TICA®

INSTALLATION&
OPERATION MANUAL

Fan Coil Unit

TKM-F series

CONTENTS

PRO

I. Safety Precautions

⚠ **Caution: Read this manual carefully before installation and use of the unit.**

> This installation manual is applied to TICA TKM series cassette type fan coil units. The manual is subject to change based on improvement on air conditioners without further notice.

Preparations before installation

➢ Ask the professional technician who has obtained a qualification certificate for air conditioner installation to install the unit. Users are not allowed to install, repair or relocate the air conditioner independently.

➢ Ask the professional electrician who has obtained a qualification certificate to connect electric wires, check whether the line capacity is enough, and whether power cords are damaged, etc.

➢ Install the air conditioning unit following this document. Improper installation may result in water leakage, electric shock or fire.

Precautions during installation

➢ Places unsuitable for installation:
◆ The place where flammable gases or volatile combustibles (e.g., gasoline and combustible dust) may leak and lead to a fire.
◆ The place where acid or alkaline substance or corrosive gas (e.g., sulfur dioxide and hydrogen sulfide) may be produced, easily corroding the unit and leading to refrigerant leakage.
◆ The place where dust, steam, lampblack or special spraying agent is diffused, e.g., a kitchen.

➢ Set a dedicated circuit that complies with the "Electrical equipment engineering standards" and "Indoor electrical wiring specifications".

➢ The unit must be properly grounded. The grounding wire must be reliably connected to the earth. Do not connect the grounding wire to the water pipe, gas pipe, and telephone line.

➢ Use the power cords with enough current capacity and rated power. Do not make the power cords too tight.

➢ Securely fix the power cords so that external force is not imposed on the terminal board. If the power cords are not securely connected or fixed, heat is generated, which will cause electric shock or fire.

➢ Electric parts of the unit shall be moisture-proof and far away from the water source. Do not install the wired controller at the places where the flammable gas, sulfide gas, or engine oil is accessible.

➢ Install the drainage pipe according to this manual. Ensure that water will drain smoothly. Take thermal insulation measures well. Prevent generation of condensing water.

➢ After installation, make an air tightness test to check for leak.

Precautions at trial operation

➢ Do not operate the wired controller or remote controller with wet hand, or splash water into the wired controller or remote controller.

➢ Do not pull or bend wired controller and centralized wired controller cables forcibly, and do not press the button with sharp objects to avoid abnormal connection.

➢ During the operation of the unit, do not put fingers, sticks, etc., into the air inlet or outlet.

➢ Do not touch pipeline during operation or just at the end of operation, as it can lead to scald or frostbite.

➢ Do not turn off power immediately after the unit stops. Wait at least five minutes; otherwise, water leakage may occur.

II. IDU Dimensions

1. TKM cassette type fan coil unit - dimensional drawing

200-1400 unit
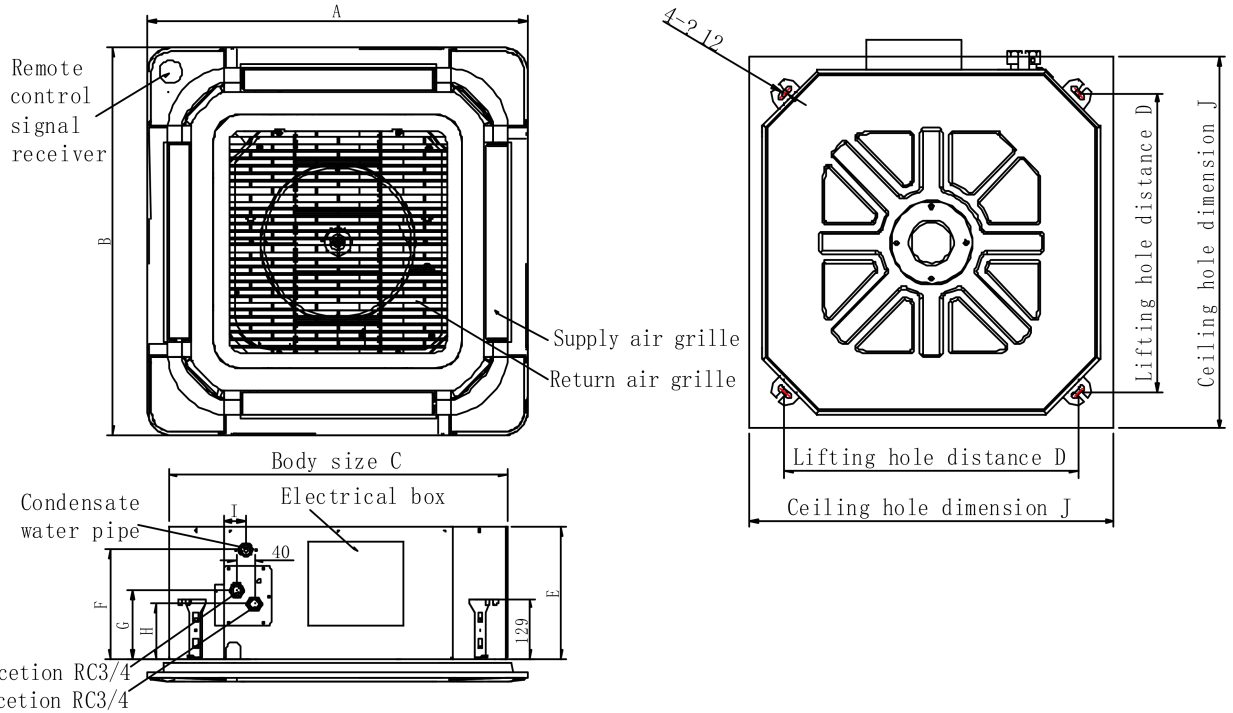
| Model	A	B	C	D	E	F	G	H	I	J
TKM200/300/400	750	750	660	560	200	165	115	85	63	700
TKM500/600	750	750	660	560	290	240	150	120	50	700
TKM800/1000	850	850	760	660	290	240	150	120	50	800
TKM1200	950	950	836	745	290	240	150	120	54	900
TKM1400	950	950	860	745	290	240	150	120	54	900

III. IDU Installation

Precautions

- Be careful when removing the IDU from the packaging box. Hold the lifting lugs and other stress-bearing parts when moving, and do not impose force to the pipe joint or drainage pipe, etc.

- It is recommended to use flexible pipe and Teflon tape for connection of water pipe and unit. Do not use excessive force when connecting the pipe. The torque should not exceed 110N·m. When using a tool with large arm length, pay special attention to avoid deformation, torsion, and water leakage of the copper pipe caused by excessive torque.

- After connecting the water pipe, make sure to insulate the brass parts of the pipe joint to prevent condensation.

- Install the IDU in a position where the air duct is shorter and the workload is less to facilitate wiring and pipe connection.

- Ensure that the installation position is strong enough to bear the IDU weight. Otherwise, it may cause personal injury and machine damage.

- Ensure that the lifting screw has enough strength to bear the unit weight. Use at least 4 lifting screws to suspend the IDU.

- Ensure good ventilation and airflow to every corner of the room.

- Ensure that the airflow inlet and outlet are free of obstacles, so as to ensure great ventilation.

- Ensure that there is enough space for repair and maintenance, and the access panel is placed on the electronic control box side to facilitate maintenance.

- The IDU installation position should be far away from the lighting facilities for ballast.

  The ballast of lighting facilities will cause a reception fault when a remote controller is used.

- Do not install the IDU in the place with direct sunlight.

