INNOVA

Owner's Manual

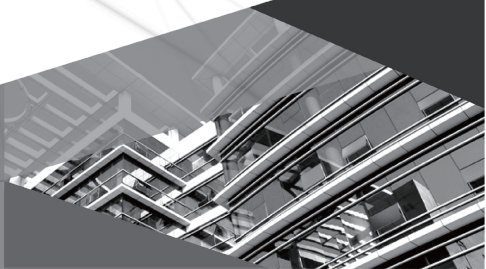
Original Instructions

Air Handling Unit Application Kit

IGGW-GUU/A-S

Thank you for choosing our product.
Please read this Owner's Manual carefully before operation and retain it for future reference.

NOTE:
Actual product may be different from graphics, please refer to actual products.



To Users

Thank you for selecting our product. Please read this instruction manual carefully before installing and using the product, so as to master and correctly use the product. In order to guide you to correctly install and use our product and achieve expected operating effect, we hereby instruct as below:

(1) 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.

(2) In order to ensure reliability of product, the product may consume some power under stand-by status for maintaining normal communication of system and preheating refrigerant and lubricant. If the product is not to be used for long, cut off the power supply; please energize and preheat the unit in advance before reusing it.

(3) Please properly select the model according to actual using environment; otherwise it may impact the using convenience.

(4) This product can't be installed at corrosive, inflammable or explosive environment or the place with special requirements, such as kitchen. Otherwise, it will affect the normal operation or shorten the service life of the unit, or even cause fire hazard or serious injury. As for above special places, please adopt special air conditioner with anti-corrosive or anti-explosion function.

(5) If the product needs to be installed, moved or maintained, please contact our designated dealer or local service center for professional support. Users should not disassemble or maintain the unit by themselves, otherwise it may cause relative damage, and our company will bear no responsibilities.

(6) All the illustrations and information in the instruction manual are only for reference. In order to make the product better, we will continuously conduct improvement and innovation. If there is adjustment in the product, please subject to actual product.

Exception Clauses

Manufacturer will bear no responsibilities when personal injury or property loss is caused by the following reasons:

(1) Damage the product due to improper use or misuse of the product;

(2) Alter, change, maintain or use the product with other equipment without abiding by the instruction manual of manufacturer;

(3) After verification, the defect of product is directly caused by corrosive gas;

(4) After verification, defects are due to improper operation during transportation of product;

(5) Operate, repair, maintain the unit without abiding by instruction manual or related regulations;

(6) After verification, the problem or dispute is caused by the quality specification or performance of parts and components that produced by other manufacturers;

(7) The damage is caused by natural calamities, bad using environment or force majeure.

Contents

1 Safety Notices (Please be sure to abide them)

PROHIBITED: This sign indicates that the items must be prohibited. Improper operation may cause severe damage or death to people.

WARNING: If not abide them strictly, it may cause severe damage to the unit or the people.

NOTE: If not abide them strictly, it may cause slight or medium damage to the unit or the people.

OBSERVED: This sign indicates that the items must be observed. Improper operation may cause damage to people or property.

WARNING:

This product can't be installed at corrosive, inflammable or explosive environment or the place with special requirements, such as kitchen. Otherwise, it will affect the normal operation or shorten the service life of the unit, or even cause fire hazard or serious injury. As for the above special places, please adopt special air conditioner with anti-corrosive or anti-explosion function.

Before using the air conditioner, please read the instruction manual.

Before installing the air conditioner, please read the instruction manual.

Before repairing the air conditioner, please read the instruction manual.

The figures in this manual may be different with the material objects, please refer to the material objects for reference.

	PROHIBITED!
(1)	The air conditioner should be grounded to avoid electric shock. Do not connect the ground wire to gas pipe, water pipe, lightning arrester or telephone wire.
(2)	The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
(3)	The appliance shall be stored in a room without continuously operating open flames (for example an operating gas appliance) and ignition sources (for example an operating electric heater).
(4)	According to federal/state/local laws and regulations, all packages and transportation materials, including nails, metal or wooden parts, and plastic packing material, must be treated in a safe way.

	WARNING!
(1)	Please install according to this instruction manual. Installation must be performed in accordance with the requirement of NEC and CEC by authorized personnel only.
(2)	Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorises their competence to handle refrigerants safely in accordance with an industry recognised assessment specification.
(3)	Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.
(4)	The appliance shall be installed in accordance with national wiring regulations.
(5)	The fixed wires connecting to the appliance must be configured with all-pole disconnection device under voltage grade III according to wiring rules.
(6)	Air conditioner should be stored with protective measures against mechanical damage caused by accident.
(7)	If the installation space for air conditioner pipe is too small, adopt a protective measure to prevent the pipe from physical damage.
(8)	During installation, use the specialized accessories and components, otherwise water leakage, electric shock or fire hazard may occur.
(9)	Please install the air conditioner in a secure place that can withstand the weight of air conditioner. Insecure installation may cause the air conditioner falling down and lead to injury.
(10)	Be sure to adopt independent power circuit. If the power cord is damaged, it must be repaired by the manufacturer, service agent or other professional agents.
(11)	The air conditioner can be cleaned only after it is turned off and power-disconnected, otherwise electric shock may occur.
(12)	The air conditioner is not intended to be cleaned or maintained by children without supervision.

