capacity @ 47°F	Btu/h	9000	12000	18000	22600
	Capacity @ 17°F	Btu/h	7000	9000	11500	13500
	Capacity MIN - MAX	Btu/h	3000~11500	3800~13500	6200~19000	8500~24500
	COP @ 47°F	W/W	3.30	3.20	3.30	3.15
	HSPF		10.0	9.50	10.50	9.5
Energy Star			NO	NO	NO	NO
Minimum circuit ampacity (MCA)		A	6.0	8.0	12.0	18.0
Maximum current rating of overcurrent protection (MOP)		A	6.0	10.0	15.0	25.0
Max.fuse		A	10.0	10.0	15.0	25.0
Compressor	Type		DC/Rotary	DC/Rotary	DC/Rotary	DC/Dual Rotary
	Model		KSN98D22UFZ (801401400179)	KSN98D22UFZ (801401400179)	KSN140D21UFZ (801401400180)	KTM240D43UMT (801401400202)
	Brand		GMCC	GMCC	GMCC	GMCC
	Capacity	kW	3.095	3.095	4.370	7.760
	Power input	W	790	790	1135	2055
	Current input	A	5.4	5.4	7.5	9.3
Outdoor fan motor	Type		DC	DC	DC	DC
	Model		DRN-310-34-8-1	DRN-310-34-8-1	DRN-310-34-8-3	DRN-310-75-8
	Brand		Weiling	Weiling	Weiling	Weiling
	Power input	W	40	50	60	110
	Current input	A	0.4	0.4	0.5	0.7
	Power output	W	34	34	34	75
	Capacitor	µF	-	-	-	-
	Speed	r/min	800/650/500	900/650/500	900/650/520	1050/750/620
	Insulation class		E	E	E	E
Outdoor coil	Number of rows		1	1	2	2
	Fin type		Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic
	Tube type		inner grooved	inner grooved	inner grooved	inner grooved
Refrigerant	Type		R410A	R410A	R410A	R410A
	Charge	g/oz	830/29.3	830/29.3	1250/44.1	1850/65.2
Throttle part			Capillary	Capillary	EXV	EXV
Minimum circuit ampacity (MCA)		A	0.4	0.4	0.7	0.7
Maximum current rating of overcurrent protection (MOP)		A	1.0	1.0	1.0	1.0
Max.fuse		A	5	5	5	5
Indoor fan motor	Model		DR-310-13-8	DR-310-13-8	YDK-26-4P2	DR-310-58-8
	Brand		Weiling	Weiling	lvzhi	Weiling
	Power input	W	30	35	60	110
	Power input	A	0.3	0.3	0.5	0.6
	Power input	W	13	13	30	58
	Capacitor	µF	-	-	2	-
	Insulation class		E	E	E	E
	RLA		0.3	0.3	0.5	0.5
Speed (H/M/L)	r/min	1180/1050/750	1220/1100/800	1180/1050/900	1300/1200/900	
Speed (H/M/L)	r/min	1180/1050/900	1220/1100/900	1180/1050/900	1300/1200/900	
Indoor coil	Number of Rows		2	2	2	2
	Tube Type		inner grooved	inner grooved	inner grooved	inner grooved
Outdoor air flow		CFM	1088	1176	1653	1853
Indoor air flow		CFM	300	380	530	680
Outdoor noise	power level	dB(A)	51	53	55	57
	pressure level		40	42	44	45
Indoor noise	power level (H)	dB(A)	39	42	45	48
Outdoor unit	Dimension(W*H*D)	mm	805*495*305	805*495*305	880*555*345	935*705*395
		in	31.69*19.49*12.01	31.69*19.49*12.01	34.65*21.85*13.58	36.81*27.76*15.55
	Packing(W*H*D)	mm	850*550*350	850*550*350	920*600*380	975*770*435
		in	33.46*21.65*13.78	33.46*21.65*13.78	36.22*23.62*14.96	38.39*30.31*17.13
Net/Gross weight	kg	25/28	25/28	32/35	42.5/45.5	
	lbs	52.9/57.3	52.9/57.3	70.6/77.2	93.9/100.5	
Indoor unit	Dimension(W*H*D)	mm	715*295*198	864*300*200	972*320*215	1080*335*226
		in	28.15*11.61*7.8	34.02*11.81*7.87	38.27*12.6*8.46	42.52*13.19*8.9
	Packing(W*H*D)	mm	785*370*285	950*380*290	1070*410*310	1170*430*325
		in	31.5*14.96*11.42	37.4*14.96*11.42	42.13*16.14*12.2	46x16.9x12.8
Net/Gross weight	kg	8.5/10.5	9.5/12.5	11.5/14.5	14.5/17.5	
	lbs	18.7/23.2	20.9/27.6	25.4/32	32.0/38.6	
Refrigerant piping	Liquid side/Gas side	mm	Φ6.35-Φ9.52	Φ6.35-Φ9.52	Φ6.35-Φ12.7	Φ9.52-Φ15.88
		in	1/4-3/8	1/4-3/8	1/4-1/2	3/8-5/8
	Max. pipe length	ft (m)	82 (25)	82 (25)	98.5 (30)	98.5 (30)
Max. high drop	ft (m)	33 (10)	33 (10)	66 (20)	66 (20)	
Ambient temperature	Cooling	°C	0~50	0~50	0~50	0~50
		°F	32-122	32-122	32-122	32-122
	Heating	°C	-15~30	-15~30	-15~30	-15~30
		°F	5-86	5-86	5-86	5-86
Operation temperature	Cooling	°C	16~32	16~32	16~32	16~32
		°F	61~90	61~90	61~90	61~90
	Heating	°C	15.5~32	15.5~32	15.5~32	15.5~32
		°F	60~90	60~90	60~90	60~90