## 1. Installation of TKM cassette type fan coil unit

1) Installation position diagram
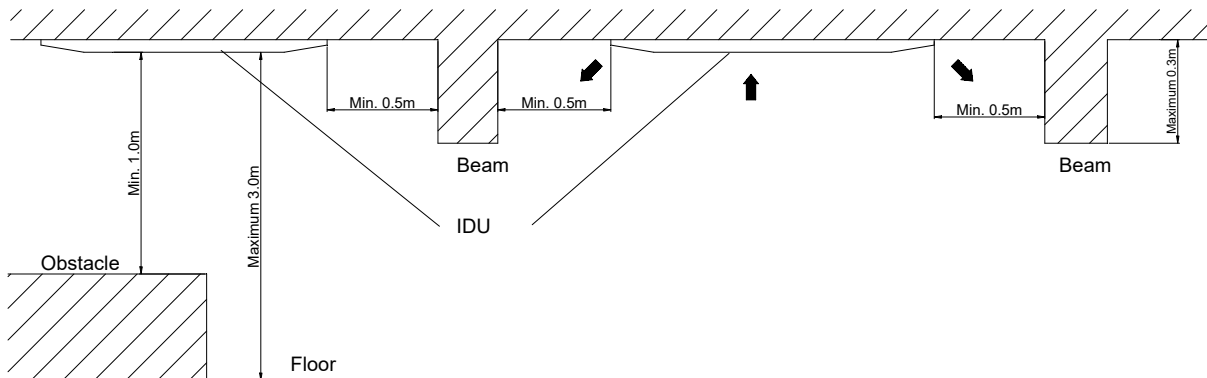
Install the air conditioner in the recommended dimension range above. If the actual installation exceeds this range, the performance of the air conditioner will be affected to a certain extent.

Unit hoisting

- Measure and mark the IDU suspension position and punch holes on the ceiling; Install the boom and make sure that the boom is securely fixed;

- Determine the distance between booms according to the dimensions in the drawing;

- Hoist the IDU on the boom using nuts, flat gasket and spring gasket;

- Check to make sure that the installed unit is placed horizontally. Tighten the nut on the boom to prevent the IDU from falling and vibrating;
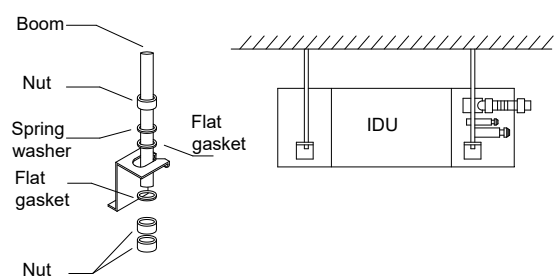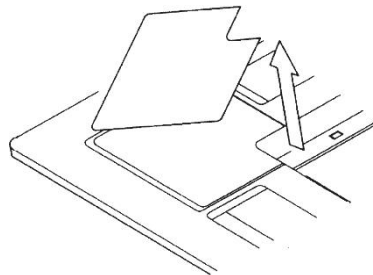
- Check and ensure that the unit body is at the center of the ceiling opening.

Panel installation

TKM200-1400

- Remove the small repair cover plates at four corners of the panel, as shown below:

- Install the panel:

1) Adjust the remote control lamp board of panel and the unit body connection pipe to the same direction, and clamp the suspension clasps at the remote control lamp board side and its diagonal line sides on the hangers (two places) of unit body. See ① in the following figure.

2) Buckle two suspension clasps adjacent to the remote control lamp board on the panel to the hangers of unit body. See ② in the following figure.

3) Since the small repair cover plates at four corners of the panel have been removed, the hexagonal head screws in the small repair cover plates can be seen. The panel will rise when the four hexagonal head screws are screwed up, as shown in ③ of the following figure.
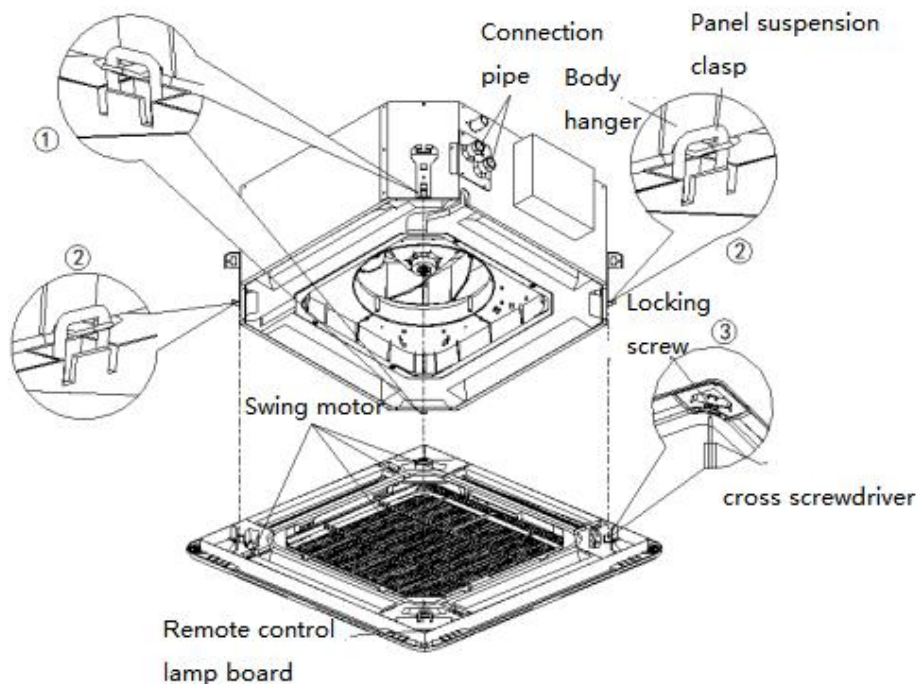

4) Tighten the four hexagonal head screws so that the thickness of insulation cotton between the panel and unit body is only 12 mm to 15 mm.
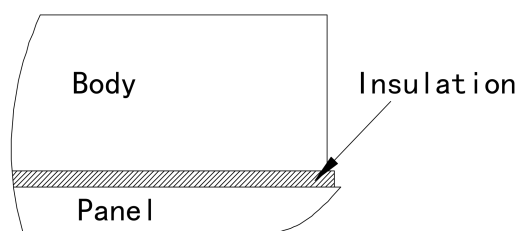
Note: Be sure to tighten the four hexagonal head screws, lest cold air would leak and cause water condensation and leakage or even lead to short circuit of the electric control box.
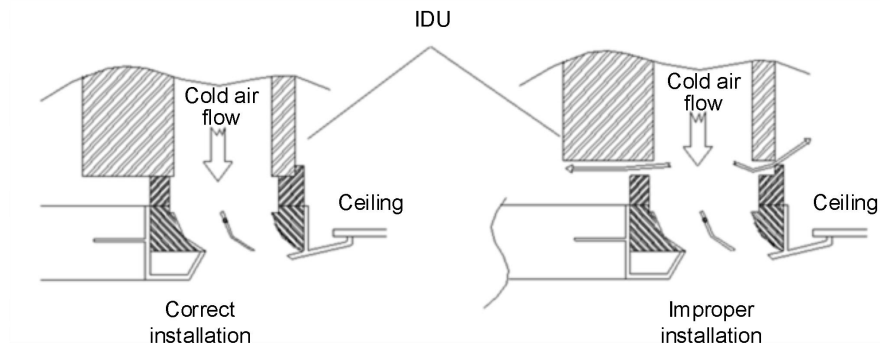
- Connect the connecting line of remote control lamp board and the connecting line of swing motor to the IDU control board. As shown in the following figure:
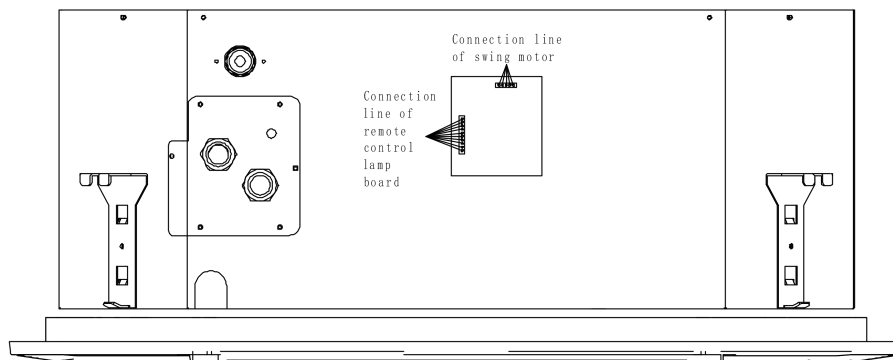
Installation of return air grille

- Check if the filter has been embedded into the return air grille and does not get loose.

