SDV5

FULL DC INVERTER SYSTEMS
INSTALLATION & OWNER'S MANUAL
WIRED CONTROLLER SWC-86E

COMMERCIAL AIR CONDITIONERS SDV5

sinclair

- Read this manual carefully and be sure you understand the information before attempting to use the controller.

- Keep this manual where it is readily accessible after reading it through.

- If another user operates the controller in the future, be sure to hand over this manual to the new user.

Contents

Installation

1. Safety Precautions

Please read these Safety Precautions carefully before installing the wired controller.

■ This manual classifies the precautions into WARNING and CAUTION. They both contain important information regarding safety. Be sure to follow all the precautions below.

Identifier	Meaning
⚠ Warning	Failure to follow these instructions properly may result in personal injury or loss of life.
⚠ Caution	Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.
ⓘ Important	Indicates a useful hint or additional information.

■ After completing the installation, conduct a trial operation to check for faults and explain to the customer how to operate the controller with the aid of the operation manual. Ask the customer to store the installation manual along with the operation manual for future reference.

⚠ Warning

● Ask your dealer or qualified personnel to carry out installation work.
  Do not attempt to install the wired controller yourself. Improper installation may result in leakage, electric shocks or fire.
● Consult your local dealer regarding relocation and reinstallation of the wired controller.
  Improper installation work may result in leakage, electric shocks or fire hazards.
● Install the wired controller in accordance with the instructions in this manual.
  Improper installation may result in water leakage, electric shocks or fire.

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- Be sure to use only the specified accessories and parts for installation work.
  Failure to use the specified parts may result in the unit falling down, water leakage, electric shocks or fire.
- Install the wired controller on a foundation strong enough to withstand the weight of the wired controller.
  Insufficient strength may result in the wired controller falling down and causing injury.
- Electrical work must be performed in accordance with the relevant local and national regulations and with the instructions in this manual.
  Be sure to use a dedicated power supply circuit only. Insufficient power circuit capacity and improper workmanship may result in electric shocks or fire.
- Always perform installation work with the power turned off.
  pressing electric parts may result in electric shock.
- Do not disassemble, reconstruct or repair.
  This may result in electric shock and/or fire.
- Make sure that all wiring is secured, the specified wires are used and that there is no strain on the terminal connections or wires.
  Improper connections or securing of wires may result in abnormal heat build-up or fire.
- The choice of materials and installations must comply with the available national and international standards.
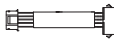

⚠ Caution

- To avoid leakage and electric shock due to entry of water or insects, fill the wiring through hole with putty.
- To avoid electric shocks, do not operate with wet hands.
- Do not wash the wired controller with water, as this may result in electric shocks or fire.
- When the follow me function of the wired controller is used, select the installation location while considering it should be a place:

  1).Where the average temperature in the room can be detected.
  2).Which is not exposed to direct sunlight.
  3).Which is not near a heat source.
  4).Which is not affected by the outside air or air draught due to, for example,
     opening/closing of doors, the air outlet of the indoor unit or the like.

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2. Accessories

■ Please check that you have all the following parts.

Table 2.1

No.	Name	Schematic	Qty.	Remarks
1	Philips head screw, M4X25mm		2	Used to install the wired controller on the electrical box
2	Plastic support bar φ5X16mm		2	Used to install the wired controller on the electrical box
3	Operation and Installation Manual		1	/
4	Connecting wires		1	Used to connect the indoor unit display and wired controller

■ Please prepare the following parts on site.

Table 2.2

No.	Name	Qty.	Remarks
1	86 electrical box	1	General specification for electrical box, which is embedded into the wall.
2	5-core shielded copper wires	1	5*AWG16-AWG20, pre-embedded into wall. Longest wiring length is 15 metres.
3	Wiring tubes (insulation suite)	1	Pre-embedded into wall.
4	Big Phillips screwdriver	1	To install the Philips screws.
5	Small slotted screwdriver	1	To dismantle the bottom lid of the wired controller.