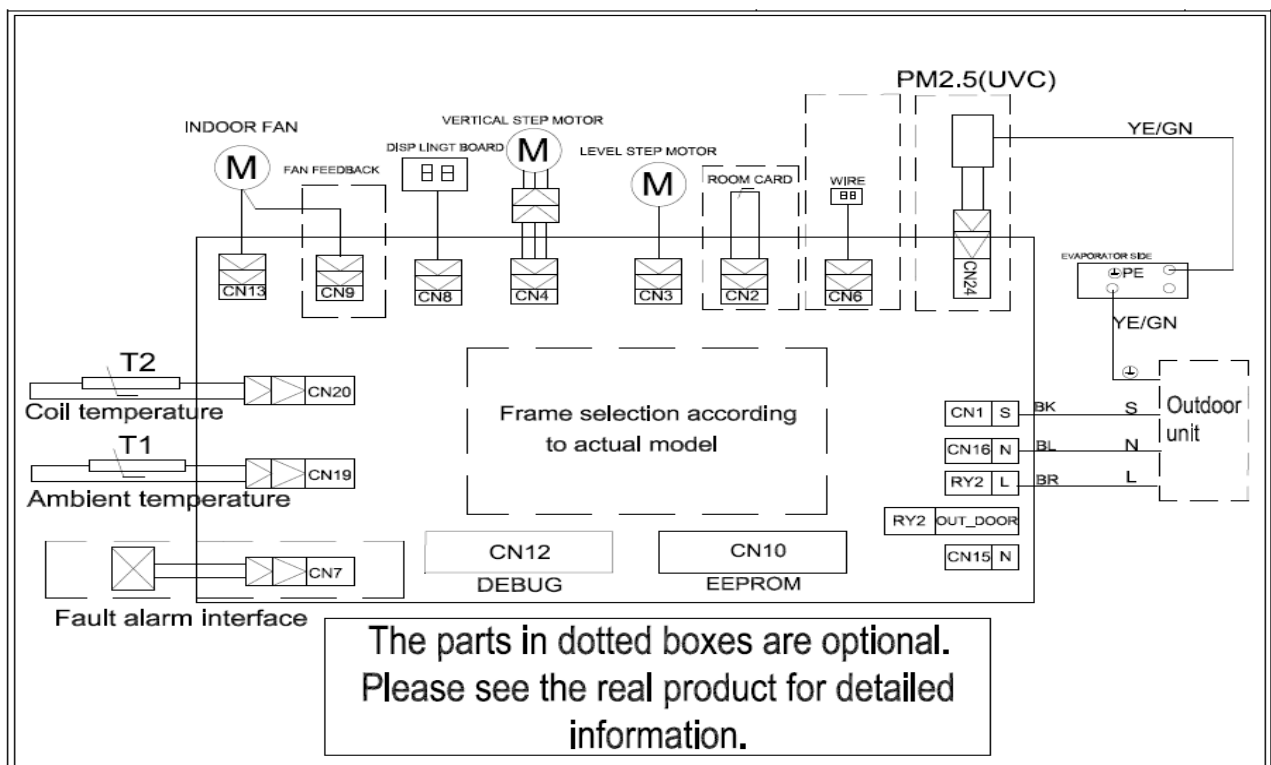
2.3 Electrical wiring diagram

2.3.1 Indoor unit

115V/9~12k

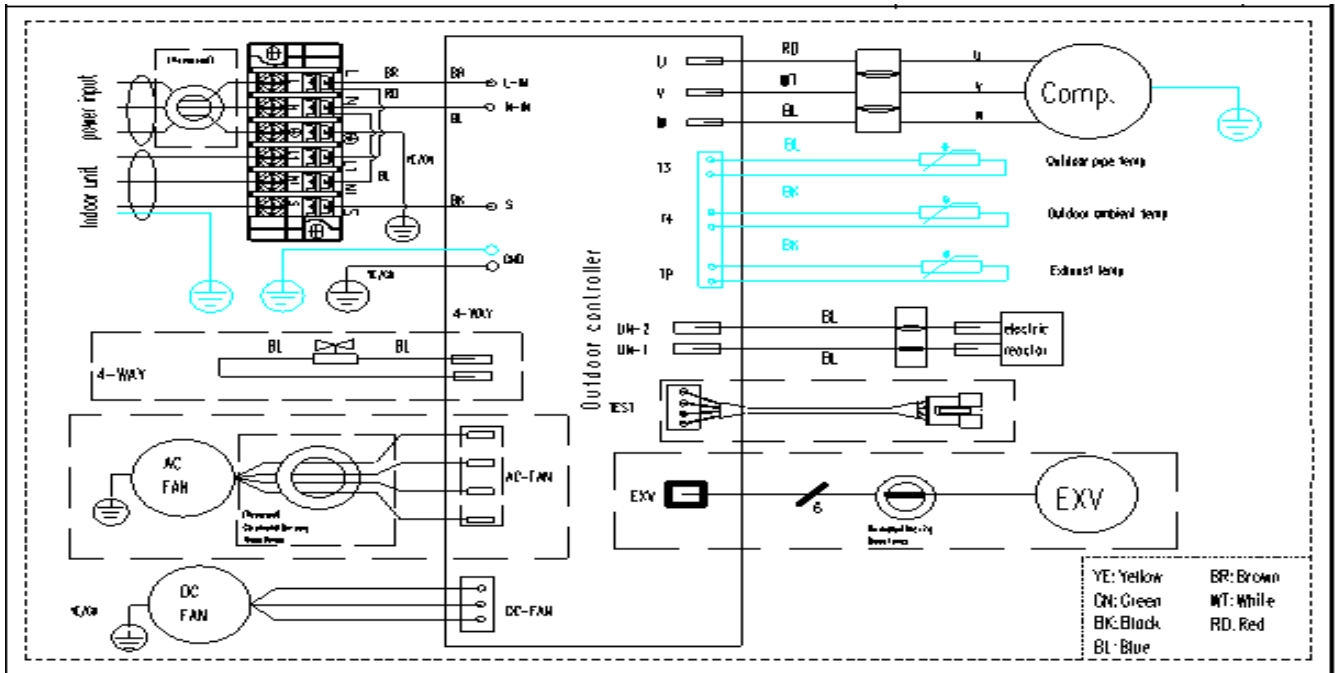


230V/9~24k

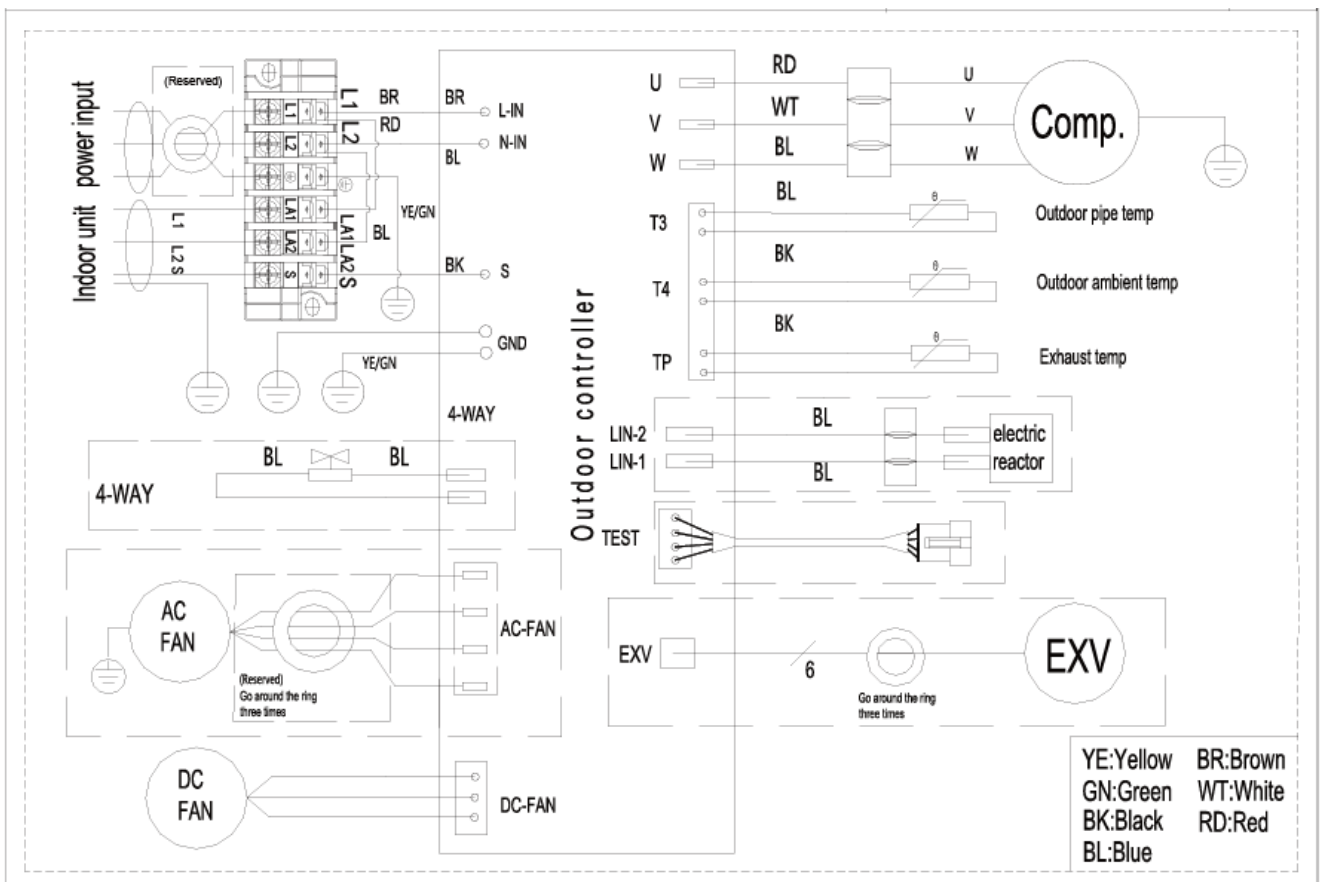


2.3.2 Outdoor unit

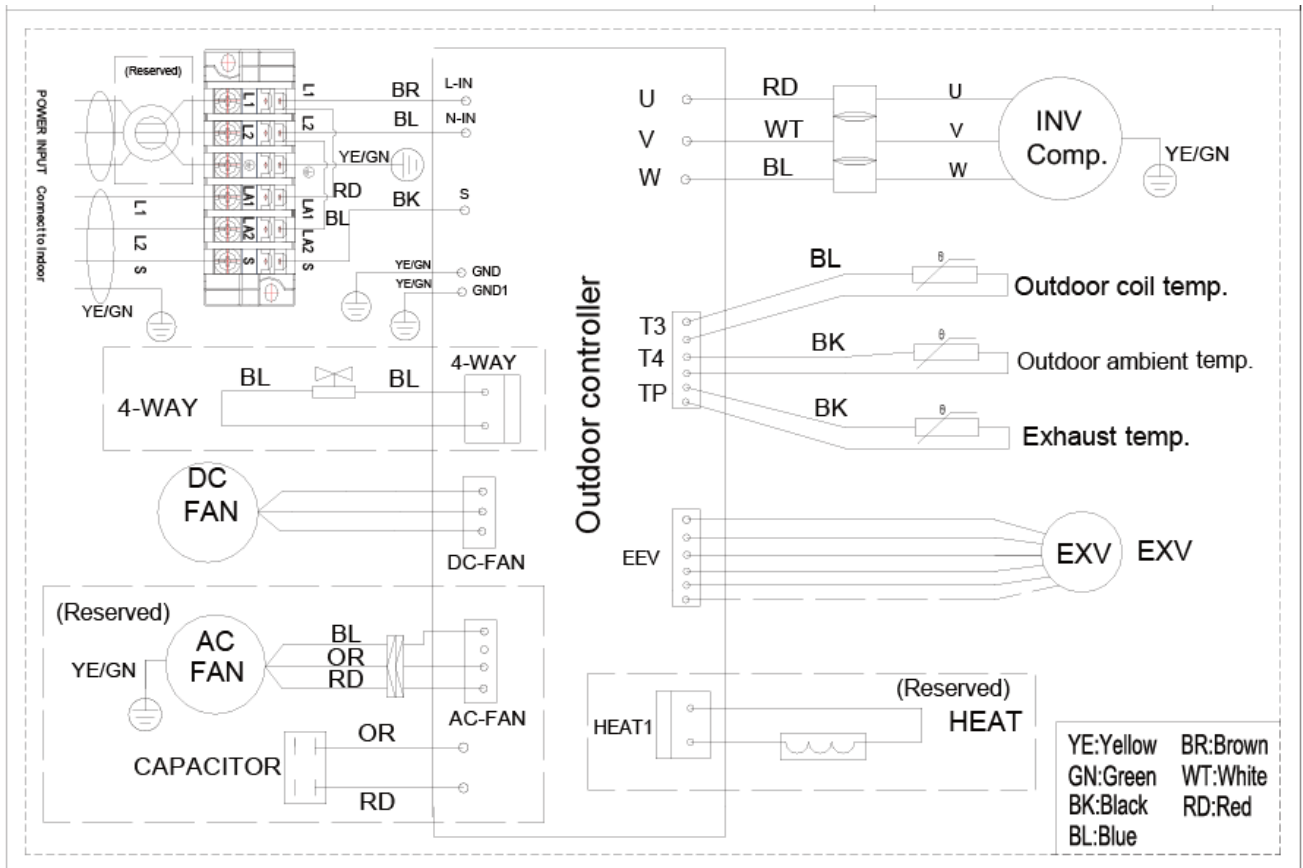
115V/9~12k



230V/9~18k







230V/24k



3 Product Features

3.1 Display function

Display	Function
	Showing the setting temperature when running; Showing the room temperature in ventilation mode; Showing error code
	ECO function
	Wifi control (available for some units)
	Self-clean function

3.2 Safety features

- **Compressor three-minute delay start**

- The compressor starts with a maximum delay of 30 seconds when the unit is started for the first time, and a maximum of 3 minutes when the subsequent unit restarts.
- The outdoor fan motor and compressor start at the same time, but after the compressor stops, the outdoor fan motor will stop after a delay of 30 seconds.

- **Automatic shutoff based on discharge temperature**

If the compressor discharge temperature exceeds 115°C for 5 seconds, the compressor stop to work. After the discharge temperature is down to 90°C, the unit restart.

- **Inverter module protection**

The inverter module has an automatic shutoff mechanism based on the unit's current, voltage, and temperature. If automatic shutoff is initiated, the corresponding error code is displayed on the indoor unit and the unit stops operation.

- **Compressor preheating**

- Preheating is automatically activated when ambient temperature (T4) and discharge temperature (T5) is lower than 1°C and the compressor stop.
- When T4 or T5 is higher than 3°C, or the T4 and T5 temperature sensor are failed at the same time, or compressor runs, the unit will exit compressor preheating.

- A small current is introduced into the compressor from the terminal, so that the compressor can achieve a preheating effect due to the heating of the coil when the compressor is not rotating.
- **Sensor redundancy and automatic shutoff**
 - If one temperature sensor malfunctions, the air conditioner continues operation and displays the corresponding error code, allowing for emergency use.
 - When more than one temperature sensor is malfunctioning, the air conditioner ceases operation.
- **Automatic shutoff based on indoor fan speed**

If the indoor fan speed registers below 300RPM or over 2000RPM for an extended period of time, the unit stops operation and the corresponding error code is displayed on the indoor unit.

- **Indoor fan delayed operation**
 - When the unit starts, the louver is automatically activated and the indoor fan will operate after a period of setting time or the louver is in place.
 - If the unit is in heating mode, the indoor fan is regulated by the anti-cold wind function.

3.3 Basic functions

3.3.1 Abbreviation

Abbreviation	Element
T1	IDU room temperature
T2	IDU evaporator coil temperature
T3	ODU condenser coil temperature
T4	ODU ambient temperature
T5/TP	Discharge temperature
Ts	Setting temperature