- Considering the ceiling design and the convenience of opening the grille, install the return air grille into the panel.

IV.. Drain Pipe Installation

1. Precautions

● Before connecting the drainage pipe, remove the drainage plug on the left or right side of the chassis;

● The condensate water pipe should be as short as possible and drain the water along the slope (on the path) to avoid sudden upward and downward flow direction of the drainage pipe, so as to prevent the condensate water flow in opposite direction.

● The horizontal drainage pipe should be installed with a slope of 1/100 or above and fixed with the hanger with a spacing of 1.0 to 1.5m.

The hanger spacing for horizontal drainage pipe is:

| Material	Nominal diameter	Spacing
Rigid PVC pipe	25-40mm	Less than 1.5m

2. Connection of drainage pipe

● The drainage height outside the unit cannot exceed 500 mm; otherwise, water may leak.

● Raise the drainage pipe by 300-500 mm, and then lower it by at least 20 mm.
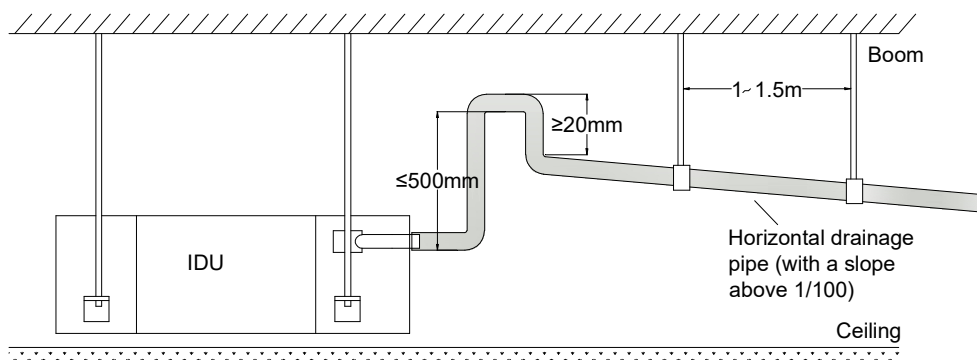
3. Centralized drainage

Please select a drainage pipe diameter matched with the unit operating capacity.

When more than three IDUs are installed, install the main exhaust port in the front of the IDU farthest from the main drainage pipeline.
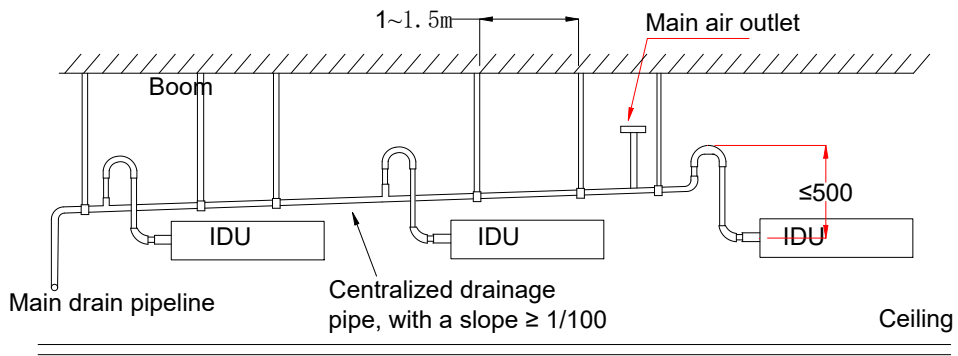
4. Drainage test

● After the drainage pipe is installed, check whether water is drained smoothly: During the first water supply of the pipe, open the discharge valve on the water pipe adapter and inject 2 liters of water into the water tray of the IDU.

● Run the machine under the cooling mode and check pumping of the drain pump.

● Check for water drainage at the end of the drainage pipe. Ensure that condensate water can be smoothly drained and water does not leak at the water drainage position.

● After the drainage test is completed, apply insulation materials to the condensing water pipe.

V. Electric Control Installation

- The circuit for TKM cassette-type fan coil is divided into the high current (power) line and control (communication) line. The high current part is the power supply for IDU, and the communication line is the line for intelligent building control.

- The cable must be selected according to relevant local or national regulations. The cable type must meet relevant local and national specifications.

- The wiring should be firmly connected. Do not apply external force to the terminal board.

1. Power supply wiring specifications and precautions

The power supply wiring specifications of the IDU are as follows:

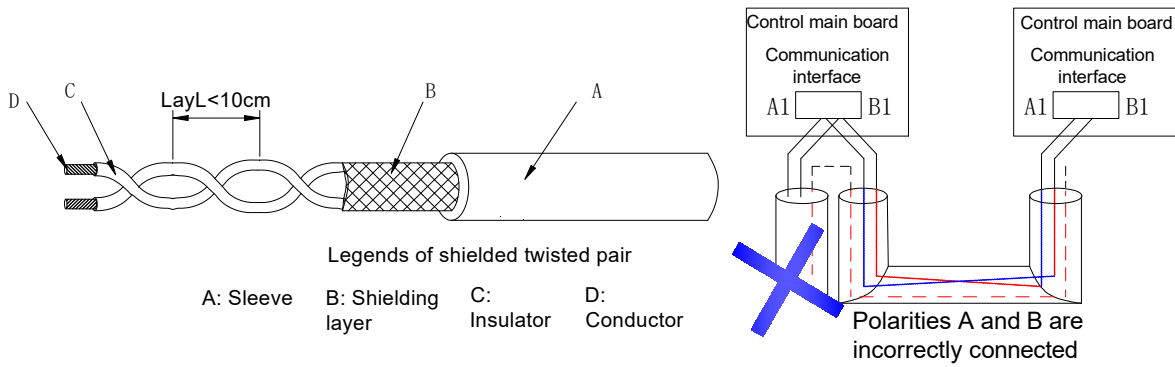| Power supply	Power supply range (V)	Power cord	Earth line
220V~/50H$_z$	242/198	$\geqslant$1.5mm^2	1.5mm^2

Notes:

- When the total power value of the IDU is greater than 1700 W, increase the power cable specifications according to the value.

- The distribution box is recommended to be provided with a set of electric leakage protection device and air switch for each unit.

- If a circuit breaker is connected to multiple IDUs, consider to use a circuit breaker with larger capacity.

2. Communication line specifications and precautions

- The specification of communication line, such as between BAS and unit, is 0.75 to 1.25mm^2 shielded twisted pair.

- Do not connect power line to the connecting terminal of communication lines.

- The total length of communication line is less than 1000 m.

- The shielding layer of the communication line must be grounded to the unit.

- Communication lines are well connected before being powered on. Do not remove the power plug with power on, lest the communication chips would be damaged.

- To prevent high voltage signal from disturbing control signal, shielded twisted pair must be used in the control signal circuit.

    (Try to select network connection wire with dense shielding layers and smaller lay.)

- Control signal has two polarities A and B, and different polarities cannot be connected, otherwise communication failures may be caused, as shown in the figure on the right:

- When power line is parallel with communication line, they shall be covered by respective conduits and kept at some distance away.

- After installation, be sure to protect the communication line of the wired controller or intelligent building system to prevent poor contact.

