komfovent

MOU

INSTALLATION MANUAL

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CONTENT

1. SAFETY PRECAUTIONS 4

2. OUTDOOR UNIT INSTALLATION 4

2.1. Outdoor Unit Installation Instructions 4

3. REFRIGERANT PIPING CONNECTION 7

3.1. Notes On Pipe Length and Elevation 7

3.2. Refrigerant Piping Connection Instructions 7

4. PIPING DIAGRAMS 9

5. WIRING 11

5.1. Outdoor Unit Wiring 11

6. AIR EVACUATION 12

6.1. Evacuation Instructions 12

6.2. Note On Adding Refrigerant 13

7. OUTDOOR UNIT SPECIFICATIONS 14

8. AHU KIT SPECIFICATIONS 16

8.1. Introduction 16

8.2. Specification and packing list 16

8.3. System design 17

8.4. Function and Setting 18

8.4.1. KA8140 18

8.4.2. KA8142 + MOU-12HFN8a / MOU-18HFN8a / MOU-24HFN8a 18

8.4.3. KA8142 + MOU-36HFN8a / MOU-48HFN8a / MOU-55HFN8a 19

8.4.4. AHUKZ-02D + MOU-280-HFN6 / MOU-335-HFN6 21

8.5. Control module connection to controller 22

8.5.1. KA8140/KA8142 connection to C6 22

8.5.2. KA8140/KA8142 connection to C6M 22

8.5.3. KA8140/KA8142 connection to C5 22

8.5.4. KA8140/KA8142 connection to C5 zone 23

8.5.5. AHUKZ-02D connection to C5 controller 23

8.5.6. AHUKZ-02D connection to C5 additional zone 23

8.6. Malfunction, Error Code 24

8.6.1. KA8140 24

8.6.2. KA8142 25

8.6.3. AHUKZ-02D 26

8.7. Dimensions 27

8.7.1. KA8140/KA8142 27

8.7.2. AHUKZ-02D 27

APENDIX NO.1. WARRANTY INFORMATION 29

This symbol indicates that this product is not to be disposed of with your household waste, according to the WEEE Directive (2002/96/EC) and your national law. This product should be handed over to a designated collection point, or to an authorised collection site for recycling waste electrical and electronic equipment (EEE). Improper handling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, waste authority, approved WEEE scheme or your household waste disposal service.

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.

Failure to observe a warning may result in death. The appliance must be installed in accordance with national regulations. Failure to observe a caution may result in injury or equipment damage.

- **Carefully read the Safety Precautions before installation.**
- **Only trained and certified technicians should install, repair and service this air conditioning unit. Improper installation may result in electrical shock, short circuit, leaks, fire or other damage to the equipment and personal property.**
- **Strictly follow the installation instructions set forth in this manual. Improper installation may result in electrical shock, short circuit, leaks, fire or other damage to the equipment.**
- **Before you install the unit, consider strong winds, typhoons and earthquakes that might affect your unit and locate it accordingly. Failure to do so could cause the equipment to fail.**
- **After installation, ensure there are no refrigerant leaks and that the unit is operating properly. Refrigerant is both toxic and flammable and poses a serious health and safety risk.**

Note about Fluorinated Gasses

1. This unit contains fluorinated gasses. For specific information on the type of gas and the amount, please refer to the relevant label on the unit itself.
2. Installation, service, maintenance and repair of this unit must be performed by a certified technician.
3. Product uninstallation and recycling must be performed by a certified technician.
4. If the system has a leak-detection system installed, it must be checked for leaks at least every 12 months.
5. When the unit is checked for leaks, proper record-keeping of all checks is strongly recommended.

2. OUTDOOR UNIT INSTALLATION

2.1. Outdoor Unit Installation Instructions

Step 1: Select installation location.

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

- Place the outdoor unit as close to the indoor unit as possible.
- Ensure that there is enough room for installation and maintenance.
- The air inlet and outlet must not be obstructed or exposed to strong wind.
- Ensure the location of the unit will not be subject to snowdrifts, accumulation of leaves or other seasonal debris. If possible, provide an awning for the unit. Ensure the awning does not obstruct airflow.
- The installation area must be dry and well ventilated.
- There must be enough room to install the connecting pipes and cables and to access them for maintenance.
- The area must be free of combustible gases and chemicals.
- The pipe length between the outdoor and indoor unit may not exceed the maximum allowable pipe length.
- If possible, DO NOT install the unit where it is exposed to direct sunlight.
- If possible, make sure the unit is located far away from your neighbors' property so that the noise from the unit will not disturb them.
- If the location is exposed to strong winds (for example: near a seaside), the unit must be placed against the wall to shelter it from the wind. If necessary, use an awning. (See Fig. 2.1 & 2.2)
- Install the indoor and outdoor units, cables and wires at least 1 meter from televisions or radios to prevent static or image distortion. Depending on the radio waves, a 1 meter distance may not be enough to eliminate all interference.

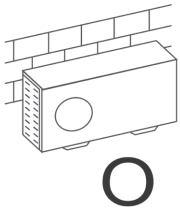

Fig. 2.1

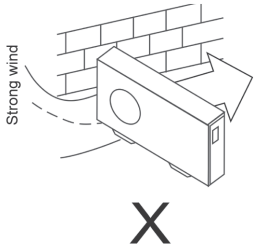

Fig. 2.2

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Step 2: Install outdoor unit.
Fix the outdoor unit with anchor bolts (M10)

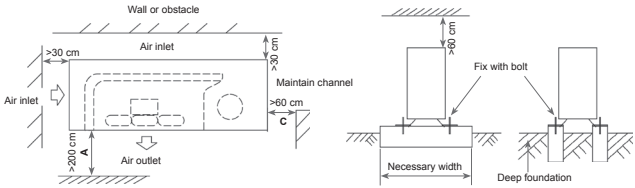

Fig. 2.3

- **Be sure to remove any obstacles that may block air circulation.**
- **Make sure you refer to Length Specifications to ensure there is enough room for installation and maintenance.**

Split Type Outdoor Unit
(Refer to Fig 3.4, 3.5, 3.6, 3.7)

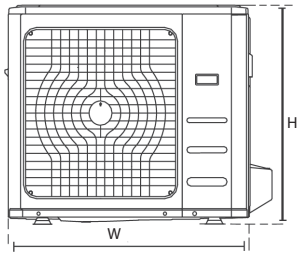

Fig. 2.4

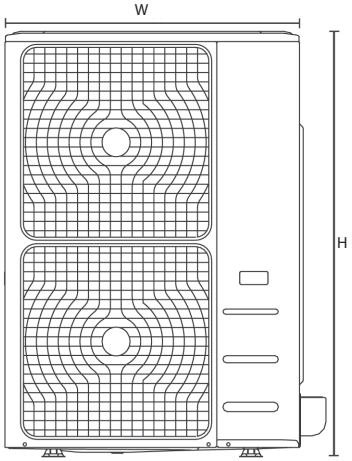

Fig. 2.5

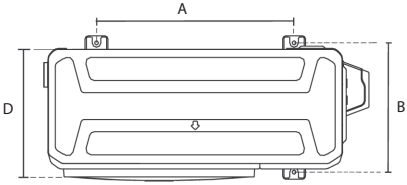

Fig. 2.6

Model	Outdoor unit dimensions W × D × H	Mounting Dimensions, mm	
		A	B
MOU-12HFN8a	720 × 270 × 495	452	269
MOU-18HFN8a	805 × 330 × 554	511	317
MOU-24HFN8a	890 × 342 × 673	663	348
MOU-36HFN8a	946 × 410 × 810	673	403
MOU-48HFN8a	952 × 415 × 1333	634	404
MOU-55HFN8a	952 × 415 × 1333	634	404
MOU-55HFN8b	980 × 415 × 975	616	397
MOU-280-HFN6	1120 × 442 × 1555	668	494
MOU-335-HFN6	1120 × 442 × 1555	668	494

NOTE: The minimum distance between the outdoor unit and walls described in the installation guide does not apply to airtight rooms. Be sure to keep the unit unobstructed in at least two of the three directions (M, N, P) (See Fig. 2.7).