Td	Refer to heating controlled logic presentation
Tcomp	Compensation temperature in heating mode

3.3.2 Ventilation mode

- Compressor and outdoor unit fan motor stop to work.
- Temperature can't be set and room temperature is displayed.
- Can set turbo/high/middle/low/auto fan speed.
- The louver operation in ventilation mode is same as it in cooling mode.
- If set auto fan speed, the running speed is according to the temperature difference between room

temperature and 24°C. The temperature difference is bigger, the fan speed is higher.

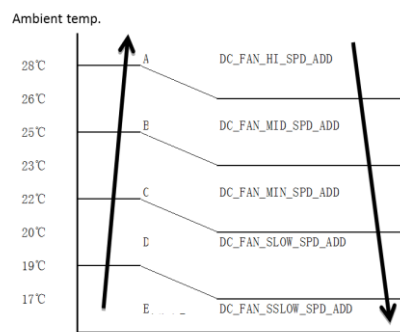
3.3.3 Cooling mode

- **Compressor frequency control**

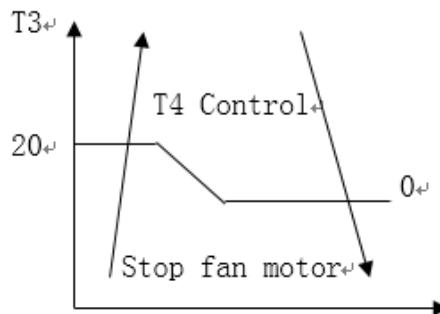
- The start and running frequency depends on the temperature difference between room and setting temperature.
- The running frequency will be limited by ambient temperature, indoor fan speed and outdoor unit current.

- **Outdoor fan motor control**

- The outdoor unit fan speed changing is according ambient temperature (T4). For different model outdoor unit, the fan speeds are different.



- When the ambient temperature is lower than 15°C, the unit will enter low ambient temperature cooling mode. The fan speed changing is according to picture below.



- When $T4 > 15^{\circ}\text{C}$ and $T3 \geq 20^{\circ}\text{C}$ for 1 min, exist low ambient temperature cooling mode.

- **Indoor fan motor control**

- The indoor fan motor will always run until ten seconds of shutdown. The purpose of delay stop is to prevent mildew.
- You can set turbo/high/middle/low/auto fan speed. The fan speed in auto fan mode is according to the temperature difference between room and setting temperature.
- Please note that, when first power on the unit, if you didn't set the fan speed, the unit will run at high fan speed for 30 minutes and then run at the speed showed in controller.

- **Evaporator anti-frost protection in cooling mode**

When the T2 (indoor coil sensor) $<4^{\circ}\text{C}$, decrease the compressor frequency until $4^{\circ}\text{C} \leq T2 \leq 6^{\circ}\text{C}$.

When $T2 > 7^{\circ}\text{C}$, exist the limitation. When $T2 < 0^{\circ}\text{C}$, stop the unit until $T2 \geq 5^{\circ}\text{C}$, restart the unit.

3.3.4 Dehumidification mode

- The fan speed is fixed on slim fan and can't be changed.
- If room temperature is lower than 10°C , the compressor will stop to work until the room temperature is higher than 12°C .

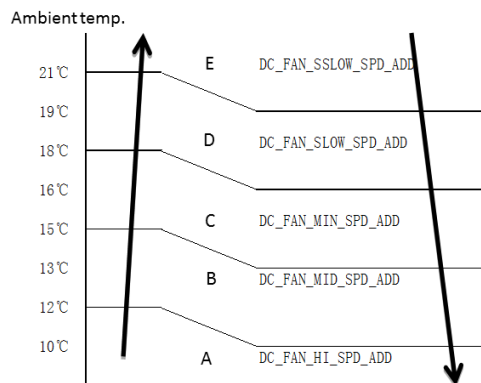
3.3.5 Heating mode

- **Compressor frequency control**

- The start and running frequency depends on the temperature difference between room and setting temperature.
- The running frequency will be limited by ambient temperature, indoor fan speed and outdoor unit current.

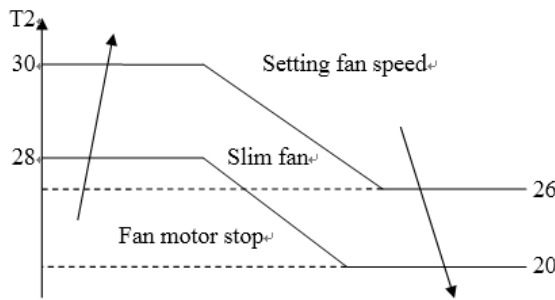
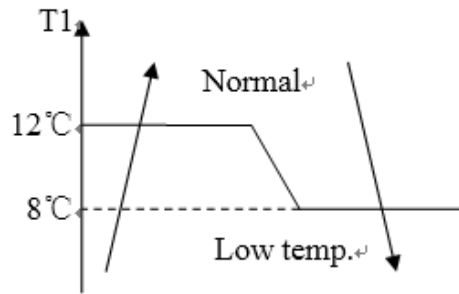
- **Outdoor fan motor control**

The outdoor unit fan speed changing is according ambient temperature (T4). For different model outdoor unit, the fan speeds are different.

