MRCOOL® Compact Refrigeration System Wired Controller

INSTALLATION & OWNER'S MANUAL

MODELS:

BSUF2CLN1



Read this manual carefully before installation and keep it where the operator can easily find it for future reference.

Due to updates and constantly improving performance, the information and instructions within this manual are subject to change without notice.

Para consultar la versión en español, consulte el código QR en la contraportada de este manual.

Version Date: February 9, 2025
Please visit www.mrcool.com/documentation
to ensure you have the latest version of this manual.

MRCOOL®
COMFORT MADE SIMPLE

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Safety Precautions

Read Before Using

Incorrect usage may cause serious damage or injury.

The symbols below are used throughout this manual to indicate instructions that should be followed closely or actions that should be avoided to prevent death, injury, and/or property damage.

WARNING — Indicates the possibility of personal injury or loss of life.

CAUTION — Indicates the possibility of property damage or serious consequences.

SAFETY PRECAUTIONS

- This manual includes necessary information for proper installation, debugging, startup, and maintenance. Please keep this manual safe and carefully read it before installation and operation.
- The installation, startup, and maintenance of the equipment may pose risks. Operators need to have proficient knowledge and training before operating the equipment. If they do not have sufficient understanding of the working principle of the equipment, or do not have sufficient safety knowledge and have not taken relevant safety protection measures, please do not operate the machine in any way to avoid personal injury and equipment failure, which may lead to death or serious personal injury. When operating the equipment, pay attention to all the precautions in this manual and the warning and caution labels on the equipment.
- The unit strictly adheres to the design standards during production, ensuring that the unit provides high-quality operating conditions, high reliability, and excellent adaptability.
- This appliance can be used by children aged 8 years and above, along with persons who have reduced physical, sensory, or mental capabilities, or lack of knowledge, if they have supervision or instruction concerning the use of the appliance in a safe way and understand the hazards involved. Children should not play with the appliance. Cleaning and user maintenance should not be performed by children without supervision.
- Failure to strictly follow the precautions may cause serious accidents such as personal injury or death.
- Before cleaning the equipment, stop the system's operation and power it off.
- The personnel responsible for installing the machine should ensure the safety of the installation process and be responsible for the installation of all refrigerant pipelines, waterways, electrical installation, and other necessary equipment.
- If you have any questions during the installation process, please contact MRCOOL® customer service at 270-366-0457 or at support@mrcool.com. MRCOOL® is not be liable for any personal injury or machine damage caused by improper installation, debugging, unnecessary maintenance, or failure to follow the provisions and guidance in this manual.

The warranty coverage must meet the following conditions:

- The installation work must be carried out by trained professionals.
- All machine operations and maintenance specified in this manual must be strictly carried out according to the specified time and frequency. Violation of any of the above conditions will automatically void the warranty.

DANGER

- Before touching electrical parts, verify power to the equipment is turned off.
- When the service panels are removed, live parts can easily be touched by accident.
- Never leave the unit unattended during installation or servicing when the service panel is removed.
- Do not touch pipes during or immediately after operation, as the pipes may be hot and can cause burns. To avoid injury, give the pipework time to return to normal temperature or wear gloves.
- Do not touch any electrical components with wet hands, as it can cause electrical shock.

2 INSTALLATION

PRECAUTIONS

Inspection:

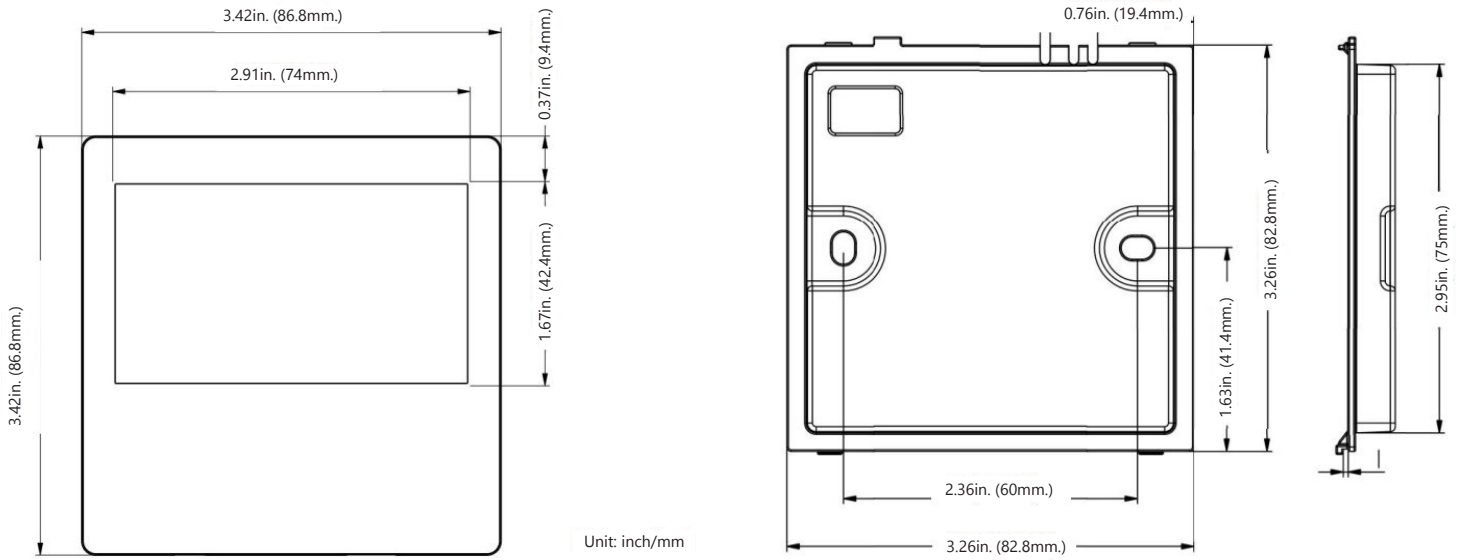
- When receiving the unit, it is necessary to immediately inspect for any possible damage that may occur during transportation. If there is obvious damage, it should be written down on the carrier's transport documents and then claimed according to the instructions on the notice. If there is damage to any part other than the surface, please immediately notify the courier or MRCOOL® customer service.

Storage:

- If the unit is being stored for a period of time before installation, some protective measures should be taken to prevent damage, rust, or wear.
- Ensure that all interfaces, such as pipe interfaces, are properly sealed.
- Storage environment temperatures should range between -40°F~131°F (-40°C~55°C), relative humidity must be less than 90%, and be sure to avoid direct sunlight.
- The air-cooled coil heat exchanger on the unit should be covered to prevent the fins from getting dirty and clogged, especially in construction areas where outdoor storage is prohibited.
- To reduce the possibility of accidental damage (such as being smashed, bumped, etc.), the unit should be stored as much as possible in a place where these activities occur the least.
- Regularly inspect during the storage period.