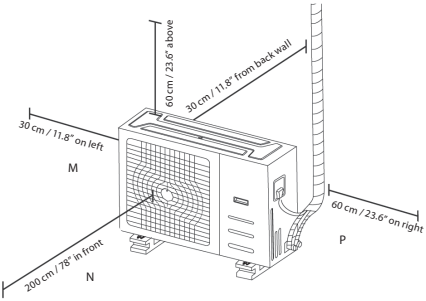

Fig. 2.7

Drain Joint Installation

Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit (See Fig. 2.8).

1. Fit the rubber seal on the end of the drain joint that will connect to the outdoor unit.
2. Insert the drain joint into the hole in the base pan of the unit.
3. Rotate the drain joint 90° until it clicks in place facing the front of the unit.
4. Connect a drain hose extension (not included) to the drain joint to redirect water from the unit during heating mode.

NOTE: Make sure the water drains to a safe location where it will not cause water damage or a slipping hazard.

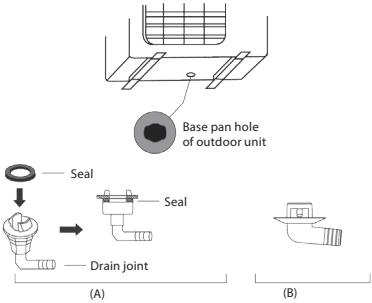

Fig. 2.8

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3. REFRIGERANT PIPING CONNECTION

Safety Precautions

- **All field piping must be completed by a licensed technician and must comply with the local and national regulations.**
- **When the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration in the room from exceeding the safety limit in the event of refrigerant leakage. If the refrigerant leaks and its concentration exceeds its proper limit, hazards due to lack of oxygen may result.**
- **When installing the refrigeration system, ensure that air, dust, moisture or foreign substances do not enter the refrigerant circuit. Contamination in the system may cause poor operating capacity, high pressure in the refrigeration cycle, explosion or injury.**
- **Ventilate the area immediately if there is refrigerant leakage during the installation. Leaked refrigerant gas is both toxic and flammable. Ensure there is no refrigerant leakage after completing the installation work.**

3.1. Notes On Pipe Length and Elevation

Ensure that the length of the refrigerant pipe, the number of bends, and the drop height between the indoor and outdoor units meets the requirements.

3.2. Refrigerant Piping Connection Instructions

- **DO NOT install the connecting pipe until both indoor and outdoor units have been installed.**
- **Insulate both the gas and liquid piping to prevent water leakage.**

Step1: Cut pipes

When preparing refrigerant pipes, take extra care to cut and flare them properly. This will ensure efficient operation and minimize the need for future maintenance.

1. Measure the distance between the indoor and outdoor units.
2. Using a pipe cutter, cut the pipe a little longer than the measured distance.

DO NOT deform pipe while cutting. Be extra careful not to damage, dent, or deform the pipe while cutting. This will drastically reduce the heating efficiency of the unit.

Make sure that the pipe is cut at a perfect 90° angle. Refer to Fig. 3.1 for examples of bad cuts.

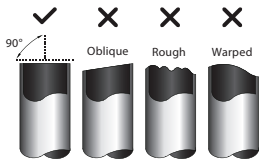


Fig. 3.1

Step 2: Remove burrs.

Burrs can affect the air-tight seal of refrigerant piping connection. They must be completely removed.

1. Hold the pipe at a downward angle to prevent burrs from falling into the pipe.
2. Using a reamer or deburring tool, remove all burrs from the cut section of the pipe.

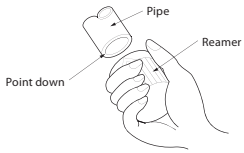


Fig. 3.2

Step 3: Flare pipe ends
Proper flaring is essential to achieve an airtight seal.
1. After removing burrs from cut pipe, seal the ends with PVC tape to prevent foreign materials from entering the pipe.
2. Sheath the pipe with insulating material.
3. Place flare nuts on both ends of pipe. Make sure they are facing in the right direction, because you can't put them on or change their direction after flaring. See Fig. 3.3.

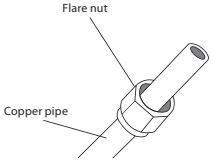


Fig. 3.3

4. Remove PVC tape from ends of pipe when ready to perform flaring work.
5. Clamp flare form on the end of the pipe. The end of the pipe must extend beyond the flare form.

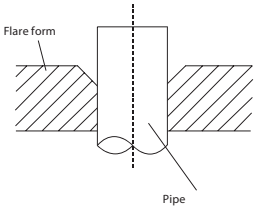
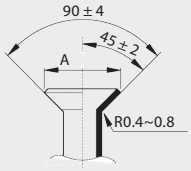


Fig. 3.4

6. Place flaring tool onto the form.
7. Turn the handle of the flaring tool clockwise until the pipe is fully flared. Flare the pipe in accordance with the dimensions shown in table 3.1.

Table 3.1. PIPING EXTENSION BEYOND FLARE FORM

Pipe gauge	Tightening torque	Flare dimension (A) (Unit: mm/Inch)		Flare shape
		Min.	Max.	
Ø 6.4	14.2-17.2 N.m (144-176 kgf.cm)	8.3	8.7	 **Fig. 3.5**
Ø 9.5	32.7-39.9 N.m (333-407 kgf.cm)	12.0	12.4	
Ø 12.7	49.5-60.3 N.m (504-616 kgf.cm)	15.4	15.8	
Ø 15.9	61.8-75.4 N.m (630-770 kgf.cm)	18.6	19.1	
Ø 19.1	97.2-118.6 N.m (990-1210 kgf.cm)	22.9	23.3	
Ø 22	109.5-133.7 N.m (1117-1364 kgf.cm)	27	27.3	

8. Remove the flaring tool and flare form, then inspect the end of the pipe for cracks and even flaring.

Check to make sure there is no refrigerant leak after completing the installation work. If there is a refrigerant leak, ventilate the area immediately and evacuate the system (refer to the Air Evacuation section of this manual).

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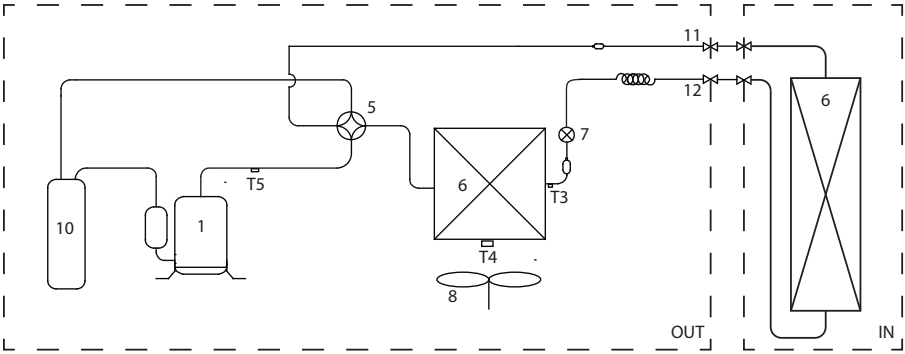
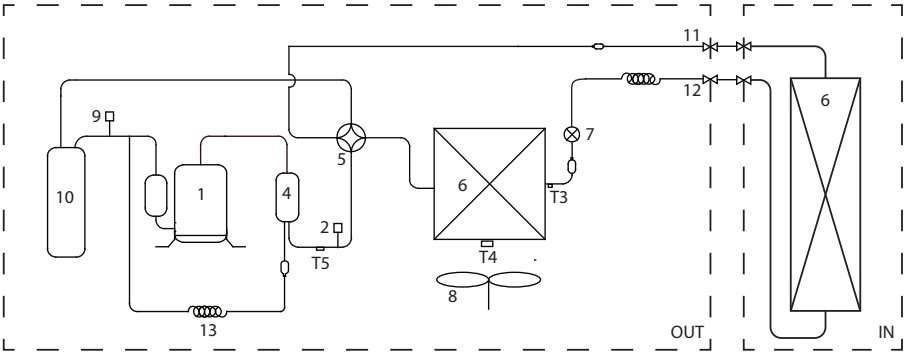
4. PIPING DIAGRAMS