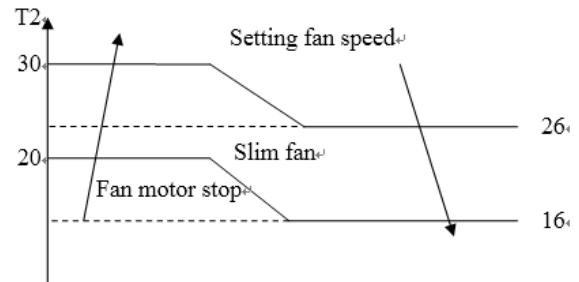


- **Indoor fan motor control**

- Can set turbo/high/middle/low/auto fan speed. The fan speed in auto fan mode is according to the temperature difference between room and setting temperature.
- Anti-cold-wind protection: According to room temperature choose the anti-cold-wind plan.

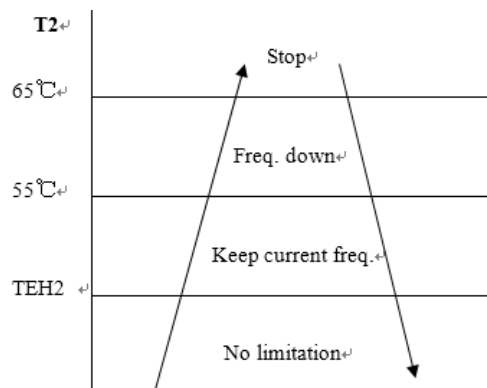


Normal plan



Low temp. plan

- If switch off in heating mode, the fan motor will stop after ten seconds delay. But if $T_2 < 30^\circ\text{C}$, the fan motor will stop immediately.
- **High evaporator temperature protection**



- **Defrosting mode**

- The unit enters defrosting mode according to T3, the running time of compressor.
- In defrosting mode, the compressor continues to run, the indoor and outdoor motor will stop, the 4-way valve is OFF, and the “dF” symbol is displayed in indoor unit.
- If any one of the following conditions is satisfied, defrosting ends and the machine switches to normal heating mode:
 - a. T3 rises above TCDE1°C.
 - b. T3 maintained above TCDE2°C for 80 seconds.
 - c. Unit runs for 10 minutes consecutively in defrosting mode.
 (Note: for different models, TCDE1 and TCDE2 data are different.)

- After defrosting mode, the unit may enter anti-cold-wind protection.

3.3.6 Auto mode

- This mode can be selected by remote controller and the temperature setting can be adjusted between 16~32°C
- In auto mode, the running mode depends on the temperature difference between room temperature (T1) and setting temperature (Ts).

T1-Ts	Running mode
$T1-Ts > 2^{\circ}\text{C}$	Cooling mode
$-3^{\circ}\text{C} < T1-TS \leq +2^{\circ}\text{C}$	Ventilation mode
$T1-TS \leq -3^{\circ}\text{C}$	Heating mode

- The fan speed is according the setting in remote controller.
- In auto mode, when the cooling and heating modes are interchanged, the compressor must be stopped for 20 minutes before reselecting the mode according to the difference between the room temperature and the setting temperature. When the setting temperature changes or the fault is restored, select the running mode again.
- If the selected mode is ventilation mode, setting temperature is displayed in indoor unit.

3.3.7 Forced operation function

- Press the forced button, the unit switches forced mode in the following order: forced auto mode → forced cooling mode → OFF → forced auto mode.
- Forced auto mode
Forced auto mode operates the same as normal auto mode with a preset temperature of 24°C.
- Forced cooling mode
The compressor and outdoor fan continue to run at a fixed frequency and the indoor fan runs at rated speed. After running for 30 minutes, the AC will switch to auto mode with a preset temperature of 24°C.
- When the unit receive the signal of mode setting, fan speed changing and temperature setting from remote controller, the unit will exist forced operation mode.

3.3.8 Timer function

- Timing rang is 24 hours.

-
- Press timer button to enter timer setting, and the timing time will be displayed in indoor unit for 15 seconds.
 - Timer ON: When reaching the setting time, AC will turn on automatically and the icon will disappear in remote controller.
 - Timer OFF: When reaching the setting time, AC will turn OFF automatically and the icon will disappear in remote controller.
 - The timer setting will not change the AC current operation mode. Suppose AC is off now, it will not start up firstly after setting the “timer off” function. And when reaching the setting time, the timer icon will disappear and the AC running mode has not been changed.

3.3.9 Sleep function

- The sleep function is available in cooling mode and heating mode.
- Sleep function takes priority over TURBO functions.
- The operating time for sleep function is 8 hours.
- As long as AC receives the signal of sleep function, it will enter sleep function. If receiving a signal without sleep function (including mode and power on and off), AC will exit sleep operation function. Starting the shutdown will also cancel the sleep operation function (determined by the remote control).
- The operational process for sleep mode is as follows:
 - In cooling mode, the temperature rises 1°C (to not higher than 32C) every hour. After 2 hours, the temperature stops rising. The fan speed changes to slim fan speed automatically and the fan speed can be changed by remote controller. After 8 hours, it exits sleep function and the setting temperature will decrease 1°C automatically.
 - In heating mode, the temperature decreases 1°C (to not lower than 16°C) every hour. After 2 hours, the temperature stops decreasing. The fan speed changes to slim fan speed automatically and the fan speed can be changed by remote controller. Anti-cold wind function takes priority. After 8 hours, it exits sleep function and the setting temperature will rise 1°C automatically.

3.3.10 Louver position memory function

When starting the unit again after shutting down, its louver will restore to the angle originally set by the user, but the precondition is that the angle must be within the allowable range, if it exceeds, it will memorize the maximum angle of the louver. During operation, if the power fails or the end user shuts down the unit in the turbo mode, the louver will restore to the default angle.

3.3.11 Self-clean function

- Press “CLEAN” button in wireless controller to enter self-clean mode. “CL” will appear in indoor unit.
- If any one of the following conditions is satisfied, AC will exit self-clean mode.
 - a. press “CLEAN” button again in self-clean mode to exit.

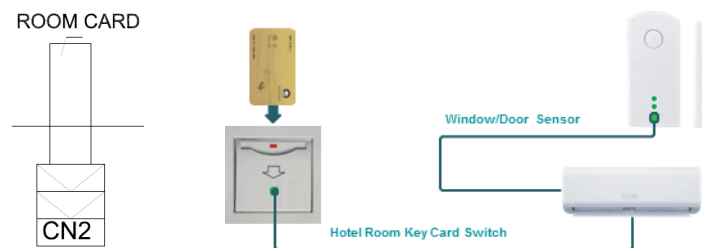
- b. press “ON/OFF” button to exit.
- c. after finishing the self-cleaning function, it will automatically shut down and exit the self-clean.
- In self-clean mode, AC will run at cooling mode for default time and the setting temperature is fixed to 26°C firstly. And then stop 3 minutes. Finally, the unit will run heating mode for default time and then stop.

3.3.12 ECO function

The setting temperature is set to 26°C.

3.3.13 Room card function

- There is a Remote ctrl port in indoor unit PCB.
- When this port is disconnected, the AC will stop and can’t start again. If send the turn ON signal to unit, “HC” will be displayed in indoor unit for 10 seconds and then disappear.
- When this port is connected, the AC can be turned ON and OFF normally. All functions are available.
- If room card function is not needed, please add a short circuit in this port.

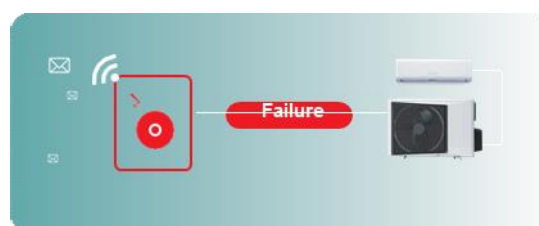


3.3.14 Alarm output function

When the AC has a fault, the remote alarm port will output a high level; when the fault disappears, the remote alarm port output a low level.

3.3.15 Auto restart function

- The AC automatically stores the current settings (including ON/OFF status, running mode, fan speed, setting temperature and swing).
- In the case of a sudden power failure, AC will restore those setting automatically within 5 seconds after power returns. If AC receive the control signal within 5 seconds, it will run according to new settings.



3.3.16 8°C heating

Reserved.