2.1 Outline Dimensions

Fig. 2-1: Dimensions of the Wired Controller



Note: Actual product may be different from the above graphics, please refer to the actual controller.

2.2 Installation Box

If the wall does not have a pre-embedded installation box (purchase separately), one will need to be installed for mounting the wired controller, as shown below in Fig. 2-2.

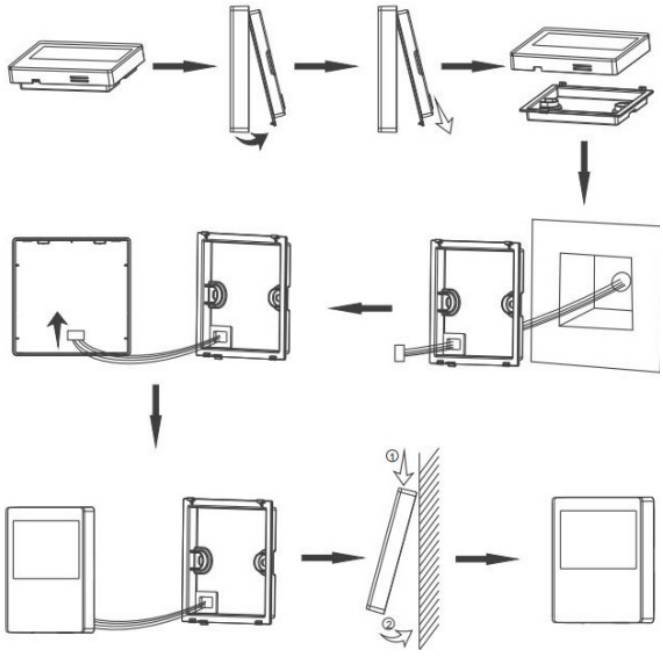
Fig. 2-2: Wired Controller Installation Box



The installation steps of the wired controller are as follows:

- Pull the 4-core twisted pair cable out from the installation hole and pass it through the rectangular hole at the bottom of the wired controller.
- Use M4x25 screws to secure the base plate to the wall installation holes or installation box.
- Insert the 4-core twisted pair cable into the socket on the wired controller, and attach the controller panel to the base plate.

Fig. 2-3: Wired Controller Installation Steps



2.3 Connection to Unit

Fig. 2-4: Make the Wire Connection



Connect the wired controller cable to the red terminal (#21) in the electrical box of the unit.

3.1 Appearance

Fig. 3-1: Display



3.2 Button Functions

S.N	Symbols	Name	Description	Remarks
1		Manual Defrosting	When the unit is ON, press and hold this button for 3 seconds to activate defrost mode. This only turns defrost mode ON and will not turn it off. After completing a defrost cycle, the function will cease.	Cannot be shut down during the defrost cycle.
2		Temp. Unit Alternate	When the unit is OFF, press this button. It allows the temperature unit to be changed from °F to °C.	°F is default.
		Adjust Fan Speed	When the unit is ON, press and hold this button for 3 seconds to adjust the fan speed if ductwork is installed.	
3		Up	Increase or up	Press and hold the ^ for 3 seconds to change, keep holding to change values quicker.
4		Down	Decrease or down	Press and hold the v for 3 seconds to change, keep holding to change values quicker.
5		Mode	When the unit is ON, press this button to switch between regular cooling or forced cooling mode.	
6		Unit ON/ OFF	Press this button to turn the unit ON or OFF.	

3.3 Icons

Fig. 3-2: Display Icons



S.N	Symbols	Name	Description	Remarks
1		Alarm	When a serious alarm occurs, the alarm light flashes.	Room temperature display will show the current fault code.
2		Room Temp. Display	If multiple faults occur, they will display in a loop with each code shown for 2~3 seconds.	
3		Room Temp. Set	The set temperature display allows direct adjustment using + or -. Each adjustment changes the temperature by 0.5°. Pressing and holding + or - enters the rapid adjustment mode, where adjustment speed increases.	Temperature adjustment: 0°F~50°F (-18°C~10°C)
4		Buzzer	The buzzer will sound and the icon will flash with each valid button press on the wired remote control. If the buzzer function is disabled, the buzzer icon remains off.	1. Default: Buzzer on. 2. By pressing Ⓜ button for 3 seconds when the unit is OFF, the buzzer function can be disabled. Repeating the operation will re-enable the buzzer.
5		Solar Power Connected	The icon is displayed when communication with the solar control board is detected; it does not display if no signal is detected.	
6		Screen Lock	When the screen is locked, the lock screen symbol will be displayed. Parameters cannot be changed when locked.	Press ∧ and ∨ for 5 seconds, the indicator will light up and lock the screen. Press both buttons again for 5 seconds to unlock.

S.N	Symbols	Name	Description	Remarks
7		WiFi Connected	When WiFi is connected, the icon is displayed; if WiFi is not connected, it is not displayed.	1. When the WiFi pairing process starts, the icon will flash; Once connected, it remains solid. If WiFi is not successfully connected within 10 minutes of starting the pairing process, the icon disappears. 2. Hold Ⓜ and ⏻ button for 5 seconds to reset the WiFi connection.
8		Cooling	When the unit is ON and in normal cooling mode, the icon lights up.	Hold the button for 3 seconds to activate this function. It will automatically turn OFF after the defrosting cycle is completed. Note: The forced defrost function cannot be disabled during the defrosting.
9		Forced Cooling	When the unit is ON and enters the forced cooling mode, the icon lights up. After reaching the set temperature, the unit automatically exits this mode and switches to normal cooling mode.	
10		Manual Defrosting	When the unit is ON and enters forced defrosting, the icon lights up. After defrosting ends, forced defrosting exits, and the icon is no longer displayed.	Hold the button for 3 seconds to activate this function. It will automatically turn OFF after the defrosting cycle is completed. Note: The unit cannot be shut down while in this function.
11		Supply Fan Speed	Displays the current fan speed setting. When connected to ductwork, the fan speed is manually set by on-site personnel according to the duct length (fan rotation speed).	Press the ⓦ for 3 seconds when the unit is ON. Adjust from 1-6 according to the duct length.
12		Drainage	N/A	Reserved

3.4 Display

Power ON:

When the equipment is powered ON, all icons will be displayed after 2 seconds.

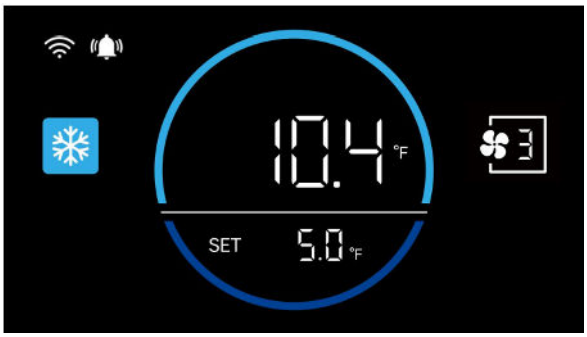
Fig. 3-3



ON Display:

When the equipment is ON you can press the Ⓜ (Mode) button to select cooling or forced cooling, the display will be shown as Fig. 3-4.