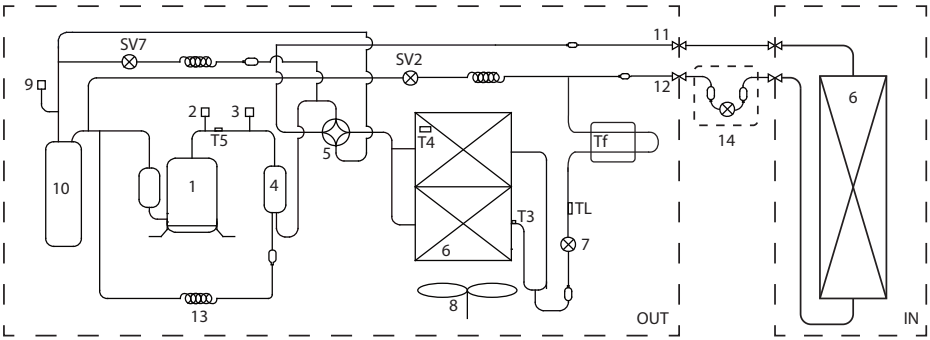
MOU-12HFN8a, MOU-18HFN8a, MOU-24HFN8a



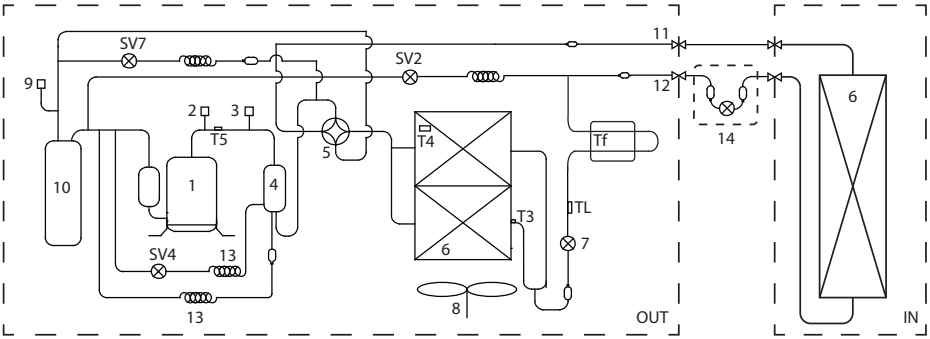
MOU-36HFN8a, MOU-48HFN8a, MOU-55HFN8a, MOU-55HFN8b



MOU-280-HFN6



MOU-335-HFN6



1	Compressor	**13**	Oil return capillary
2	High pressure switch	**14**	AHU kit AHUKZ-02D
3	High pressure sensor	**OUT**	Outdoor unit
4	Oil separator	**IN**	Indoor device
5	Four-way valve	**T3**	Heat exchanger temperature sensor
6	Heat exchanger	**T4**	Outdoor ambient temperature sensor
7	Electronic expansion valve (EXV)	**T5**	Discharge temperature sensor
8	Fan	**Tf**	Heat sink temperature sensor
9	Low pressure switch	**TL**	Refrigerant cooling pipe temperature sensor
10	Accumulator	**SV2**	Liquid injection valve
11	Stop valve (gas side)	**SV4**	Oil return valve
12	Stop valve (liquid side)	**SV7**	Refrigerant bypass valve

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5. WIRING

Safety Precautions

- **Be sure to disconnect the power supply before working on the unit.**
- **All electrical wiring must be done according to local and national regulations.**
- **Electrical wiring must be done by a qualified technician. Improper connections may cause electrical malfunction, injury and fire.**
- **An independent circuit and single outlet must be used for this unit. DO NOT plug another appliance or charger into the same outlet. If the electrical circuit capacity is not enough or there is a defect in the electrical work, it can lead to shock, fire, unit and property damage.**
- **Connect the power cable to the terminals and fasten it with a clamp. An insecure connection may cause fire.**
- **Make sure that all wiring is done correctly and the control board cover is properly installed. Failure to do so can cause overheating at the connection points, fire, and electrical shock.**
- **Ensure that main supply connection is made through a switch that disconnects all poles, with contact gap of a least 3 mm (0.118").**
- **DO NOT modify the length of the power cord or use an extension cord.**

- Connect the outdoor wires before connecting the indoor wires.
- Make sure you ground the unit. The grounding wire should be away from gas pipes, water pipes, lightning rods, telephone or other grounding wires. Improper grounding may cause electrical shock.

DO NOT connect the unit with the power source until all wiring and piping is completed.

- Make sure that you do not cross your electrical wiring with your signal wiring, as this can cause distortion and interference. Follow these instructions to prevent distortion when the compressor starts:
- The unit must be connected to the main outlet. Normally, the power supply must have a low output impedance of 32 ohms.
- No other equipment should be connected to the same power circuit.
- The unit's power information can be found on the rating sticker on the product.

5.1. Outdoor Unit Wiring

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

1. Prepare the cable for connection
a. You must first choose the right cable size before preparing it for connection. Be sure to use H07RN-F cables.

Table 5.1. Minimum Cross-Sectional Area of Power and Signal Cables North America

Rated Current of Appliance (A)	AWG
≤ 7	18
7–13	16
13–18	14
18–25	12
25–30	10

Table 5.2: Other Regions

Rated Current of Appliance (A)	AWG
≤ 6	0.75
6–10	1
10–16	1.5
16–25	2.5
25–32	4
32–45	6

b. Using wire strippers, strip the rubber jacket from both ends of signal cable to reveal about 15 cm (5.9") of the wires inside.
c. Strip the insulation from the ends of the wires.
d. Using a wire crimper, crimp u-lugs on the ends of the wires.

NOTE: While connecting the wires, please strictly follow the wiring diagram (found inside the electrical box cover).

2. Remove the electric cover of the outdoor unit. If there is no cover on the outdoor unit, disassemble the bolts from the maintenance board and remove the protection board. (See Fig. 5.1)

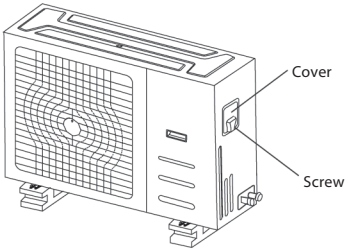

Fig. 5.1

3. Connect the u-lugs to the terminals Match the wire colors/labels with the labels on the terminal block, and firmly screw the u-lug of each wire to its corresponding terminal.
4. Clamp down the cable with designated cable clamp.
5. Insulate unused wires with electrical tape. Keep them away from any electrical or metal parts.
6. Reinstall the cover of the electric control box.

6. AIR EVACUATION

Safety Precautions

- Use a vacuum pump with a gauge reading lower than -0.1MPa and an air discharge capacity above 40L/min.
- The outdoor unit does not need vacuuming. DO NOT open the outdoor unit's gas and liquid stop valves.
- Ensure that the Compound Meter reads -0.1MPa or below after 2 hours. If after three hours of operation and the gauge reading is still above -0.1MPa, check if there is a gas leak or water inside the pipe. If there is no leakage, perform another evacuation for 1 or 2 hours.
- DO NOT use refrigerant gas to evacuate the system.

6.1. Evacuation Instructions

Before using manifold gauge and vacuum pump, read their operation manuals to familiarize yourself with how to use them properly.

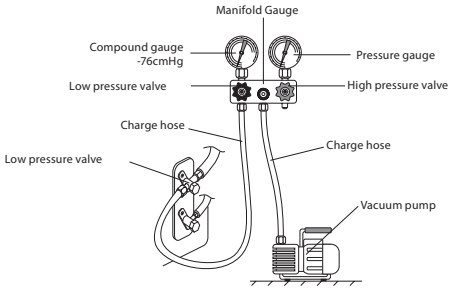

Fig. 6.1

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 (-1x105Pa).
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.