3. Installation Procedure

3-1 Determine Where to Install the Wired Controller

Make sure to refer to "1. Safety Precautions" to determine the location.
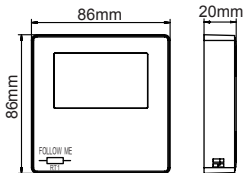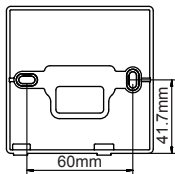
3-2 Structural Dimensions

Figure 3.1

Figure 3.2

3-3 Rear Cover Installation

3-3-1 Insert a small slotted-head screwdriver into the bottom slot of the wired controller and rotate in the direction indicated to remove the rear cover of the wired controller. Pay attention to the direction of rotation to prevent any damage to the rear cover of the wired controller. (see Figure 3.3)

Screwdriver rotation direction

Slotted screwdriver
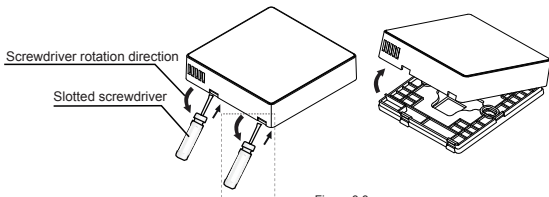
Figure 3.3

> ⚠️ **Warning**
>
> • When using the small slotted screwdriver to open the rear cover of the wired controller, be careful not to damage the PCB inside.
> • Do not touch the PCB of the wired controller.

3-3-2 Use a cutting tool to adjust the height of the two plastic support bars (accessory 2) to match the standard length of the screw pillars of the electrical box to the wall surface. Make sure that the support bars are level on the wall when the screw pillars of the electrical box are mounted. (see Figure 3.4)

Use a cutting tool to adjust the lengths of the two plastic support bars

Screw post of electrical box
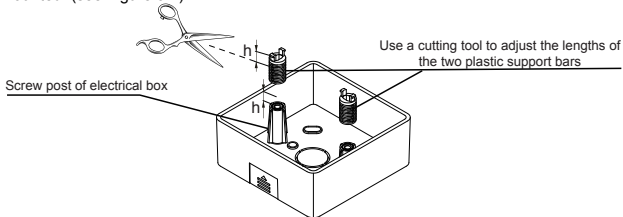
Figure 3.4

3-3-3 Once the heights of the plastic support bars are adjusted, fix the bars on the rear cover. (see Figure 3.5)

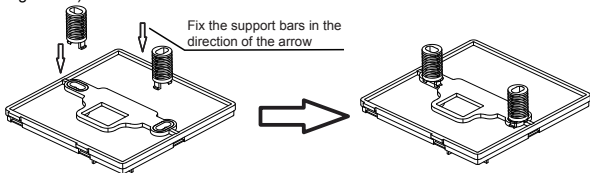Fix the support bars in the direction of the arrow

Figure 3.5

3-3-4 Take the shielded wiring that has been pre-embedded in the wall, and thread it through the wire hole of the rear cover. Use the Philips head screws (accessory 1) to fix the rear cover of the wired controller to the electrical box via the support bars. Make sure that the rear cover is not deformed after being installed (see Figure 3.6).
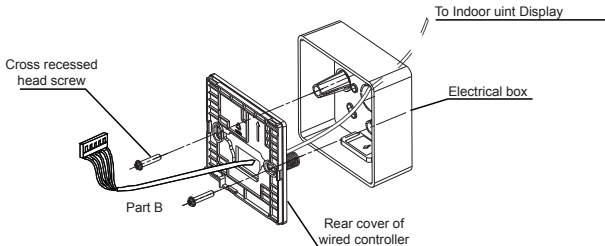

Figure 3.6

> (i) **Important**
> • The rear cover may be deformed if the screw is too tight.

3-4 Wiring

> ⚠ **Caution**
> • Prepare the electrical box and the 5-core shielded copper wire on site.
> • Do not touch the PCB of the wired controller.