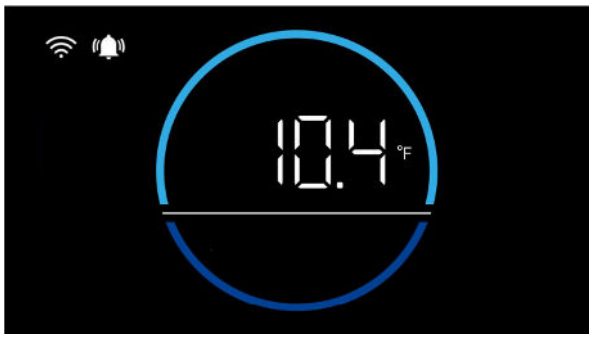
Fig. 3-4



OFF Display:

Fig. 3-5 shows the OFF display.

Fig. 3-5



Buzzer Sound:

- When powered ON, the buzzer will emit a short beep.
- When a valid button signal is received, the buzzer will emit a short beep.
- In a powered-OFF state, press and hold the Ⓜ (Mode) button for 3 seconds, the buzzer function can then be stopped. Repeating this operation will re-enable the buzzer.

Standby Display & Wake Up:

After a few seconds of inactivity, it will enter a low-brightness state. In this state, the indoor ambient temperature is displayed. (The inactive time is 30 seconds).

To turn ON the controller, press any button and it will switch to high-brightness mode and will not beep. Fig. 3-6 shows the display in standby.

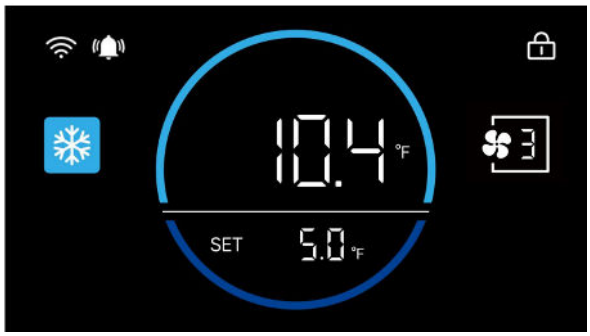
Fig. 3-6



Lock Display:

Press the ^ (Up) and v (Down) button for 5 seconds and it will lock the screen and the (Lock) icon will show.

Fig. 3-7



Alarm Display:

If an alarm occurs, the code will show on the display and (Alarm) will illuminate.

Fig. 3-8



4 ERROR CODES

-Error Codes

S.N	Code	Code Name	Alarm Class	Comp.	Evap. Fan	Cond. Fan	Actions
1	E0	Indoor ambient temp. sensor failure	Minor	ON	ON	ON	1. The unit will keep working. 2. Needs to be checked by a service technician.
2	E1	Defrosting temp. sensor failure	Minor	ON	ON	ON	1. The unit will keep working. 2. Needs to be checked by a service technician.
3	E2	Outdoor ambient temp. sensor failure	Minor	ON	ON	ON	1. The unit will keep working. 2. Needs to be checked by a service technician.
4	E3	Condenser outlet temp. sensor failure	Minor	ON	ON	ON	1. The unit will keep working. 2. Needs to be checked by a service technician.
5	E4	Compressor discharge temp. sensor failure	Minor	ON	ON	ON	1. The unit will keep working. 2. Needs to be checked by a service technician.
6	EP	Suction temp. sensor failure	Minor	ON	ON	ON	1. The unit will keep working. 2. Needs to be checked by a service technician.
7	En	Indoor temperature is abnormal	Minor	ON	ON	ON	1. The unit will keep working. 2. Please check if the door is closed or if there are leaks.
8	C2	Supply Fan Failure	Serious	OFF	OFF	OFF	1. The unit will stop working. 2. Needs to be checked by a service technician.
9	C9	Communication failure between display and unit	Serious	ON	ON	ON	1. The unit will keep working. 2. Needs to be checked by a service technician.
10	HA	Enthalpy return gas temp. sensor failure	Minor	ON	ON	ON	1. The unit will keep working. 2. Needs to be checked by a service technician.
11	H0	High discharge temp. alarm	Serious	OFF	OFF	OFF	1. Unit off by H0, triggered 3 times in an hour. 2. Needs to be checked by a service technician.

S.N	Code	Code Name	Alarm Class	Comp.	Evap. Fan	Cond. Fan	Actions
12	H1	System overload protection	Serious	OFF	OFF	OFF	1. Unit off by H1, triggered 3 times in an hour. 2. Needs to be checked by a service technician.
13	H4	High pressure alarm	Serious	OFF	OFF	OFF	1. Unit off by H4, triggered 3 times in an hour. 2. Needs to be checked by a service technician.
14	H5	Low pressure alarm	Serious	OFF	OFF	OFF	1. Unit off by H5, triggered 3 times in an hour. 2. Needs to be checked by a service technician.
15	H8	Outdoor temperature out of range alarm	Serious	OFF	OFF	OFF	1. The unit will keep working for 30 minutes. 2. Needs to be checked by a service technician.
16	H9	Economizer outlet temp. sensor failure	Minor	ON	ON	ON	1. The unit will keep working. 2. Needs to be checked by a service technician.
17	L8	Condenser fan failure	Serious	OFF	OFF	OFF	1. The unit will stop working. 2. Needs to be checked by a service technician.
18	LJ	Prime power loss	Serious	OFF	OFF	OFF	The alarm will be triggered if primary power is lost while the auxiliary power is on. The unit will be turn off until the auxiliary power cannot support the unit's funtion.
19	LU	Drive (VFD) failure	Serious	OFF	OFF	OFF	1. Unit will stop working and will reset automatically. 2. If the unit stops working by LU and can't be reset automatically, the unit needs to be checked by service technicians.
20	d5	Reversing valve abnormal alarm	Serious	OFF	OFF	OFF	The unit needs to be checked by a service technician.
21	A5	Auxiliary switch off	Serious	OFF	OFF	OFF	1. Unit off by A5; 2. Needs to be checked by a service technician.
22	db	Low pressure sensor failure	Minor	ON	ON	ON	1. The unit will keep working. 2. Needs to be checked by a service technician.

