INTENSITY®
AIR CONDITIONING

WIRED CONTROLLER

MODELO: CA120-VRF

2nd Generation VRF Wired Controller

SERVICE MANUAL

*imágenes con fines ilustrativos

intensity.mx

MAN-S-CA120-VRF-0424

Preface

This manual aims to describe the basic details, installations and functions for Intensity´s group controller CA120-VRF for new generation VRF units. Details have been provided clearly about the various connections and installations that are needed to be performed for the successful running of this controller. The user should read this manual in detail before trying to connect the group controller with the VRF units. For the connections of the VRF units, the user should refer the respective Installation Manuals, Owner's Manuals and Service Manual or contact with Intensity Technical Support Engineer for smooth resolution of the problem.

This manual has been divided into 4 main parts: Introduction; Installation & Commissioning; Functions and Troubleshooting.

Introduction: This part gives a basic detail about the controller like what are the application scenarios in which this controller is valid and what are the basic functions that are on offer by this controller.

Installation & Commissioning: This part gives a detail about the various steps that need to be followed for successful installation and commissioning of this controller.

Functions: This part gives a detailed description about the various functions which are on offer by this controller.

Troubleshooting: This part gives some basic troubleshooting which can help you to mitigate the basic troubles that may be encountered during the use of this controller

Although, care has been taken to make this manual with the best of the capacities, but in case there is any problem or misprint inside the manual, do write back to Intensity.

CONTENTS

Part 1
Introduction

1 General

1.1 Safety Precautions

Read these safety precautions carefully before installing the CA120-VRF

General

	**NOTICE** Improper installation or attachment of equipment or accessories could result in electric shock, short-circuit, leaks, fire or other damage to the equipment. Only use accessories, optional equipment and spare parts made or approved by Intensity.
	**WARNING** Make sure installation, testing and applied materials comply with the applicable legislation.
	**CAUTION** Wear adequate personal protective equipment (protective gloves, safety glasses etc.) while installing, maintaining or servicing the system.
	**WARNING** Tear apart and throw away plastic packaging bags so that nobody, especially children, can play with them. Possible risk: suffocation.

Installation Site

Do not install the equipment in potentially explosive environment.

Electrical

	**DANGER: RISK OF ELECTROCUTION** ■ Turn OFF all power supply before connecting electric wiring or touching electric parts. ■ Disconnect the power supply for more than 1 minute and measure the voltage at the terminals of main circuit capacitors or electrical components before servicing. The voltage must be less than 50 V DC before you can touch electrical components. For the location of the terminals refer the wiring diagram. ■ Do NOT touch electrical components with wet hands. ■ Do NOT leave the equipment unattended when the service cover is removed.
	**WARNING** A main switch or other means for disconnection, having a contact separation in all poles providing full disconnection under overvoltage category III condition, shall be installed in the fixed wiring.
	**WARNING** ■ Only use copper wires. ■ Make sure the field wiring complies with the applicable legislation. Do NOT touch electrical components with wet hands. ■ All field wiring must be performed in accordance with the wiring diagram supplied with the product. ■ Make sure to install earth wiring. Do NOT earth the unit to a utility pipe, surge absorber, or telephone earth. Incomplete earth may result in electric shock. ■ Make sure to use a dedicated power circuit. NEVER use a power supply shared by another appliance. ■ Make sure to install the required fuses or circuit breakers. ■ Make sure to install an earth leakage protector. Failure to do so may cause electric shock or fire.

*Note: Install the wires at least 1 meter away from televisions or radios to prevent interference. Depending on the radio waves, a distance of 1 meter may not be sufficient.

⚠	**WARNING** ■ After finishing the electrical work, confirm that each electrical component and terminal inside the electrical cabinet is securely connected. ■ Make sure all covers are closed before starting up the units.

Installation Safety

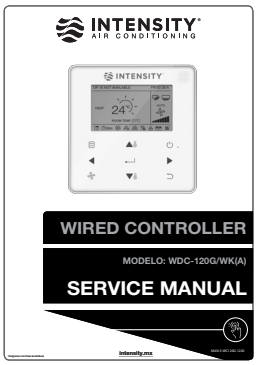
⚠	**WARNING** ■ Do not install the CA120-VRF near areas of electromagnetic interference or next to base station. ■ Locate the CA120-VRF away from sources of steams, possible flammable gas leaks, heat or sulfurous gases. ■ Reserve sufficient space for the installation, and leave adequate spacing between the device and surrounding community service network devices for heat dissipation. ■ Make sure that the installation site is indoors and the CA120-VRF is installed at a height that is 50 cm above the ground. ■ Make sure that the installation site is not exposed to sun and heating devices. ■ Make sure that the device is not installed in humid places or where it is easy for device to come in contact with water. ■ Make sure that the device is not installed in locations where it can be easily corroded or where there are flammable gases. ■ Please install the gateway device in strict accordance with the above instructions and do check the installation site carefully before installation.

1.2 Attachments with the Box

The following below listed attachments are provided with the CA120-VRF package.

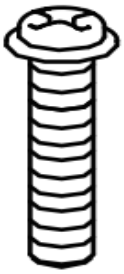
CA120-VRF *1

Installation & Owner's Manual *1

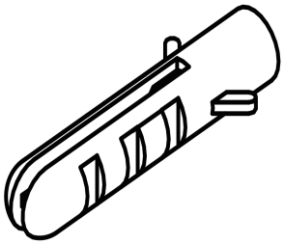


Cross round head wood mounting screw (dia 4 mm*20mm) *3

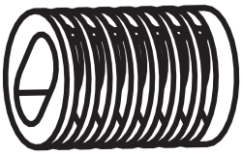
Cross round head mounting screw (M4*25mm)*2



Plastic Expansion pipe (dia 4.2mm*28.5mm)



Plastic screw bar (dia 5mm*16mm)



Infrared Connection Cable

2 Introduction

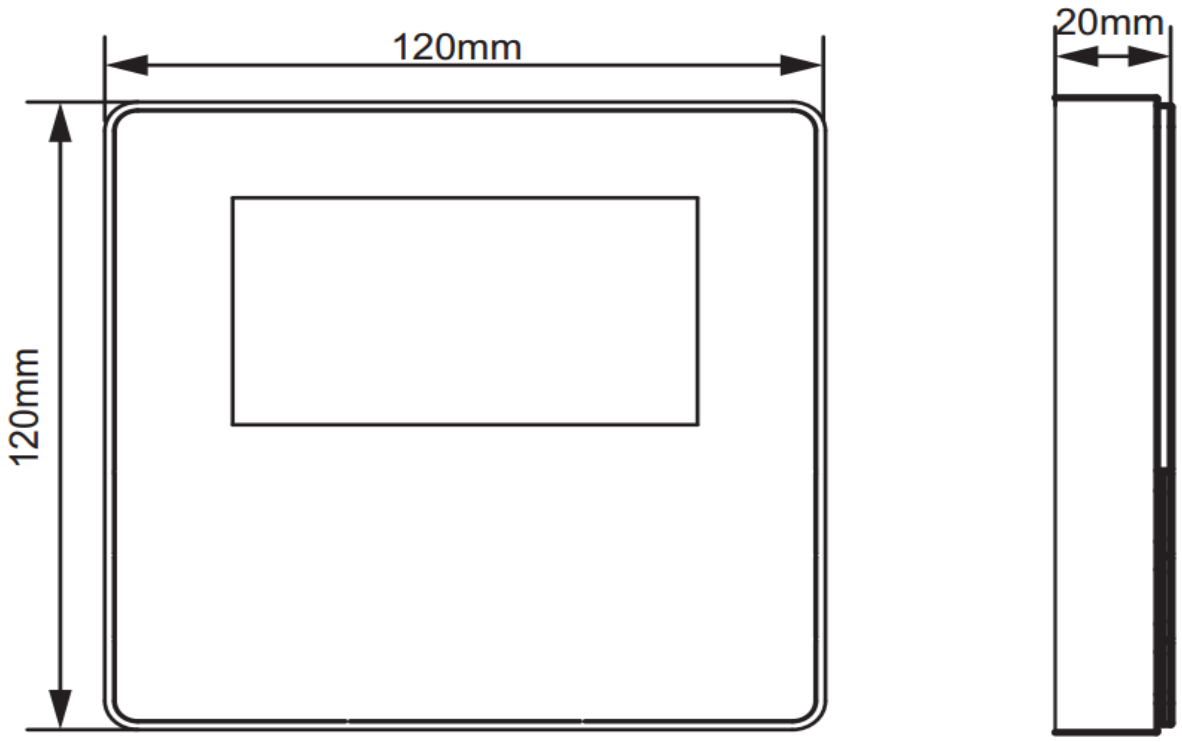
CA120-VRF is a power line communication based wired controller which aims to fulfill the needs of group control for application scenarios such as a big hall where all the VRF indoor units are required to operate in the same fashion in all the circumstances. This controller satisfies the need for the group control for up to 16 indoor units and provides powerful functions such as scheduling and querying the indoor and outdoor unit parameters using its bi-directional communication lines. Along with its group control capacity, the controller also has the capacity to control one indoor unit at one time and has the ability for the communication by infrared communication cables as well as the power line communication cable. The controller can also be connected with the HRV as well as the Fresh Air Processing VRF indoor units. This controller employs dot matrix displays as a result of which the icons displayed on this controller screen are much better and brighter than all other controllers. Apart from all these highlighted features, the controller also has the capacity to control some of the indoor unit's settings which were earlier only available on the indoor unit main PCB with the help of some dial switches like cold draft prevention and temperature compensations both in the case of heating and cooling mode. Also the controller has a LED indicator which lights up when the indoor units connected with the controller are switched ON. This controller is a compromise between the central controllers and the wired controllers having the features which are much better than any wired controller and are no less in any respect from some basic central controller. So this group controller can be summarized to be a compromise between the wired controller and small central controllers.