3-4-1 Wiring specification

Table 3.1

Type	5-core shielded copper wire
Diameter	AWG 16-20
Length	Maximum 15m

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3-4-2 Communication wiring

■ The communication between wired controller and indoor unit is **infrared communication**.

Cut the connecting wires (accessory 4) from the centre, and divided into two parts: A and B. Part A contains the larger 5-way terminal while part B contains the smaller 5-way terminal.

1) Connect the larger 5-way terminal of part A connecting wires to the indoor unit display. Connect the other end of part A connecting wires (the cut end) to the 5-core shielded cable that has been pre-embedded into the wall (see Figure 3.7).

Connecting wires in the accessory 4

Part A

5-core shielded cable that has been pre-embedded into the wall

Indoor unit Display
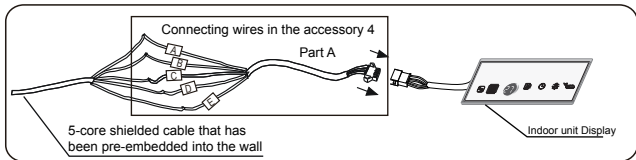
Figure 3.7

2) Connect the cut end of part B connecting wires to the 5-core shielded cable that has been pre-embedded into the wall (see Figure 3.8).

Connecting wires in the accessory 4

Part B

5-core shielded cable that has been pre-embedded into the wall
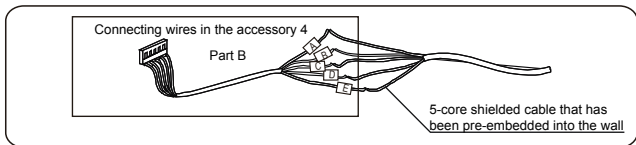
Figure 3.8

■ **Unit connection method**
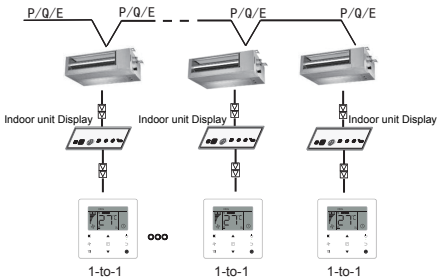
Figure 3.9

ⓘ Important

- During the wiring connection, make sure that the wiring sequence A/B/C/D/E are matched correspondingly one by one.
- Wiring connection must be firm and reliable, and secured effectively to avoid pulling by external forces.

3.5 Install Main Body of Wired Controller

Take the smaller 5-way terminal of part B connecting wires and pass it through the wire holes at the rear cover of the wired controller, connected it to the 5-way terminal of the wired controller (CN1). Then fixed the wired controller to the rear cover. (see Figure 3.10)

Fix the wired controller correctly and firmly to the rear cover so that the wired controller will not drop. (see Figure 3.11).
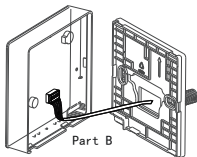
Figure 3.10
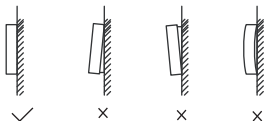
Figure 3.11

⚠ **Caution**

• During installation, reserve a certain length for the connecting shielded wiring to make it easier to remove the wired controller for maintenance.

Operation

1. Safety Precautions

This controller is not intended to be used by persons, including children, with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they are supervised or have been given instructions on how to use the controller by a person responsible for their safety.

Childen should be supervised to ensure that they do not play with the controller.

Please read the Safety Precautions carefully before operating the wired controller.

■ The Safety Precautions classifies the precautions into WARNING and CAUTION.

They both contain important information regarding safety. Be sure to follow all the precautions below.

Identifier	Meaning
⚠ **Warning**	Failure to follow these instructions properly may result in personal injury or loss of life.
⚠ **Caution**	Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.

⚠ Warning

- **Do not install the wired controller by yourself.**
  Improper installation may result in electric shocks or fire.
  Consult your dealer.
- **Do not modify or repair the wired controller.**
  This may result in electric shocks or fire.
  Consult your dealer.
- **Do not relocate or reinstall the wired controller by yourself.**
  Improper installation may result in electric shocks or fire.
  Consult your dealer.
- **Do not use flammable materials (e.g., hairspray or insecticide) near the controller.**
  Do not clean the controller with organic solvents such as paint thinner.
  The use of organic solvents may cause crack damage to the controller, electric shocks or fire.