NOTE: If there is no change in system pressure, unscrew the cap from the packed valve (high pressure valve). If there is a change in system pressure, there may be a gas leak.

8. 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.

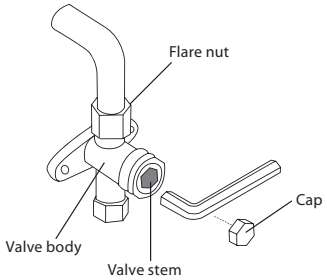

Fig. 6.2

9. 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.

10. Remove the charge hose from the service port.

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

OPEN VALVE STEMS GENTLY

When opening valve stems, turn the hexagonal wrench until it hits against the stopper.

DO NOT try to force the valve to open further.

12. Tighten valve caps by hand, then tighten it using the proper tool.

6.2. Note On Adding Refrigerant

- Refrigerant charging must be performed after wiring, vacuuming and the leak test.
- DO NOT exceed the maximum allowable quantity of refrigerant or overcharge the system. Doing so can damage or impact the unit's function.
- Charging with unsuitable substances may cause explosions or accidents. Ensure that the appropriate refrigerant is used.
- Refrigerant containers must be opened slowly. Always use protective gear when charging the system.
- DO NOT mix refrigerants types.

Some systems require additional charging depending on pipe lengths L (m).

Liquid pipe diameter, mm	Ø 6,35	Ø 9,52	Ø 12,7	Ø 15,9
Additional refrigerant volume, g	15×(L-5)	30×(L-5)	110x(L-7,5)	170x(L-7,5)

For example - If pipe for liquid refrigerant (Ø 9,52) length between outdoor unit and AHU is 10m, additional refrigerant needed: 30 x (10-5) = 150 g.

The standard pipe length varies according to local regulations.

7. OUTDOOR UNIT SPECIFICATIONS

When selecting an external MOU unit, make sure to consider the connected DX coil volume and the intended airflow through it. Otherwise, the MOU unit may operate improperly and fail to maintain the desired temperature parameters.

Model	MOU-12HFN8a	MOU-18HFN8a	MOU-24HFN8a	MOU-36HFN8a
Cooling capacity, kW	3.50 (1.1~4.2)	5.30 (3.4~5.83)	7.03 (3.28~8.16)	10.55 (2.73~11.78)
EER	2.89	3.42	2.54	2.79
SEER	6.1	7.0	6.2	6.1
Energy Efficiency Class	A++	A++	A++	A++
Heating capacity, kW	3.80 (1.1~4.2)	5.6 (3.1~5.85)	7.62 (2.81~8.49)	11.72 (2.78~12.84)
COP	3.45	3.57	3.01	3.27
SCOP	4.0	4.0	4.0	4.0
Energy Efficiency Class	A++	A+	A+	A+
Max. input consumption, W	2150	2500	3700	5000
Max. input current, A	10	13	19.0	10
Power supply, Ph, V, Hz	1Ph, 220-240V, 50Hz	1Ph, 220-240V, 50Hz	1Ph, 220-240V, 50Hz	3Ph, 380-415V, 50Hz
Wiring, # × mm^2	3 × 1,0	3 × 1,5	3 × 2,5	5 × 2,5
Compressor type	Rotary	Rotary	Rotary	Rotary
Compressor model			KTM240D43UKT	KTF310D43UMT
Compressor capacity, W	3255	4385	7600	10010
Refrigerant oil/oil charge, ml	ESTER OIL VG74/310	VG74 /440	VG74/620	VG74/1000
Outdoor air flow, m^3/h	1800	2100	3500	4000
Outdoor noise level (sound pressure), dB(A)	56	57	60	63
Outdoor dimension (W×D×H), mm	720 × 270 × 495	874 × 330 × 554	890 × 342 × 673	946 × 410 × 810
Outdoor packing (W×D×H), mm	835 × 300 × 540	915 × 370 × 615	995 × 398 × 740	1090 × 500 × 885
Outdoor Net / Gross weight, kg	23.2/25.0	33.5/36.1	43.9/46.9	80.5/85
Refrigerant type	R32	R32	R32	R32
GWP	675	675	675	675
Refrigerant charged volume, kg	0.55	1.10	1.5	2.4
Minimum DX coil volume, dm^3	0,55	0,8	1,28	1,75
Maximum DX coil volume, dm^3	0,73	0,92	1,48	2,53
Minimum air volume through DX coil, m^3/h	350	590	800	1250
Maximum air volume through DX coil, m^3/h	570	800	1350	2200
Design pressure, MPa	4.3/1.7	4.6/1.7	4.3/1.7	4.3/1.7
Liquid side / Gas side, mm	Ø6.35/Ø9.52	Ø6.35/Ø12.7	Ø9.52/Ø15.9	Ø9.52/Ø15.9
Liquid side – Gas side, inch	1/4”/3/8”	1/4”/1/2”	3/8”/5/8”	3/8”/5/8”
Max. pipe length, m	25	30	50	75
Max. difference in level, m	10	20	25	30
Ambient temp. cooling, °C	-15~50	-15~50	-15~50	-15~50
Ambient temp. heating, °C	-20...+24	-20...+24	-20...+24	-20...+24
AHU kit	KA8142	KA8142	KA8142	KA8142

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Model	MOU-48HFN8a	MOU-55HFN8a	MOU-55HFN8b	MOU-280-HFN6	MOU-335-HFN6
Cooling capacity, kW	14.07 (3.52~15.53)	15.24 (4.1~17.29)	15,24 (4.1~17.29)	28 (14.14~36.08)	33.5 (16.92~43.17)
EER	2.57	2.58	2,90	2.33	2.19
SEER	6.1	6.1	6,1	6.35	6.42
Energy Efficiency Class	A++	A++	A++	A+	A++
Heating capacity, kW	16.12 (4.10~18.17)	18.17 (4.4~20.52)	18.18 (4.4~20.52)	31.5 (15.80~40.89)	37.5 (18.81~48.68)
COP	2.82	2.79	3,53	3.71	3.3
SCOP	4.0	4.0	4	4.56	4.13
Energy Efficiency Class	A+	A+	A+	A+	A+
Max. input consumption, W	6900	7500	7500	12020	15300
Max. input current, A	13	14	14	24	33,2
Power supply, Ph, V, Hz	3Ph, 380-415V, 50Hz	3Ph, 380-415V, 50Hz	3Ph, 380-415V, 50Hz	3Ph, 380-415V, 50Hz	3Ph, 380-415V, 50Hz
Wiring, # × mm^2	5 × 2,5	5 × 2,5	5 × 2,5	5 × 4,0	5 × 6,0
Compressor type	Rotary	Rotary	Rotary	Rotary	Rotary
Compressor model	KTQ420D1UMU	KTQ420D1UMU	KTQ420D1UMU		
Compressor capacity, W	13700	13700	13700	17320	22170
Refrigerant oil/oil charge, ml	VG74/1400	VG74/1400	VG74/1400	RB75EA	FV50S
Outdoor air flow, m^3/h	7500	7500	5600	11000	11300
Outdoor noise level (sound pressure), dB(A)	64	64	64	60	61
Outdoor dimension (W×D×H), mm	952 × 415 × 1333	952 × 415 × 1333	980x415x975	1120 × 1558 × 528	1120 × 1558 × 528
Outdoor packing (W×D×H), mm	1095 × 495 × 1480	1095 × 495 × 1480	1145x500x1080	1270 × 1720 × 565	1270 × 1720 × 565
Outdoor Net / Gross weight, kg	103.7/118.3	107.0/121.2	92/107	144.0/160.0	157.0/173.0
Refrigerant type	R32	R32	R32	R410	R410
GWP	675	675	675	2088	2088
Refrigerant charged volume, kg	2.9	3.0	3,2	6.5	8.0
Minimum DX coil volume, dm^3	1,9	1,9	1,9	4,61	5,53
Maximum DX coil volume, dm^3	2,85	2,85	2,85	5,53	6,64
Minimum air volume through DX coil, m^3/h	1500	1600	1600	3700	4500
Maximum air volume through DX coil, m^3/h	2600	2800	2800	6400	7700
Design pressure, MPa	4.3/1.7	4.3/1.7	4.3/1.7	4.3/1.7	4.3/1.7
Liquid side / Gas side, mm	Ø9.52/Ø15.9	Ø9.52/Ø15.9	Ø9.52/Ø15.9	Ø9.52/Ø22.2	Ø12.7/Ø25.4
Liquid side – Gas side, inch	3/8”/5/8”	3/8”/5/8”	3/8”/5/8”	3/8”/7/8”	1/2”/1”
Max. pipe length, m	75	75	75	120	120
Max. difference in level, m	30	30	30	40	40
Ambient temp. cooling, °C	-15~50	-15~50	-15~50	-5~48	-5~48
Ambient temp. heating, °C	-20...+24	-20...+24	-20...+24	-20...+24	-20...+24
AHU kit	KA8142	KA8142	KA8142	AHUKZ-02D	AHUKZ-02D