3 Dimensions

In this section, we will discuss the dimensional aspect of the CA120-VRF controller. We will have a look at what are the various length, breadth and height for this controller. The front view, side view and top view of this controller have been discussed in the below sections

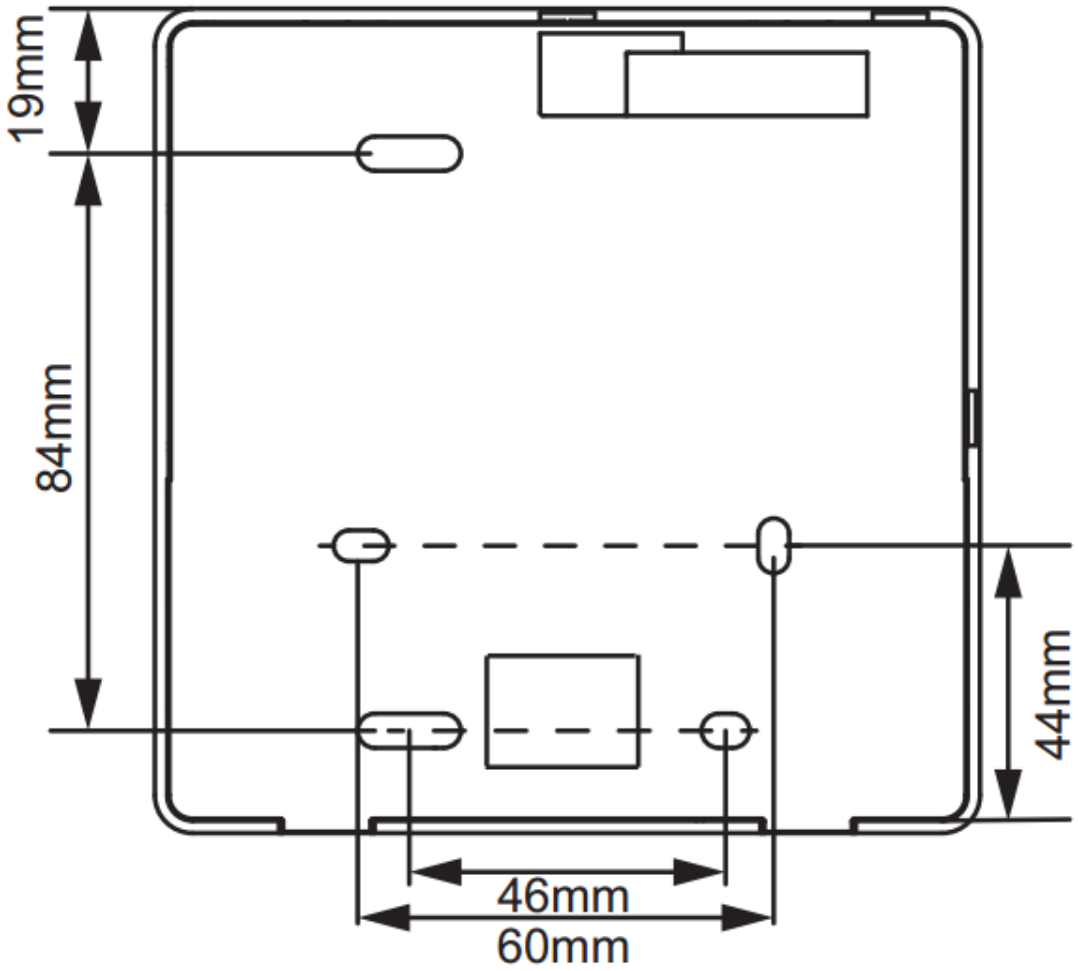
3.1 Front and Side Views

(Unit: mm)

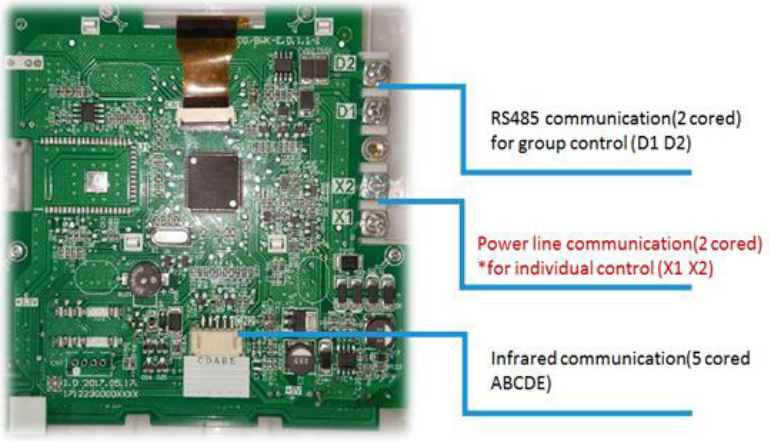


3.2 Back View

(Unit: mm)



4 Modes of Connection



The CA120-VRF offers 3 methods for communication with the indoor unit which are as follows:

X1X2: The X1X2 is a power line communication line which provides the power to the controller as well as transfers the communication information from the controller to the indoor unit and vice-versa. If one or two controllers are used to control one IDU, the port X1X2 needs to be connected; the controller will have bi-directional communication as a result of which it will do both the functions of providing the power to the controller at the same time transferring the communication information also.

D1D2: The D1D2 port is the communication port. If this port is connected, the information (communication information) begins to flow through the D1D2 lines and the X1X2 port acts as only the line for providing the power to the controller. If one or two controllers are used to control multiple IDUs, the ports X1X2 & D1D2 both need to be connected, the controller will have bi-directional communication. This type of communication is required at the time of group control only.

ABCDE: This port is used in case you want to connect the indoor unit to the infrared communication(IDU Display Board). Bi-directional communication will not work in case of using infrared ABCDE port. There will not be the 2-way communication in this case. There will be only one-way communication where in the information flows from the wired controller to the indoor unit. This type of communication is not suggested from Intensity end.

Important Point: There is no polarity between X1 and X2 ports

5 Wiring Specifications

Important points:

1. The switch box and control wire for 2nd generation DC IDU are not attached.
2. Do not touch the remote controller main board.

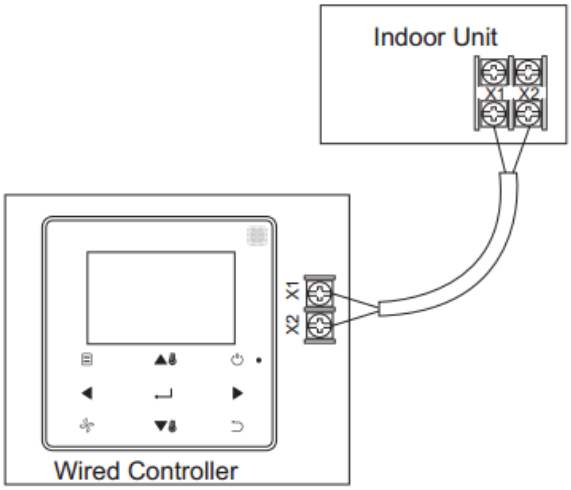
Wiring Type	Shielded, 2-conductor or 4-conductor for connection through X1/X2/D1/D2 ports
	Shielded, 4-conductor for connection through ABCDE ports
Wiring Size	AWG 20
Wiring Length	Maximum 200 m (656 ft.) for 2nd generation DC IDU (X1/X2/D1/D2 ports)
	Maximum 20 m (66 ft) for connection through ABCDE ports

6 Multiple connection methods

The various methods of using this wired controller and various advantages and benefits of using a particular mode of communication have been enlisted in detail below:

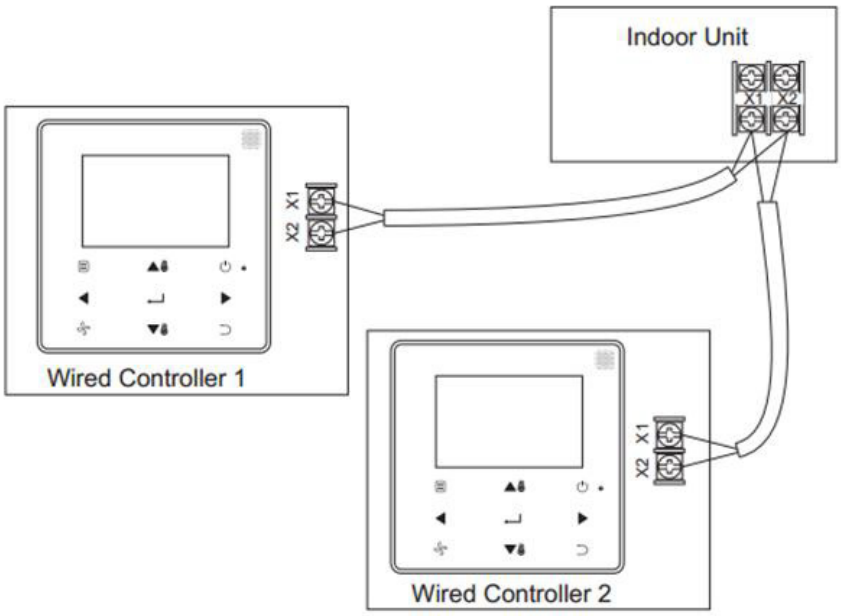
6.1 One Wired Controller for one Indoor Unit

In this scenario, the wired controller's X1X2 port connects with the X1X2 port of the indoor unit. There is no polarity between the X1 and X2 ports. They can be cross-connected.



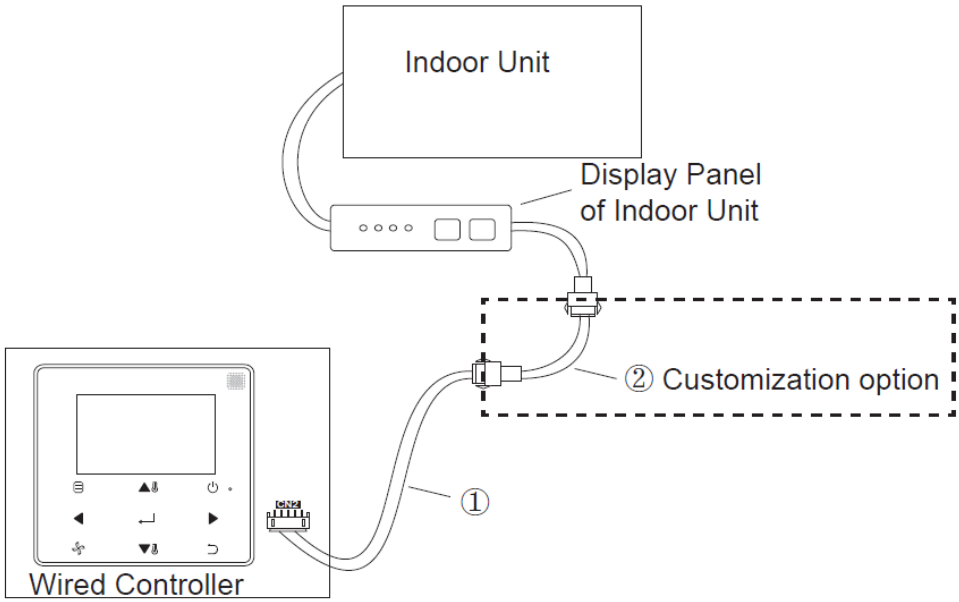
6.2 Two wired controllers for one indoor unit

In this scenario, the X1X2 port of the two wired controllers will be connected with the X1X2 port of the indoor unit. Since there is no polarity between the X1 and X2 ports, so there is no need to care about the polarity of connection between X1X2. One of the Controllers can be set as the main controller whereas the other one can act as a secondary controller in this case. The main and secondary controller setting needs to be done inside the wired controller menu interface.