WARNING!	
(13)	Do not alter the setting of pressure sensor or other protective devices. If the protective devices are short-circuited or changed against rules, fire hazard or even explosion may occur.
(14)	Do not operate the air conditioner with wet hands. Do not wash or sprinkle water on the air conditioner, otherwise malfunction or electric shock will occur.
(15)	Do not dry the filter with naked flame or an air blower; otherwise the filter will be out of shape.
(16)	If the unit is to be installed in a small space, please adopt protective measures to prevent the concentration of refrigerant from exceeding the allowable safety limit; Excessive refrigerant leakage may lead to explosion.
(17)	When installing or re-installing the air conditioner, please keep the refrigerant circuit away from substances other than the specified refrigerant, such as air. Any presence of foreign substances will cause abnormal pressure change or even explosion, resulting in injury.
(18)	Only professionals are allowed to carry on daily maintenance.
(19)	Before contacting any wire, make sure power is cut off.
(20)	Do not let any inflammable objects near the unit.
(21)	Do not use organic solvent to clean the air conditioner.
(22)	If you need to replace a component, please ask a professional to repair with a component supplied by the original manufacturer so as to ensure the unit's quality.
(23)	Improper operation may get the unit broken, hit by electric shock or cause fire.
(24)	Do not make the air conditioner wet or electric shock may be lead, ensure that the air conditioner will not be cleaned by water rinsing under any circumstance.

NOTES!	
(1)	Do not put a finger or other objects into the air inlet or air return grill.
(2)	Please adopt safety protection measures before touching the refrigerant pipe, otherwise your hands may be hurt.
(3)	Please arrange the drain pipe according to the instruction manual.
(4)	Never stop the air conditioner by directly cutting off the power.
(5)	Please select the proper copper pipe according to the requirement for pipe thickness.
(6)	Indoor unit and AHU-KIT can only be installed indoors while outdoor unit can be installed either indoors or outdoors. Never install the air conditioner in the following places: 1) Places with oil smoke or volatile liquid: plastic parts may deteriorate and fall off or even cause water leakage. 2) Places with corrosive gas: copper pipe or the welding parts may be corroded and cause refrigerant leakage.

NOTES!
(7) Adopt proper measures to protect the outdoor unit from small animals because they may damage the electric components and cause malfunction of the air conditioner.

OBSERVED!
(1) If wired controller is to be used, it should be connected first before powering up the unit, otherwise the wired controller may not be able to use.
(2) When installing the AHU-KIT, keep it away from television, wireless waves, and fluorescent.
(3) Only use soft dry cloth or slightly wet cloth with neutral detergent to clean the casing of the air conditioner.
(4) Before operating the unit under low temperature, connect it to power for 8 hours. If it is stopped for a short time, for example, one night, do not cut off the power (This is to protect the compressor).

2 Preparations for Installation

2.1 Before Installation

NOTES!

Product graphics are only for reference. Please refer to actual products. Unspecified measure unit is mm.

(1) This equipment is designed for R410A system or R32 system, and the maximum operating pressure of the unit is 4.6 MPa or 46 bar.

(2) Precautions for refrigerant:

1) The refrigerant requires strict cautions for keeping the system clean, dry and tight.

—Clean and dry：Foreign materials (including mineral oils or moisture) should be prevented from getting mixed into the system.

—Tight：Read this manual carefully and follow these procedures correctly.

2) The required additional refrigerant must be charged in its liquid state. (If the refrigerant is in state of gas, its composition changes and the system will not work properly).

(3) As for model selection, please check whether the refrigerant for the indoor unit and the outdoor unit is the same.

(4) Never use this appliance in a place with inflammable and explosive gas.

(5) For the following items, take special care during construction and check after installation is finished:

Tick √ when checked
☐ Are the temperature sensors fixed firmly?
Temperature sensor may come loose.
☐ Is the control box fixed firmly?
The unit may drop, vibrate or make noise.
☐ Do electrical connections comply with specifications?
The unit may malfunction or components may burn out.
☐ Are wiring and piping correct?
The unit may malfunction or components may burn out.
☐ Is the unit safely grounded?
Dangerous at electric leakage.

2.2 Recommended Selection of the Air Handling Unit

Select the air handling unit according to the technical data and limitations mentioned in the following table. Lifetime of the unit, operation range or operation reliability may be influenced if you neglect these limitations.

Cooling Capacity (kW)	Allowed Heat Exchanger Capacity (kW)				Air Flow Volume (m^3/h)	
	Cooling		Heating			
	Min	Max	Min	Max	Min	Max
3.5	3.2	3.8	3.2	4.4	420	650
5.3	4.8	5.7	4.6	6.1	600	900
7.1	6.4	7.7	7.2	8.6	800	1250
8.5	7.7	9.0	8.4	9.5	1000	1400
10.0	9.5	11.0	10.2	12.0	1200	1700
12.1	10.8	13.1	12.6	14.5	1400	2000
14.0	12.6	15.0	14.4	16.0	1500	2300
16.0	14.4	17.0	15.5	18.0	1700	2600

The capacity is obtained at these test conditions:
① Cooling: air return temperature is 27°C (DB) /19°C (WB).
② Heating: air return temperature is 20°C (DB).
③ R32: superheat (SH) : 0~3°C; R410a: superheat (SH) : 1~5°C
Recommendation: Quantity of rows of heat exchanger: no more than 4 rows.
Recommendation: The diameter of copper pipe of heat exchanger is no more than 9.52mm, 7mm is recommended.
Air inlet temperature range of heat exchanger: cooling: 16~35°C, heating: 10~27°C.

2.3 Location for Installation

Select an installation site where the following conditions are fulfilled and that meets your customer's approval.

(1) The control box should be installed inside.

(2) Choose a flat and strong mounting surface.

(3) Make sure there is enough free space in front and in the side of the AHU-KIT unit for future maintenance.

(4) The installation site should be far away from heat source, inflammable gas and smoke.

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

(6) Make sure control box is installed in an upright position.

NOTES!

① Do not install or operate the unit in rooms mentioned below:

a) Where mineral oil, like cutting oil is present.

b) Where the air contains high levels of salt such as air near the ocean.

c) Where sulfurous gas is present such as that in areas of hot spring.

d) In vehicles or vessels.

e) Where voltage fluctuates a lot such as that in factories.

f) Where high concentration of vapor or spray are present.

g) Where machines generating electromagnetic waves are present.

h) Where acidic or alkaline vapor is present.