Note:

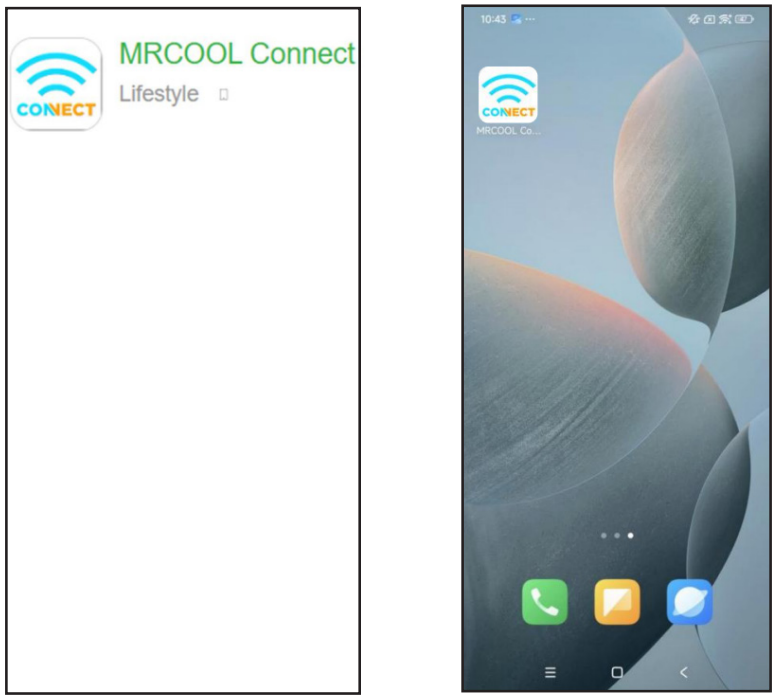
1. If only one temperature sensor fails, the unit will keep working without displaying an alarm code.
2. If more than two sensors fail, the alarm codes will be displayed alternately on the wired controller, and the unit will shut down. The unit needs to be checked by service technicians and replace the sensors.

5.1 App Connection

Download the App:

Search for "MRCOOL® CONNECT" in the Apple App Store or Android App Market.

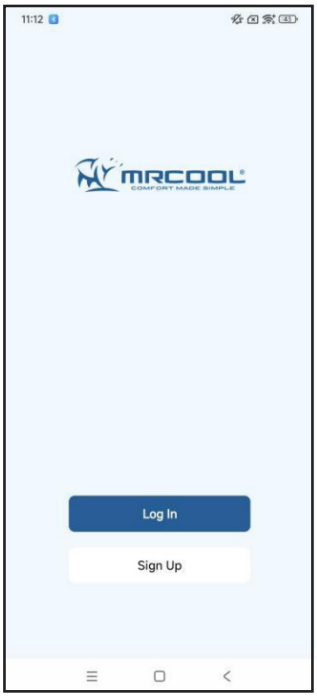
Fig. 5-1



User Registration:

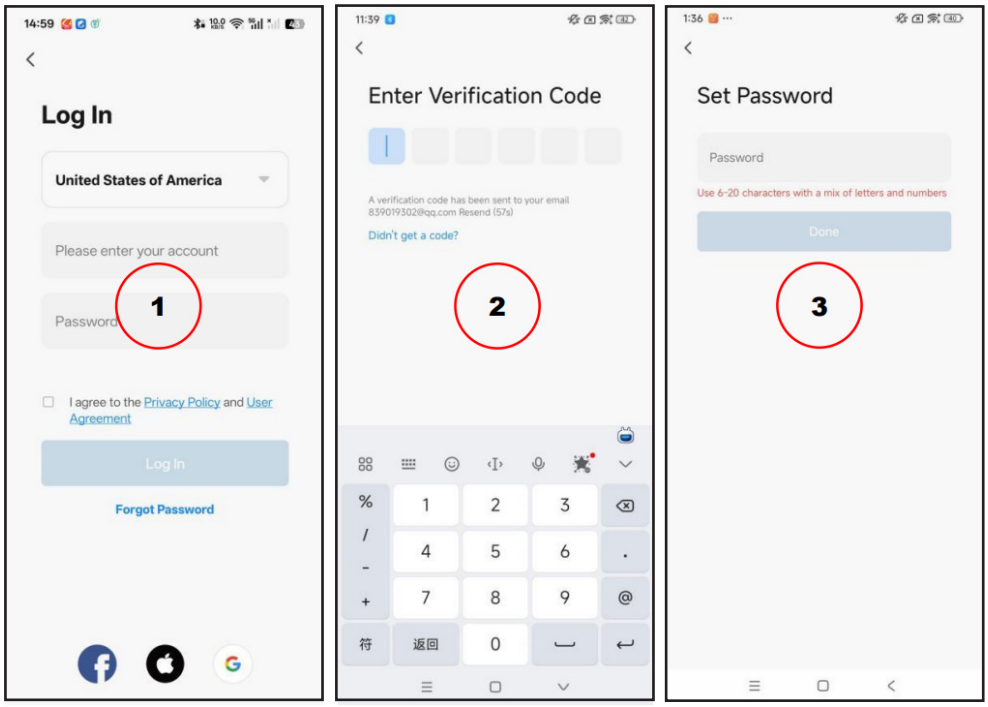
1. Tap the "MRCOOL® CONNECT" App, and sign up to create an account.

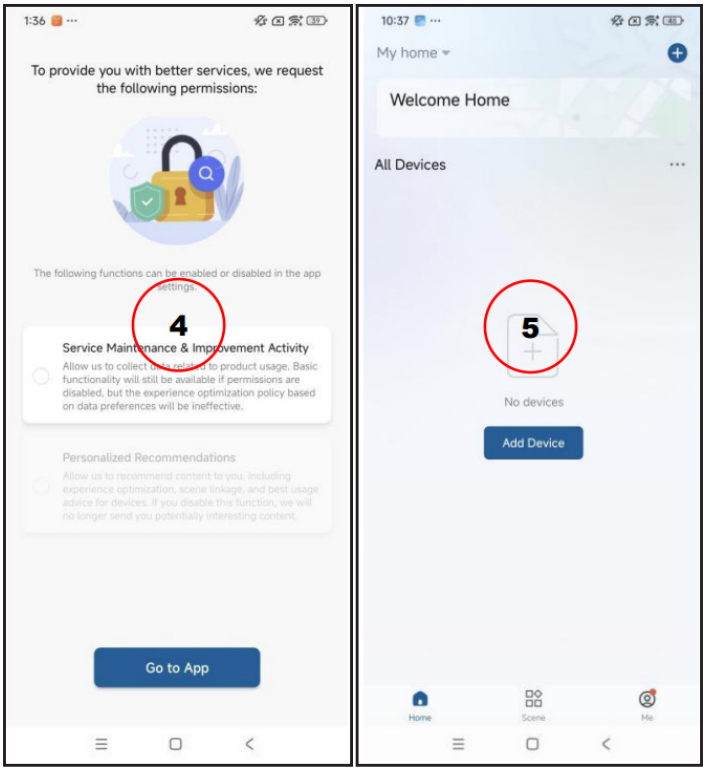
Fig. 5-2



2. Enter your mobile phone number or email address and click to receive a verification code, as shown below in Fig. 5-3, panel 1. You can also sign up with your Apple, Google, or Facebook account.
3. Input the received verification code indicated in Fig. 5-3, panel 2. You will then be directed to the password setup page and establish your password, depicted below in Fig. 5-3, panel 3. Click "Done" to complete the registration process.