8. AHU KIT SPECIFICATIONS

8.1. Introduction

Control module enables to control inverter type outdoor unit without the needs of air conditioner factory produced indoor unit. It gives possibility to control outdoor unit capacity and state to produce heator cooling for AHU or water heater/cooler.

Control module enables to control inverter condensing unit capacity 0-10%~100% by external input 0~10VDC signal.

Dry contact signal is used to control outdoor unit to work in cooling or heating mode.

The installation and operation of outdoor unit as well controller must be done according to the manuals (i.e. User's manual, Installation manual, Technical Specification, Service Manual).

8.2. Specification and packing list

Model		**KA8140/KA8142**	**AHUKZ-02D**
Casing		Plastic	Metal
Dimension (h × w × d)		61 × 100 × 191 mm	125x345x393 mm
Weight		0.4 Kg	5.9 kg
Operation Temperature Range		-25 °C ~ +45 °C	-25°C ~ +52°C
Operation Humidity Range		40 - 90 %	40-90 %
Power Supply		230 VAC, 1 Phase, 50/60Hz	230 VAC, 1 Phase, 50/60 Hz
Voltage Range		208 - 240V	208-240 V
Fuse		15 A, 250 V	15 A, 250 V
Resistance class		IP54	IP 20
Packing list	Box body	1 piece	1 piece
	Box cover	1 piece	1 piece
	Anti-water seal between box body and box cover	1 piece	1 piece
	Temp sensor	1 piece	5 pieces
	Gland	3 pieces	4 pieces
	Manual	1 piece	1 piece
	EXV valve with pipes	-	1 piece
	Control panel	-	1 piece
	Cable extension for temperature sensor	-	5 pieces
	Cable extension for EXV valve	-	1 piece

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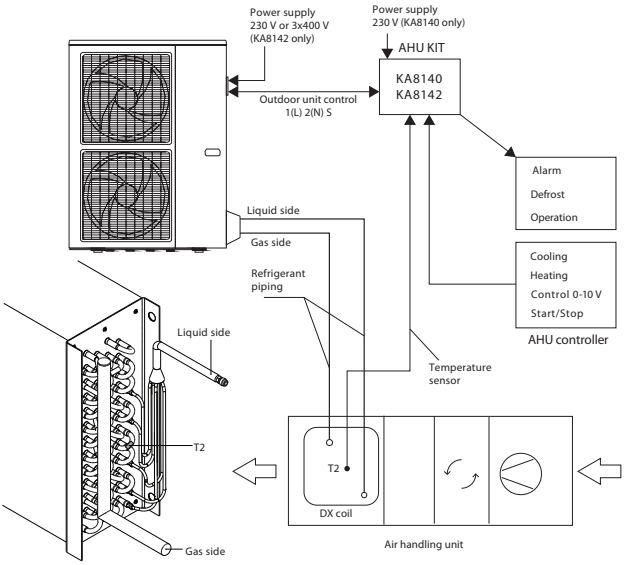
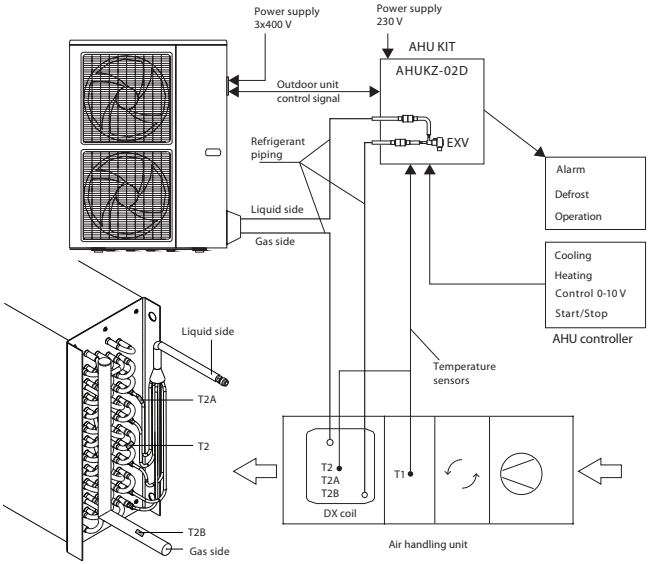
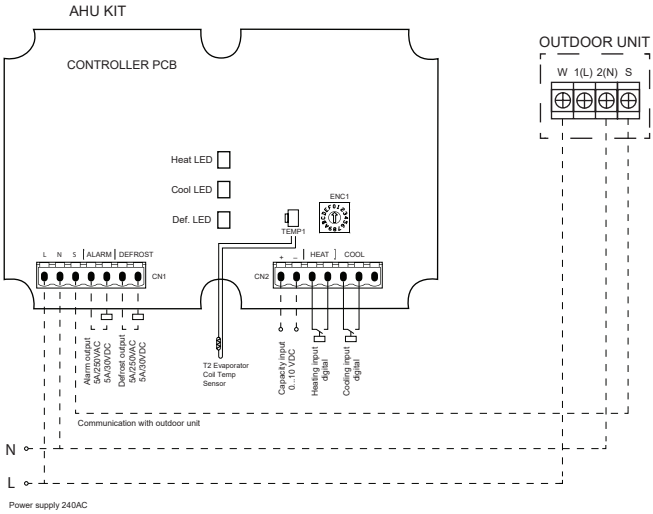
8.3. System design



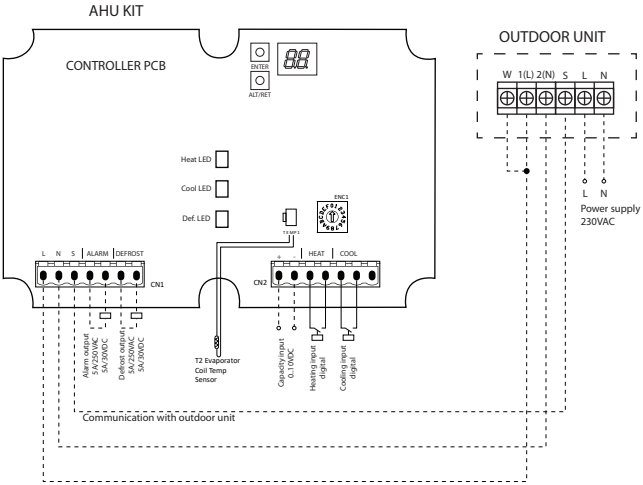


8.4. Function and Setting

8.4.1. KA8140



8.4.2. KA8142 + MOU-12HFN8a / MOU-18HFN8a / MOU-24HFN8a



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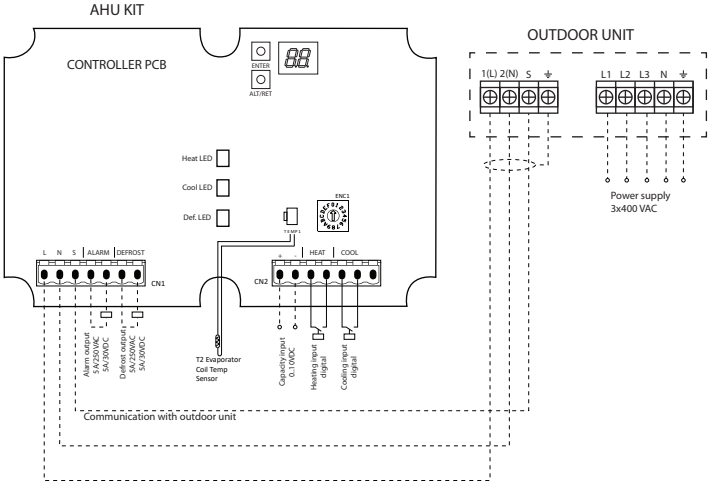
8.4.3. KA8142 + MOU-36HFN8a / MOU-48HFN8a / MOU-55HFN8a / MOU-55HFN8b