② Installing this unit must comply with the relevant local and national codes.

③ Connecting the power after all installation works are done.

2.4 Normal environmental conditions

This standard applies to designed to be safe at least under the following conditions：

(1) Indoor use；

(2) Temperature -20°C to 60°C；

(3) Altitude up to 2000 m；

(4) Main supply voltage fluctuations up to ±10% of the nominal voltage；

(5) Transient overvoltage up to the levels of overvoltage category II；

Note：these levels of transient overvoltage are typical for equipment supplied from the building wiring.

(6) Applicable pollution degree of the intended environment (pollution degree 2 in most cases).

2.5 Requirements for Communication Wire

NOTE!

If the unit is installed in the place with strong electromagnetic interference, shielded wire must be applied on the communication wire between indoor unit (AHU-KIT) and wired controller. Twisted pair wire with shielding function must be applied on the communication wire between indoor unit and outdoor unit.

2.6 Wiring Requirements

Model	Power Supply	Fuse Capacity	Min. sectional Area of Power Cord
	V/Ph/Hz	A	mm²
IGGW-GUU/A-S	220-240V ~50/60Hz	3.15	1.0

NOTES!

① Fuse is located on the main board.

② Install a circuit breaker near the outdoor units with at least 3mm contact gap. The units must be able to be plugged or unplugged.

③ Circuit breaker and power cord specifications listed in the above table are determined based on the maximum power input of the units.

④ Supply cords of parts of appliances for outdoor use shall not be lighter than polychloroprene sheathed flexible cord (code designation 60245 IEC 57).

⑤ Specifications of circuit breaker are based on a working condition where the working temperature is 40°C. If working condition changes, please

adjust the specifications according to national standards.

⑥ Adopt 1.0mm² power cords between AHU-KIT and outdoor units. The maximum length is 75m. Please select a proper length according to local conditions. To be in compliance EN 55014, it is necessary to use 30m long wire.

⑦ Adopt 2pc of 0.75mm² power cords to be the communication cords between wired controller and AHU-KIT. The maximum length is 30m. Please select a proper length according to local conditions. Communication cords must not be twisted together. To be in compliance EN 55014, it is necessary to use 30m long wire.

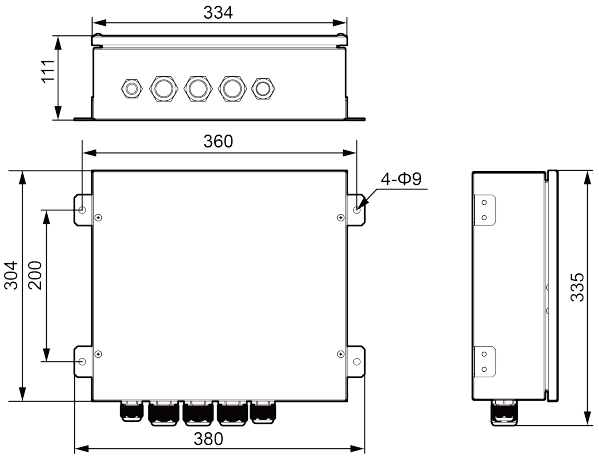
⑧ The wire gauge of communication cord should not be less than 0.75mm². It's recommended to use 0.75mm² power cords as the communication cords.

3 Product Installation

3.1 Unit Dimensions and Maintenance Space

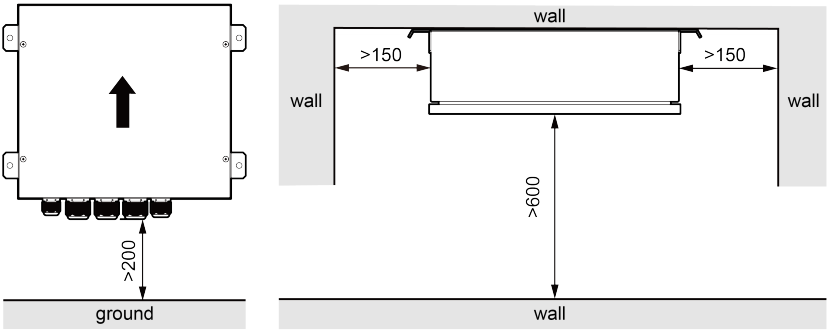
(1) Size of control box for IGGW-GUU/A-S:

Unit: mm



(2) Maintenance space of control space:

Unit: mm



The control box must be installed upwards as the direction of the arrow shown in the figure

3.2 Installation of the Control Box

3.2.1 Mechanical Installation

(1) Fix the control box with its hanger brackets to the mounting surface.

(2) Open the lid of the control box.

(3) For electrical wiring: refer to the following contents.

(4) Install the screw nuts.

(5) Close the unnecessary openings.

(6) Close the lid securely after installation to ensure that the control box is watertight.

3.2.2 Wire Connection inside the Control Box

NOTES!

① Pull the wires inside through the screw nut and close the nut firmly in order to ensure a good pull relieve and water protection.

② The cables require an additional pull relief. Fixing the cable with the wire clamp.