Fig. 5-3

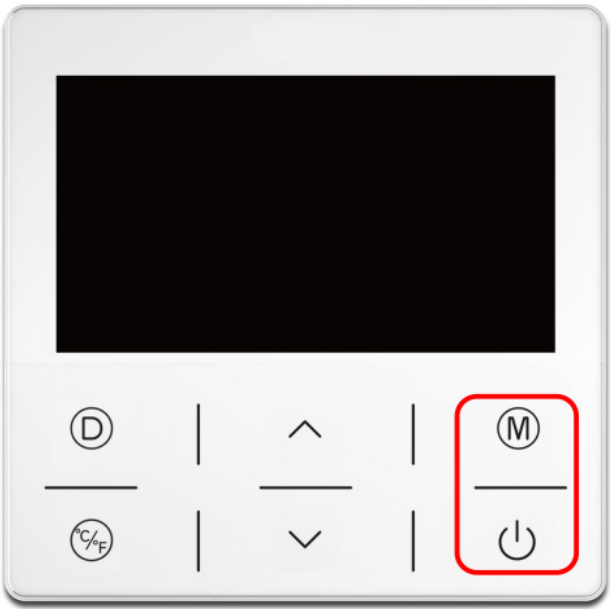




Pairing Wired Controller/WiFi Reset:

Press and hold both Ⓜ (Mode) and ⏻ (Power) buttons on the wired controller at the same time for 5 seconds, as indicated in Fig. 5-4 below, until you hear a beep.

Fig. 5-4

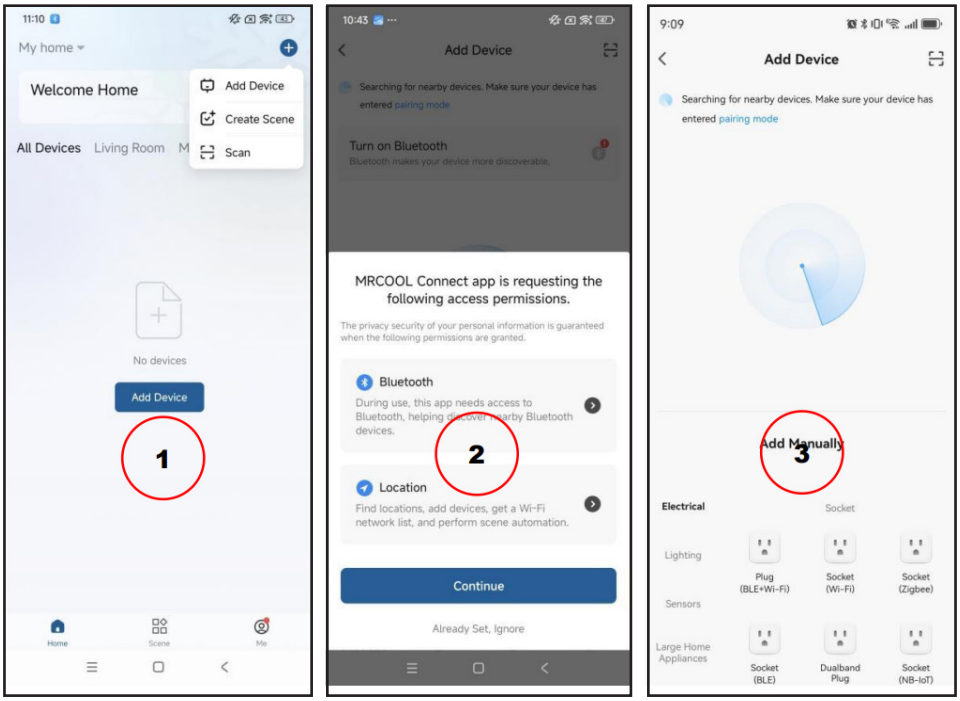


Add Device:

Open the "MRCOOL® CONNECT" app on your mobile device, then tap the "+" icon located in the top righthand corner of your home screen. Select "Add Device" from the dropdown menu, shown below in Fig. 5-5, panel 1. The Bluetooth and WiFi connection page will be displayed, choose either Bluetooth or WiFi, as indicated in Fig. 5-5, panel 2.

A search page will appear, wait for the results while ensuring your device is set to network configuration mode on, as depicted in Fig. 5-5, panel 3.