⚠ Caution

- **Do not play with the wired controller.**
  Accidental operation by a child may result in impairment of bodily functions and harm health.
- **Never disassemble the wired controller.**
  Pressing the interior parts may result in electric shocks or fire.
  Consult your dealer or authorized contractor for internal inspections and adjustments.
- **To avoid electric shocks, do not operate with wet hands.**
- **Do not wash the wired controller.**
  Doing so may cause electric leakage and result in electric shocks or fire.
- **Do not leave the wired controller wherever there is a risk of wetting.**
  If water gets into the wired controller there is a risk of electrical leakage and damage to electronic components.

2. Parts of the Wired Controller
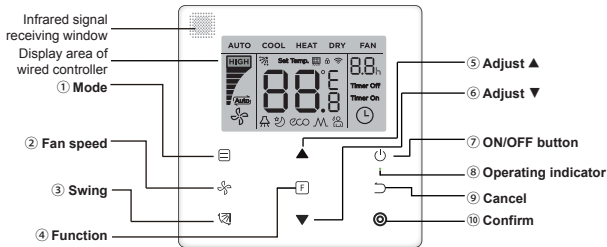
Figure 4.1

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Table 4.1

Button	Functions
1. ▤ Mode	To set the operating mode: Auto → Cool→ Heat→ Dry→ Fan
2. ⚘ Fan speed	To set the fan speed.
3. ⟨⟩ Swing	To set the swing function.
4. ⨍ Function	To switch to functions that can be set in the current mode.
5. ▲ Adjust upwards	To adjust temperature setting and timing (for timer) upwards.
6. ▼ Adjust downwards	To adjust temperature setting and timing (for timer) downwards.
7. ⏻ ON/OFF	To turn ON/OFF the unit
8. ◉ Operating indicator	To indicate the ON/OFF state of the indoor unit.
9. ⊃ Cancel	To turn off the timer/IDU LED display/silent/ECO/auxiliary heater function*¹*; to cancel the timer.
10. ◎ Confirm	To turn on the timer/IDU LED display/silent/ECO/auxiliary heater function*¹*; to confirm the timer.

Note 1: Auxiliary heater function is reserved.
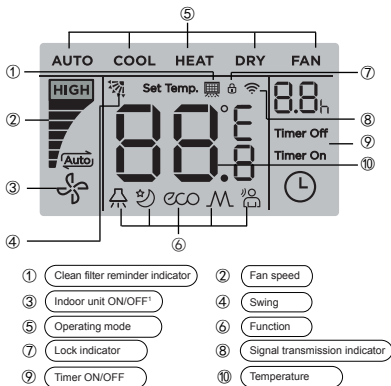
3. Icons in the Display

Figure 5.1

①	Clean filter reminder indicator	②	Fan speed
③	Indoor unit ON/OFF[1]	④	Swing
⑤	Operating mode	⑥	Function
⑦	Lock indicator	⑧	Signal transmission indicator
⑨	Timer ON/OFF	⑩	Temperature

Note1: When the indoor unit is on, the icon " 🌀 " spins; when the indoor unit is off, the icon " 🌀 " does not spin.
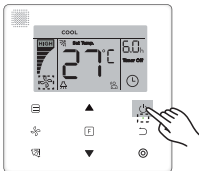
4. Operation Guide

4-1 ON/OFF Setting

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Figure 6.1

1) Press ⏻ (ON/OFF) button, and the Operating Indicator "•" on the wired controller will light up, while the ON/OFF icon " ❄ " of the indoor unit on the display will spin to indicate that the indoor unit has started running. (see Figure 6.1)
2) Press ⏻ (ON/OFF) button again, and the Operating Indicator "•" on the wired controller will turn off, and the display icon " ❄ " will stop spinning as the indoor unit stops running.