3.3.17 I FEEL function(Optional)

- This function is available when using NT-05D, NT-09 and NT-10 wireless controller. There is a temperature sensor in controller.
- Once press I FEEL button, the temperature (Tr) detected by wireless controller will appear in indoor unit. After 5 second, it will show setting temperature.
- Once active, the wireless control will send a signal with Tr information every 3 minutes, with no beeps. The unit automatically runs according to this temperature.
- If the unit does not receive a signal from wireless controller for 7 minutes or press IFEEL button again, this function turns off. The unit regulates temperature based on its own sensor and settings.

3.3.18 Ionize function (Optional)

- Add an ionize generator in indoor unit.
- When the unit is ON, fan motor is running and without error, press ionize button to activate this function.

3.3.19 Wired controller (Optional)

- Connect with wired controller, can set the ON/OFF, running mode, temperature, fan speed, swing, turbo, sleep mode and timer.
- If there is error, error code will also be showed in wired controller.

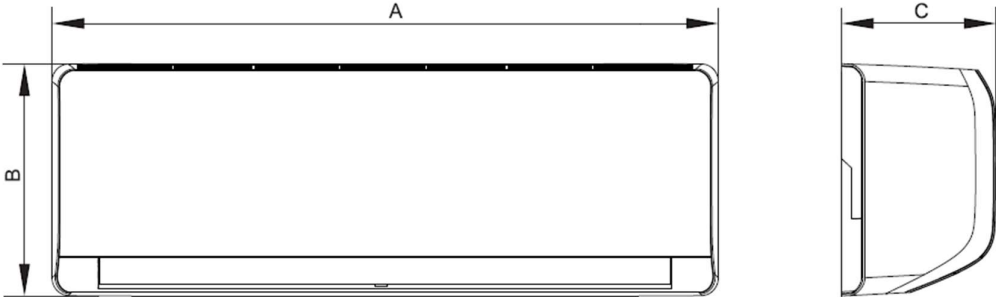
3.3.20 WIFI controller (Optional)

- WIFI control allows customer to control AC using mobile phone.
- For the USB device access, replacement, maintenance operations must be carried out by professional staff.

4 Installation, maintenance and disassembly

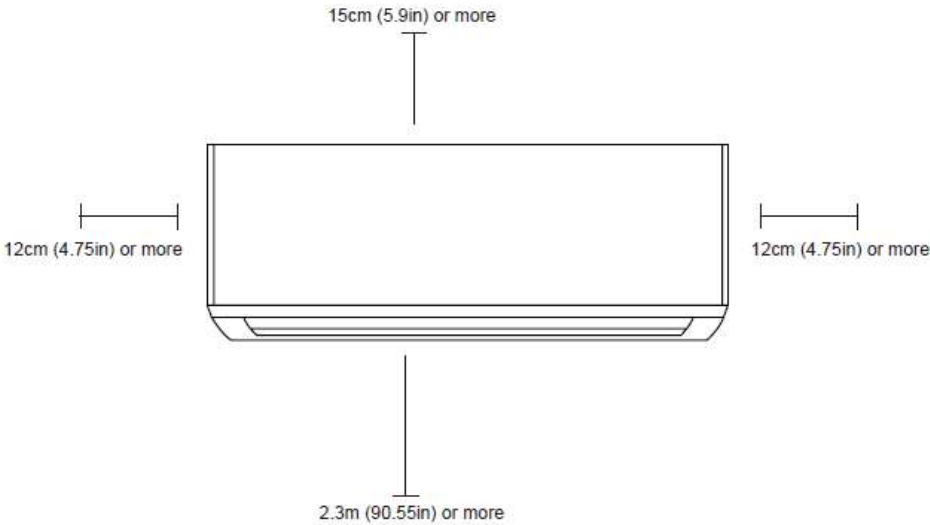
4.1 Indoor unit installation

I. Dimension

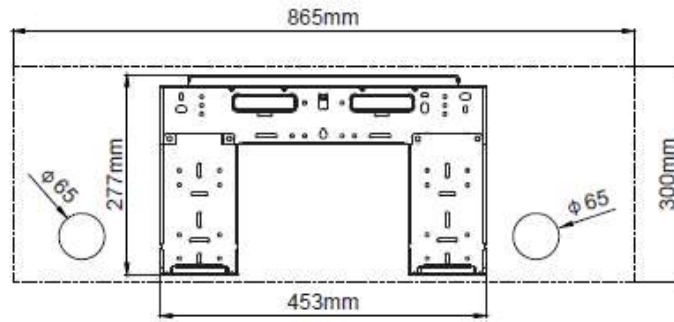


Dimension	A(mm)	B(mm)	C(mm)
9K	715	295	198
12K	864	300	200
18K	972	320	215
24K	1080	335	226

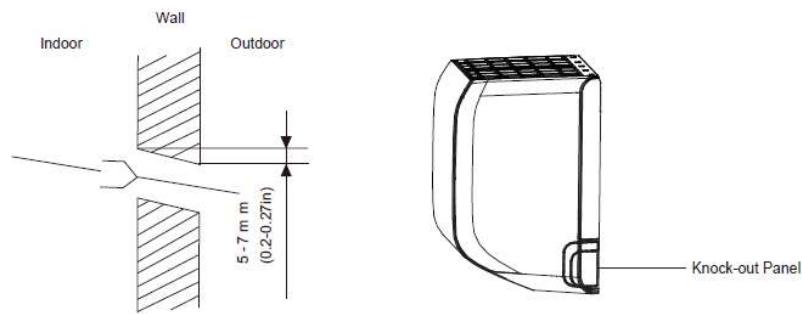
II. Ensure proper distance from walls and ceiling



III. Install wall mounted plate

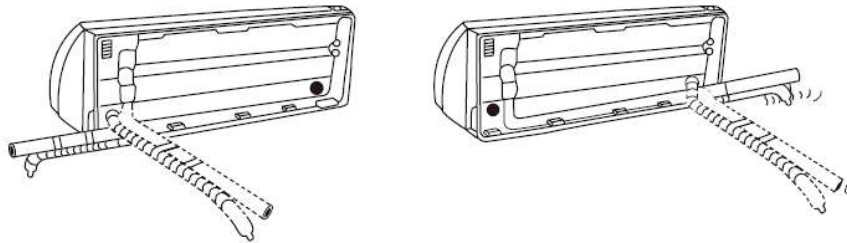


IV. Drill wall hole for connecting pipe



V. Connect copper pipes

The pipes can be bent to different directions.



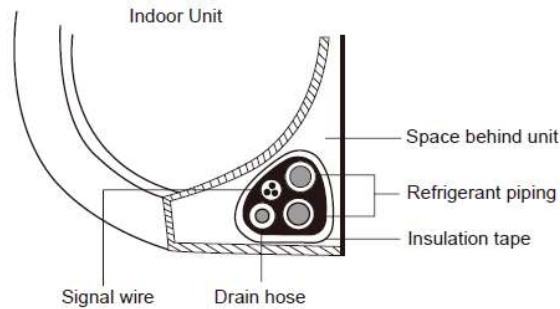
VI. Connect drain hose





VII. Connect signal and power supply cable.

VIII. Wrap piping and cables.



Note: Please check installation manual for detailed information.

Before performing any electrical or wiring work, turn off the main power to the system.

The signal cable enables communication between the indoor and outdoor units. You must first choose the right cable size before preparing it for connection.

Cable Types

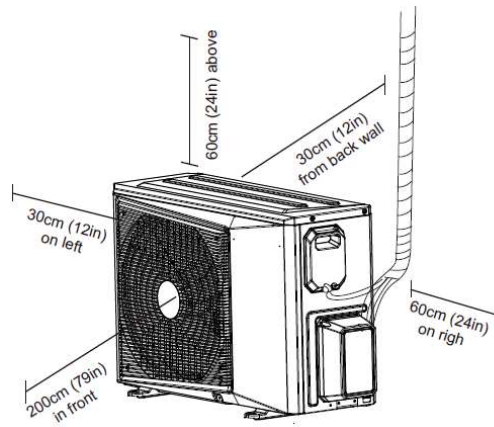
- 1) Indoor Power Cable (if applicable): H05VV-F or H05V2V2-F
- 2) Outdoor Power Cable: H07RN-F
- 3) Signal Cable: H07RN-F

Minimum Cross-Sectional Area of Power and Signal Cables

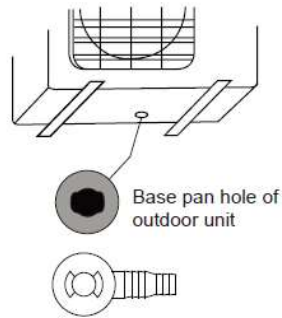
Rated Current of Appliance (A)	Nominal Cross-Sectional Area (mm ²)
> 3 and ≤ 6	0.75
> 6 and ≤ 10	1
> 10 and ≤ 16	1.5
> 16 and ≤ 25	2.5
> 25 and ≤ 32	4
> 32 and ≤ 40	6