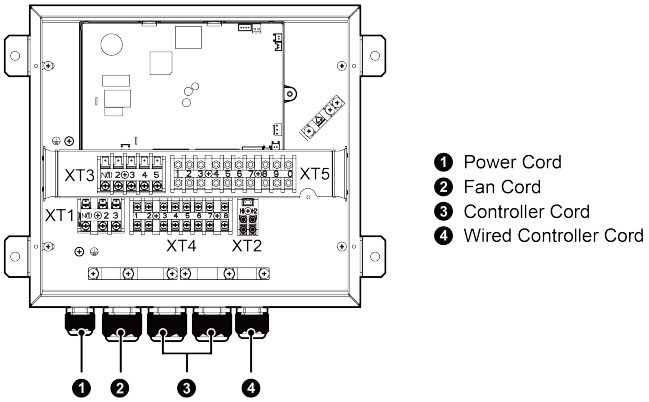
Precautions:

① Temperature sensor cable and remote controller wire should be kept away from power cable in a distance of at least 50mm. Violating this rule may generate electric noise and lead to malfunctions.

② Use wires as specified and connect them tightly with wiring terminals.

Keep the wires in order and do not obstruct other devices. Insecure connection may result in overheating or even cause electric shock or fire hazard.

Wiring connection:



Connecting cables according to the following instructions, as figure shown above.

XT1：

3..... Live

2..... Signal wire between AHU-KIT and outdoor unit

N(1)..... Neutral

⏚ ..... Protective earth (screw)

XT2：

H1/H2..... Wired controller

XT3：

N(1)..... Neutral

2..... High gear of fan

3..... Middle gear of fan

4..... Low gear of fan

NOTES!

① The 2, 3, 4 of fan gear lines are shorted by the factory default.

② Neutral line of fan connects to the N (1).

③ It can be connected to any of them (2, 3, 4) when there is only one gear.

④ Disconnect the short cable between 2 and 3 when there are two gears, then connect the high gear cable to 2, and connect low gear cable to either 3 or 4.

⑤ When there are three gears, disconnect the short cables between 2 and 3, 3 and 4, then connect the high gear cable, middle gear cable and low gear cable to 2,3,4 for each.

⑥ Indoor fan is controlled by AHU-KIT. The requirement for the allowable connected load: 220V~240V AC(≤1A).

XT4 and XT5:

Wiring connection of XT4 and XT5 refer to the following contents.

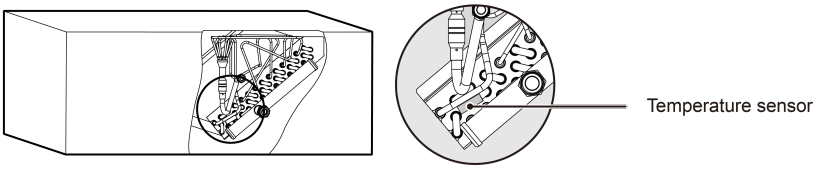
3.3 Installation of the Temperature Sensors

3.3.1 Refrigerant Temperature Sensors

Location of the temperature sensor: A correct installation of the temperature sensors is required to ensure a good operation:

(1) Pipe temperature sensor

Install the pipe temperature sensor after the distributor and on the coldest temperature pipe of a heat exchanger.



(2) Ambient temperature sensor

The ambient temperature sensor can be installed in the space which needs temperature control or the inlet scoop of air handling unit.

3.3.2 Installation of the pipe temperature sensor cable

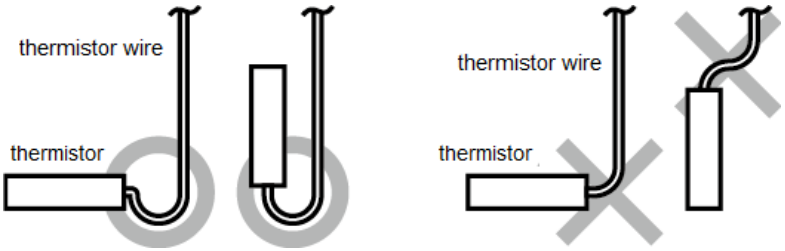
(1) The length of temperature sensor wire is 10 m.

(2) Put the temperature sensor cable in an individual protective tube.

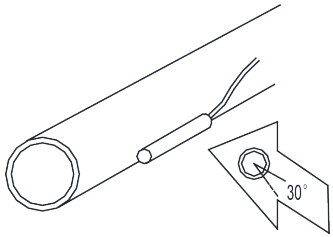
(3) Apply stress release in the temperature sensor wire to prevent the temperature sensor wire from getting loose due to stress. Stress or looseness of temperature sensor wire will lead to poor contact and inaccuracy of temperature measuring.

Fixation of the temperature sensor:

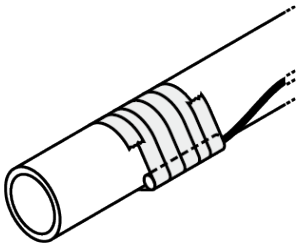
1) Put the temperature sensor wire slightly down to avoid water accumulation on top of the temperature sensor.



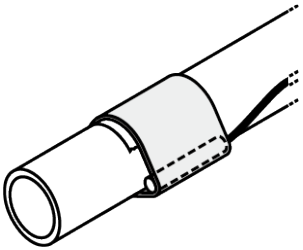
2) Keep the temperature sensor and air handling unit in good contact. Put the top of the temperature sensor on the air handling unit, because the top of temperature sensor is the most sensitive part. Please fixing the temperature sensor on the horizontal plane of copper tube (within ±30°), and make them close together.



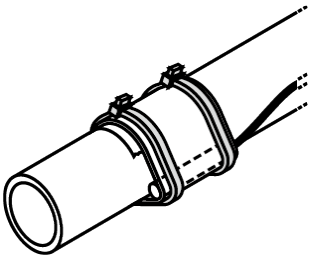
3) Fix the temperature sensor with insulating aluminum tape in order to ensure good heat transference.



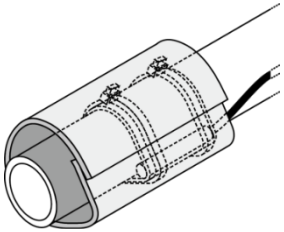
4) Cover the temperature sensor with rubber belt to prevent looseness of temperature sensor.