Legends of shielded twisted pair

A: Sleeve   B: Shielding layer   C: Insulator   D: Conductor

Polarities A and B are incorrectly connected

3. Installation of wired controller communication line

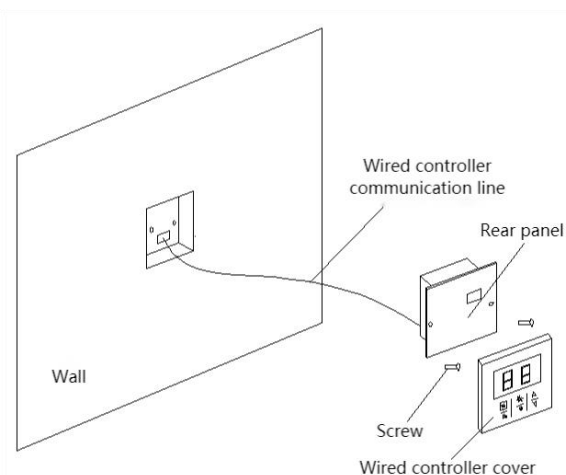## Installation of wired controller:
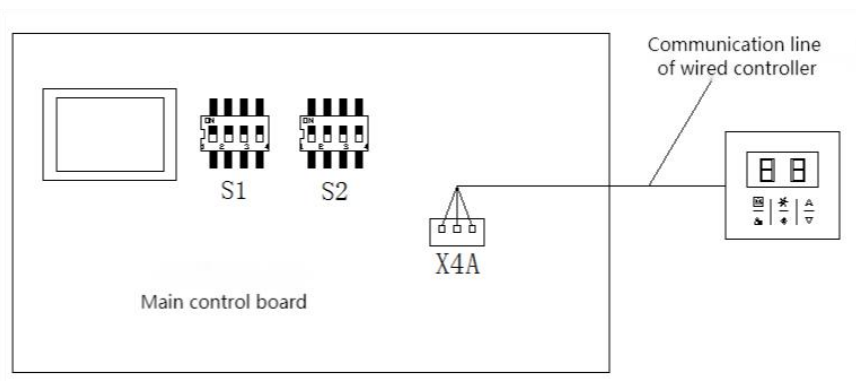
Note: A certain length of wired controller communication line has been configured before delivery. If the length is not enough, purchase from the dealer.
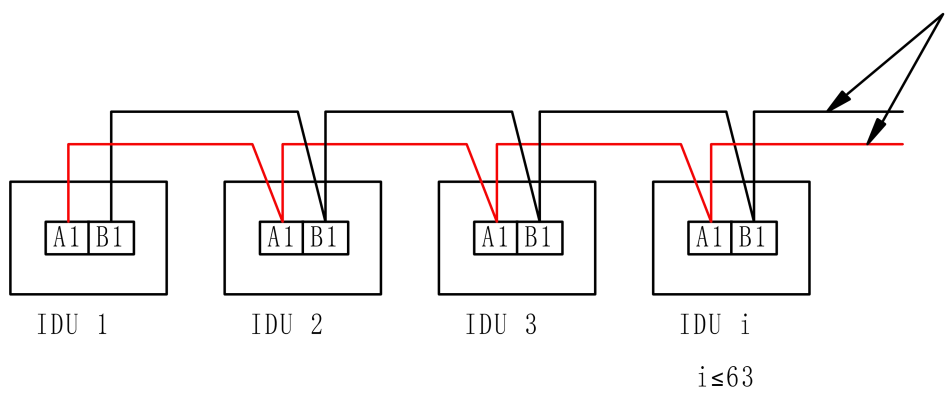
Installation of wired controller communication line

- When the IDU is installed and positioned, draw the communication line out from the ODU;

- Remove the rear panel from the wired controller;

- Fix the fixing plate and rear panel on the wall with self-tapping screws, at a height of about 1.5 m, to prevent children from pressing the button at will to change the setting;

- Connect the communication line led from the unit through the rear panel with the communication line on the wired controller cover;

- Align the wired controller cover with the buckle position of the rear panel. If you hear a click sound, the wired controller is securely fixed to the wall.

   (The wired controller communication line comes with the wired controller)

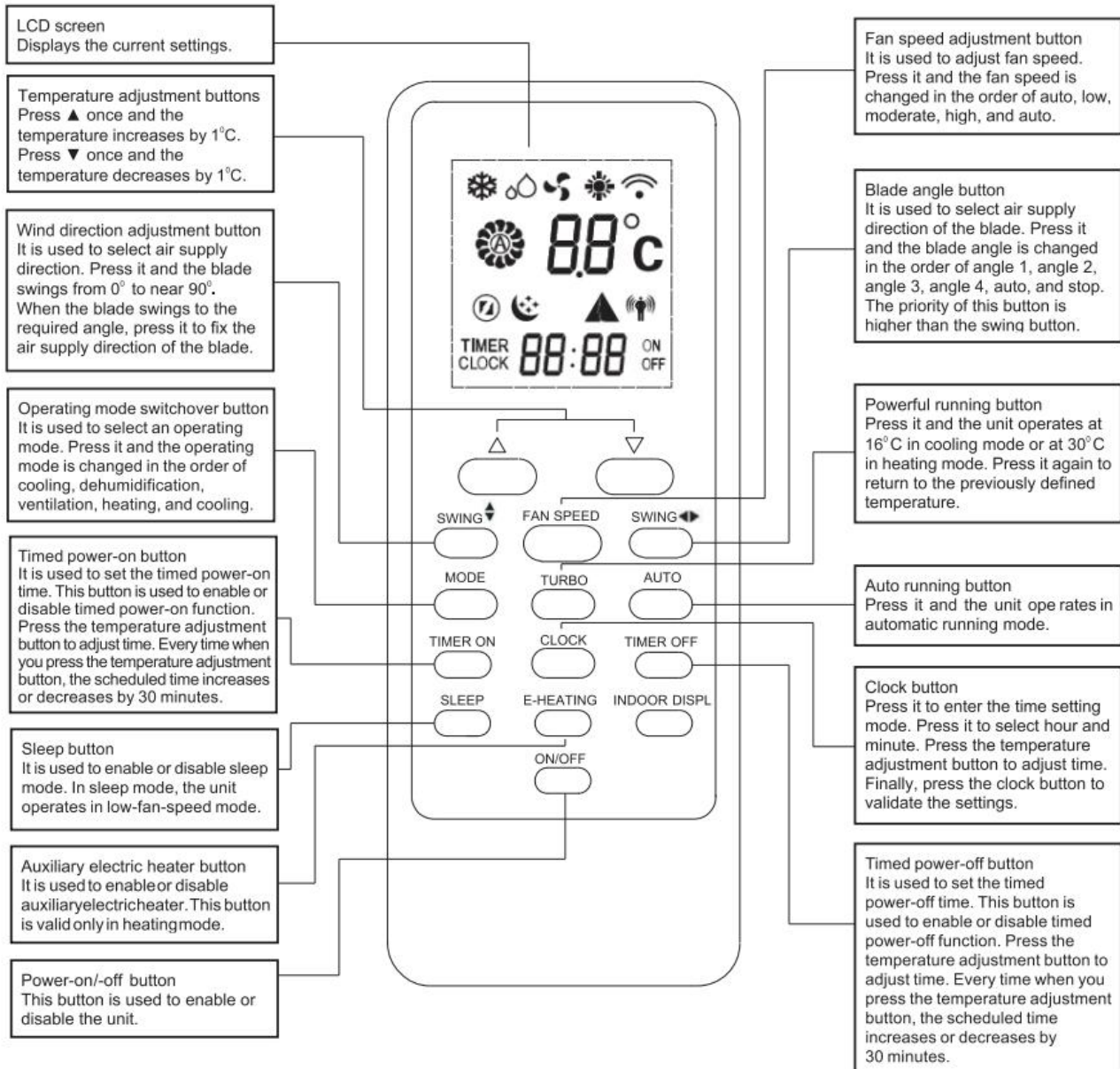Building automation system (BAS) installation

BAS communication line (MODBUS supported)

IDU 1   IDU 2   IDU 3   IDU i

i≤63

VI. Wired Controller Instructions

1. Remote controller functions

1.1 Button Introduction

LCD screen
Displays the current settings.