4.2 Outdoor unit installation

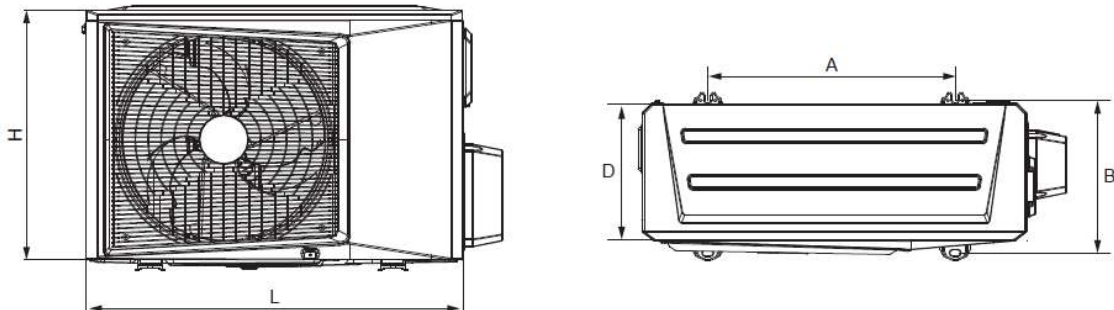
I. Select a proper installation location



II. Install drain joint



III. The outdoor unit should be fixed on the ground or a wall mounted bracket.



Model	ODU dimension(mm) L*H*D	Mounting dimension	
		A	B
9K/12K	735×475×250	453	280
18K	790×520×280	508	314

24K	848×670×345	544	345
-----	-------------	-----	-----

IV. Connect signal and power cables

Rated Current of Appliance (A)	Nominal Cross-Sectional Area (mm ²)
>3 and ≤6	0.75
>6 and ≤10	1
>10 and ≤16	1.5
>16 and ≤25	2.5
>25 and ≤32	4
>32 and ≤40	6

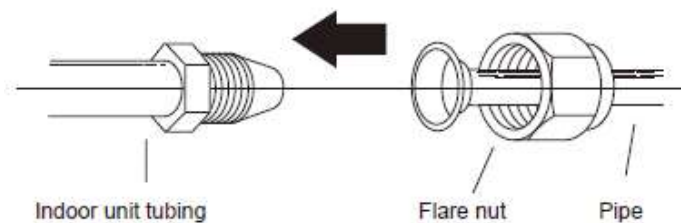
4.3 Refrigerant piping connection

4.3.1 Longest pipe length

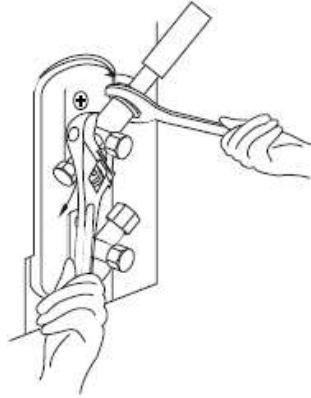
Model	Max. length (m)	Max. drop height (m)
9K/12 KBtu/h	25	10
18 KBtu/h	30	20
24 KBtu/h	30	20

4.3.2 Connect pipe to indoor unit

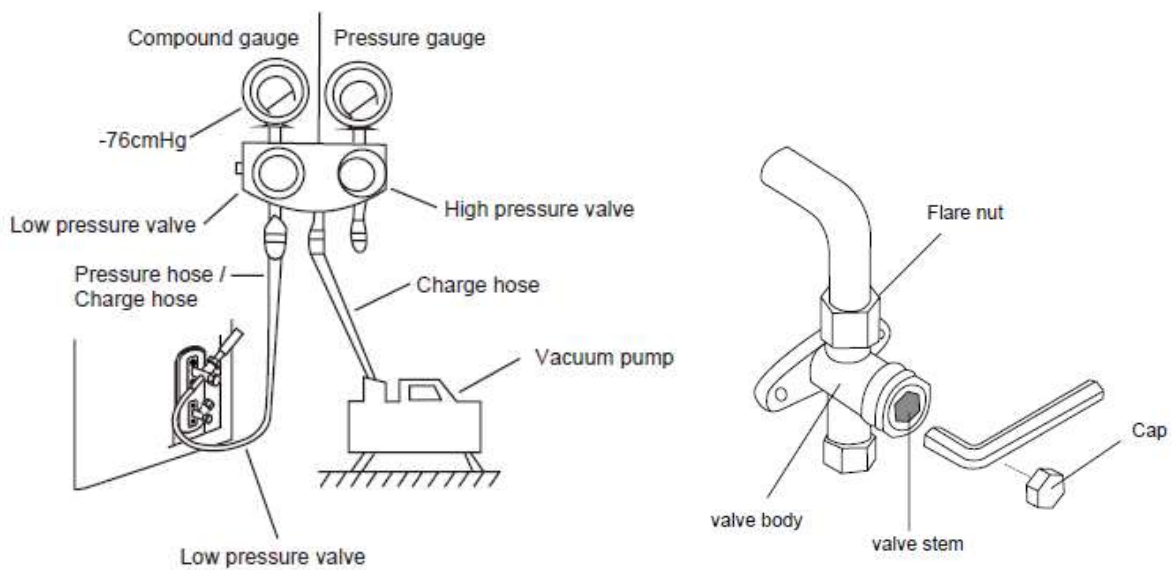
Align the center of the two pipes that you will connect.



4.3.3 Connect to outdoor unit



4.3.4 Air evacuation



1. Connect the charge hose of the manifold gauge to service port on the outdoor unit's low pressure valve.
2. Connect another charge hose from the manifold gauge to the vacuum pump.
3. Open the Low Pressure side of the manifold gauge. Keep the High Pressure side closed.
4. Turn on the vacuum pump to evacuate the system.
5. Run the vacuum for at least 15 minutes, or until the Compound Meter reads -76cmHG (-105 Pa).
6. Close the Low Pressure side of the manifold gauge, and turn off the vacuum pump.
7. Wait for 5 minutes, then check that there has been no change in system pressure.
8. If there is a change in system pressure, refer to Gas Leak Check section for information on how to check for leaks. If there is no change in system pressure, unscrew the cap from the packed valve (high pressure valve).
9. Insert hexagonal wrench into the packed valve (high pressure valve) and open the valve by turning the wrench in a 1/4 counterclockwise turn. Listen for gas to exit the system, then close the valve after

5 seconds.

10. Watch the Pressure Gauge for one minute to make sure that there is no change in pressure. The Pressure Gauge should read slightly higher than atmospheric pressure.

11. Remove the charge hose from the service port.

12. Using hexagonal wrench, fully open both the high pressure and low pressure valves.

13. Tighten valve caps on all three valves (service port, high pressure, low pressure) by hand. You may tighten it further using a torque wrench if needed.

4.3.5 Additional refrigerant charging

Some systems require additional charging depending on pipe lengths. The standard pipe length varies according to local regulations. The standard pipe length is 5m (16'). The additional refrigerant to be charged can be calculated using the following formula:

Liquid pipe: $\Phi 6.35\text{mm}$

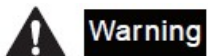
Additional refrigerant charging = (Pipe length – standard length) * 15g/m

Liquid pipe: $\Phi 9.52\text{mm}$

Additional refrigerant charging = (Pipe length – standard length) * 30g/m

5 Troubleshooting

5.1 Safety caution



- Be sure to turn off all power supplies or disconnect all wires to avoid electric shock. While checking indoor/outdoor PCB, please equip oneself with antistatic gloves or wrist strap to avoid damage to the board.
- Electricity remains in capacitors even when the power supply is off.
- Ensure the capacitors are fully discharged before troubleshooting.
(Test the voltage between P and N on back of the main PCB with multimeter. If the voltage is lower than 36V, the capacitors are fully discharged.)

5.2 Error diagnosis and solution without error code

Some phenomena are easily thought as error, but actually not.

Phenomena	Reasons
The unit can't be restarted just after shut down. (RUN lamp is ON)	Restart stop for 3 minutes after shut down to protect the unit. Three minutes protection timer incorporated in the microcomputer actuates automatically. Except that power is connected, this function does not actuate.
Air is not blown out at starting of heating operation.	Air blow is stopped to prevent blowing out cold air when the indoor heat exchanger is not warmed enough. (2 to 5 min)
Air is not blown out for 6 to 12 min in heating mode	When outdoor temperature is low and humidity is high, the unit sometimes performs defrosting mode automatically. Please wait. During defrosting mode, water or steam are raising from the outdoor unit.
The unit will not stop blowing out the air immediately after shut down at cooling operation (some model)	The drying function may be activated, please wait for the end of the operation or use the remote control to turn off the drying function. The louver will not close down until after 30 seconds.
Air is not blown out at dehumidification operation.	Indoor fan is sometimes stopped to prevent moisture from evaporating and to save energy.