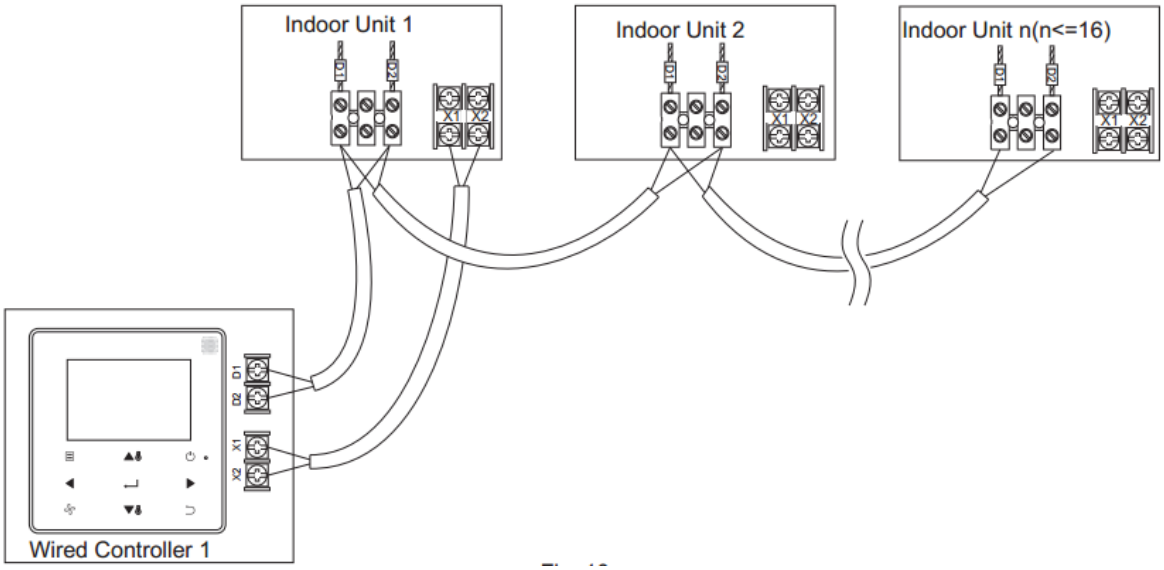
6.3 Connection using Infrared Port

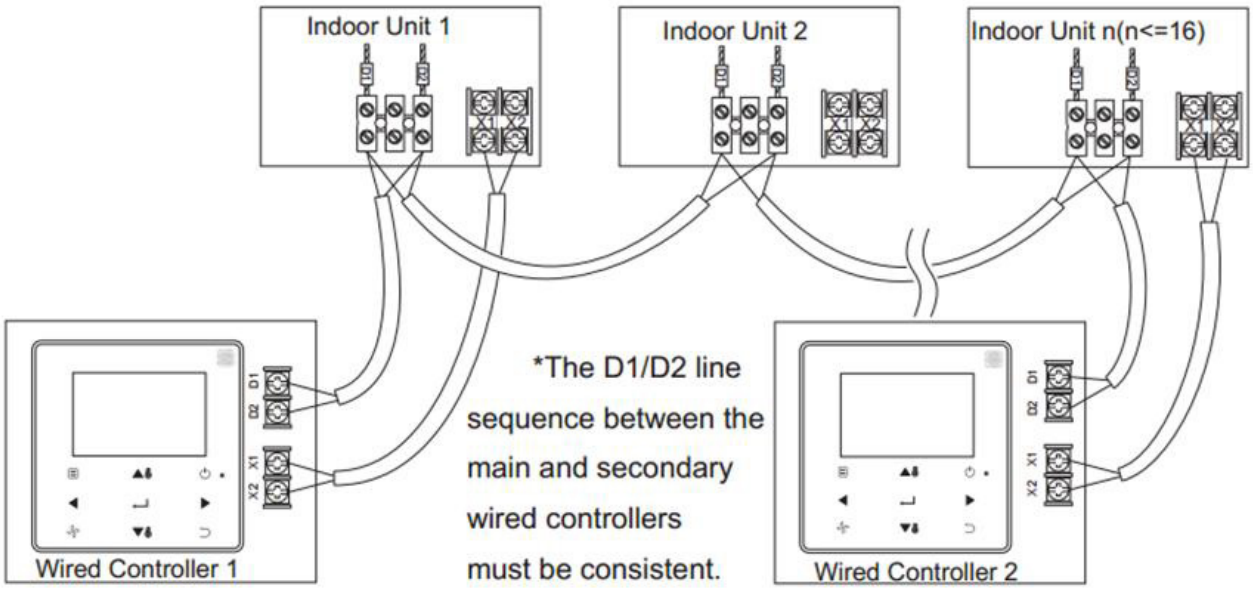
In this connection method, the wired controller will be connected to the infrared port on the display board of the indoor unit using the ABCDE terminals. As a result of using the infrared communication, the bi-directional communication features would not work in this case. This method of connection is advised to be used in case of connecting hotel key card interface. The standard cable set supplied with the box is 1. For customization option, the user can also use the cable 2 as customization to extend the length.



6.4 Group Control

In this type of group control connection, one or two wired controllers can be used to control multiple indoor units (up to 16). In this case, the wired controller and IDU needs to be connected to the X1X2 AND D1D2 ports at the same time. There is no polarity between the X1X2 of indoor unit and X1X2 of the wired controller. The D1D2 line sequence between the main and secondary wired controllers must be consistent.





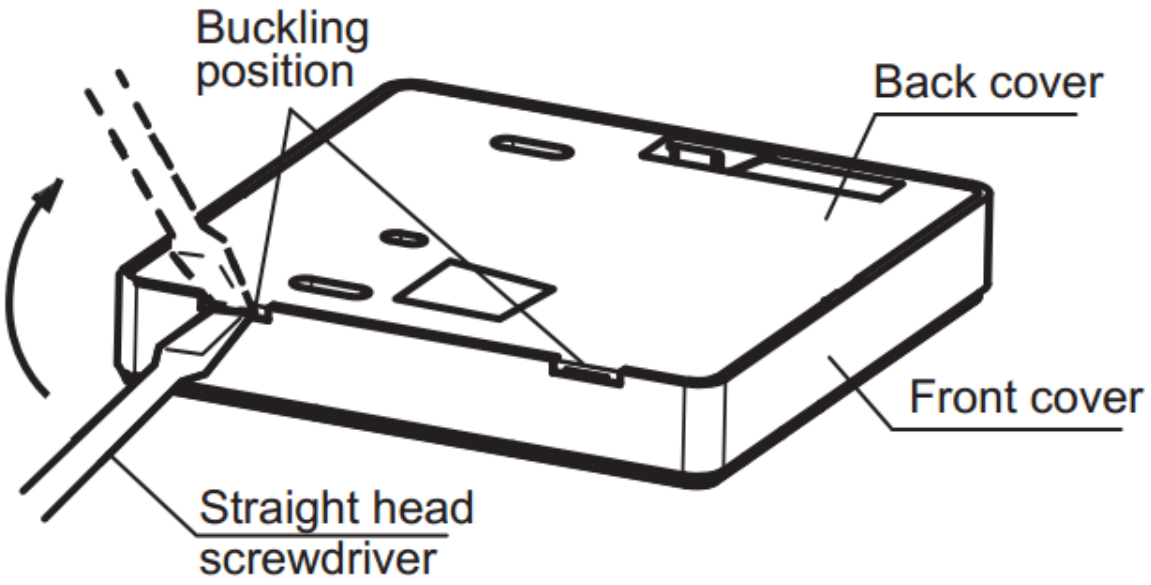
Part 2 Installation & Commissioning

1 Installation & Commissioning

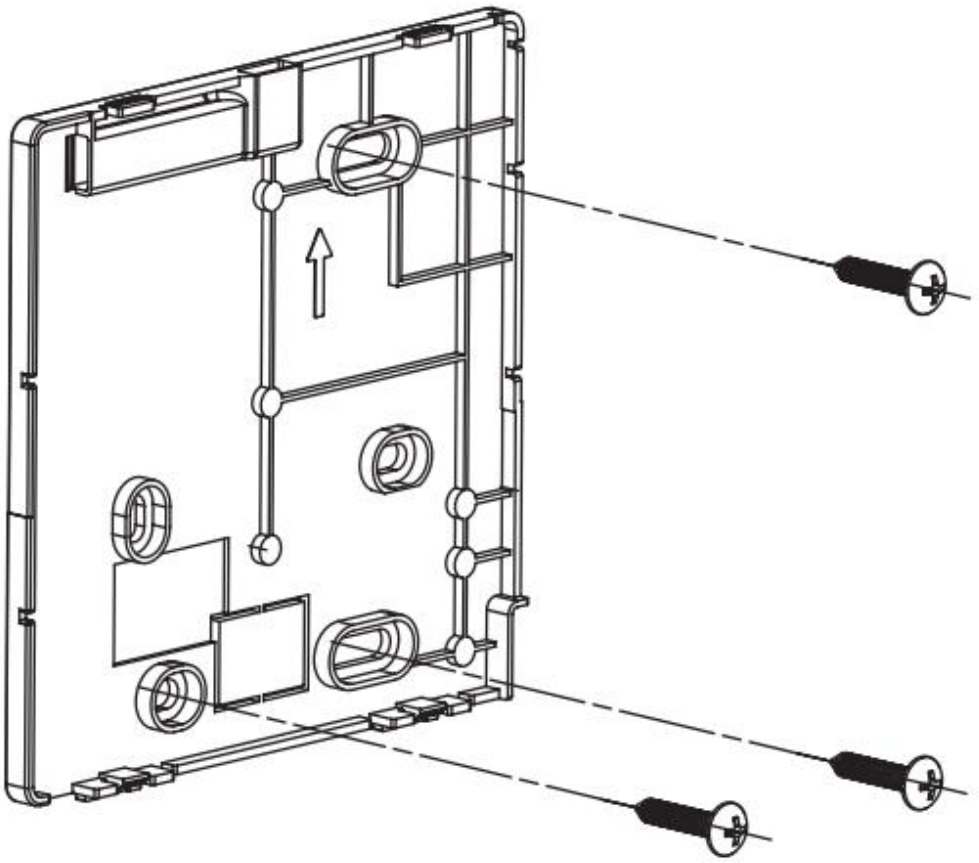
In this section, we will have a look at the various steps and procedures that are required to be undergone for the successful installation & commissioning of CA120-VRF wired controller.

1.1 Back Cover Installation

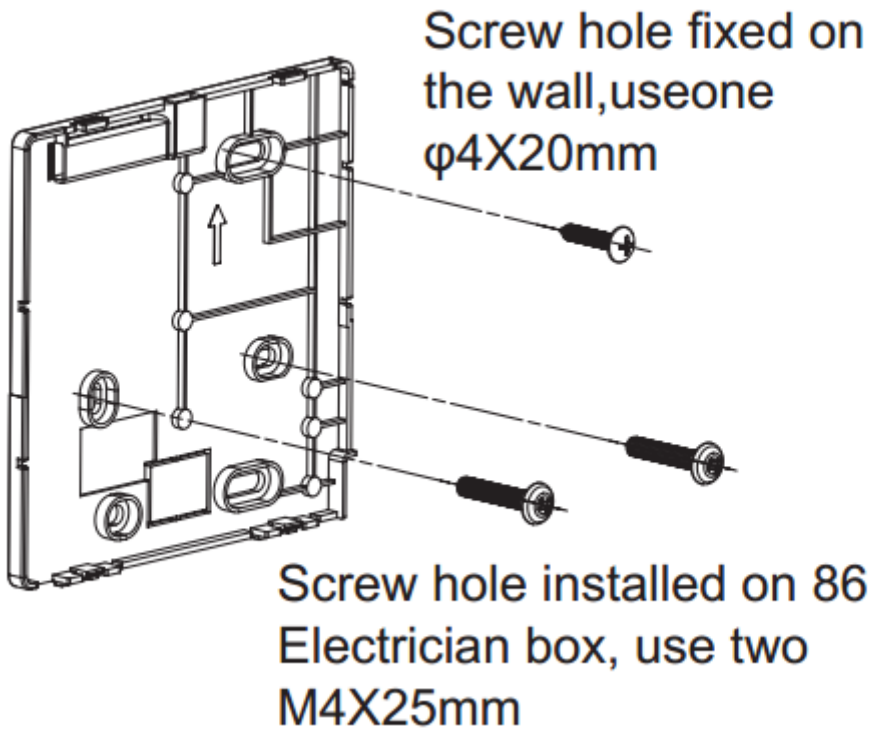
1. Insert the tip of a straight head screw driver in buckling position at the bottom of the wired controller and lift the screwdriver to pry open the back cover. (Pay attention to the lifting direction, incorrect lifting may damage the wired controller)