4-2 Mode Setting

Figure 6.2

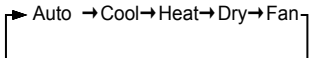Press ☰ (Mode) button. Each time press this button, the operating mode will change in turn as shown in Figure 6.3.

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Figure 6.3

In the **"Auto"**, **"Cool"**, **"Dry"**, or **"Heat"** mode, press ▲ and ▼ buttons to adjust to the setting temperature. (see Figure 6.4)
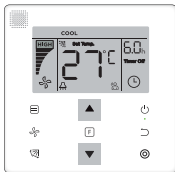

Figure 6.4

Note:
• Temperature setting is not available in the **"Fan"** mode.
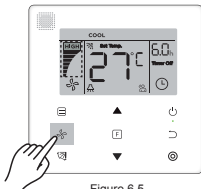
4-3 Fan Speed Setting

Figure 6.5

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In the **"Cool"**, **"Heat"** or **"Fan"** mode, press ⚙(Fan speed) button to set the operating fan speed (see Figure 6.5).

If the wired controller is configured with seven fan speeds, press ⚙(Fan speed) button to set the fan speed in turn as shown in Figure 6.6.
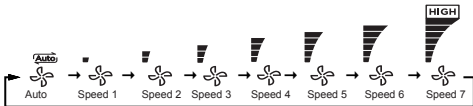

Figure 6.6

If the wired controller is configured with three fan speeds, press ⚙ (Fan speed) button to set the fan speed in turn as shown in Figure 6.7.

Figure 6.7

Note:
- In the **"Auto"** and **"Dry"** modes, the fan speed is set to **"Auto"**, and will not change even press ⚙ (Fan speed) button.
- The default fan speed is 7 fan speeds, please refer to **"Field Setting"** to adjust the default fan speed.
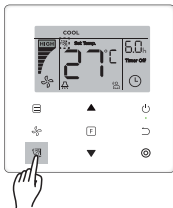
4-4 Swing Setting

Figure 6.8

The 🗑(Swing) button is used to turn ON/OFF the swing function (see Figure 6.8).

The **Swing** icon " 🗑 " will disappear after displayed for 15 seconds, no matter the swing function is turned ON or OFF.

Note:
- The swing function is only available for indoor units configured with vertical louver.
- When the unit is off, the🗑 (Swing) button is invalid.
- **This wired controller is unable to control horizontal swing in indoor unit.**

4-5 Function Setting

■ The related functions in function settings is not compatible with all the indoor unit.

Figure 6.9

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Press F (Function) button to switch to the function that can be set in the current mode (see Figure 6.9).
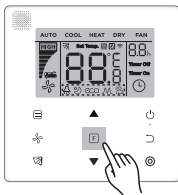
- Press F (Function) button to go to the function setting, and the display on the wired controller will show in turns: " 🕒 ", " 🔥 ", " 🌙 ", " ⌀ ", " M " (reserved). Alternatively, you can press ▲ and ▼ buttons to switch to the selected function. (see Figure 6.10)

Figure 6.10

- Press F (Function) button to go to the function settings. Press F (Function) button each time to select the function, and the icon for the selected function will blink. Press ◎ (Confirm) button to confirm the function, or ⊃ (Cancel) button to cancel the function.

4-5-1 IDU LED Display

The **"IDU LED Display"** function is used to control the ON/OFF state of display in the indoor
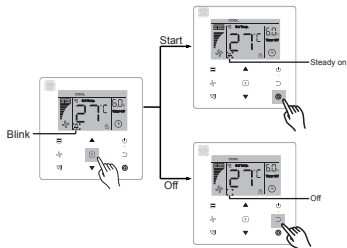

Figure 6.11

Press F (Function) button to go to the function setting page. Press F (Function) button again to select " 🔥 ", and the **IDU LED Display** icon " 🔥 " will blink. Then press ◎ (Confirm) button to confirm, and " 🔥 " will light up, or press ⊃ (Cancel) button to cancel, and the **"IDU LED Display"** function will turn off. (see Figure 6.11)

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4-5-2 Silent

The **"Silent"** function is used to send the **"Silent"** control signal to the indoor unit. The indoor unit automatically optimizes the noise it generates when it is in the **"Silent"** state.