5) Use two wire ties to bind the temperature sensor securely.



6) Wrap the temperature sensor with insulator.



NOTES!

① For connection to outdoor unit and to AHU-KIT unit: Pull the wires inside through the screw nut and close the nut firmly in order to ensure a good pull relieve and water protection.

② The cables require an additional pull relief. Fixing the cable with the wire clamp.

③ The connection of temperature sensor requires enough space.

3.4 Installation of Wired Controller

Please refer to User Manual of Wired Controller for the installation details.

4 Wire Connection

NOTES!

Units must be earthed securely, or it may cause electric shock.

① Please carefully read the wiring diagram before carry out the wiring work, incorrect wiring could cause malfunction or even damage the unit.

② The capacity of power supply should be big enough.

③ The unit should be powered by independent circuit and specific socket.

④ The wiring should be in accordance with related regulations in order to ensure the units reliable running.

⑤ Install circuit breaker for branch circuit according to related regulations and electrical standards.

⑥ All wiring must use pressure terminal or single wire. Multi-twisted wire that connects directly to the wiring board may cause fire hazard.

⑦ Keep cable away from refrigerant piping, compressor and fan motor.

⑧ Do not alter the inner wires of air conditioner. Manufacturer does not assume responsibility for damage or abnormal operation due to this reason.

⑨ If the unit is installed in places with strong electromagnetic interference, it's recommended to use twin-twisted shield wire. During wire connection, please pay attention that the metal shield layer of the twin-twisted wire must be grounded (outer case) in order to prevent the unit from electromagnetic interference.

⑩ The communication wires should be separated from power cord and connection wire between AHU-KIT and outdoor unit.

⑪ The appliance shall be installed in accordance with national wiring regulations.

4.1 Connection of Power Cord and Communication Cord

(1) For solid wires (as shown below):

1) Use wire cutters to cut off the wire end and then peel away about 25mm of the insulation layer.

2) Use a screwdriver to unscrew the terminal screw on the terminal board.

3) Use nippers to bend the solid wire into a ring that fits the terminal screw.

4) Form a proper ring and then put it on the terminal board. Use a screwdriver to tighten up the terminal screw.

(2) For strand wires (as shown below):

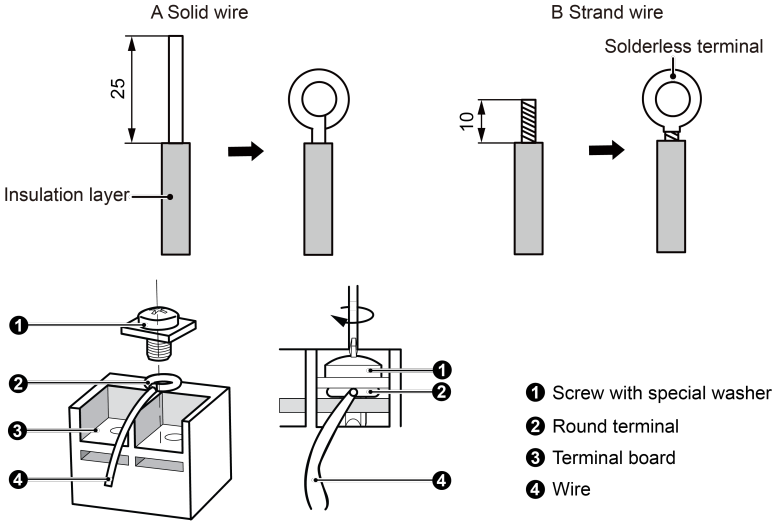
1) Use wire cutters to cut off the wire end and then peel away about 10mm of the insulation layer.

2) Use a screwdriver to unscrew the terminal screw on the terminal board.

3) Use a round terminal fastener or clamp to fix the round terminal firmly on the peeled wire end.

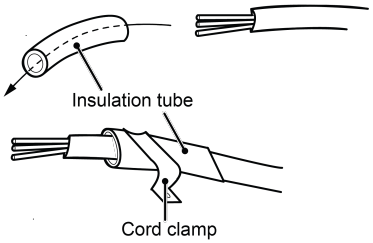
4) Locate the round terminal conduit. Use a screwdriver to replace it and tighten up the terminal screw (as shown below).

Unit:mm



(3) How to connect the connection wire and power cord:

Lead the connection wire and power cord through the insulation tube. Then fix the wires with wire clamps (as shown in the next figure).

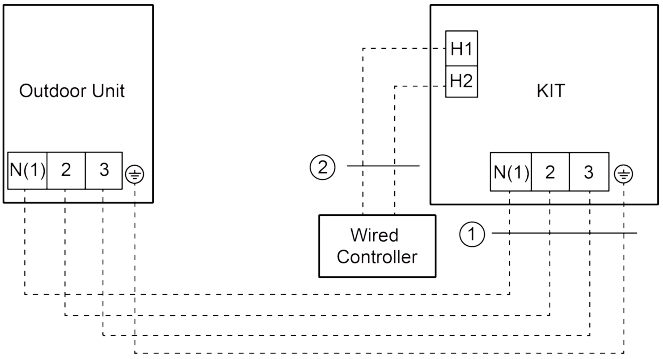


	WARNING!
(1)	Before working, please check whether the indoor (AHU-KIT) and outdoor units are powered on.
(2)	Match the terminal numbers and wire colors with the colors indicated in the KIT.
(3)	Wrong wire connection may burn the electrical components.
(4)	Connect the wires firmly to the wiring box. Incomplete installation may lead to fire hazard.
(5)	Please use wire clamps to secure the external covers of connecting wires. (Insulators must be clamped securely; otherwise, electric leakage may occur).
(6)	Ground wire should be connected.