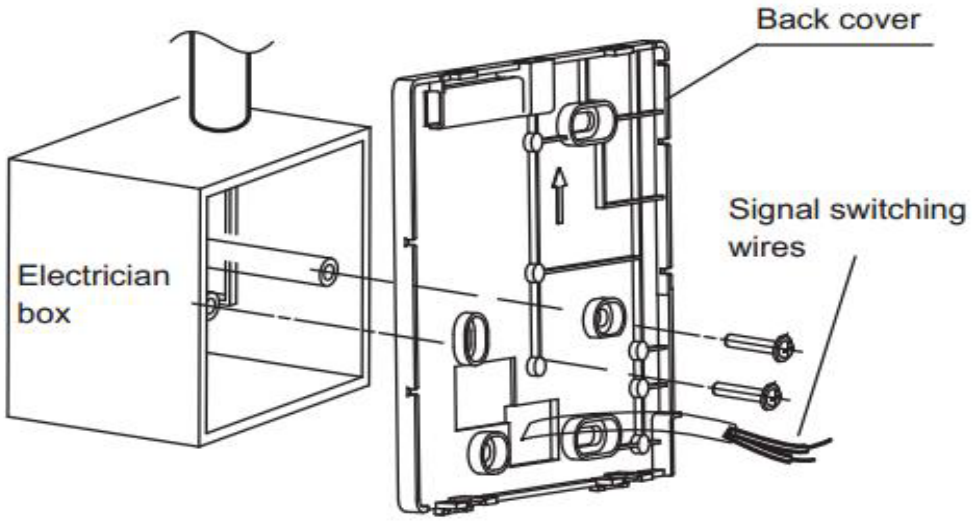
2. Use three M4*20 screws to mount the back cover on the wall



3. Use two M4*25 screws to install the back cover on the 86 electrical box and use one M4*20 screw to fix to the wall.



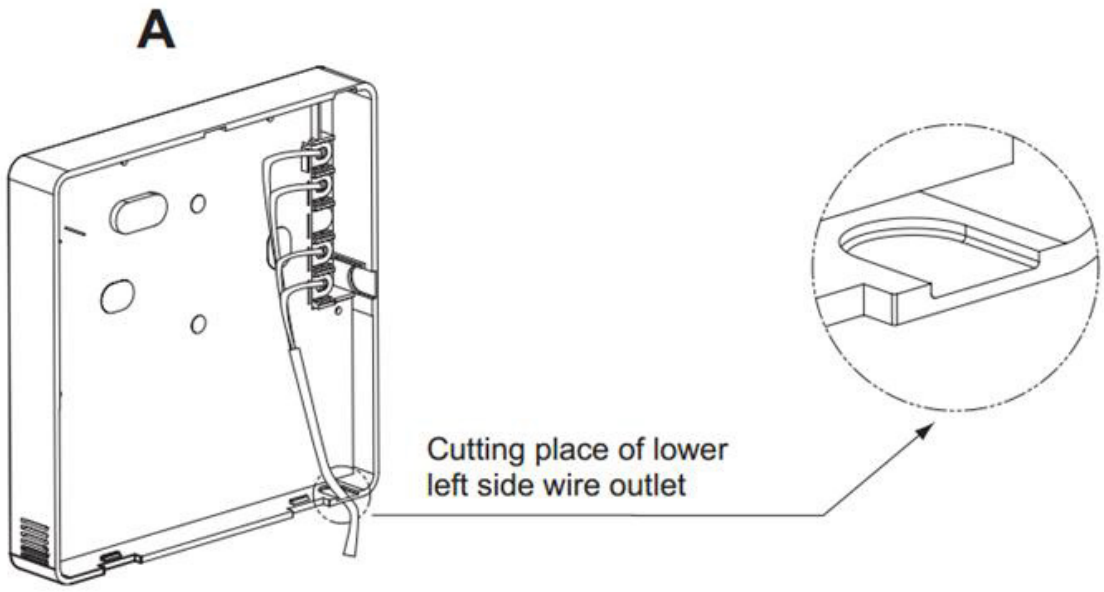
4. Adjust the length of the two plastic screw bars in the accessories so there is a uniform distance between the electrical box screw bar and the wall. Make sure that it is as flat as the wall when installing the screw bar to the electrical box screw bar.

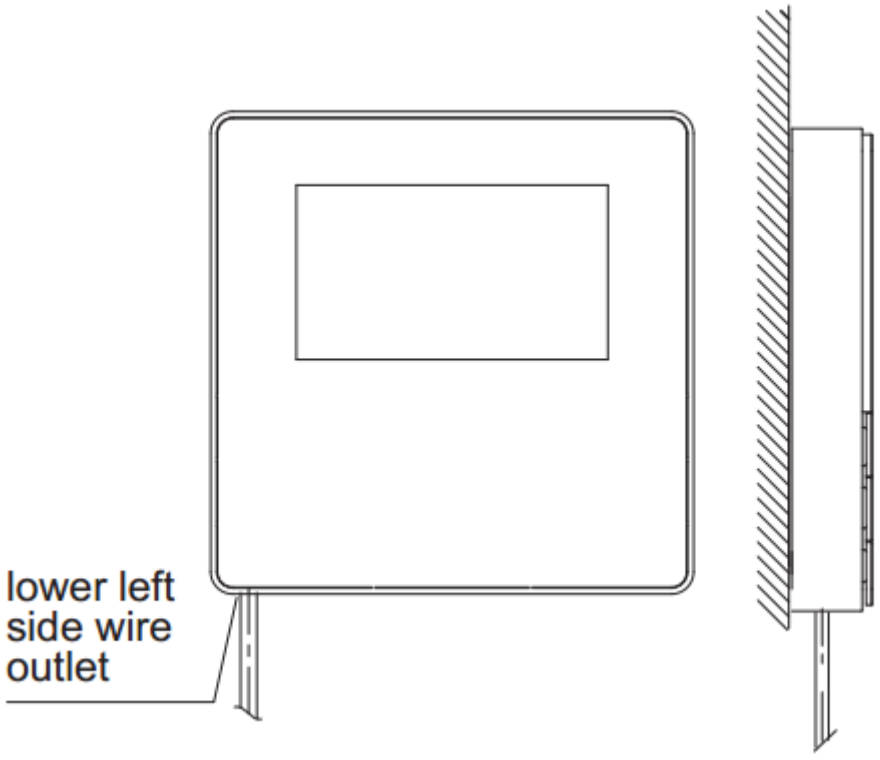


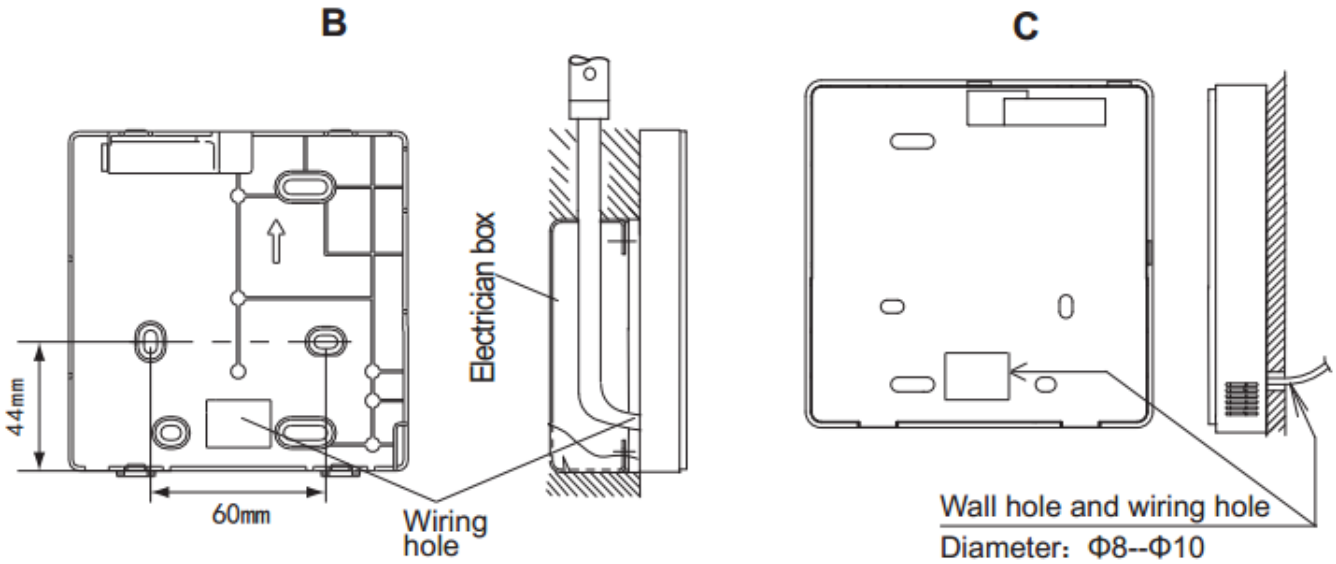
5. Use cross head screws to fix the wired controller bottom cover in the electric control box through the screw bar. Make sure that the wired controller bottom cover is on the same level after installation and then install the wired controller back onto the bottom cover

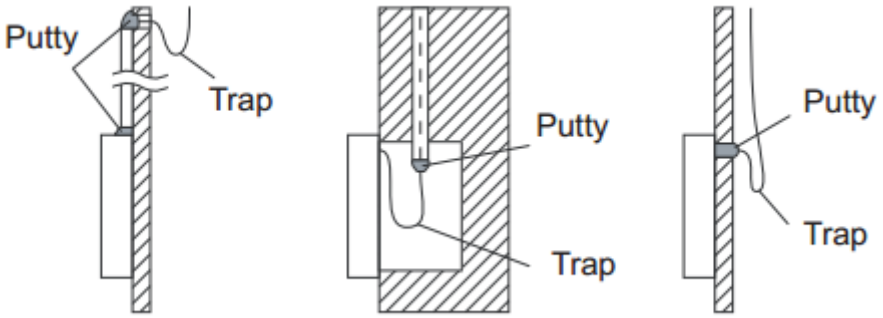
6. Make sure that you don't fasten the screws too tightly as fastening the screw too tightly will lead to deformation of the back cover.

1.2 Wire Outlet









Important point:

To avoid the water from entering the wired controller, use trap and putty to seal the connectors of wires during wiring installation

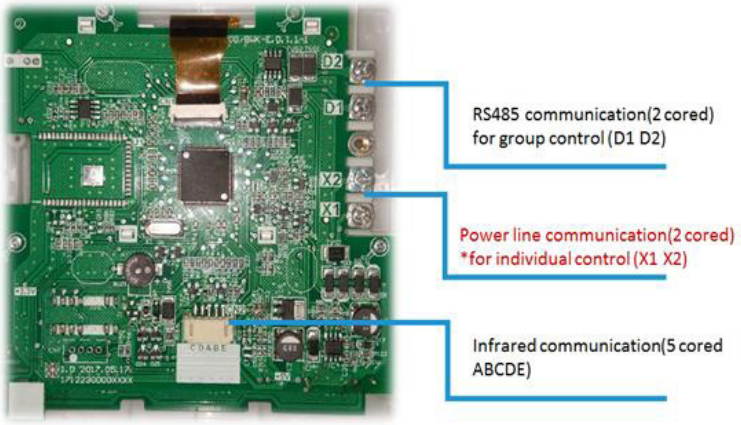
1.3 Wiring Specifications

Important points:

1. The switch box and control wire for 2nd generation IDU are not attached.
2. Do not touch the remote controller main board.