Temperature adjustment buttons
Press ▲ once and the temperature increases by 1℃. Press ▼ once and the temperature decreases by 1℃.

Wind direction adjustment button
It is used to select air supply direction. Press it and the blade swings from 0° to near 90°. When the blade swings to the required angle, press it to fix the air supply direction of the blade.

Operating mode switchover button
It is used to select an operating mode. Press it and the operating mode is changed in the order of cooling, dehumidification, ventilation, heating, and cooling.

Timed power-on button
It is used to set the timed power-on time. This button is used to enable or disable timed power-on function. Press the temperature adjustment button to adjust time. Every time when you press the temperature adjustment button, the scheduled time increases or decreases by 30 minutes.

Sleep button
It is used to enable or disable sleep mode. In sleep mode, the unit operates in low-fan-speed mode.

Auxiliary electric heater button
It is used to enable or disable auxiliary electric heater. This button is valid only in heating mode.

Power-on/-off button
This button is used to enable or disable the unit.

Fan speed adjustment button
It is used to adjust fan speed. Press it and the fan speed is changed in the order of auto, low, moderate, high, and auto.

Blade angle button
It is used to select air supply direction of the blade. Press it and the blade angle is changed in the order of angle 1, angle 2, angle 3, angle 4, auto, and stop. The priority of this button is higher than the swing button.

Powerful running button
Press it and the unit operates at 16℃ in cooling mode or at 30℃ in heating mode. Press it again to return to the previously defined temperature.

Auto running button
Press it and the unit operates in automatic running mode.

Clock button
Press it to enter the time setting mode. Press it to select hour and minute. Press the temperature adjustment button to adjust time. Finally, press the clock button to validate the settings.

Timed power-off button
It is used to set the timed power-off time. This button is used to enable or disable timed power-off function. Press the temperature adjustment button to adjust time. Every time when you press the temperature adjustment button, the scheduled time increases or decreases by 30 minutes.

Notes:

● In a fluorescent lamp room where voltage stabilizer or chopping oscillator (electronic ballast) are used, sometimes IDU cannot receive signals sent by the remote controller. In this circumstance, put the remote controller close to the signal receiving part.

● When the battery power is sufficient, the range of control is about 6 meters.

● Use remote controller with care. Damages may be caused if dropping it on the ground or into water.

● After the IDU is powered off and powered on again, the originally set timed-on/off will be canceled.

● The key layout would be different from the one above if the remote controller is updated iteratively, which will be no prior notice.

● See remote controller IOM for detailed operation instruction

1.2 Centralized control setting

Set the Modbus address using the remote controller

● Press the "Timed On" and "Timed Off" keys at the same time for 5s, and the remote controller enters the Modbus address setting mode. At this time, the middle temperature display area on the remote controller displays the current address value. Press ▲ or ▼ to set the address, and press the "Clock" to confirm, the temperature display area on the remote controller displays the current address value.

● Press the "Clock" again to exit the setting mode, and the remote controller displays normally.

2. Wired controller operation

Overview of TKM wired controller

This centralized wired controller is a compact LCD controller with a wide screen, and applies to TKM cassette-type fan coil.

Main functions: Fault code display, button locking, timing, mode settings, temperature settings and display, etc.

Appearance of TKM wired controller

LCD of TKM wired controller
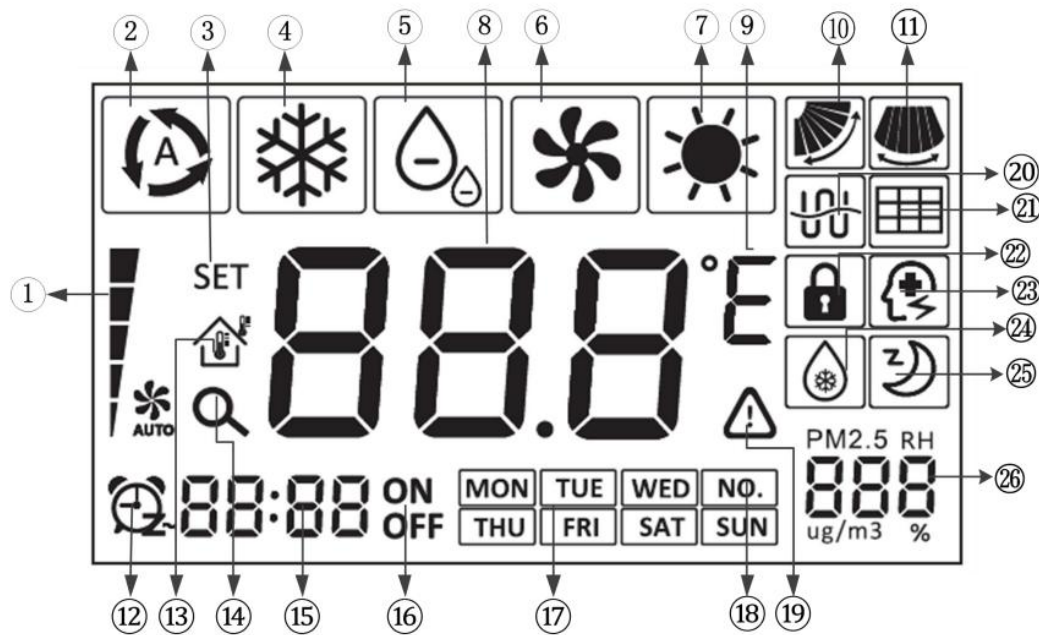
Icon Description:

No.	Name	Description
1	Fan speed	Current fan speed (including four options: auto, low, medium and high)
2	Auto	Auto mode (In auto mode, the indoor unit changes its running mode based on the indoor temperature.)
3	Settings	Display the "SET" icon in the unit parameter setting interface.
4	Cooling	Cooling mode
5	Dehumidification	Dry mode
6	Air supply	Air supply mode
7	Heating	Heating mode
8	Temperature area	1. Display the preset temperature or return air/wire controlled temperature. 2. Display the error code when an error occurs. 3. Display Hon/HOF of E-heater. 4. Display bon/bOF of lamp panel buzzer setting.
9	Temperature unit	Display the icon of Celsius or Fahrenheit during unit setting.
10	Vertical swing	Display the vertical swing.
11	Horizontal swing	Display the horizontal swing.
12	Clock	1. Displayed during system time setting. 2. Displayed when the timing function is enabled.
13	Return air or wire controlled temperature	Display the return air or wire controlled temperature.
14	Query	Display the query icon in the unit parameter setting interface.
15	Clock digital display	Display the system clock (or display the scheduled time during timing setting).
16	Power-on/off	Display the ON/OFF icon after timing setting.
17	Days of the week	Display days of the week.
18	Address No.	Display the address number.

19	Error	Display the error status.
20	Energy saving	Display the energy saving status.
21	Filter	Display the filter status.
22	Child lock	Display the child lock status.
23	Power failure memory	Display the status of power failure memory.
24	Defrosting	In defrosting status, the indoor unit performs cleaning.
25	Sleep	Display the sleep status.
26	PM2.5 and humidity	Display the PM2.5 and humidity.

Remark: When the wired controller works with different indoor units, the functions may vary with the unit.