Mist is blown out.	When the room humidity is relatively high, the cooling operation or heating operation defrosting ends, the air outlet may blow out water mist, which is a normal physical phenomenon.
Water may on the air outlet grilles.	<ul style="list-style-type: none"> • When the ambient humidity is relatively high, water droplets will be generated in the air outlet, panel and other parts, which is a normal physical phenomenon; • Long-term cooling operation in an open space will produce water droplets, please close the doors and windows. • If the panel is not tightly closed, causing air leakage, water droplets may be generated on the panel. Please close the panel securely.
Stop after some time running	<ul style="list-style-type: none"> • Reach setting temperature • In defrosting mode • Timer OFF is set
Strange sound in indoor unit	<ul style="list-style-type: none"> • The dust filter accumulates too much dust. Please clean the dust filter in time; • When the plastic parts of the indoor unit expand and contract with heat, it may produce frictional sound. • After the "TURBO" function is turned on, the wind noise is loud. • The indoor unit panel is not closed tightly or the air inlet is obstructed. Please close the panel again or remove the obstruction of the air inlet.
Strange sound in outdoor unit	<ul style="list-style-type: none"> • The sound of refrigerant flowing when it is running or just stopped, which is a normal phenomenon. • After running for a period of time, a "puff" sound is made, which is the sound of the four-way valve reversing when the outdoor unit turns to defrosting mode, which is a normal phenomenon.

5.3 Error code list

5.2.1 Indoor unit error code

Definitions of malfunction	Error code
Communication failure between indoor and outdoor unit	E1
T1 room temperature sensor fault	E2
T2 temperature sensor fault	E3
T2B temperature sensor fault	E4
Outdoor unit fault	E5
Zero-crossing detection fault	E6
EEPROM error	E7
PG fan motor stall protection	E8
Communication fault of wired controller	E9
Room card port disconnected port	HC

When it shows E5, press to show more error code.

Definitions of malfunction	Error code
Communication failure between indoor and outdoor unit	E2
T4 ambient temperature sensor fault	E4
T5 discharge temperature sensor fault	E5
T3 condenser pipe temperature sensor fault	E6
Indoor unit EEPROM error	E7
AC over-voltage / under-voltage protection	E9
Outdoor unit EEPROM error	E10
Indoor unit fan motor fault	E11
IPM temperature sensor fault	E12
Outdoor unit fan motor fault	E2x
Compressor fault	H2x
PFC fault	H3x

Primary / secondary over-current protection	P3
High discharge temperature protection	P4
High condenser temperature protection	P5
IPM module fault	P6
IDU anti-frosting protection	P7
High IPM temperature protection	P8
Outdoor unit fan motor stall protection	P9
High evaporator temperature protection	P11
DC bus low voltage protection	L1
DC bus high voltage protection	L2
MCE fault / sync / compressor start fault	L4
Zero speed protection	L5
Phase sequence error protection	L7
Compressor stall fault	L8
Frequency limitation because of voltage	LA
Frequency limitation because of evaporator temperature	LB
Frequency limitation because of condenser temperature	LC
Frequency limitation because of discharge temperature	LD
Frequency limitation because of high IPM temperature	LE
Frequency limitation because of current	LF

5.4 Spot check

- Method 1: After powering on 5s, long press the button in indoor unit PCB for 5s, to enter spot check. And then short press this button to read more parameters.
- Method 2: After powering on, press “up & down swing” and “left & right swing” button alternately 5 times within 10 seconds to enter spot check. Press “up & down swing” and “left & right swing” button to read more parameters.
- Spot check table:

No.	Content
0-	Setting temperature
1-	Indoor temperature (T1),
2-	Indoor unit evaporator temperature (T2 or T2B)
3-	EEPROM code
4-	Software code
5-	Outdoor unit error code
6-	Outdoor unit running frequency
7-	Outdoor unit condenser temperature (T3)
8-	Outdoor ambient temperature (T4)
9-	Indoor unit fan speed (f0 means 1500rpm, a1 means 1010rpm)

5.4 Troubleshooting by error code

Indoor unit error

5.4.1 E1 (IDU) Communication failure between indoor and outdoor unit

Description: the indoor unit didn't receive feedback from outdoor unit within 1 minute.

Possible reason:

- Bad connection of communication wire
- Fault indoor or outdoor unit PCB

Troubleshooting and repair:

- Check if the wiring connection between outdoor and indoor unit is loose.
- Power off and then repower on the unit after 3 minutes. If error code disappear, problem is solved. If not, go to next step.
- Measure the DC voltage between P and N on back of the main PCB with multi meter.

5.4.2 E2, E3, E4 (IDU) temperature sensor fault

Description: the sampling voltage is lower than 0.06V or higher than 4.94V.

Possible reason:

- Open circuit or short circuit of relevant port.
- Faulty temperature sensor

-
- Faulty PCB

Troubleshooting and repair:

- a) Check the connection between temperature sensor and PCB.
- b) Measure the resistance of sensor, and compare it with appendix table.
- c) If above items are no problem, replace a new PCB.

5.4.3 E6 (IDU) Zero-crossing detection fault

Description: When PCB does not receive zero crossing signal feedback for 4 minutes or the zero crossing signal time interval is abnormal.

Possible reason:

- Wrong connection
- Faulty PCB

Troubleshooting and repair:

- a) Check the wire connections one by one according to wiring diagram.
- b) Check power supply.
- c) Change a new indoor unit PCB.

5.4.4 E7 (IDU) EEPROM error

Description: Indoor PCB main chip does not receive feedback from EEPROM chip.

Possible reason:

- Faulty indoor unit PCB

Troubleshooting and repair:

- a) Cut off the power supply and then repower on the unit after 3 minutes.
- b) If the error still occurs, change a new PCB.

5.4.5 E8 (IDU) PG fan motor stall protection

Description: When the indoor fan speed is below 300rpm or over 2100rpm for 50s, the unit will stop and show E8 error.

Possible reason:

- Wrong wires connection
- Faulty fan assembly
- Faulty fan motor
- Faulty PCB

Troubleshooting and repair:

- a) Cut off the power supply and then repower on the unit after 3 minutes. If it still has problem, go to next step.

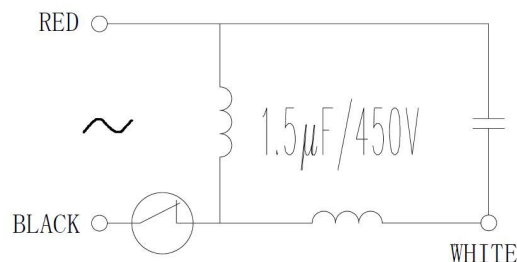
- b) Cut off the power supply and rotate the fan blade by hand. If it can't rotate smoothly, check if there is any block. Otherwise, go to next step.
- c) Check the wiring of fan motor.
- d) Measure the voltage of fan motor from PCB. If the parameters are normal, replace a new fan motor. If not, replace indoor unit PCB.

Note:

- DC fan motor voltage: Measure the voltage when the unit is in standby.

No.	Color	Signal	Voltage
1	Red	Vdc	150~340V
2	--	--	
3	Black	GND	0V
4	White	Vcc	14~17.5V
5	Yellow	Vsp	0~5.6V
6	Blue	FG	14~17.5V

- AC fan motor voltage: Power on and set the unit running in fan mode at high fan speed. After running for 15 seconds, measure the voltage of red and black wire. If the value of the voltage is less than 100V (208~240V power supply), the PCB must has problems and need to be replaced.



5.4.6 E9 (IDU) Communication fault of wired controller

Troubleshooting and repair:

- a) Check the connection between wired controller and indoor PCB.
- b) Change another wired controller.
- c) Change a new indoor PCB.

5.4.7 HC Room card port disconnected port

Possible reason:

- Short circuit is not connected in CN2 port

-
- Faulty problem

Troubleshooting and repair:

- a) Check if there is a short circuit in CN2 port.
- b) Change a new PCB.

Outdoor unit error

5.4.8 E2 (ODU) Communication failure between indoor and outdoor unit

Same as 5.4.1

5.4.9 E4, E5, E6 (ODU) temperature sensor fault

Same as 5.4.2

5.4.10 E9 (ODU) AC over-voltage / under-voltage protection

Description: Abnormal increases or decreases in voltage are detected by checking the specified voltage of detection circuit.

Possible reason:

- Power supply error
- Refrigerant system leakage or block
- Faulty outdoor unit PCB

Troubleshooting and repair:

- a) Check the power supply and measure the voltage.
- b) Repower on the unit and measure the voltage between P and N. When the unit is in standby, is the voltage between P and N about 310VDC, 340VDC or 380VDC? When start up the unit, is it in 220V~400V? If not, replace a new outdoor PCB. If yes, go to next step.
- c) Check the reactor.