0..10 V capacity control from air handling unit:

Signal	Capacity	LED display
0-0.5 V	STOP	
0.5-1.5 V	10%	LED 1
1.5-2.5 V	20%	LED 2
2.5-3.5 V	30%	LED 3
3.5-4.5 V	40%	LED 4
4.5-5.5 V	50%	LED 5
5.5-6.5 V	60%	LED 6
6.5-7.5 V	70%	LED 7
7.5-8.5 V	80%	LED 8
8.5-9.5 V	90%	LED 9
9.5-10.5V	100%	LED 10

Negative(0/-) and Positive(10/+) terminals can not be mixed, otherwise it may destroy this control module. Signal input can not exceed 10.5VDC, otherwise it may destroy this control module.

COOL – Digital input. When terminals are closed, the unit will run in cooling mode and "COOL" LED will be on.

HEAT – Digital input. When terminals are closed, the unit will run in heating mode and "HEAT" LED will be on.

NOTE: HEAT signal has the priority. If both COOL and HEAT terminals are closed, unit will run in HEAT mode.

ENC1 (KA8140) – knob for multi split connection to select indoor unit capacity.
This knob is for multi indoor units connection only.
This knob will not work at one indoor to one outdoor connection.

Knob selection	Indoor unit capacity	Knob selection	Indoor unit capacity
0	2,0 kW unit	6	7,1 kW unit
1	2,6 kW unit	7	9,0 kW unit
2	3,2kW unit	8	10,5 kW unit
3	3,5 kW unit	9	14,0 kW unit
4	5,3 kW unit	A - F	16,0 kW unit
5	7,1 kW unit		

ENC1 (KA8142) – knob to select air handling unit condensing unit model.

Knob selection	Indoor unit capacity	Knob selection	Indoor unit capacity
0	2,0 kW unit	6	7,1 kW unit
1	2,6 kW unit	7	9,0 kW unit
2	3,2kW unit	8	10,5 kW unit
3	3,5 kW unit	9	14,0 kW unit
4	5,3 kW unit	A - F	16,0 kW unit
5	7,1 kW unit		

LED lamps introduction:
HEAT LED is lightened when the unit is operating in heating mode.
COOL LED is lightened when the unit is operating in cooling mode.
DEF LED is lightened when the unit is in defrost mode.

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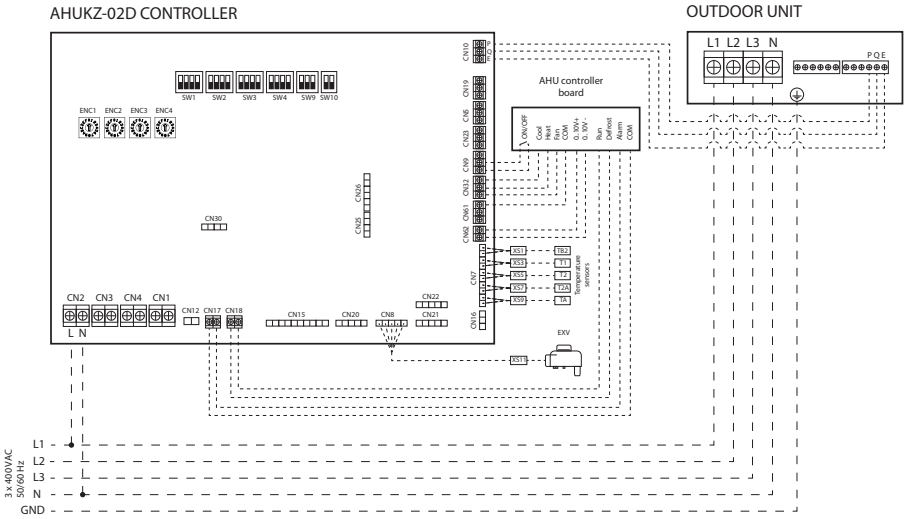
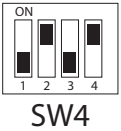
8.4.4. AHUKZ-02D + MOU-280-HFN6 / MOU-335-HFN6



ENC1 settings

0	28 kW	MOU-280-HFN6
1	33,5 kW	MOU-335-HFN6

SW4 settings

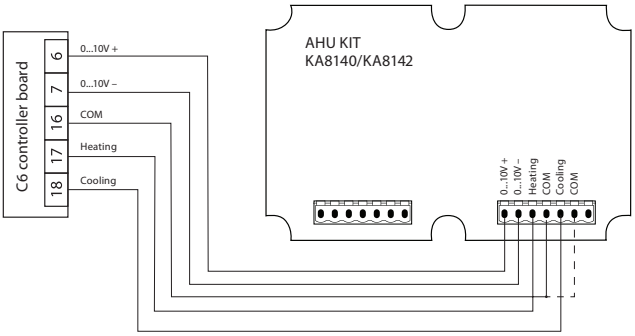


0..10 V capacity regulation

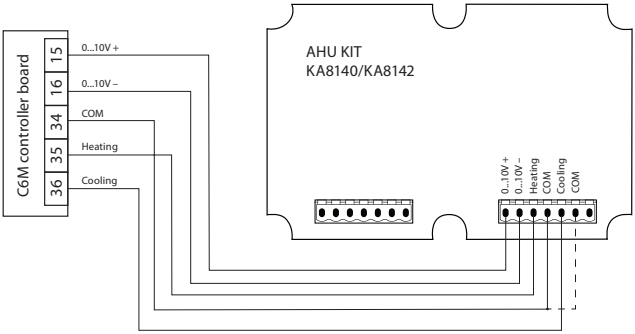
Signal	Capacity
0-0.5 V	STOP
0.5-1.5 V	10%
1.5-2.5 V	20%
2.5-3.5 V	30%
3.5-4.5 V	40%
4.5-5.5 V	50%
5.5-6.5 V	60%
6.5-7.5 V	70%
7.5-8.5 V	80%
8.5-9.5 V	90%
9.5-10.5V	100%