Button Introduction

Buttons
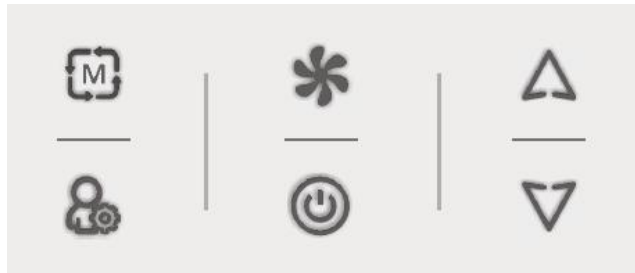
Button Description

Icon	Name	Function
Mode icon	Mode	1. Switch among modes of auto, cool, dry, fan, and heating of the indoor unit. 2. Function as the OK button during parameter query as well as swing, timing, and system time setting.
Fan speed icon	Fan speed	1. Switch among modes of low, medium, high, and auto. 2. Function as the Cancel button during parameter query as well as swing, timing, and system time setting.
Increase icon	Increase	1. Set indoor temperature. 2. Enable the timing function. 3. Set the upper and lower limits for energy saving.
Decrease icon	Decrease	4. Query parameters. 5. Set the swing function. 6. Set the system time.
Function icon	Function	1. Parameter setting or query. 2. Function as the OK button during day selection of week timing ON/OFF.
On/Off icon	On/Off	1. Power on or off the indoor unit. 2. Function as the Cancel button during day selection of week timing ON/OFF.
Combination: Mode and Increase	Energy saving	Hold Mode and Increase simultaneously for 3s to start or cancel the energy saving mode.
Combination: Mode and Decrease	Sleep	Hold Mode and Decrease simultaneously for 3s to start or cancel the sleep mode.
Combination: Fan speed and Increase	Switchover between Fahrenheit and Celsius temperature	Hold Fan speed and Increase simultaneously for 3s to switch between Fahrenheit and Celsius.
Combination: Fan speed and Decrease	Switchover between the preset temperature and room	Hold Fan speed and Decrease simultaneously for 3s to start or cancel temperature switchover.

		temperature	
Combination: △ and ▽		Child lock	Hold △ and ▽ simultaneously for 3s to start or cancel the child lock mode.
Combination: ⚙ and ✳		Humidity setting	Hold ⚙ and ✳ simultaneously for 3s to set the humidity.
Ⓜ	Hold	Electric auxiliary heater	Hold Ⓜ for 5s to set the E-heater status.
✳	Hold	Swing	Hold ✳ for 5s to set the swing status.
⏻	Hold	System time	Hold ⏻ for 5s to set the system time.

Operation Instruction

(I)   Power-on/off

Press ⏻ to power on the device.

Press ⏻ again to power off the device.

(II) Mode settings

● Each time when you press Ⓜ, the mode changes in the following sequence:

   Cool - Dry - Fan - Heat - Auto

(III) Temperature setting

● Temperature control

◎ Press the temperature control button ▲: The set temperature increases by 0.5°C.

◎ Press the temperature control button ▼: The set temperature decreases by 0.5°C.

Temperature range (Celsius): 16.0-30.0°C; initial value: 16.0°C

Temperature range (Fahrenheit): 61-86°F; initial value: 61°F

(IV) Fan speed regulation

● Each time when you press ✳, the fan speed changes in the following sequence:

   Low - Medium - High - Auto

(V) Functions settings

When the device is on/off, press ⚙. After the "SET" icon is displayed, press ▲ or ▼ to select the function to be set.

Functions that can be set with the wired controller are: timer (001), week timing ON (002), week timing OFF (003), backlight control (004), return air temperature/wire controlled temperature selection (005), turn off light board LED (006), child lock, swing, sleep, energy saving, Switchover between Fahrenheit and Celsius temperature, full screen upon power-on, forced cooling, system time and Modbus address setting.

I.   Timer

Set the timer in the following sequence:

Press once   Press △ or ▽   Press Ⓜ
⚙ ──→ SET ─────────→ ⏰ ──→ 88:88 ──→ ON or OFF
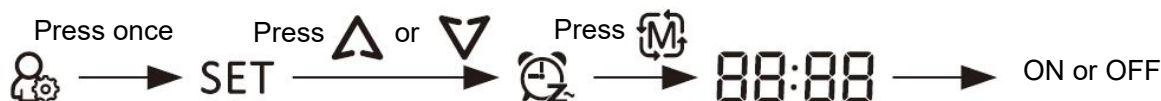
① Press ⚙ once to display the "SET" icon. Press △ or ▽ to display the ⏰ icon. When the humidity display shows 001, press Ⓜ.

② When digital display of the hour and minute 88:88 flashes, press △ or ▽ to set the time. Then, press Ⓜ to confirm the change.

③ A: When the device is on, OFF flashes. Press ⓜ to complete settings and exit.

B: When the device is off, ON flashes. Press ⓜ to complete settings and exit.

④ After steps ①, ② and ③ are performed, ⏰ flashes, and OFF or ON is displayed.

(1) Canceling timing:

When the timing function is on, press 👤. After the "SET" icon is displayed, press △ or ▽. After the ⏰ icon is displayed, press ⓜ. The digital display of the hour and minute flashes. Press ✲ to cancel the timer.

(2) Automatically exiting timing setting:

If no operation is performed within 10s after you access the timing setting interface, the wired controller automatically exits timing setting.

II. Week timing ON

Before setting the week timing ON/OFF function, calibrate the clock.

(1) Setting week timing:

Week → Hour → Minute → **ON** or **OFF**

① Press 👤 once to display the "SET" icon. Press △ or ▽ to display the "⏰+day" icon. When the humidity display shows 002, press ⓜ.

② Take an example that the SUN icon flashes. Press △ or ▽ to select the required days (for example, Monday, Wednesday, and Friday). When MON flashes, press 👤. MON is solid on. Press △ or ▽ to change WED. WED flashes. Press 👤. WED is solid on. Press △ or ▽ to change to FRI. FRI flashes. Press 👤. FRI is solid on. When MON WED FRI are on and no icons of other days flash, press ⓜ to confirm day settings and switch to time setting.

③ When the hour icon 88: flashes, press △ or ▽ to select the required hour, and then press ⓜ to confirm hour settings.

④ When the minute icon 88 flashes, press △ or ▽ to select the required minute, and then press ⓜ to confirm minute settings.

⑤ When the ON icon flashes, press ⓜ to confirm the timing on/off settings.

⑥ After the preceding steps are finished, ⏰ is solid on, and the ON icon is displayed.

(2) Canceling timing:

When the timing function is on, press 👤. After the "SET" icon is displayed, press △ or ▽. The ⏰ + day icon is displayed. When the humidity digital display shows 002, press ⓜ. The digital display of the hour and minute is solid on, and the icon of days flashes. Press ✲ to cancel week timing ON. The ⏰ and ON icons are off accordingly.

(3) Automatically exiting timing setting:
If no operation is performed within 10s in the timing setting interface, the wired controller automatically exits timing setting and retains the current week timing ON/OFF status.
III. Week timing OFF (refer to week timing ON)
IV. Backlight control (backlight is off 60s after power-on, or off 20s after any button operations)
(1) How to set:
① Press 👤 once to display the "SET" icon. Press △ or ▽. When the humidity display shows 004, press ⓜ.

② When the temperature digital display shows "00 (backlight off)" or "01 (backlight solid on)", press △ or ▽ to select the required parameter. Press ⓜ to confirm parameter settings and exit.

"00 (backlight off)" is displayed by default.

(2) How to cancel:

During parameter setting, press ✱ to cancel settings and retain the current backlight status.

(3) Automatic exit:

If no operation is performed within 10s in the backlight setting interface, the wired controller automatically exits and retains the current backlight status.

V.   Return air temperature/wire controlled temperature selection

(1) How to set:

① Press ⚙ once to display the "SET" icon. Press △ or ▽. When the humidity display shows 005, press ⓜ.

② When the temperature digital display shows "00 (return air temperature)" or "01 (wire controlled temperature)", press △ or ▽ to select the required parameter. Press ⓜ to confirm parameter settings and exit.

(2) How to cancel:

During parameter setting, press ✱ to cancel settings and retain the current temperature of the indoor unit.

(3) Automatic exit:

If no operation is performed within 10s in this interface, the wired controller automatically exits and retains the current temperature of the indoor unit.

VI.   Turn on/off light board LED

(1) How to set:

① Press ⚙ once to display the "SET" icon. Press △ or ▽. When the humidity display shows 006, press ⓜ.

② When the temperature digital display shows "00 (invalid)" or "01 (valid)", press △ or ▽ to select the required parameter. Press ⓜ to confirm parameter settings and exit.