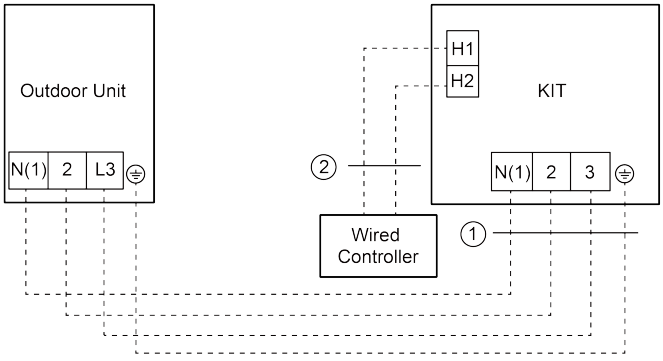
4.2 Wire between AHU-KIT and outdoor units

Common indoor and outdoor units connection is as below:

1.



2.



AHU-KIT:IGGW-GUU/A-S	
①	Power cords 4×1.0mm^2
②	Communication cords 2×0.75mm^2

5 Function Setting

5.1 Introduction to Functions

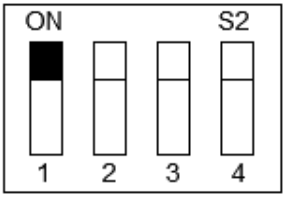
AHU-KIT adapter can be controlled via INNOVA wired controller, and can also be controlled via the third party controller by adjusting dial code, which can realize ON/OFF control, mode setting, temperature adjustment, feedback of unit operating status, etc.

5.2 Selection of Controller

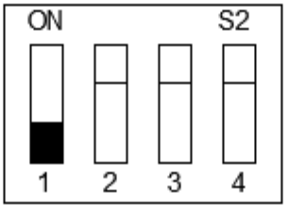
AHU-KIT adapter can be controlled via INNOVA wired controller or the third party controller. Select the type of controller according to the first digit of “S2” dial code in the mainboard, for specific settings are as below:

S2				Type of controller
1	2	3	4	
0				INNOVA wired controller
1				Third party controller

Correctly dial the code switch to the right position, it is not allowed to dial to the middle position. Dialing the switch to “ON” direction refers to “0”, and the objective direction refers to “1”, as shown below (note: the black part is the dial lever):



It means it has connected to INNOVA wired controller



It means it has connected to the third party controller

NOTES!

① Power supply must be cut off before adjusting any dial codes on the mainboard. Only when the adjustment is done can the power supply be reconnected, otherwise it may cause electric shock or invalid adjustment;

② Under the control mode of INNOVA wired controller, only control signal from INNOVA wired controller can be received, control signal of the third party controller cannot be received;

③ Under the control mode of the third party controller, only control signal from the third party’s controller can be received, while control signal of INNOVA wired controller cannot be received. However, INNOVA wired controller can receive and display the operation status or errors of the unit.

5.3 Connection between the Third Party Controller and AHU-KIT Adapter

AHU-KIT adapter is connected with the third party controller via dry contact analog quantity signal interface to realize control of unit, feedback of operating status and error protection, etc.

(1) Definition of interfaces

1) Signal from the third party controller to AHU-KIT adapter

Function	Type of interface	Wiring board	Wiring number	Description of signal
ON/OFF	Dry contact	XT5	3、4	When it is connected, it means ON; when it is disconnected, it means OFF

Function	Type of interface	Wiring board	Wiring number	Description of signal
Cooling mode	Dry contact	XT5	5、6	When it is connected, it means cooling; when it is disconnected, it means not cooling
Heating mode	Dry contact	XT5	7、8	When it is connected, it means heating; when it is disconnected, it means not heating
Air supply mode	Dry contact	XT5	9、10	When it is connected, it means air supply; when it is disconnected, it means not air supply
Feedback of AHU error status	Dry contact	XT4	7、8	When it is connected, it means AHU has no error; when is it disconnected, it means AHU has error
Temperature setting	Analog voltage signal DC (0-10V)	XT5	1(+)、2(-)	Corresponding set temperature for input DC 0-10V is 16-30℃ (please see the setting of signal for temperature control)

2) Signal from AHU-KIT adapter to the third party controller

NOTE:

The input terminal cannot be connected to strong power and recommended voltage is 24V or less.

Function	Type of interface	Wiring board	Wiring number	Description of signal
Error status of ODU and AHU-KIT	Dry contact	XT4	1、2	When it is connected, it means the unit has error; when it is disconnected, it means the unit is normal.
Defrosting status of unit	Dry contact	XT4	3、4	When it is connected, it means the unit is in defrosting status; when it is disconnected, it means the unit is not in defrosting status.
Operating status of AHU-KIT	Dry contact	XT4	5、6	When it is connected, it means the AHU-KIT is on; when it is disconnected, it means the AHU-KIT is off.

(2) Definition for input signal of temperature setting

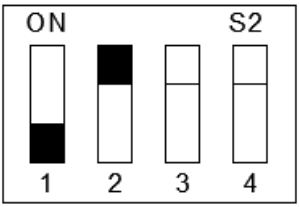
AHU-KIT adapter provides the relation of direct and inverse ratio between DC 0-10V input voltage signals of and the corresponding set temperature. Select the direct and inverse ratio relation between the input voltage and the corresponding set

temperature according to the second bit of “S2” dial code on the mainboard. The specific settings are as below:

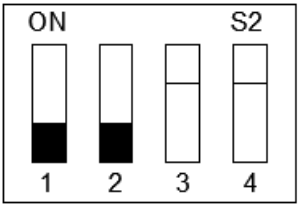
S2				Relation between input voltage and set temperature
1	2	3	4	
0	0			Direct ratio between input voltage and set temperature
1	1			Inverse ratio between input voltage and set temperature