8.5. Control module connection to controller

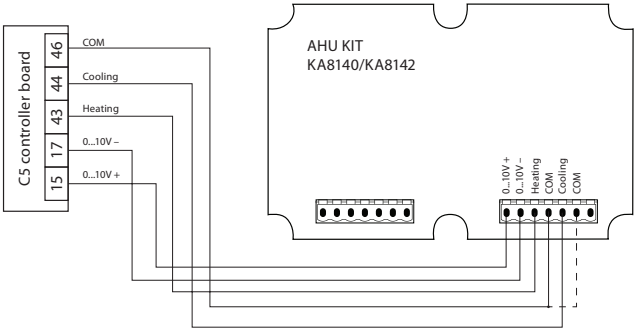
8.5.1. KA8140/KA8142 connection to C6



8.5.2. KA8140/KA8142 connection to C6M



8.5.3. KA8140/KA8142 connection to C5



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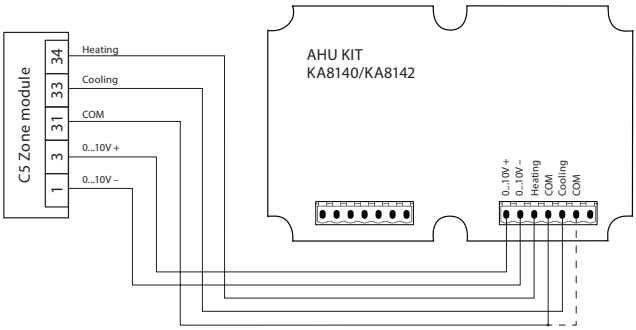
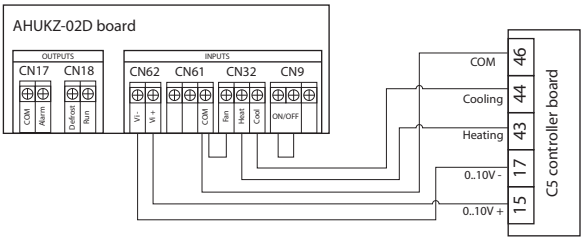
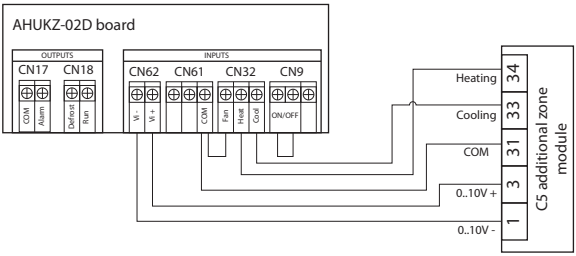
8.5.4. KA8140/KA8142 connection to C5 zone



8.5.5. AHUKZ-02D connection to C5 controller



8.5.6. AHUKZ-02D connection to C5 additional zone



8.6. Malfunction, Error Code

8.6.1. KA8140

Display Code	Malfunction or Protection
E1	communication error with outdoor unit.
E2	temp sensor malfunction
Ed	outdoor unit temperature sensor malfunction or outdoor unit protection
dF	outdoor is defrosting
E5	evaporator coil temperature sensor T2 malfunction
F0	current overload protection
F1	outdoor unit ambient temperature sensor T4 malfunction
F2	outdoor unit condenser pipe temperature sensor T3 malfunction
F3	outdoor unit compressor discharge temperature sensor TP malfunction
F4	outdoor unit EEPROM parameter error
F5	outdoor unit fan speed is operating outside of the normal range
F6	outdoor unit T2b temperature sensor malfunction
P0	IPM malfunction or IGBT over-strong current protection
P1	over voltage or over low voltage protection
P2	top temperature protection of compressor
P3	outdoor low temperature protection
P4	compressor protection or malfunction
--	multi split indoor units cooling/heating mode conflict
P6	low pressure protection of compressor

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8.6.2. KA8142

Display Code	Malfunction or Protection
EH01	AHU kit/outdoor unit communication error
EL01	Indoor/outdoor unit communication error
EC51	Outdoor unit EEPROM parameter error
EC52	Condenser coil temperature sensor T3 is in open circuit or has short circuited
EC53	Outdoor room temperature sensor T4 is in open circuit or has short circuited
EC54	Compressor discharge temperature sensor TP is in open circuit or has short circuited
EC55	IGBT temperature sensor TH is in open circuit or has short circuited
EH60	Indoor room temperature sensor T1 is in open circuit or has short circuited
EH61	Evaporator coil temperature sensor T2 is in open circuit or has short circuited
EC71	Outdoor external fan overcurrent fault
EC72	Outdoor external fan phase failure
EC73	Zero speed failure of outdoor unit DC fan
EC70	The outdoor fan speed is operating outside of the normal range
PC00	IPM malfunction or IGBT over-strong current protection
PC10	Outdoor over low voltage protection
PC11	Outdoor over voltage protection
PC12	DC voltage protection
PC01	Outdoor voltage protection
PC02	Top temperature protection of compressor or High temperature protection of IPM module
PC40	Communication error between outdoor main chip and compressor driven chip
PC41	Current Input detection protection
PC42	Compressor start error
PC43	Lack of phase (3 phase) protection
PC44	Outdoor unit zero speed protection
PC45	341 PWM error
PC46	Compressor speed malfunction
PC49	Compressor over current protection
PC06	Compressor discharge temperature protection
PC08	Outdoor current protection
PC0F	PFC or IGBT module malfunction
PC30	System overpressure protection
PC31	System pressure is too low protection
PC03	Pressure protection
PC0L	Outdoor low ambient temperature protection
PH90	Evaporator coil temperature over high protection
PH91	Evaporator coil temperature over low Protection
PC0A	Condenser high temperature protection
LH00	Frequency limit caused by T2
LC01	Frequency limit caused by T3
LC02	Frequency limit caused by TP
LC05	Frequency limit caused by voltage
LC03	Frequency limit caused by current
LC06	Frequency limit caused by PFC or IPM
LC30	Frequency limit caused by high pressure
LC31	Frequency limit caused by low pressure
----	Indoor units mode conflict (match with multi outdoor unit)

8.6.3. AHUKZ-02D

Display Code	Malfunction or Protection
A1	Refrigerant leak error
A0	Emergency shut down
FE	No address is set
F7	IDU address code repeated F7+repeated address, displayed alternately every 1s
E0	Mode conflict error
E1	Communication error between IDU and ODU
E2	T1 sensor error
E3	T2 sensor error
E4	T2B sensor error
E5	T2A sensor error
E6	IDU fan error
E7	EEPROM error
E8	TA sensor error
E9	Communication error with the wired controler, or no address is setted
Eb	Error of electronic expansion valve coils
Ed	ODU error
EE	Water level alarm error
H2	Low temperature alarm
H3	High temperature alarm
H6	The number of detected AHU control boxes and the number of dialing units are inconsistent, or Master-slave communication is not available
H8	Capacity DIP switch of the AHU control box is inconsistent with model
H9	(ENC2, ENC3, ENC4) incorrect DIP switch for 0-10V fan signal.The DIP switch value ensures ENC2<ENC3<ENC4.
P1	Pressure sensor error
F8	MS error mode
U4	MS self-check error
Hb	Slave unit error

For troubleshooting with no solving solution, please refer to outdoor unit producer.

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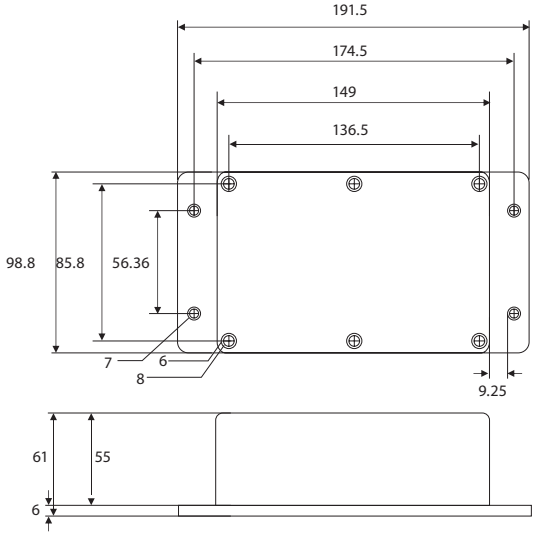
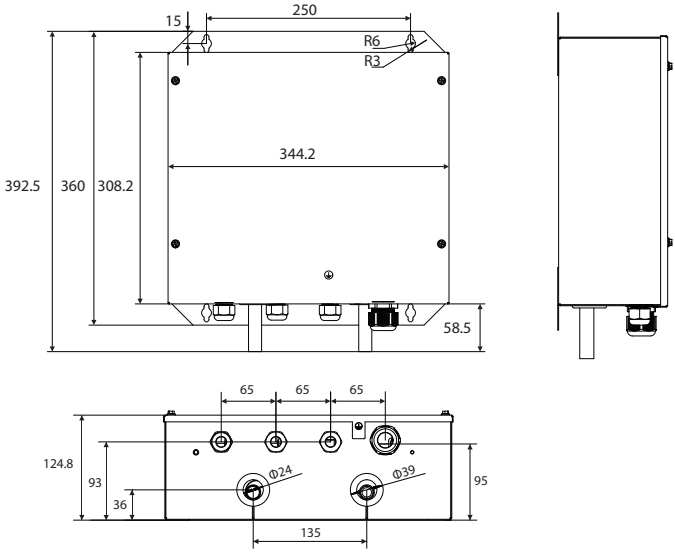
8.7. Dimensions