(2) How to cancel:

During parameter setting, press ✱ to cancel settings and retain the current light board LED status.

(3) Automatic exit:

If no operation is performed within 10s in this interface, the wired controller automatically exits and retains the current light board LED status.

(VII) Locking buttons (child lock)

● When the device is on or off, if you hold both ▲ and ▼ for 3s, the buzzer generates one beep.

🔒 is displayed and all buttons become invalid.

● Hold both ▲ and ▼ for 3s can unlock the buttons.

(VIII) Swing (only vertical swing for cassette)

◎ When the device is on, hold ✱ on the control panel for 5s to switch to the "swing" function. ⎚ flashes. Press ▲ and ▼ to set "Vertical swing ⧚", "Horizontal swing ⎚", and Vertical & Horizontal swing ⧚⎚". 1: Press ⓜ to confirm the swing settings. The icon stops flashing and becomes solid on. 2: Press ✱ to cancel the currently set swing mode.

The swing function does not need to be memorized. By default, there is no swing on power-on. The thermostat can swing in any mode. The thermostat does not respond to remote control data during swing.

◎ If the swing function is enabled, when the device is on, hold ✱ on the control panel for 5s to switch to the "swing" function. ⎚ flashes. Press ▲ and ▼ to select the current swing mode. Press ✱ to exit the current swing settings.

◎ If no operation is performed within 10s in this interface, the wired controller exits and retains the current operation status.

(IX)   Sleep

◎ When the device is on, hold ⓜ and ▼ for 3s to enter the sleep mode.

(X)   Energy-saving function

1. In Cool or Dry mode, hold ▲ and ⓜ for 3s to set the unit to "Cooling energy-saving" mode. Press ▲ and ▼ to set the temperature (lower limit: 26°C).

2. In heat mode, hold ▲ and ⓜ for 3s to set the unit to "Heating energy-saving" mode. Press ▲ and ▼ to set the temperature (upper limit: 20°C).

After the energy-saving settings, the set temperature cannot exceed the configured range, no matter you are using a wired

controller or a remote control. For example, if the lower limit set in cooling energy-saving mode is 26°C, the supportable temperature range for cooling that you can set with a wired controller or a remote control is 26°C-30°C.

3.   After the energy-saving function is set, when the unit is on, hold ▲ and M for 3s. The buzzer generates one beep. The energy-saving function is canceled.

(XI)   Switch between Celsius and Fahrenheit

With a wired controller:

Hold ✦ and ▲ for 3s to switch between Celsius and Fahrenheit.

(XII)   Full screen upon power-on

●   Upon power-on, the full screen lights up for 3s. During these 3s, you may check whether there are any scratches on the LCD.

Notes:

◎   The system does not respond to any button pressing or remote signals from the wired controller during the full screen display period.

(XIII)   Forced cooling

●   Upon initial power-on and when the device is off, hold 👥 and ▼for 3s to access forced cooling.

Notes:

◎   After power-on, the system can access forced cooling only once. To access forced cooling again, you need to power-on the device again.

◎   In the forced mode, all buttons except the on/off button on the wired controller are invalid.

◎   In the forced mode, the system will not respond to remote signals.

◎   If forced cooling is set through the lamp board, you may press the "On/Off" button on the wired controller or remotely control the lamp board to exit forced cooling.

(XIV)   System time setting

●   When the device is off, hold 🔘 for 5s to access system time setting. The "⏰+day" icon is displayed.

◎   1. Press M. The current "day" icon flashes. Press ▲ or ▼ to select a day. Then, press M. The digital display of the hour flashes, and the set day is solid on. Press ▲ or ▼ to select the hour value. Then, press M. The digital display of the minute flashes, and the set hour is solid on. Press ▲ or ▼ to select the minute value. Then, press M to confirm the time setting. The set system time is normally displayed in 10s.

◎   2. Press ✦ to cancel the current system time setting. The regular shutdown interface is displayed.

◎   3. if no operation is performed within 10s, the controller exits system time setting and the regular shutdown interface will be displayed.

(XV)   Modbus address setting

◎   When the device is off,   hold M and ✦ for 3s to access engineering debugging mode. The 🏠 icon is displayed. And then press ▲ or ▼. When the humidity display shows 19, press M to access Modbus address setting mode. Press ▲ or ▼ to set address, press M to confirm the address setting. When setting the address,   press ✦ to cancel and the regular shutdown interface will be displayed.

◎   If no operation is performed within 10s, the controller engineering debugging mode and the regular shutdown interface will be displayed.

Error Codes

Fault of IDU	
Fault Code	Fault Description
04	Return air temperature fault
07	Water level fault

Maintenance:

1. Use a dry and soft cloth to remove the dirt on the LCD screen or controller body.
2. If the dirt cannot be removed, use water to dilute neutral detergent, dip the cloth in the diluted detergent, and then wring it out. Use the cloth to remove the dirt. After the dirt is removed, use a dry cloth to wipe the LCD screen or controller.
3. Do not use liquid such as diluent, organic solvent and strong acid.

Troubleshooting and After-sales Service

When there is an exception, the LCD of the wired controller will display the ⚠ icon and a fault code to indicate that a fault occurs.

In this case, write down the fault code and contact the after-sales service.

For the after-sales service, contact your sales service provider.

3. Light board function description

1. Light board display description
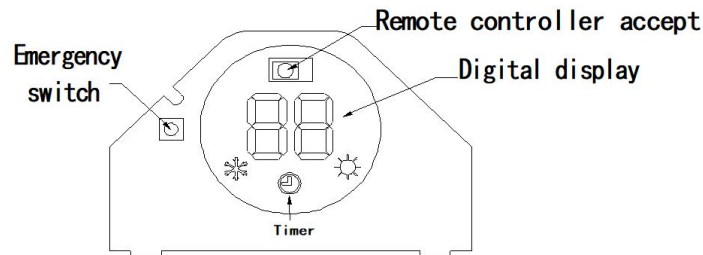
2. Light board indicator description

Icon	Description	Status
❄	Operation indicator	Green indicates operation
☀	Fault indicator	Red indicates unit fault
🕐	Timer indicator	Yellow indicates timer setting successfully

3. Emergency function description

◎ Use emergency switches to control the unit when remote controller runs out of power, fails to work or is missing.

◎ The emergency switch function can be adjusted by DIP switches at positions S2-2 on the control board. 0 indicates that the emergency function of the indicator board is disabled, and 1 indicates that the emergency function of the indicator board is enabled. Unit factory standard to enable emergency switch function.

◎ Press the emergency switch button on the panel for more than 3S, and the function of forced opening and shutdown can be realized. The air conditioner operates as follows:

Model	Setting Temp.	Fan speed	Solenoid valve
Cooling	24℃	Auto, according to the return air temperature	According to the return air temperature
Heating	24℃	Auto, according to the return air temperature	According to the return air temperature

Note: When the return air temperature is ≥24℃, perform cooling operations.

When the return air temperature is <24℃, perform heating operation

4. Low-Cost BAS Interface

To facilitate access to the building automation system (BAS), the ODU itself provides a standard Modbus RTU interface, so that the user can access the BAS without adding any peripherals, and the cost is low.

TICA®

IDU 1# **IDU 2#**   ……   **IDU 63#**

BAS
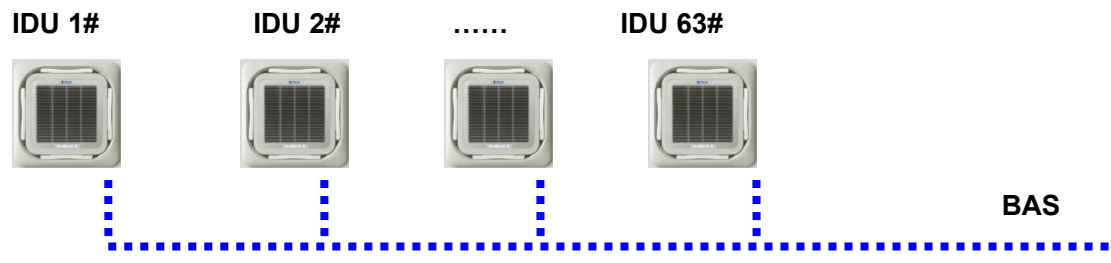
VII. Precautions on Air Conditioner Use/Maintenance

1. When using the air conditioner, pay attention to:

● Set the appropriate indoor temperature.