5.4.11 E10 (ODU) Outdoor unit EEPROM error

Same as 5.4.4

5.4.12 E11 (ODU) Indoor unit fan motor fault

Please refer to 5.4.5

5.4.13 E12 (ODU) IPM temperature sensor fault

Description: the sampling voltage is not at 5V

Possible reason:

- Power supply error

-
- Refrigerant system leakage or block
 - Faulty outdoor unit PCB
 - Connection problem

Troubleshooting and repair:

- a) Check the power supply.
- b) Check the fastening screws on the PCB and IPM radiator. If they are not fixed tightly, tighten the screws and apply silicon grease. Otherwise, go to next step.
- c) Change a new outdoor unit PCB.

5.4.14 E2x Outdoor unit fan motor fault

Description: When the chip detects the fan IPM overcurrent, it reports a fault

Troubleshooting and repair:

- a) Cut off power supply and then rotate the fan blade by hand, to check whether the fan is blocked or the screws are not tightened.
- b) Check the connection between fan motor and PCB
- c) Change a new PCB

5.4.15 H2x Compressor fault

Description: An abnormal inverter compressor drive is detected by a special detection circuit, including communication signal detection, voltage detection, current detection, compressor rotation speed signal detection and so on.

Possible reason:

- Wrong wiring connection
- IPM malfunction
- Compressor malfunction
- Faulty outdoor unit PCB
- Outdoor unit fan motor

Troubleshooting and repair:

- a) Check the wiring between PCB and compressor according to wiring diagram.
- b) Check the outdoor unit fan and outdoor unit ventilation.
- c) Check the compressor resistance
- d) If all are no problem, change the outdoor PCB.

5.4.16 P3 Primary / secondary over-current protection

Description: detected current is higher than setting value.

Possible reason:

- Refrigerant is too much
- Liquid side is block
- Heat exchanging in outdoor unit is not good
- Compressor malfunction

5.4.17 P4 High discharge temperature protection

Description: discharge temperature is higher than 115°C.

Possible reason:

- Lack of refrigerant
- High ambient temperature or heat exchanging in condenser side is bad
- There is air or N2 or water in refrigerant system
- Block in low pressure side

Troubleshooting and repair:

- Check the refrigerant charging record and check if there is any leakage point.
- Whether it is too dirty in outdoor coil? Improve the ventilation condition.
- Check whether the fan motor can work normally.

5.4.18 P5 High condenser temperature protection

Description: in cooling mode or dry mode, the T3 temperature is higher than setting value.

Possible reason:

- Bad ventilation
- Faulty temperature sensor
- Faulty PCB

Troubleshooting and repair:

- Check the heat exchange of outdoor unit condenser is good or not.
- Check the temperature sensor resistance.

5.4.19 P6 IPM module fault

Description: Below table shows detailed error code about P6.

DC bus low voltage protection	L1
DC bus high voltage protection	L2
MCE fault / sync / compressor start fault	L4
Zero speed protection	L5

Phase sequence error protection	L7
Compressor stall fault	L8

Possible reason:

- Wrong wire connection
- IPM malfunction
- Compressor malfunction
- Faulty PCB

Troubleshooting and repair:

- a) Check the wiring between PCB and compressor.
- b) Check the outdoor unit fan and ventilation.
- c) Check the IPM in PCB.
- d) Check the resistance of compressor.
- e) If all are normal, change a new PCB.

5.4.20 P7 IDU anti-frosting protection

Description: indoor unit evaporator temperature T2 is lower than 0°C.

Possible reason:

- Filter or evaporator is dirty
- Indoor fan motor can't work normally or the flap is closed

Troubleshooting and repair:

- a) Clear the filter and evaporator
- b) Check the fan motor

5.4.21 P8 High IPM temperature protection

Description: the detected temperature of IPM is higher than 100°C.

Possible reason:

- Power supply issue
- System leakage or block
- Faulty outdoor unit PCB
- Connection problem

Troubleshooting and repair:

- d) Check the power supply.
- e) Check the fastening screws on the PCB and IPM radiator. If they are not fixed tightly, tighten the screws and apply silicon grease. Otherwise, go to next step.

f) Change a new outdoor unit PCB.

5.4.22 P9 Outdoor unit fan motor stall protection

Please refer to 5.4.5

5.4.23 P11 High evaporator temperature protection

Description: Indoor unit evaporator temperature (T2) is higher than 65°C.

Possible reason:

- Abnormal T2 temperature sensor
- Faulty 4-way valve
- Bad ventilation
- Refrigerant is not enough

Troubleshooting and repair:

- a) Measure the resistance of T2 sensor
- b) Check the 4-way valve connection. If unit is in heating mode, there is a 220V output in 4-way valve port.
- c) Check if evaporator is too dirty.
- d) Confirm the refrigerant volume.

Appendix

I. Temperature sensor resistance value table for T1, T2, T3 and T4 (°C – K)

Temperature °C	Resistance (kΩ)	Temperature °C	Resistance (kΩ)	Temperature °C	Resistance (kΩ)
-25	41.99	17	6.729	59	1.615
-24	39.96	18	6.478	60	1.567
-23	38.05	19	6.238	61	1.521
-22	36.24	20	6.008	62	1.476
-21	34.52	21	5.789	63	1.433
-20	32.9	22	5.578	64	1.391
-19	31.37	23	5.377	65	1.351
-18	29.91	24	5.185	66	1.312
-17	28.53	25	5	67	1.274
-16	27.22	26	4.821	68	1.237
-15	25.98	27	4.649	69	1.202
-14	24.52	28	4.485	70	1.168
-13	23.43	29	4.327	71	1.135
-12	22.39	30	4.176	72	1.103
-11	21.41	31	4.031	73	1.072
-10	20.48	32	3.892	74	1.043
-9	19.59	33	3.759	75	1.019
-8	18.74	34	3.631	76	0.9914
-7	17.93	35	3.508	77	0.9642
-6	17.16	36	3.389	78	0.9379
-5	16.431	37	3.275	79	0.9124
-4	15.739	38	3.165	80	0.8877
-3	15.08	39	3.06	81	0.8638
-2	14.454	40	2.959	82	0.8406
-1	13.857	41	2.861	83	0.8181
0	13.29	42	2.768	84	0.7963
1	12.739	43	2.678	85	0.7752
2	12.215	44	2.592	86	0.7547
3	11.717	45	2.509	87	0.7348
4	11.241	46	2.429	88	0.7155
5	10.789	47	2.352	89	0.6968
6	10.357	48	2.278	90	0.6786
7	9.946	49	2.207	91	0.661
8	9.554	50	2.138	92	0.6439
9	9.18	51	2.071	93	0.6272
10	8.823	52	2.006	94	0.6111

11	8.482	53	1.944	95	0.5954
12	8.157	54	1.884	96	0.5802
13	7.846	55	1.826	97	0.5654
14	7.55	56	1.77	98	0.551
15	7.266	57	1.717	99	0.5371
16	6.991	58	1.665	100	0.5235

II. Temperature sensor resistance value table for T5 (°C – K)

Temperature °C	Resistance (kΩ)	Temperature °C	Resistance (kΩ)	Temperature °C	Resistance (kΩ)
0	162.8960	34	34.0197	68	9.2774
1	154.8355	35	32.6330	69	8.9588
2	147.2203	36	31.3098	70	8.6526
3	140.0233	37	30.0471	71	8.3582
4	133.2193	38	28.8416	72	8.0753
5	126.7846	39	27.6906	73	7.8032
6	120.6973	40	26.5914	74	7.5414
7	114.9366	41	25.5413	75	7.2897
8	109.4834	42	24.5379	76	7.0475
9	104.3195	43	23.5789	77	6.8144
10	99.4280	44	22.6622	78	6.5901
11	94.7931	45	21.7857	79	6.3741
12	90.4000	46	20.9473	80	6.1662
13	86.2348	47	20.1454	81	5.9660
14	82.2845	48	19.3781	82	5.7732
15	78.5368	49	18.6438	83	5.5875
16	74.9803	50	17.9409	84	5.4086
17	71.6042	51	17.2679	85	5.2361

18	68.3985	52	16.6234	86	5.0700
19	65.3537	53	16.0061	87	4.9098
20	62.4608	54	15.4147	88	4.7554
21	59.7115	55	14.8480	89	4.6065
22	57.0980	56	14.3048	90	4.4629
23	54.6128	57	13.7840	91	4.3244
24	52.2490	58	13.2847	92	4.1908
25	50.0000	59	12.8059	93	4.0619
26	47.8597	60	12.3466	94	3.9376
27	45.8223	61	11.9059	95	3.8175
28	43.8823	62	11.4830	96	3.7017
29	42.0346	63	11.0771	97	3.5898
30	40.2743	64	10.6875	98	3.4818
31	38.5968	65	10.3133	99	3.3775
32	36.9979	66	9.9540	100	3.2768
33	35.4735	67	9.6089	101	3.1795



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