• Turn ON/OFF the **"Silent"** function: press $\boxed{F}$ (Function) button to switch to the **"Silent"** function (" 🔅 " blinks), and press ◎ (Confirm) button to turn on the function or ⊃ (Cancel) button to turn off the function (see Figure 6.12).
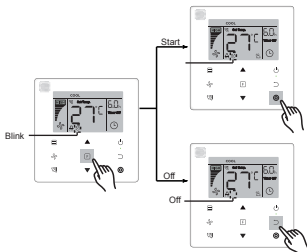

Figure 6.12

Note:
• The **"Silent"** function will be cancelled and needed to be reset when the unit is manually turned off.
• Once it has been running for 8 hours, the Silent icon " 🔅 " will no longer light up, and the unit will exit the **"Silent"** operating state.
• The **"Silent"** and **"ECO"** functions cannot be set at the same time.

4-5- 3 ECO

The **"ECO"** function is used to send the **"ECO"** control signal to the indoor unit. The indoor unit will run in the energy saving mode when it is in the **"ECO"** state.

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- Turn ON/OFF the **"ECO"** function: press $\boxed{\mathsf{F}}$ (Function) button to switch to the **"ECO"** function (" $\boxed{eco}$ " blinks), and press $\circledcirc$ (Confirm) button to turn on the function or $\supset$ (Cancel) button to turn off the function (see Figure 6.13).
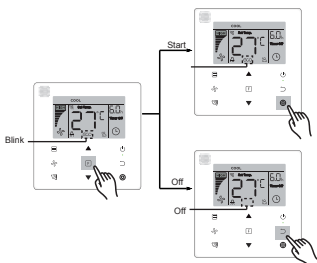

Figure 6.13

Note:
- When switching modes or turning off the unit, the unit will exit the **"ECO"** function.
- Once it has been running for 8 hours, the ECO icon " $\boxed{eco}$ " will no longer light up, and the unit will exit the **"ECO"** operating state.
- The **"Silent"** and **"ECO"** functions cannot be set at the same time.

4-5-4 Auxiliary Heater (Reserved)

4-5-5 Follow Me

The **"Follow Me"** function of the wired controller is on by default, and its icon lights up when the function is on.

1) Turn off **"Follow Me"**: Press ⃛ (Swing) and ⊚ (Confirm) buttons at the same time, and hold for 5 seconds to turn off the **"Follow Me"** function, and its icon disappear.

2) Turn on **"Follow Me"**: When the **"Follow Me"** function is off, Press ⃛ (Swing) and ⊚ (Confirm) buttons at the same time, and hold for 5 seconds to start the **"Follow Me"** function again, and display its icon "🖐" (see Figure 6.14).
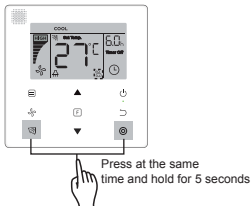

Press at the same time and hold for 5 seconds

Figure 6.14

4-5-6 Timer

"Timer" is used to set the timed ON/OFF state of indoor unit.

- press ⃞F (Function) button to switch to the **"Timer"** function. When the indoor unit is on, first complete the **"Timer Off"** settings, and then the **"Timer On"** settings. When the indoor unit is off, first complete the **"Timer On"** settings, then the **"Timer Off"** settings.

- When the indoor unit is off:

1) **"Timer On"** setting: press ⃞F (Function) button to go to the **"Timer On"** setting, the display will show **"0.0h Time On"**, and the words "**Time On**" will blink, then press ⊚ (Confirm) button to go to the timer setting. Press ▲ and ▼ buttons to adjust the time, and press ⊚ (Confirm) button to complete the timer setting (see Figure 6.15).