It is recommended to set the temperature to 26-28°C in case of cooling and 18-23°C in case of heating. Too high or too low indoor temperature can make people feel uncomfortable. Raising the indoor set temperature by 1°C when cooling and lowering this temperature by 2°C during heating can save 10% of electric energy.

● Clean the filter screen thoroughly.

If the air filter is blocked, the air outlet effect will be significantly reduced, and may cause a fault in severe circumstances.

If the air conditioner is not used for a long time, clean the filter thoroughly before running cooling or heating modes.

● Open doors and windows as little as possible to reduce indoor and outdoor heat exchange.

When cooling and heating, do not open doors and windows. If not necessary, do not open doors or exits to reduce indoor heat loss.

To prevent hot air from entering the air conditioning room during cooling, set curtains or blinds on the windows to shield direct sunlight.

● Ventilate as necessary.

The long-term stagnation of indoor air, as well as the breath of personnel and the smell emitted by other objects, will cause indoor air pollution, so it is necessary to ventilate the indoor space in a timely manner to keep the indoor air fresh.

● Effectively use the timer.

When sleeping and going out, use a timer to keep the unit running for the necessary time to save power.

● Do not touch the air conditioner with wet hand to prevent electric shock.

Do not operate the wired controller or remote controller with wet hand, or splash water into the wired controller or remote controller.

● Do not use air conditioner for special purposes such as food preservation, animal and plant keeping, precision instrument and artwork preservation, etc.

Otherwise, the quality of these items will be affected.

● Do not place indoor heating equipment under the IDU.

Hot air may deform the suction grille of the IDU.

2. During maintenance of the air conditioner, pay attention to:

● When the air conditioner is not in use for a long time, do the following:

If the air conditioner is not used for a long time due to seasonal changes, set it to the air supply mode for 3 to 4 hours, so that it is completely dry to avoid mildew. Turn off the air conditioner and then turn off the power to avoid wasting power.

● When starting to use after long-term shutdown:

When the unit stops and the power is disconnected, clean the dust filter and IDU body.

Do not clean the IDU and ODU of air conditioner with water to avoid electric shock and fire.

Use a soft cloth to wipe the IDU body. Do not use gasoline, benzene, dilute alkali solution, grinding powder, detergent and insecticide to clean the unit, which may cause damage.

Confirm that the air inlet and outlet of the IDU and ODU are not blocked by sundries.

Check whether the grounding wire is loose. Connect the power supply for at least 12 hours to keep the unit in standby state.

Do not turn off the power during seasons when the air conditioner is frequently used.

● Cleaning of dust filter:

The removed dust filter can be cleaned with a vacuum cleaner or clean water.

If the filter is too dirty, use neutral detergent to brush.

Do not clean with hot water (about 50°C or more) to avoid deformation.

After washing with water, dry the filter in a cool and ventilated place. Do not expose to sunlight or dry with fire to avoid deformation.

VIII. Description of Faults

1. Handling method in case of faults of non-air conditioner

● If the phenomenon in the following table occurs during the use of the air conditioner, the user can troubleshoot these common and simple faults:

Symptom	Analysis of Causes	Solution
IDU fan does not operate	Room temperature higher (during heating) or lower than set temperature (during cooling)	Reset the temperature
Air conditioning unit does not work	Power supply is not on	Check and power on
	Timed start function is set	Wait or cancel timed start
	Main power supply fuse burnt	Replace the fuse
Too little cold air or insufficient hot air	The filter is too dirty	Clean or replace the filter
	Air return outlet of the IDU is blocked	Remove obstacles
	The water valve fails or the water supply temperature cannot meet the requirements	
Remote controller display blurred or malfunctioning	Low battery	Replace with a new battery
	The battery is not installed correctly	Reinstall correctly
	Whether the unit is too far from the remote controller (over 6 m)	Close to the unit remote control
	Whether the electronic ballast is started or shut down	Wait a moment
There is condensate water on the front panel of the IDU	High air humidity	Dehumidification

2. Handling method in case of faults of air conditioner

● If the user is unable to troubleshoot fault, please contact the relevant personnel of the local maintenance point for repair, and record the fault codes of the wired controller and remote controller.

  1) When a fault occurs with the remote controller, the fault indicator of the remote control receiver on the IDU panel flashes (once per second, with a stop of 2.5s):

Blinking times of receiver fault indicator	Fault Description	Blinking times of receiver fault indicator	Fault Description
4	Return air temperature fault	7	Water level switch fault

IDU model	Fault indicator
TKM	Red indicator

  2) When a fault occurs with the wired controller, the fault code is displayed on the wired controller. The table of fault codes is as follows:

IDU Fault	
Fault code	Fault
04	Return air temperature fault
07	Water level fault

IX. After-sales Service of Air Conditioning Unit

After-sales service

After-sales services includes repair, installation, maintenance, and reinstallation.

Repair and installation should be carried out by dealers.

The following details should be provided when repair is required:

- Air conditioner model (refer to the warranty application form).

- Factory number and installation date (refer to the warranty application form).

- Detailed description of the fault.

- Your name, address, and phone number.

- Wired controller fault code and flashing mode of the remote controller indicator.

Repair after warranty period

Please contact the dealer. We provide paid service.

Environmental Protection Description

- This product complies with the environmental protection requirements of the Measures for the Administration of the Restricted Use of the Hazardous Substances Contained in Electrical and Electronic Products.

- Environmental protection service life: In the environmental protection service life, the user's normal use of this product will not cause serious pollution to the environment or cause serious damages to persons and properties. The service life is specified by TICA. The environmental protection service life is not equivalent to the service life of safe use.

- Recycling: When this product is not needed or its service life ends, recycle it according to the related national regulations on recycling of waste electrical and electronic products. Do not discard it at will.

- **Names and content of hazardous substances in products**

Part name	Hazardous substance					
	Plumbum (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr(VI))	Polybrominated Biphenyl (PBB)	Polybrominated Diphenyl Ether (PBDE)
Motor	O	O	O	O	O	O
Heat exchanger	O	O	O	O	O	O
Refrigerant	O	O	O	O	O	O
Pipeline fittings and valves	×	O	O	O	O	O
Screws, bolts, and other fasteners	O	O	O	×	O	O
Other metal parts	O	O	O	×	O	O
Controller and electrical components	×	O	O	O	O	O
Sponge	O	O	O	O	O	O
Foam	O	O	O	O	×	O
Other plastic parts	O	O	O	O	O	×
Rubber parts	O	O	O	O	O	O
Other printed matters	O	O	O	O	O	O
Accessories (remote controller, battery, etc.)*	O	O	O	O	O	O

This table is prepared according to the provisions of SJ/T 11364.

〇: It indicates that the content of this hazardous substance in all homogeneous materials in this part is below the limit requirement defined in GB/T 26572.

×: It indicates that the content of this hazardous substance in at least one homogeneous material in this part exceeds the limit requirement defined in GB/T 26572. Moreover, substitution cannot be implemented at present due to technical reasons, and it will be improved gradually along with technical progress in the future.

*: It indicates that the environmental protection service life of the battery matched with the product is 2 years.

The number in this identification indicates that the environmental protection service life of the product under the normal use status is 15 years. Some parts may also have the identification of environmental protection service life, and their environmental protection service life is subject to the number in the identification. The product configuration may be different due to different models or product improvements. The actual configuration of sold products should prevail.

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