Wiring Type	Shielded, 2-conductor or 4-conductor for connection through X1/X2/D1/D2 ports
	Shielded, 4-conductor for connection through ABCDE ports
Wiring Size	AWG 20
Wiring Length	Maximum 200 m (656 ft.) for 2nd generation indoor units (X1/X2/D1/D2 ports)
	Maximum 20 m (66 ft) for connection through ABCDE ports

1.4 Modes of Connection



X1X2: If one or two controllers are used to control one IDU the port X1X2 need to be connected, the controller will have bi-directional communication

D1D2: If one or two controllers are used to control multiple IDUs, the ports X1X2 & D1D2 both need to be connected, the controller will have bi-directional communication

ABCDE: This port is used in case you want to connect the indoor unit to the infrared communication. Bi-directional communication will not work in case of using infrared ABCDE port.

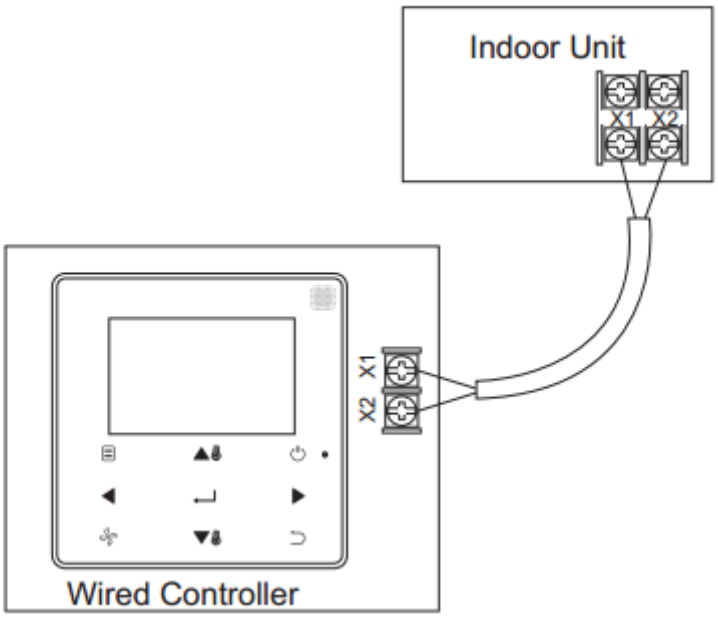
Important Point: There is no polarity between X1 and X2 ports

1.5 Connection Scenarios

The various methods of using this wired controller and various advantages and benefits of using a particular mode of communication have been enlisted in detail below:

1.5.1 One Wired Controller for one Indoor Unit

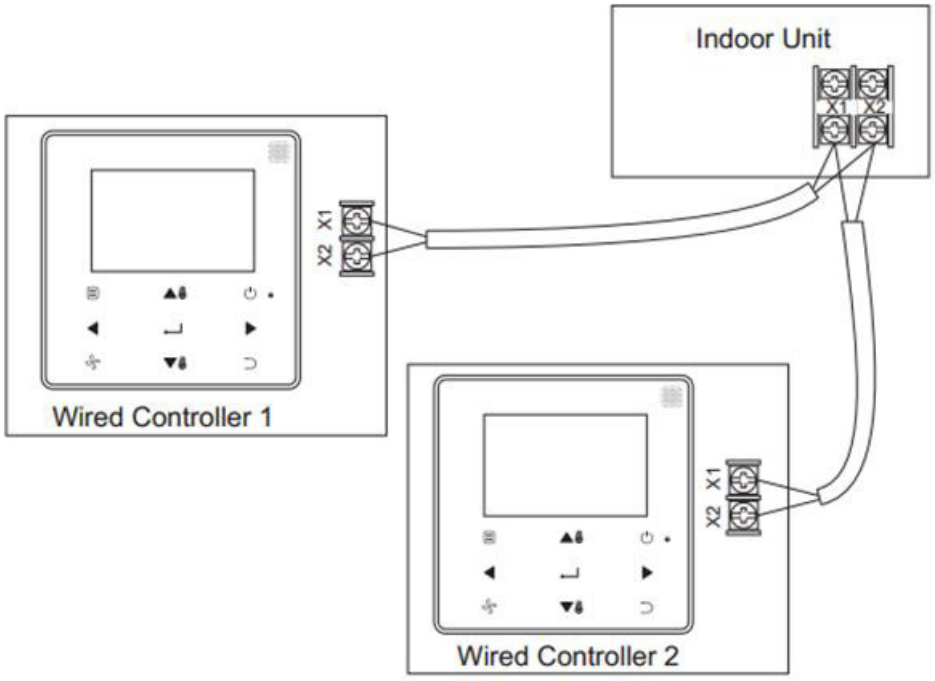
In this scenario, the wired controller's X1X2 port connects with the X1 X2 port of the indoor unit. There is no polarity between the X1 and X2 ports. They can be cross-connected. This is the same way in which the wired controller is connected with the HRV also.



Port	Connection
X1X2	Connected
D1D2	Not Connected
ABCDE	Not Connected

1.5.2 Two wired controllers for one indoor unit

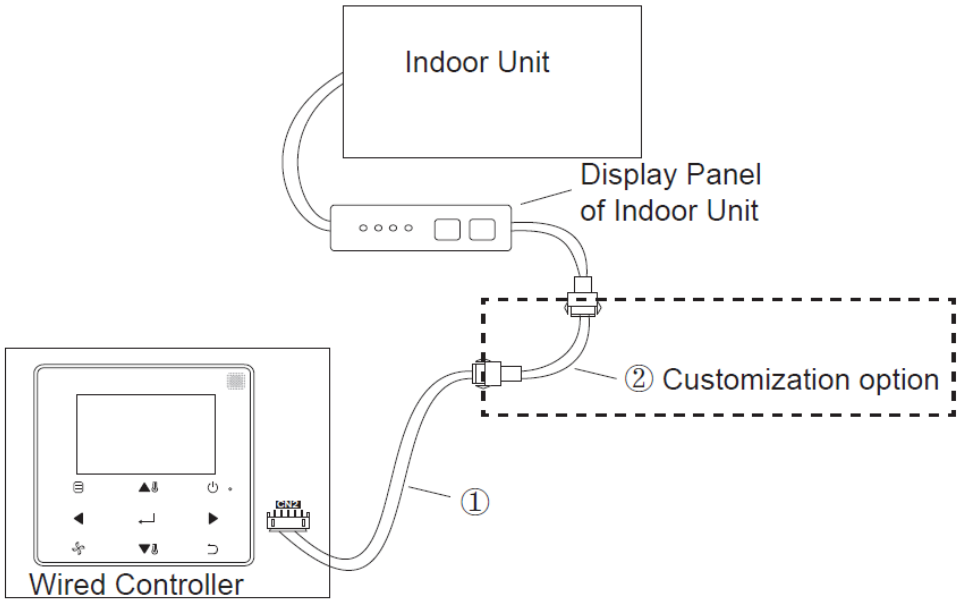
In this scenario, the X1X2 port of the two wired controllers will be connected with the X1X2 port of the indoor unit. Since there is no polarity between the X1 and X2 ports, so there is no need to care about the polarity of connection between X1X2. One of the Controllers can be set as the main controller whereas the other one can act as a secondary controller in this case.



Port	Connection
X1X2	Connected
D1D2	Not Connected
ABCDE	Not Connected

1.5.3 Connection using Infrared Port

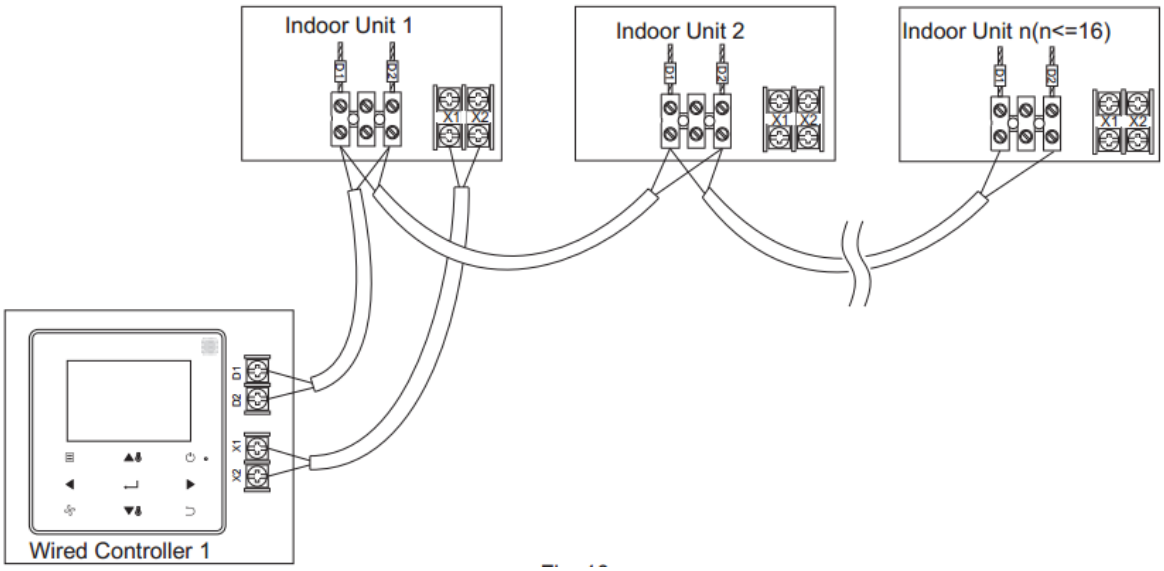
In this connection method, the wired controller will be connected to the infrared port on the display board of the indoor unit using the ABCDE terminals. As a result of using the infrared communication, the bi-directional communication features would not work in this case. This method of connection is advised to be used in case of connecting hotel key card interface. The standard cable 1 is supplied in the box. To extend the length the user can go for customization and add another longer cable 2.



Port	Connection
X1X2	Not Connected
D1D2	Not Connected
ABCDE	Connected

1.5.4 Group Control

In this type of group control connection, one or two wired controllers can be used to control multiple indoor units (up to 16). In this case, the wired controller and IDU needs to be connected to the X1X2 and D1D2 ports at the same time. There is no polarity between the X1X2 of indoor unit and X1X2 of the wired controller. The D1D2 line sequence between the main and secondary wired controllers must be consistent.