1) Setting of dial code

Correctly dial the code switch to the right position, it is not allowed to dial to the middle position. Dialing the switch to “ON” direction refers to “0”, and the objective direction refers to “1”, as shown below (note: the black part is the dial lever):



Direct ratio between input voltage and set temperature



Inverse ratio between input voltage and set temperature

2) Definition of input voltage signal

When the second bit of “S2” dial code is dialed to “0”, that is, the input voltage and set temperature is direct ratio, then the relation between input voltage and set temperature is as below:

Analog quantity input DC 0~10V			Set temperature (˚C) Cooling	Set temperature (˚C) Heating
Standard value (V)	Voltage range (V)			
	Minimum value	Maximum value		
0.5	0	1.15	Default value	Default value
1.5	1.35	1.65	16	16
2	1.85	2.15	17	17
2.5	2.35	2.65	18	18
3	2.85	3.15	19	19
3.5	3.35	3.65	20	20
4	3.85	4.15	21	21
4.5	4.35	4.65	22	22
5	4.85	5.15	23	23
5.5	5.35	5.65	24	24
6	5.85	6.15	25	25

Analog quantity input DC 0~10V			Set temperature (˚C) Cooling	Set temperature (˚C) Heating
Standard value (V)	Voltage range (V)			
	Minimum value	Maximum value		
6.5	6.35	6.65	26	26
7	6.85	7.15	27	27
7.5	7.35	7.65	28	28
8	7.85	8.15	29	29
8.5	8.35	8.65	30	30
9.5	8.85	10	Default value	Default value

When the second bit of “S2”dial code is adjusted to “1”, that is, input voltage and set temperature is inverse ratio, then the relation between input voltage and set temperature is as below:

Analog quantity input DC 0~10V			Set temperature (˚C) Cooling	Set temperature (˚C) Heating
Standard value (V)	Voltage range (V)			
	Minimum value	Maximum value		
0.5	0	1.15	Default value	Default value
1.5	1.35	1.65	30	30
2	1.85	2.15	29	29
2.5	2.35	2.65	28	28
3	2.85	3.15	27	27
3.5	3.35	3.65	26	26
4	3.85	4.15	25	25
4.5	4.35	4.65	24	24
5	4.85	5.15	23	23
5.5	5.35	5.65	22	22
6	5.85	6.15	21	21
6.5	6.35	6.65	20	20
7	6.85	7.15	19	19
7.5	7.35	7.65	18	18
8	7.85	8.15	17	17
8.5	8.35	8.65	16	16
9.5	8.85	10	Default value	Default value

NOTES!

① If the AHU-KIT adapter is installed in the position with strong electromagnetic interference, the voltage signal may be impacted, which should be shielded to ensure the accuracy of input voltage signal.

② When the AHU-KIT detects that the corresponding set temperature of voltage is “default value”:

a) If the unit is under cooling mode, the default set temperature is 26°C.

b) If the unit is under heating mode, the default set temperature is 20°C.

c) If the unit is under air supply mode, the default set temperature is 26°C.

③ Input voltage should not be over 10V, otherwise it may damage the controller.

6 Operation and Maintenance

6.1 Before Operation

NOTES!

① Before initiating operation, please read the operation manuals of outdoor unit, AHU-KIT unit and the air handling unit carefully.

② Refer to the installation manuals of the outdoor unit, AHU-KIT unit and the remote controller about settings of unit.

6.2 Test Operation

Before executing "test operation" as well as before operating the unit, you must check the following:

(1) Refer to the section of "For the following items, take special care during construction and check after installation is finished".

(2) Ensure the construction of refrigerant piping, drain piping and electric wiring are finished.

(3) Check everything written in the installation manuals of the outdoor unit, AHU-KIT unit and the air handling unit.

(4) Open the gas side stop valve.

(5) Open the liquid side stop valve.

6.3 Routine Maintenance

WARNING!

① Only a qualified service person is allowed to perform maintenance.

② Before obtaining access to terminal devices, all power supply circuits must be interrupted.

③ Water or detergent may deteriorate the insulation of electronic components and result in burn-out of these components.

④ Stand at solid table when cleaning the unit.

⑤ Do not clean the unit with hot water whose temperature is higher than 45°C to prevent fade or deformation.

⑥ Clean the filter with a wet cloth dipped in neutral detergent.

⑦ Please contact after-sales service staff if there is abnormal situation.

6.3.1 Maintenance before the Seasonal Use

(1) Check if the air inlet and air outlet of indoor and outdoor unit are blocked.

(2) Check if securely grounded.

(3) Check if all the power cord and communication cable are securely connected.

(4) Check if any error code displayed after energized.

6.3.2 Maintenance after the Seasonal Use

(1) Set the unit in fan mode for half a day in a sunny day to dry the inner part of unit.

(2) When the unit won't be used for a long time, please cut off power supply for energy saving.

6.4 Disposal Requirements

Dismantling of the unit, treatment of the refrigerant, of oil and of other parts must be done in accordance with relevant local and national legislation.