8.7.1. KA8140/KA8142



8.7.2. AHUKZ-02D



Appendix 1. Temperature Sensor Resistance Value Table (°C-R)

°C	R, Om	°C	R, Om	°C	R, Om	°C	R, Om
-20	115.266	20	12.6431	60	2.35774	100	0.62973
-19	108.146	21	12.0561	61	2.27249	101	0.61148
-18	101.517	22	11.5000	62	2.19073	102	0.59386
-17	96.3423	23	10.9731	63	2.11241	103	0.57683
-16	89.5865	24	10.4736	64	2.03732	104	0.56038
-15	84.2190	25	10.000	65	1.96532	105	0.54448
-14	79.3110	26	9.55074	66	1.89627	106	0.52912
-13	74.5360	27	9.12445	67	1.83003	107	0.51426
-12	70.1698	28	8.71983	68	1.76647	108	0.49989
-11	66.0898	29	8.33566	69	1.70547	109	0.48600
-10	62.2756	30	7.97078	70	1.64691	110	0.47256
-9	58.7079	31	7.62411	71	1.59068	111	0.45957
-8	56.3694	32	7.29464	72	1.53668	112	0.44699
-7	52.2438	33	6.98142	73	1.48481	113	0.43482
-6	49.3161	34	6.68355	74	1.43498	114	0.42304
-5	46.5725	35	6.40021	75	1.38703	115	0.41164
-4	44.0000	36	6.13059	76	1.34105	116	0.40060
-3	41.5878	37	5.87359	77	1.29078	117	0.38991
-2	39.8239	38	5.62961	78	1.25423	118	0.37956
-1	37.1988	39	5.39689	79	1.21330	119	0.36954
0	35.2024	40	5.17519	80	1.17393	120	0.35982
1	33.3269	41	4.96392	81	1.13604	121	0.35042
2	31.5635	42	4.76253	82	1.09958	122	0.3413
3	29.9058	43	4.57050	83	1.06448	123	0.33246
4	28.3459	44	4.38736	84	1.03069	124	0.32390
5	26.8778	45	4.21263	85	0.99815	125	0.31559
6	25.4954	46	4.04589	86	0.96681	126	0.30754
7	24.1932	47	3.88673	87	0.93662	127	0.29974
8	22.5662	48	3.73476	88	0.90753	128	0.29216
9	21.8094	49	3.58962	89	0.87950	129	0.28482
10	20.7184	50	3.45097	90	0.85248	130	0.27770
11	19.6891	51	3.31847	91	0.82643	131	0.27078
12	18.7177	52	3.19183	92	0.80132	132	0.26408
13	17.8005	53	3.07075	93	0.77709	133	0.25757
14	16.9341	54	2.95896	94	0.75373	134	0.25125
15	16.1156	55	2.84421	95	0.73119	135	0.24512
16	15.3418	56	2.73823	96	0.70944	136	0.23916
17	14.6181	57	2.63682	97	0.68844	137	0.23338
18	13.9180	58	2.53973	98	0.66818	138	0.22776
19	13.2631	59	2.44677	99	0.64862	139	0.22231

UAB KOMFOVENT we reserve the right to make changes without prior notice

APENDIX NO.1

WARRANTY INFORMATION

KOMFOVENT hereby confirms the obligations set by applicable consumer rights protection laws to fulfil consumer claims in case of detected product defects.

In case of any problems, we recommend immediately contacting the company that installed your ventilation unit, the company providing technical maintenance, or the nearest KOMFOVENT distributor branch. Please always note the device serial number. The device's serial number can be found on a sticker attached to the outside of the unit or on a plate mounted on the unit frame. Your claim will be registered and, if repair of the device is required, a representative will agree with you on a convenient arrival time. All repairs covered by the warranty will be carried out free of charge – with no charges for spare parts or labour.

Only an authorized representative can decide whether defective parts should be repaired or replaced with new ones. Replaced or repaired parts remain covered by the overall unit warranty. If repairs are performed after the end of the device's warranty period, the replaced or repaired parts are covered by a 6-month warranty.

The warranty covers all defects in the device arising from manufacturing or assembly faults. When operating the device under the conditions listed below, this warranty is valid from the product purchase date.

WARRANTY CONDITIONS

1. The warranty does not apply in the following cases:
   - 1.1. If the product usage or operating conditions, as specified in the installation and operating instructions, are violated;
   - 1.2. If the storage conditions of the unit are violated;
   - 1.3. If there are signs indicating attempts of unqualified repair;
   - 1.4. If the unit's construction has been altered;
   - 1.5. If the unit is used for purposes other than its direct intended use;
   - 1.6. if the unit's serial number has been changed, removed, or cannot be restored;
   - 1.7. If the unit is installed not according to the manufacturer's installation instructions, has no space left for maintenance, or is installed in a location difficult to access;
   - 1.8. For noise, vibration, or colour changes arising from normal wear of the unit or its components.

2. The warranty does not apply to device malfunctions that occur due to:
   - 2.1. Damage to the unit caused by improper transportation or installation errors;
   - 2.2. Mechanical damage;
   - 2.3. Damage caused by foreign objects, materials, liquids, or condensation entering the device, except when this occurs due to a design flaw;
   - 2.4. Damage resulting from natural disasters, fire, domestic factors, accidental external effects (voltage fluctuations in the electrical network, lightning, etc.), or accidents.

3. Warranty service is not provided in cases where it is necessary to replace operating parts (filters, fuses, refrigerant).

4. Preparatory work required to access the unit and perform quality repairs, such as removal of furniture, walls, partitions, ceilings, ducts, plumbing, equipment from other manufacturers, or other obstructing items, is not considered warranty service. KOMFOVENT representatives have the right to refuse to perform such work.

5. The warranty does not cover additional losses attributable to device failure, such as inconvenience, transportation expenses, phone calls and accommodation, personal or business losses, loss of salary or income.

6. KOMFOVENT is not responsible for direct or indirect damage caused by products to people, pets, or property if the cause of such damage is failure to comply with the unit's usage and installation rules and conditions, intentional or negligent actions of users or third parties.

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BE	Ventilair group	www.ventilairgroup.com
	ACB Airconditioning	www.acbairco.be
CZ	REKUVENT s.r.o.	www.rekuvent.cz
CH	WESCO AG	www.wesco.ch
	SUDCLIMATAIR SA	www.sudclimatair.ch
	CLIMAIR GmbH	www.climair.ch
DK	Øland A/S	www.oeland.dk
EE	BVT Partners	www.bvtpartners.ee
FR	ATIB	www.atib.fr
HR	Microclima	www.microclima.hr
HU	AIRVENT Légtechnikai Zrt.	www.airvent.hu
	Gevent Magyarország Kft.	www.gevent.hu
	Merkapt	www.merkapt.hu
IE	Lindab	www.lindab.ie
IR	Fantech Ventilation Ltd	www.fantech.ie
IS	Blikk & Tækniþjónustan ehf	www.bogt.is
	Hitataekni ehf	www.hitataekni.is
IT	ICARIA	www.icaria.srl
NL	Ventilair group	www.ventilairgroup.com
	DECIPOL-Vortvent	www.vortvent.nl
	CLIMA DIRECT BV	www.climadirect.com
NO	Ventilution AS	www.ventilution.no
	Ventistål AS	www.ventistal.no
	Thermo Control AS	www.thermocontrol.no
PL	Ventia Sp. z o.o.	www.ventia.pl
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UA	TD VECON LLC	www.vecon.ua