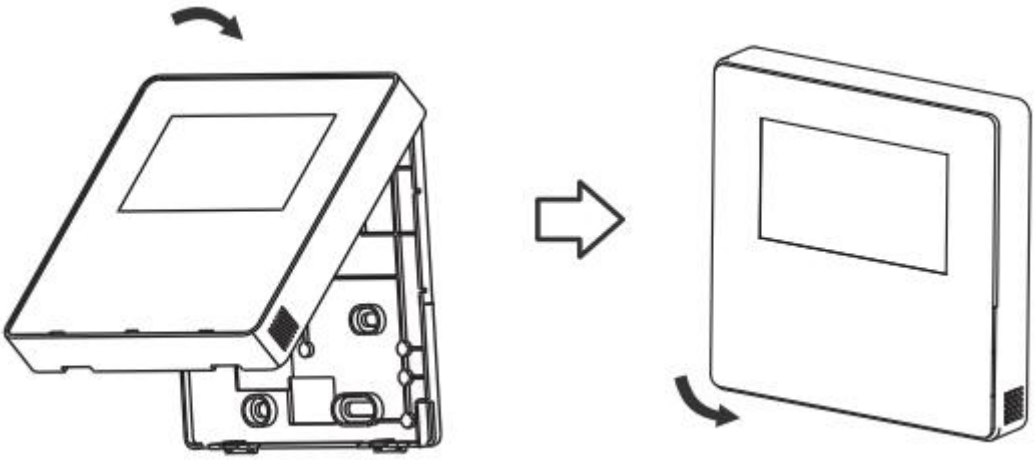
Port	Connection
X1X2	Connected
D1D2	Connected
ABCDE	Not Connected

Some Important Points Regarding Group Control:

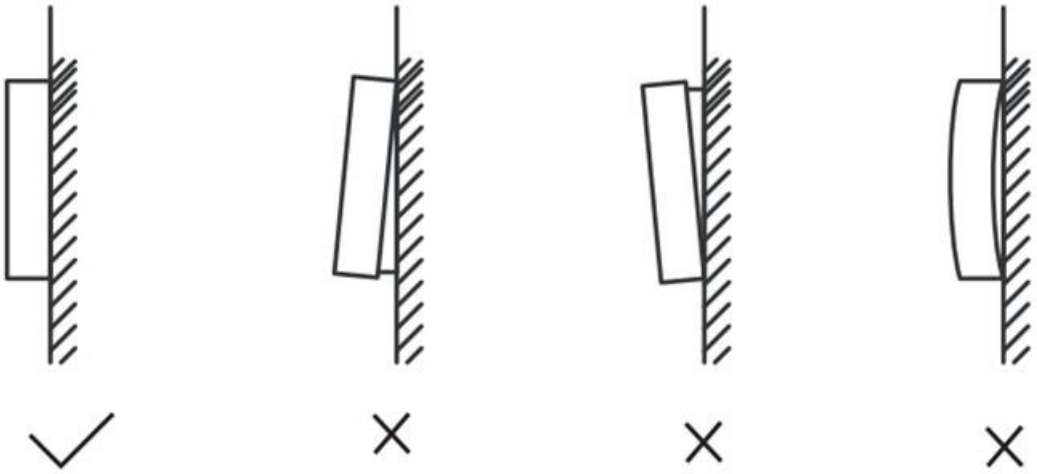
1. When the wired controller detects the connection with multiple IDUs at the same time, it will send a command to disable the remote control receiver of the IDU.
2. The IDU remote control receiver can be enabled through the “Field Settings”. If the remote controller receiver for the IDUs is set, the status of IDUs under group control may not be consistent
3. In group control, the wired controller is synchronized to the state of the IDU with the smallest address.
4. In group control, there will be no error prompt on the wired controller except when the IDU with the smallest address has been disconnected. Once the IDU except the smallest address IDU is powered ON again, the remote controller send and receive function would be automatically restored.
5. In group control, regardless if the remote controller send and receive function have been enabled in the settings or not, when the centralized controller/IMMPRO is used to update the state of the IDU that does not have the smallest address, this may result in the states of the other IDUs in group control to become inconsistent.

1.6 Front Cover Installation

After adjusting the front cover, buckle the front cover. Make sure that the communication switching wire do not get clamped during the front cover installation.



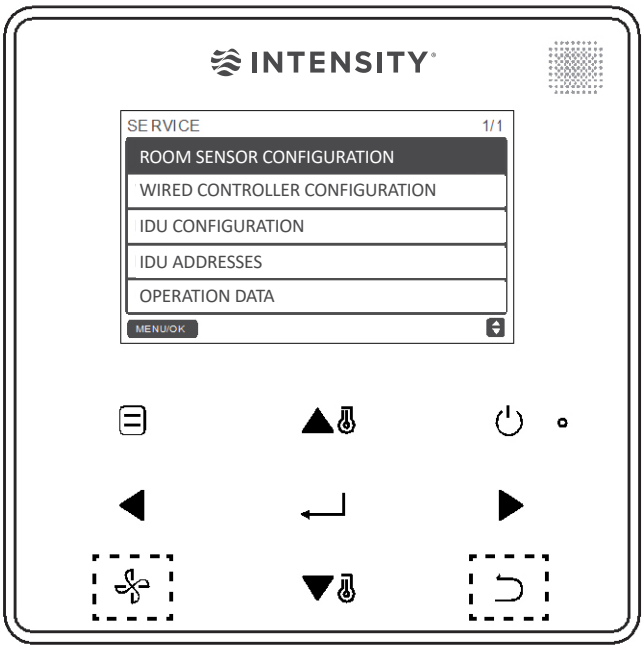
Correctly install the back cover and firmly buckle the front cover and back cover; otherwise the front cover may fall off.



2 Field Settings

These settings are basically meant for the field engineer who goes to install the wired controller at the project site. These settings should not be kept open for the end customer.

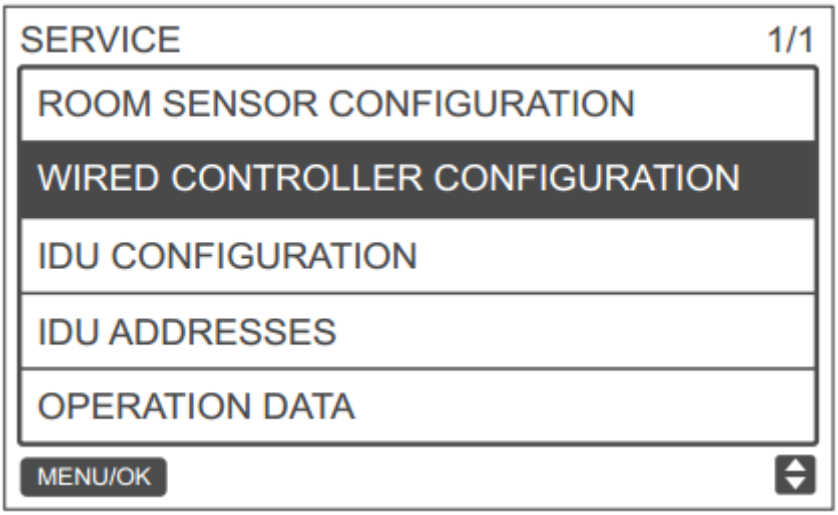
To enter into the field settings menu, the engineer needs to hold the BACK and FAN at the same time for 5 seconds to enter the interface for parameter settings, as shown in the figure below:

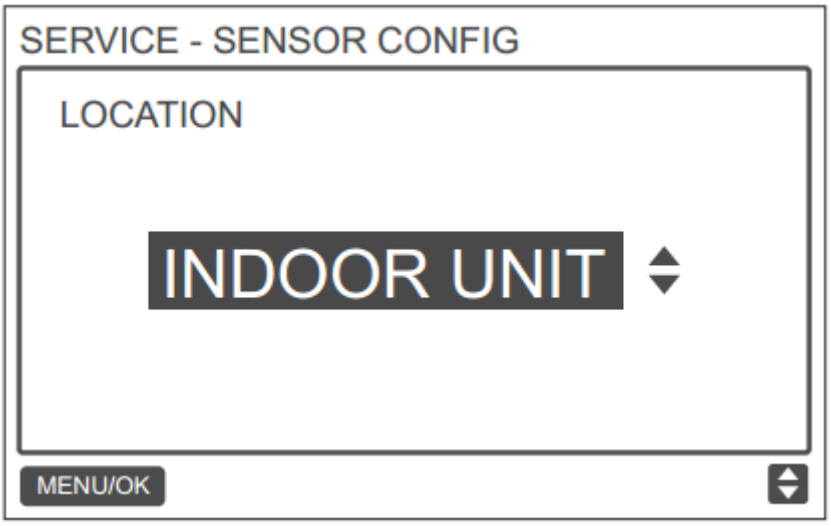


Note:
- For cooling only operations, please do corresponding settings as described .

Accessing the Parameter Settings Menu

Press TEMP UP or TEMP DOWN to move the cursor and select an entry as shown below. Then, press MENU/OK to enter this setting.





Press TEMP UP or TEMP DOWN to adjust the parameter, as shown in figure above. On the last menu, press MENU/OK to confirm and return to the homepage. Press BACK to confirm and return to the previous parameter or wait for 30 seconds to automatically exit parameter settings. Similarly, all the parameters in the controller maybe adjusted in this fashion. A list of all the parameters available for selection have been enlisted in the following table.

2.1 Main Controller Service Menu

Level 1 Menu	Model	Level 2 Menu	Setting Options		Default	Implication of Setting
Room Sensor Configuration	1-5	Location	Wired Controller		Indoor Unit	The Sensor on the wired controller/indoor unit will be used to determine the room temperature according to this setting.
			Indoor Unit			
	1-5	Offset	-5/-4/-3/-2/-1°0/1/2/3/4/5 °C		0°C	The room temperature will be displayed by addition of the actual value and offset value. For Example: If Room Temperature is 26 °C/°F and Offset is 1 °C/°F , the displayed temperature will be 27 °C/°F
			-5/-4/-3/-2/-1°0/1/2/3/4/5°F		0°F	
Wired Controller Configuration	1-5	Role	Main		Main	In case two controllers are used to control one IDU or multiple IDUs(up to 16 in group control) , the following setting lets you to select the controller that acts as main
			Secondary			
	1-4	Cooling Only	Enabled		Disabled	As per the selection, the wired controller may be used only in cooling mode or as normal controller.
			Disabled			
	1-5	Setting Configuration	Temperature Increment	0.5 degree	0.5 degree	The temperature change from the wired controller will be in steps of 0.5 degree or 1 degree depending up on this setting
				1 degree		
	1-4	Temp Setting Limits	Cooling Mode Minimum*	17-30°C / 62-86°F	17°C/ 62°F	This is to set the minimum temperature below which the set temperature of indoor unit cannot be adjusted in cooling mode.
			Heating Mode Maximum*	17-30°C / 62-86°F	30°C/ 86°F	This is to set the maximum temperature above which the set temperature of indoor unit cannot be adjusted in heating mode.
	1-5	Wired Controller Infrared Receiver	Enabled		Enabled	This is to set if the wired controller can receive or not the remote control signal and forward it to the IDU
			Disabled			
	1-5	IDU Infrared Receiver	Enabled		Enabled	This is to set if the wired controller can receive or not the remote control signal and forward it to the IDU
			Disabled			
	1-5	Auto Restart	Enabled		Enabled	This is to set if the wired controller can remember the previous condition of the IDU after it gets ON after power failure. For Eg. If IDU was running at 26
			Disabled			
	1-5	Clean Filter Remind Period(1-4)	None		None	This setting is to set a time period after which there would be a notification on the wired controller to clean the filter
			1250 Hours			
			2500 Hours			
			5000 Hours			
			10000 Hours			
		Clean Filter Remind Period (5)	Pressure Difference Control		None	This icon will appear in case of HRV if the pressure difference is improper implying that the filter needs to be cleaned

Note : The model numbers correspond to following models:

1: 2nd Generation DC IDUs

2: 2nd Generation DC Fresh Air Processing Units

3: 2nd Generation AC IDUs

4: AHU

5: HRV

Level 1 Menu	Model	Level 2 Menu	Setting Option		Default	Implication of Setting
IDU Configuration	1-4	Louver	Vertical	Enabled	Enabled	Enabling will start the vertical swing and disabling will stop the swing
				Disabled		
			Horizontal	Enabled	Enabled	Enabling will start the horizontal swing an d disabling will stop the horizontal swing
				Disabled		
	1-5	Aux- Heater	Enabled/Disabled(1-5)		Enabled	After enabling the Auxiliary heater: The auxiliary heater can be started when the Outdoor Ambient Temperature (T4) is lower than the Activation Temperature
			Activation Temperature(1-4)		15°C /59°F	
	1/3/4 (Except AHU Fresh Air Control)	Temp Compensation	Cooling Mode Temperature Compensation	0: 0°C	FF: According to IDU settings	This setting helps to adjust the compensation between the room temperature and set temperature.
				1: 2°C		
			Heating Mode Temperature Compensation	0: 6°C	FF: According to IDU settings	
				1: 2°C		
				2: 4°C		
				3: 6°C		
				4: 0°C		
	1-4	EXV Stand by position (1/2/3)	56 P		FF: According to IDU settings	This setting is to adjust the EXV standby position in the heating mode operation of the indoor unit.
			72 P			
			0 P			
			72 P			
		EXV Stand by position (4)	72 P			
			72 P			
			72 P			
			72 P			
	1-4	Cold draft prevention	0:15°C (For fresh air indoor unit & AHU Fresh Air Control 14°C)		FF: According to IDU settings	In the heating mode, the fan does not run when the indoor heat exchanger temperature is equal to or less than the temperature written
			1:20°C (For fresh air indoor unit & AHU Fresh Air Control 12°C)			
			2:24°C (For fresh air indoor unit & AHU Fresh Air Control 16°C)			
			3:26°C (For fresh air indoor unit & AHU Fresh Air Control 18°C)			
	1/3	Shutdown Operation Length	T= 0 : 4 minutes		FF: According to IDU settings	In the heating mode, when the set temperature has been reached, the fan operates in "T" minutes off/1 minute ON repeating cycle
			T= 1 : 8 minutes			
			T= 2 : 12 minutes			
			T= 3 : 16 minutes			
	2/4	Shutdown Operation Length	/		10 minutes	For AHU an 2nd Generation DC Fresh Air Processing Units, the shutdown operation length by default is always 10 minutes
	1-5	Static Pressure	For High Static Pressure Duct/ Fresh Air processing Units : 0~19		FF: According to IDU settings	This setting enables to set the static pressure from the controller.
			Others: 0~9			
	1-5	Keypress Tone	Enabled		Enabled	Sets if the tone of the keys is turned ON or OFF
			Disabled			
	1-5	Auto Restart	Enabled		Enabled	Sets if the IDU can remember the state of IDU before power disconnection
			Disabled			
	5	CO2 Sensor	Enabled		Disabled	
			Disabled			
	5	Pressure Difference Sensor	Enabled		Disabled	
			Disabled			
	1-4	PUMP			Enabled	

Note : The model numbers correspond to following models:

1: 2nd Generation DC IDUs

2: 2nd Generation DC Fresh Air Processing Units 3: 2nd Generation AC IDUs 4: AHU 5: HRV

Level 1 Menu	Model	Level 2 Menu	Setting Option	Default	Implication of Setting
IDU Address	1-5	/	0~63	--	Sets the address of IDU when this controller is connected to a single indoor unit
IDU Operating Data	1-5	Error Codes	Last 10 fault records (IDU, ODU, Wired Controller)		
		ODU Data	Refer to Appendix 1		
		IDU Data	Refer to Appendix 2		
		Wired Controller	Displays the wired controller software version, T1, main or secondary wired controller, number of online IDUs and group NO.(In group control, the group NO is the smallest address among all IDUs +1)		
Operating Data	1-5	/	EEPROM ADDRESS IDU ADDRESS		

Note : The model numbers correspond to following models:

1: 2nd Generation DC IDUs

2: 2nd Generation DC Fresh Air Processing Units

3: 2nd Generation AC IDUs

4: AHU

5: HRV

The value of Minimum and maximum temperature ranges for cooling mode is different as per the different series of VRF indoor units. The temperature ranges for different series indoor units have been highlighted as below:

2nd Generation DC Indoor Units - **17-30°C**

2nd Generation DC Fresh Air processing units - **13-30°C**

2nd Generation AC Indoor Units - **17-30°C**

AHU Return Air Control - **17-30°C**

AHU Fresh Air Control - **10-30°C**

2.2 Secondary Controller Service Menu

The secondary controller settings available are same for all the 5 types of models

Level 1 Menu	Level 2 Menu	Setting Option	Default	Implication of Setting
Room Sensor Configuration	Location	Wired Controller Indoor Unit	Indoor Unit	The Sensor on the wired controller/indoor unit will be used to determine the room temperature according to this setting.
Operating Data	Error Codes	Last 10 fault records (IDU, ODU, Wired Controller)		
	ODU Data	Refer to Appendix 1		
	IDU Data	Refer to Appendix 2		
	Wired Controller	Displays the wired controller software version, T1, main or secondary wired controller, number of online IDUs and group NO.(In group control, the group NO is the smallest address among all IDUs +1)		

2.3 Service Menu when Wired Controller connect to indoor unit using CN2 port (Infrared Port)

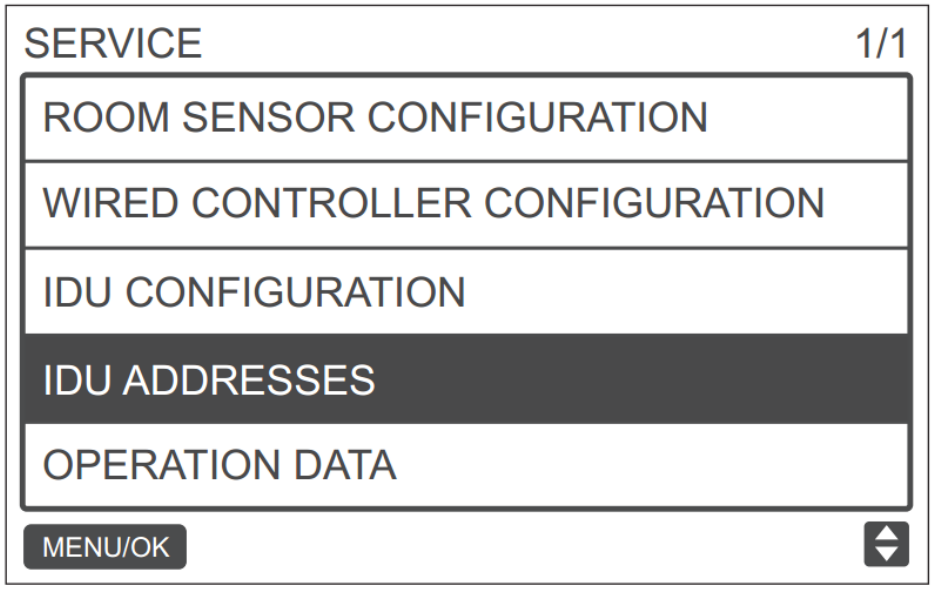
The menu is same for all 1-5 models while connecting via CN20 port

Level 1 Menu	Level 2 Menu	Setting Options		Default	Implication of Setting
Room Sensor Configuration	Location	Wired Controller		Wired	The Sensor on the wired controller/indoor unit will be used to determine the room temperature according to this setting.
		Indoor Unit		Controller	
	Offset	-5/-4/-3/-2/-1°0/1/2/3/4/5 °C		0°C	The room temperature will be displayed by addition of the actual value and offset value. For Example: If Room Temperature is 26 °C/°F and Offset is 1 °C/°F , the displayed temperature will be 27 °C/°F
		-5/-4/-3/-2/-1°0/1/2/3/4/5°F		0°F	
Wired Controller Configuration	Cooling Only	Enabled		Disabled	As per the selection, the wired controller may be used only in cooling mode or as normal controller.
		Disabled			
	Setting Configuration	Temperature Increment	0.5 degree	0.5 degree	The temperature change from the wired controller will be in steps of 0.5 degree or 1 degree depending up on this setting
			1 degree		
		Fan Speeds	3 Fan Speeds	7 fan speeds	The available fan speed options would be 3 or 7 depending up on this setting
			7 Fan Speeds		
	Temp Setting Limits	Cooling Mode Minimum	17-30°C / 62-86°F	17°C/ 62°F	This is to set the minimum temperature below which the set temperature of indoor unit cannot be adjusted in cooling mode.
		Heating Mode Maximum	17-30°C / 62-86°F	30°C/ 86°F	This is to set the maximum temperature above which the set temperature of indoor unit cannot be adjusted in heating mode.
	Infrared receiver	Enabled		Enabled	This is to set if the wired controller can receive or not the remote control signal and forward it to the IDU
		Disabled			
	Auto Restart	Enabled		Enabled	This is to set if the wired controller can remember the previous condition of the IDU after it gets ON after power failure. For Eg. If IDU was running at 26
		Disabled			
	Clean Filter Remind Period	None		None	This setting is to set a time period after which there would be a notification on the wired controller to clean the filter
		1250 Hours			
		2500 Hours			
		5000 Hours			
		10000 Hours			

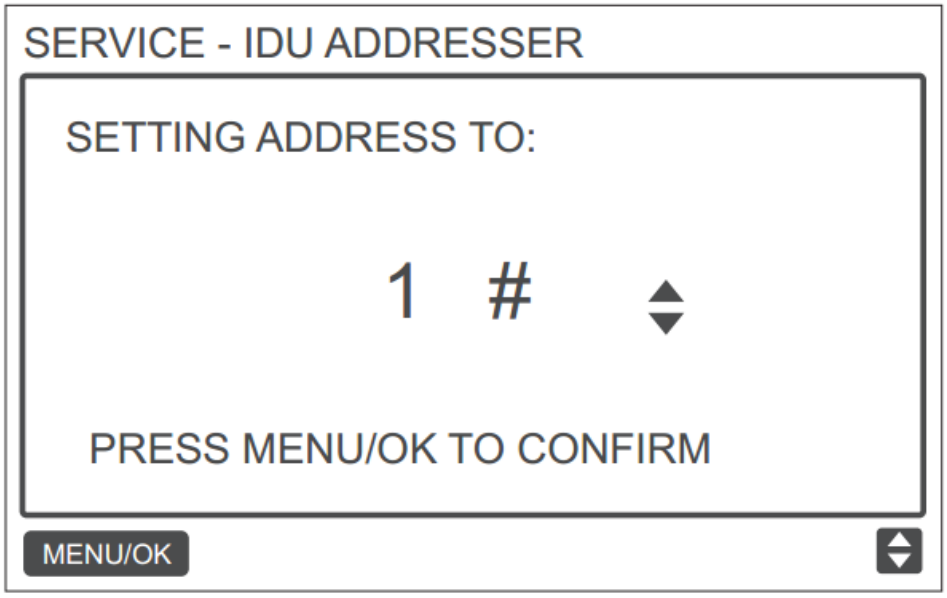
Level 1 Menu	Level 2 Menu	Setting Option	Default	Implication of Setting
IDU Address		0~63	--	Sets the address of IDU when this controller is connected to a single indoor unit
Operating Data	Error Codes	Last 10 fault records (IDU, ODU, Wired Controller)		
	ODU Data	Refer to Appendix 1		
	IDU Data	Refer to Appendix 2		
	Wired Controller	Displays the wired controller software version, T1, main or secondary wired controller, number of online IDUs and group NO.(In group control, the group NO is the smallest address among all IDUs +1)		

2.4 Setting the IDU Address

One should make sure and understand that the IDU network address can only be set when the wired controller is connected to only one IDU. Press TEMP DOWN , to move the cursor down, choose IDU Addresses as shown in Fig and press MENU/OK to enter this setting.