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Figure 6.15

2) **"Timer Off"** setting: Once the **"Timer On"** setting is completed, press ⌐F⌐ (Function) button to go to the **"Timer Off"** setting, the display will show **"0.0h Time Off"**, and the words **"Time Of"** will blink. press ◎ (Confirm) button to go to the timer setting, and press ▲ and ▼ buttons to adjust the time, then press ◎ (Confirm) button to complete the timer setting.

• When the indoor unit is on: Refer to the above operations to configure the **"Timer On"** and **"Timer Off"** settings.

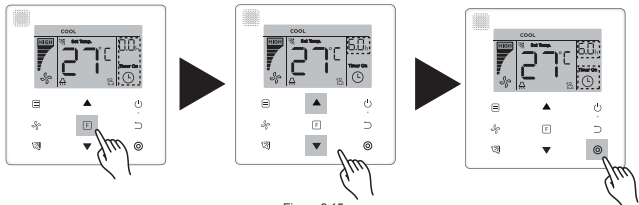• When adjusting the timing steps, press and hold ▲ and ▼ buttons for more than 1 second to adjust the timing step values quickly.

• **"Cancel Timer"** Function: press ⌐F⌐ (Function) button to go to the timer setting, press ↪ (Cancel) or ⏻ (ON/OFF) button or set the time value to zero to cancel the timer settings. Go back to the main page.

Note:

• When the unit is on, the wired controller can be used to set the timer information for **"Timer Off"** and **"Timer On"**, and when **"Timer Off"** is cancelled, **"Timer On"** will be cancelled as well. When the unit is off, timer information for both **"Timer On"** and **"Timer Off"** can be set, and when **"Timer On"** is cancelled, **"Timer Off"** will be cancelled as well.

• Once the wired controller has set the timer information, the Timer indicator in the display of the indoor unit will light up, and the indoor unit executes the Timer function;

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4-6 Clean Filer Reminder
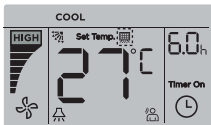
Figure 6.16

- When the operating time reaches the preset time, the **Filter** icon " ▦ " lights up to remind users to clean the filter.
- Press and hold ▨ (Swing) button for 5 seconds to remove the **Filter** icon " ▦ ".
- Go to **"Field Setting"** to turn ON/OFF this function or preset time of this function.

4-7 Locking Function
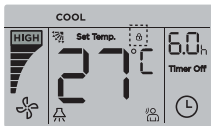
Figure 6.17

- When the wired controller locks the temperature range by itself, the icon " 🔒 " will light up.

Field Setting

1. Restore Factory Default

- At any time, press and hold ☰ (Mode), Ⓕ (Function), ▲ and ▼ buttons at the same time for 5 seconds, and the wired controller will reset.

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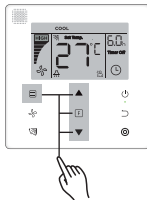
Figure 7.1

2. Query and Set the Indoor Unit Address

- If the indoor unit has no address, the indoor unit display will show **"FE"**.
- Press and hold ▲ and ▼ buttons for 8 seconds to go to the page to set the indoor unit address. press ⊃ (Cancel) button to exit the settings page.
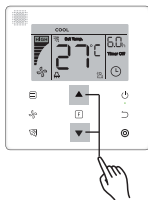
Figure 7.2

- Query and set up the address of the indoor unit is allowed in the address setting page.
- In the address setting page, press the ☰ (Mode) button to send the query commend, and the indoor unit displa will show IDU's current address.
- If the indoor unit has no address, press ▲ and ▼ buttons to adjust the address to the

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required value (address range is 0-63). press ◎ (Confirm) button to send the current address value to the indoor unit. In 60 seconds, the wired controller will exit the address setting page, or press ⊃ (Cancel) button to exit the address setting page.

- In the address setting page, the wired controller will not respond to any remote control signals.