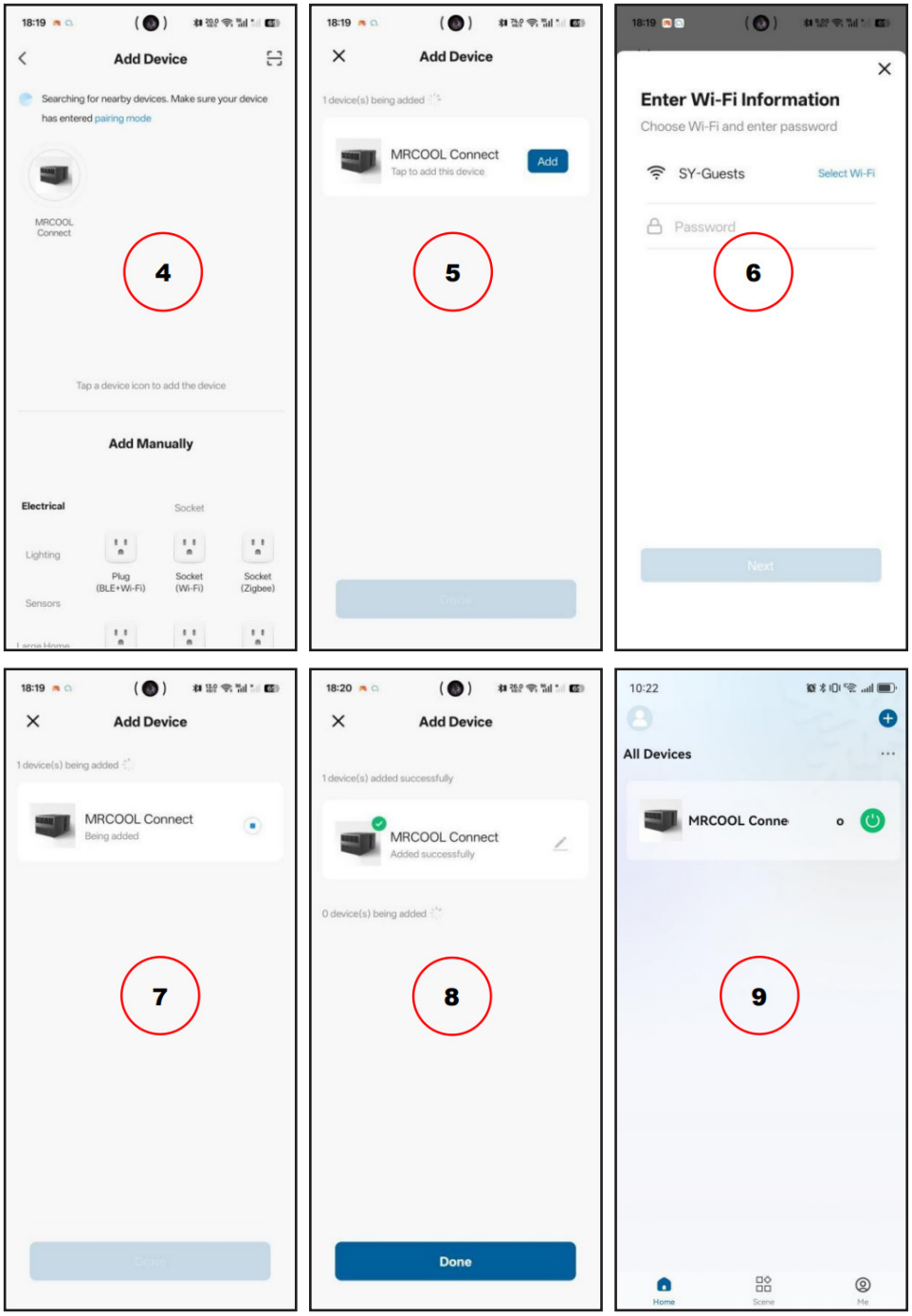
Fig. 5-5



Once you are able to see your device listed among the search results, as shown in Fig. 5-6, panel 4.

Tap the "Add" button, as indicated in Fig. 5-6, panel 5, and a WiFi selection screen will be displayed, as shown in Fig. 5-6, panel 6. Select the correct WiFi network and input the password to connect. Then the unit will be added, as depicted in Fig. 5-6, panels 7 and 8. Press "Done", as demonstrated below in Fig. 5-6, panel 9, to complete the process.

Fig. 5-6



Note: If network configuration fails, reset the wired controller and repeat this process.

Adding a New Device via QR Code:

1. Tap "+" on the main "HOME" page.

Fig. 5-7



2. Scan the QR code and click "Add".

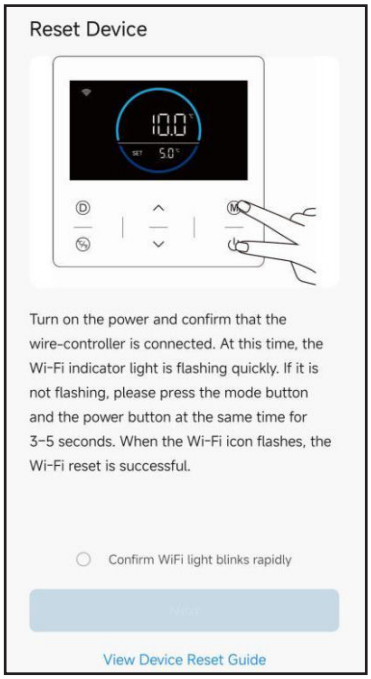
Fig. 5-8





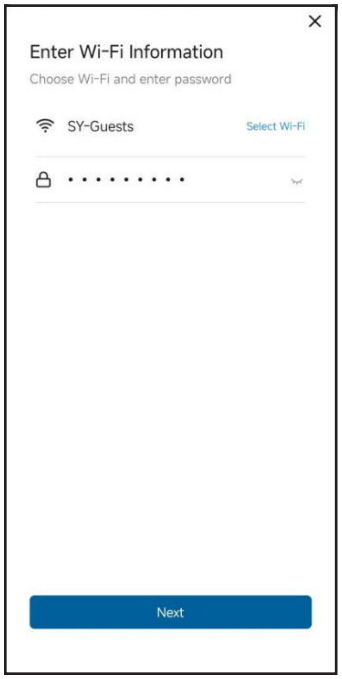
3. Follow the instructions outlined to begin connecting the wired controller.

Fig. 5-9



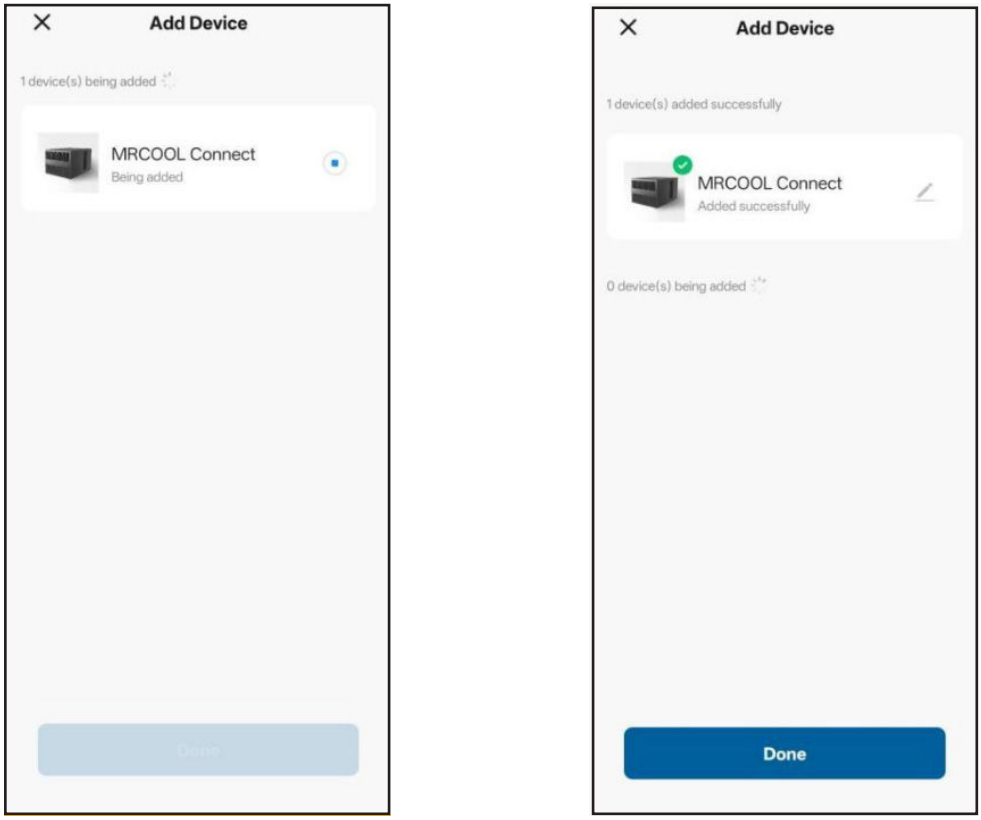
4. Select the correct WiFi network and input the password to connect.