7 Table of Error Codes for AHU-KIT

Error code	Error	Error code	Error
A1	Outdoor fan IPM module protection	L3	Outdoor fan 1 error
A6	Master and ODU fan drive communication error	L4	Wired controller power supply circuit poor
A8	Inverter ODU fan drive module high temp. protection	L5	Wired controller power supply overcurrent protection
A9	Inverter ODU fan drive module temp. sensor error	L6	One control multi-machine endor quantity is inconsistent
AA	Inverter ODU fan AC current protection(input side)	L7	One control multi-machine endor series is inconsistent
Ab	Inverter ODU fan drive reset protection	LA	Outdoor fan 2 error
Ac	ODU fan startup failure	Lc	Compressor startup failure
Ad	Outdoor fan Phase-loss protection	LE	Compressor Stalling
AE	Outdoor fan current detection circuit error	LF	Power protection / Compressor overspeed
AF	Inverter ODU fan drive PFC protection	oE	ODU error, for specific error please see the status of ODU main board indicator
AH	High voltage protection of inverter ODU fan drive DC bus	P0	Driver reset protection
AJ	Outdoor fan out-of-step protection	P5	Compressor phase over-current protection
AL	Low voltage protection of inverter ODU fan drive DC bus or voltage drop error	P6	Master control and driver communication error
An	Inverter ODU fan drive storage chip error	P7	Module temperature sensor circuit failure
AP	Inverter ODU fan drive AC input voltage abnormal protection	P8	Driver module temperature protection
Ar	Inverter ODU fan drive charging circuit error	P9	AC contractor protection
AU	Inverter ODU fan drive electric box temp sensor error	PA	ODU AC current protection
C0	Wired controller and AHU-KIT communication failure	Pd	Sensor connection protection (current sensor hasn't been connected to corresponding phase U and phase V)
C1	AHU-KIT ambient temperature sensor error	PE	Temperature drift protection

Error code	Error	Error code	Error
C2	Evaporator temperature sensor error	PF	Drive board ambient temperature sensor error
C3	Condenser temperature sensor error	PH	Bus high-voltage protection
C4	ODU jumper cap error	PL	Bus low-voltage protection
C6	Discharge temperature sensor error	PP	Input AC voltage error
C7	Condenser meso-temperature sensor error	PU	Capacitor charging failure
C8	Compressor dial code or jumper cap abnormal	U1	Compressor phase current circuit detection error
C9	Compressor driver memory chip failure	U2	Compressor phase-loss and anti-phase protection
CE	Wired controller temperature sensor error	U3	DC bus voltage drop error
CP	Multi-main wired controller failure	U5	Overall current detection failure
yU	Temperature signal missing error	U7	4–way valve switch-over error
yJ	Mode signal missing error	U8	Zero-crossing protection
yP	Multiple-mode shock	U9	ODU fan zero-crossing detection circuit error/inverter ODU fan drive AC input zero-crossing protection
dc	Compressor suction temperature sensor error	UL	Outdoor fan overcurrent protection
dH	Wired controller circuit board abnormal	Uo	Outdoor ambient temperature abnormal(Temperature high opening heat mode or temperature over low open refrigeration mode)
dJ	AC sequence protection (phase loss or anti-phase protection)	UP	Inverter fan power protection
F3	Outdoor ambient temperature sensor error	E0	Emergency stop
Fo	Recycling refrigerant mode	E1	Compressor high pressure protection
H1	Ordinary defrosting state	E2	Indoor anti-freeze protection
H4	Overload protection	E3	Refrigerant lack protection or compressor low pressure protection
H5	IPM module current protection	E4	Compressor air discharge high-temperature protection
H7	Compressor out-of-step protection	E6	ODU and AHU-KIT communication error

Error code	Error	Error code	Error
HC	PFC overcurrent protection	E7	Mode conflict
HE	Compressor demagnetize protection	E9	Water-full protection
EE	Memory chip reading and writing failure	—	—

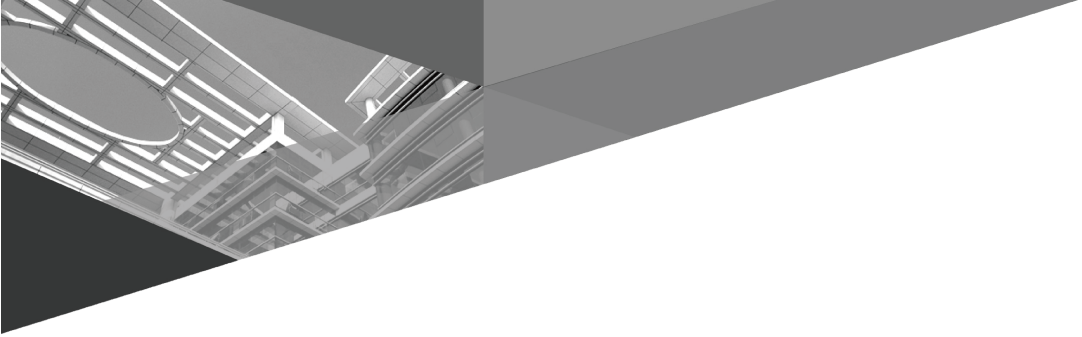
8 Troubleshooting

If your air conditioner is not working well, please check the following table first before asking for service:

Phenomenon	Troubleshooting
The unit can't start	① No power supply. ② Circuit breaker is tripped because of current leakage. ③ Circuit voltage is too low. ④ ON/OFF key sets at the stop position. ⑤ Failure in control system.
The unit stops after running for a while	① Obstacle in front of the condenser. ② Abnormal operation of the control system. ③ Outdoor temperature is too high
Poor cooling effect	① Air filter is dirty or blocked. ② Too many heating sources or people in the room. ③ Doors or windows are open. ④ Obstacle at the air intake and outlet of the unit. ⑤ Setting temperature is too high or refrigerant is insufficient (e.g. refrigerant leakage). ⑥ Poor performance of the indoor temperature sensor.
Poor heating effect	① Air filter is dirty or blocked. ② Doors or windows are open. ③ Wrong temperature setting (too low). ④ Refrigerant leakage. ⑤ Outdoor temperature is lower than -5℃. ⑥ Abnormal operation of the control system.
Indoor fan doesn't start up during heating	① Improper location of tube sensor. ② The tube sensor inserts not well. ③ The wiring of tube sensor is broken. ④ Electricity leakage of capacitor.

NOTE!

If air conditioner still fails to work normally after checking and handling as described above, please stop using it immediately and contact local service center for assistance.



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