3. Commissioning Parameter Settings

- Commissioning parameter can be set when the unit is on or off.
- Press and hold 🄵 (Function) and 🯅 (Mode) buttons for 5 seconds to go to the page for commissioning parameter settings.
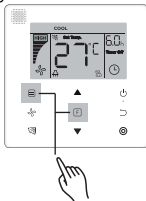
Figure 7.3

- Go to the commissioning parameter setting page. Check that **"C0"** is displayed in the temperature display area. Press ▲ and ▼ buttons to change the **"commissioning parameter Code"**.
- Once the **"commissioning parameter Code"** is selected, press ◎ (Confirm) button to go to the specific commissioning parameter settings, and then press ▲ and ▼ buttons to adjust the value. Press ◎ (Confirm) button to save the value and complete the commissioning parameter setting.
- Press ⊃ (Cancel) button to return to the previous page until you exit commissioning parameter settings. Alternatively, system will exit the commissioning parameter settings page if there is no operation for 60 seconds.
- When it is in the commissioning parameter settings page, the wired controller does not respond to any remote control signals.
- In the commissioning parameter setting page, the 🯅 (Mode), ❄ (Fan speed), 🐦 (Swing), 🄵 (Function) and ⏻ (ON/OFF) buttons are not available.

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Table 5.1

Parameter Code	Parameter Content	Select Parameters	Default Value	Remarks
C0	Reserved	/	/	/
C1	Cooling Only/Cooling and Heating Setting	00: Cooling and Heating 01: Cooling Only	00	Heating mode is not available in cooling only setting.
C2	Reserved	/	/	/
C3	Set time to remind users to clean the filter	00/01/02/03/04	02	00: No reminder to clean filter 01: 1250h 02: 2500h 03: 5000h 04: 10000h
C4	Settings for infrared receiver of wired controller	00: Disable 01: Enable	01	When "Disable" is selected, the wired controller cannot receive remote control signal,
C5	Fan speed setting in wired controller	00: 3 fan speeds 01: 4 fan speeds 02: 7 fan speeds	02	Default is 7 fan speeds. 01: 4 fan speeds is available for specific indoor unit models.
C6	Reserved	/	/	/
C7	Display indoor room temperature	00: No 01: Yes	00	If "00" is selected, the wired controller will display the setting temperature when the backlight is off. If "01" is selected, the wired controller will display the room temperature when the backlight is off.

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Parameter Code	Parameter Content	Select Parameters	Default Value	Remarks
C8	Settings to turn ON/OFF operating indicator	00: Off 01: On	01	Select "On" and the operating indicator will show the ON/OFF state of the indoor unit. Select "Off" and the operating indicator will always be off regardless if the indoor unit is on or off.
C24	Temperature Unit	00/01	00	00: Celsius 01: Fahrenheit
C25	Set lowest cooling temperature limit	Celsius: 30°C - 17 C° (default is 17°C) Fahrenheit: 86°F - 62°F (default is 62 °F)	Celsius: 17 °C Fahrenheit: 62 °F	Only available for the wired controller itself.
C26	Set highest heating temperature limit	Celsius: 30°C - 17°C (default is 17°C) Fahrenheit: 86°F - 62°F (default is 62°F)	Celsius: 30 °C Fahrenheit: 86 °F	Only available for the wired controller itself.
C27	Set to display 0.5°C	00/01	00	00: Show 1 C° 01: Show 0.5 C°

Troubleshooting

Table 6.1

Error code and description	Possible Causes	Possible Solutions
No display on the wired controller	IDU is not powered on	Power on the IDU.
	Wired controller connection error	First power off the IDU, and then check if the wired controller connection is correct. See Section 3.4 on the wiring requirements.
	Wired controller damaged	Replace the wired controller.
	Power supply failure of the IDU main PCB	Replace the IDU main PCB.

NOTE CONCERNING PROTECTION OF ENVIRONMENT

This product must not be disposed of via normal household waste after its service life, but must be taken to a collection station for the recycling of electrical and electronic devices. The symbol on the product, the operating instructions or the packaging indicate such disposal procedures. The materials are recyclable in accordance with their respective symbols. By means of re-use, material recycling or any other form of recycling old appliances you are making an important contribution to the protection of our environment. Please ask your local council where your nearest disposal station is located.

In case of quality problem or other please contact your local supplier or authorized service center.
Emergency number: 112

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