Fig. 5-10



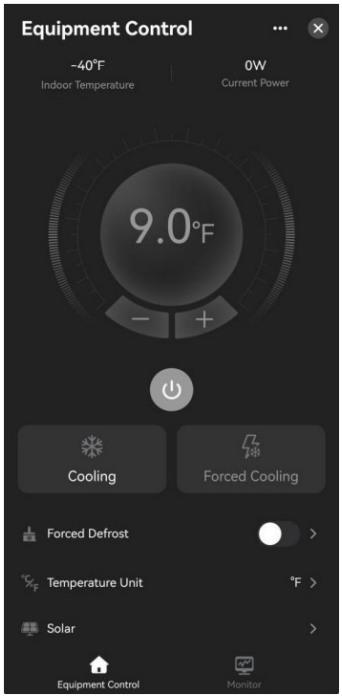
5. All the nearby devices will show in the "Add Device" list. Click "Add" beside the device name to add the device.

Fig. 5-11



Upon successful connection, the Equipment Control page will be displayed.

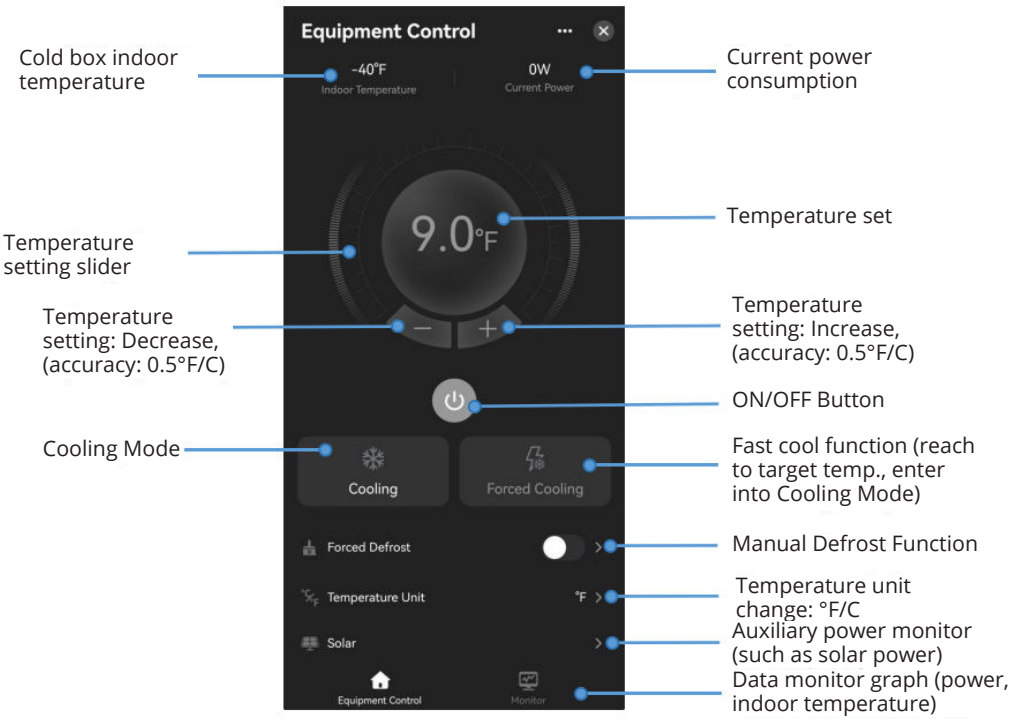
Fig. 5-12



5.2 App Controls

After completing the app setup, enter the control page. Once on this page, you can operate your device as needed.

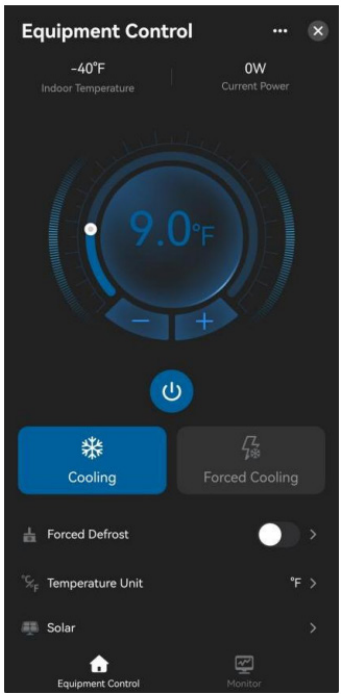
Fig. 5-13



Cooling & Forced Cooling Function:

Tap (Power) button to turn the unit ON or OFF. When the unit is ON, the "Cooling" symbol will show with a blue light, and a slider bar will be revealed. The indoor temperature can be adjusted by the slider bar or the "-" or "+" button.

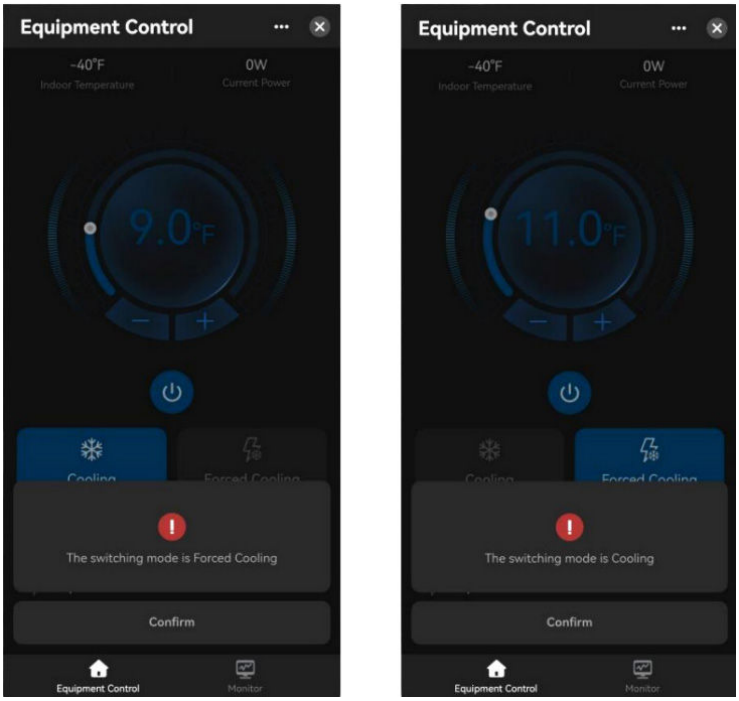
Fig. 5-14



Tap "Forced Cooling" and a pop-up window will appear, tap confirm to enter "Forced Cooling" mode. To change back to "Cooling", tap "Cooling". Once pressed, another pop-up will show, tap confirm to enter "Cooling" mode.

Note: Tap anywhere else on the screen to clear the pop-up.

Fig. 5-15

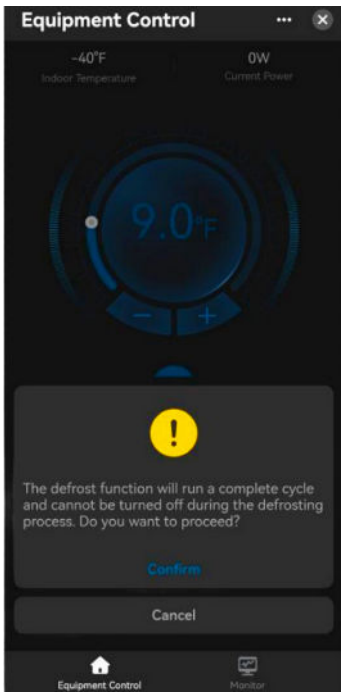


Forced Defrost Function:

Tap "Forced Defrost" and a pop-up window will appear, Tap "Confirm" to enter into "Forced Defrost" mode.

Note: Once in "Forced Defrost" mode, it will run a complete cycle and cannot be turned OFF during the defrosting process.

Fig. 5-16

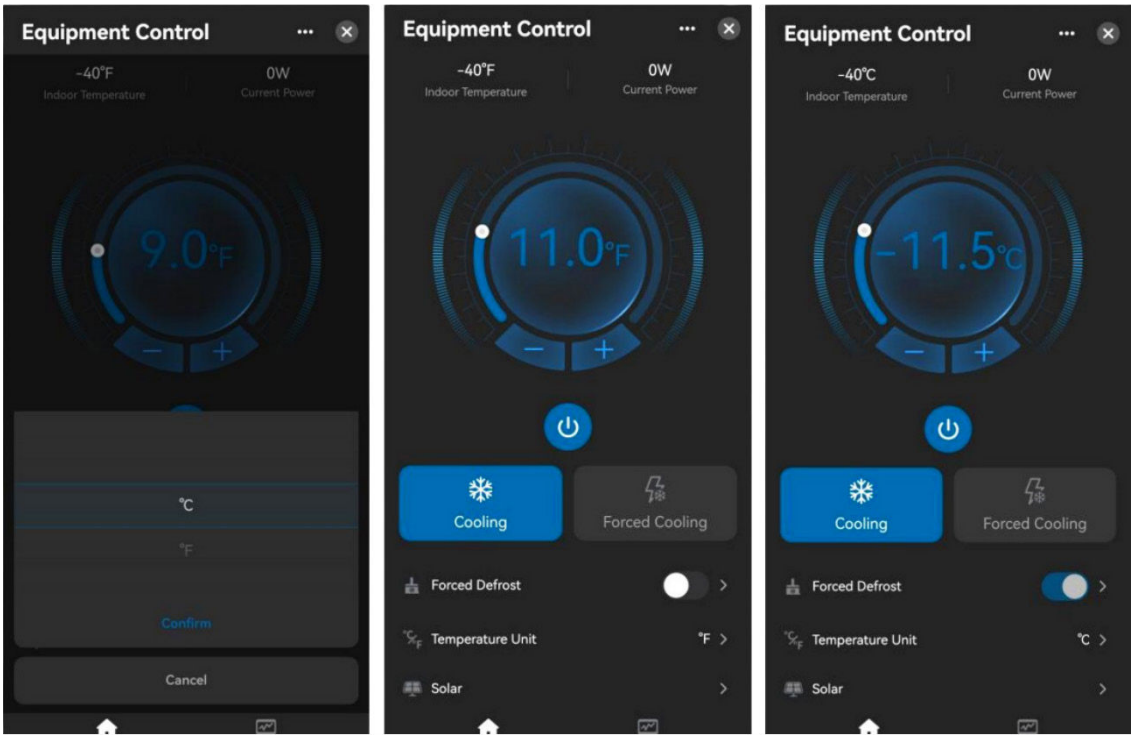


Temperature Unit:

Tap "Temperature Unit" and a pop-up window will appear. Slide the pop-up to either °C or °F and then tap "Confirm" to change the temperature unit.

Note: Temperature unit switching can only be performed when the unit is under off status.

Fig. 5-17



Auxiliary Power Function:

Tap "Solar" and a screen will appear. Once on the screen, it will show power consumption by auxiliary power.

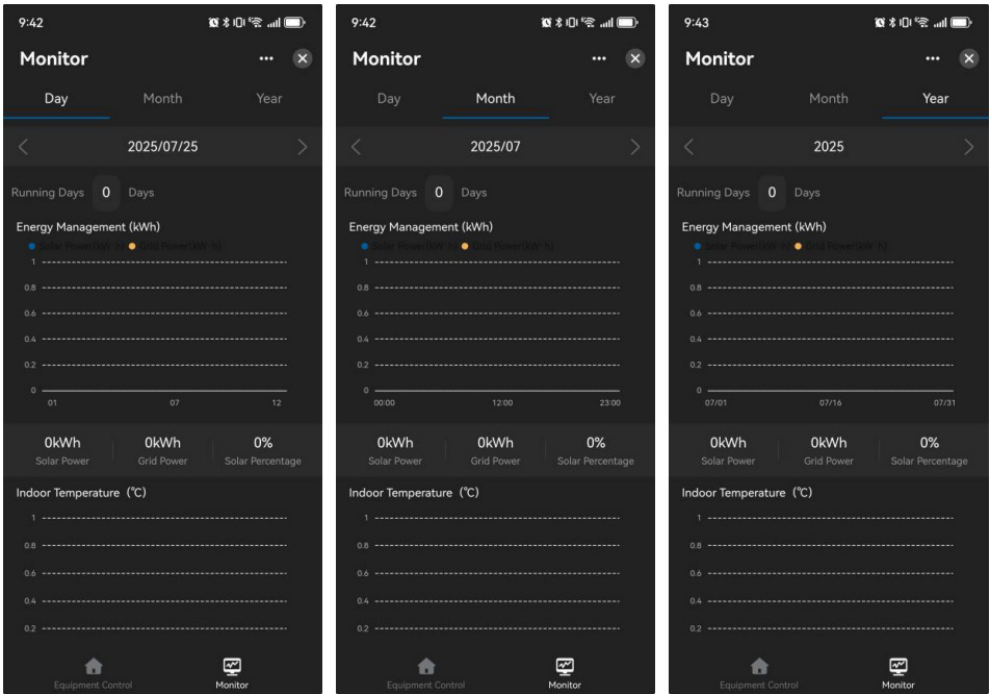
Fig. 5-18



Data Log & Graphs:

Through the app, you can view real-time temperature and power consumption data up to 7 days, as well as annual and monthly summary data.

Fig. 5-19



Spanish

MRCOOL®

COMFORT MADE SIMPLE

MRCOOL® Compact Refrigeration System Wired Controller

The design and specifications of this product and/or manual are subject to change without prior notice.
Consult with the sales agency or manufacturer for details.