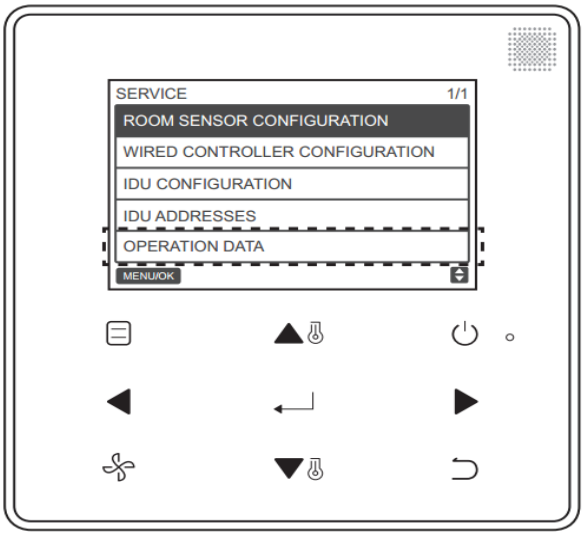
Press TEMP UP or TEMP DOWN to select the IDU address and press MENU/OK to send to send this address to the IDU, as shown below



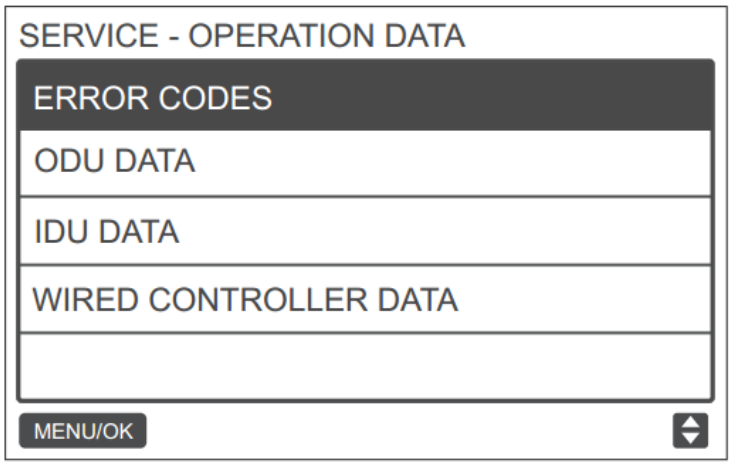
Press BACK twice or wait for 30 seconds to automatically exit the parameter settings menu.

2.5 Checking Error History

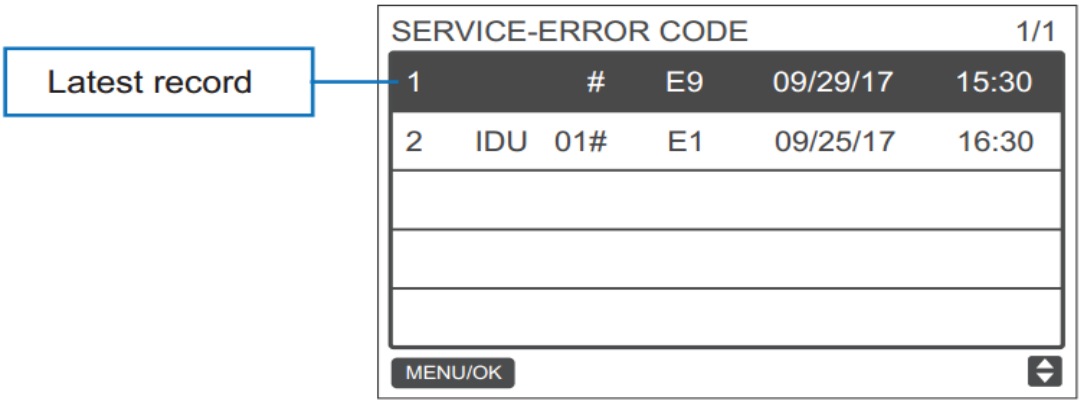
Press and hold BACK and FAN buttons at the same time for 5 seconds to enter the interface for service menu as shown below:



Press TEMP DOWN to move the cursor and select the OPERATION DATA and press MENU/OK to enter this setting. Select ERROR CODES and press MENU/OK as shown below:



Error codes and unit no. will be shown, only the last 10 events are displayed.

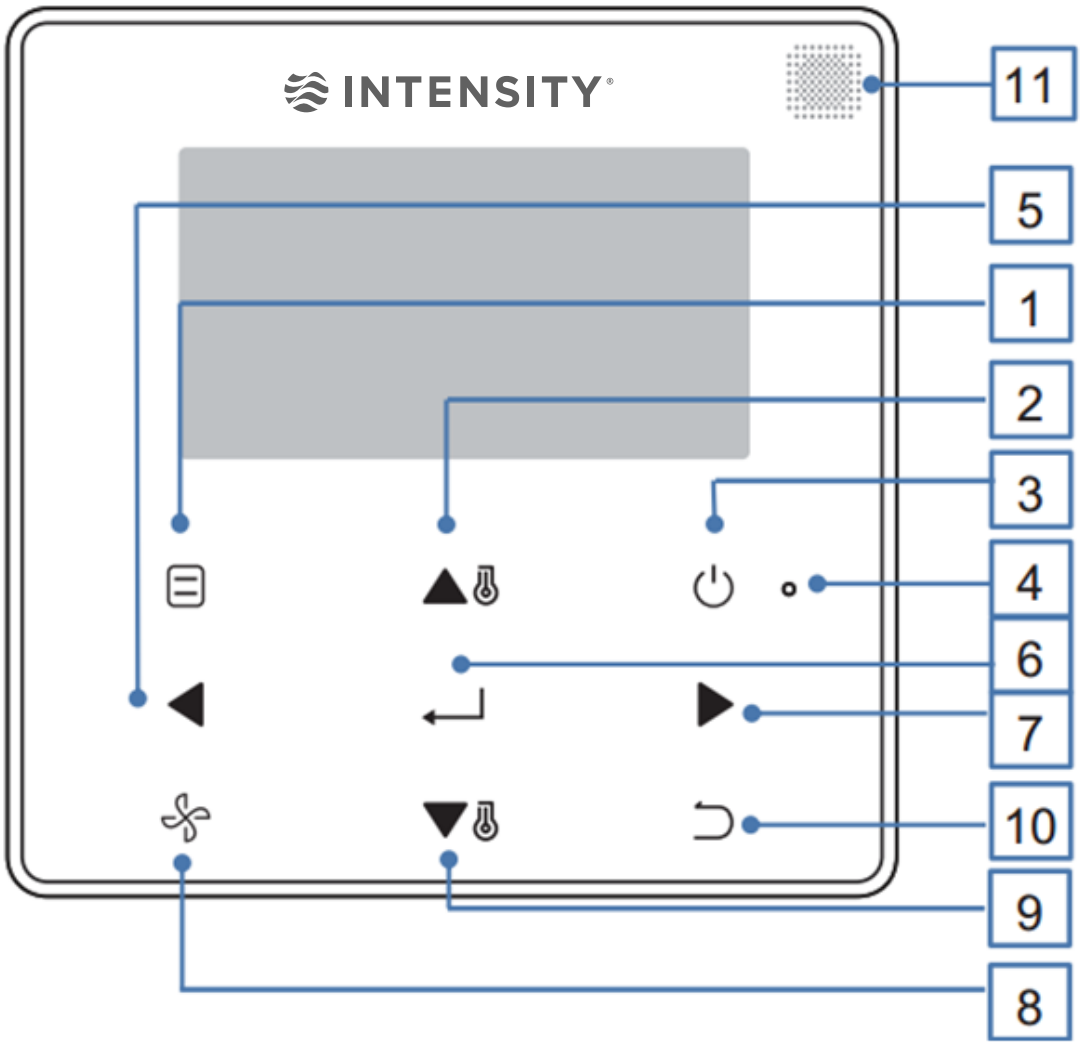


Part 3
Functions

1 Functions

In this section, we have discussed the various functions which are on offer by this wired controller. The basic functions and the quick reference menu have been described in detail under this section in complete detail

1.1 Button Locations and Descriptions



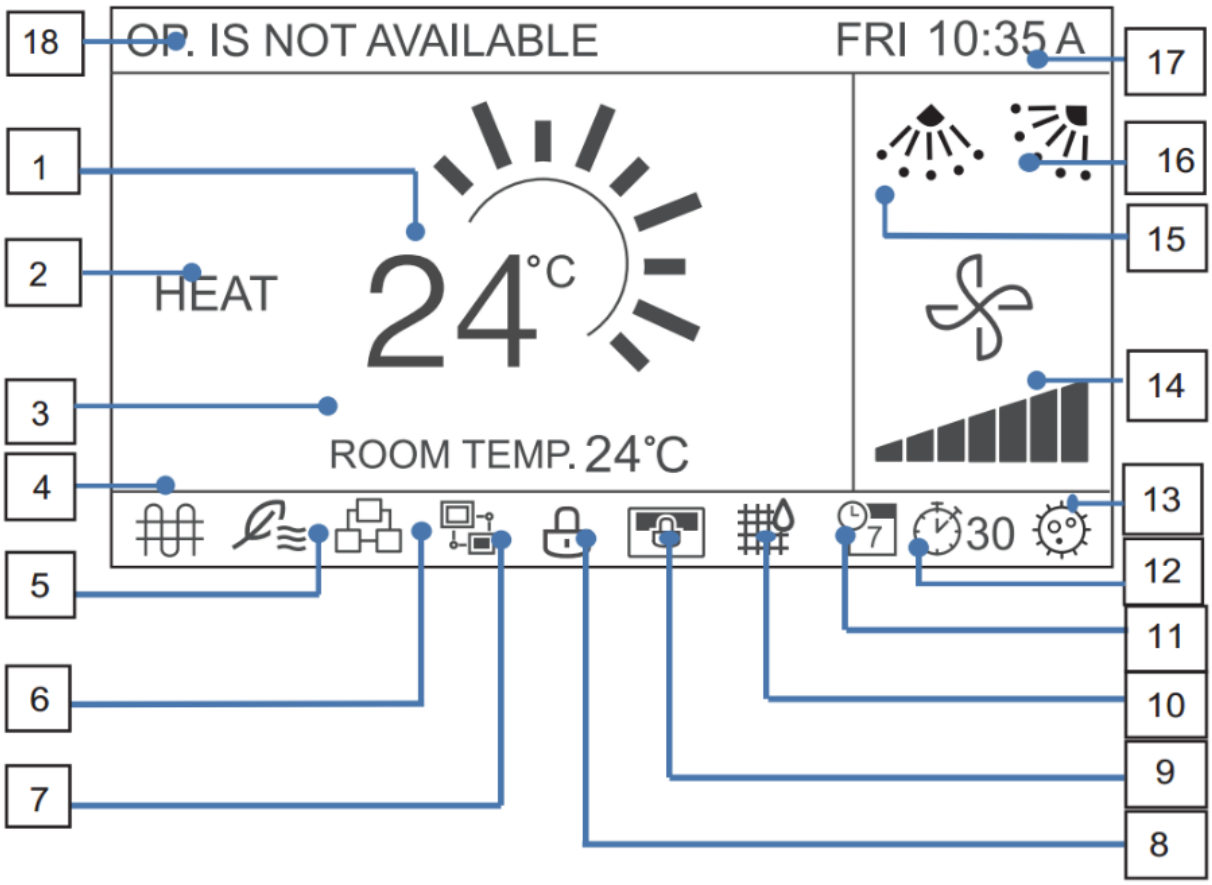
Marked in above figure as	Button	Description
1	Mode	Selects the running mode
2	Temp UP button	Increases the set temperature
3	ON/OFF button	Turns ON/OFF the IDU
4	LED (Green)	Stays solid green when the unit is ON and blinks if there is a fault
5	Left button	Selects options to the left
6	MENU/OK button	Enters the menu/sub-menu ; Confirms selection
7	Right Button	Selects options to the right
8	Fan	Selects the Fan speed
9	TEMP DOWN button	Reduces the set temperature
10	BACK button	Returns to the previous level; press this button for 3 seconds to Lock/Unlock
11	Remote Controller Signal receiving window	Receives the remote controller control signal

Important point:

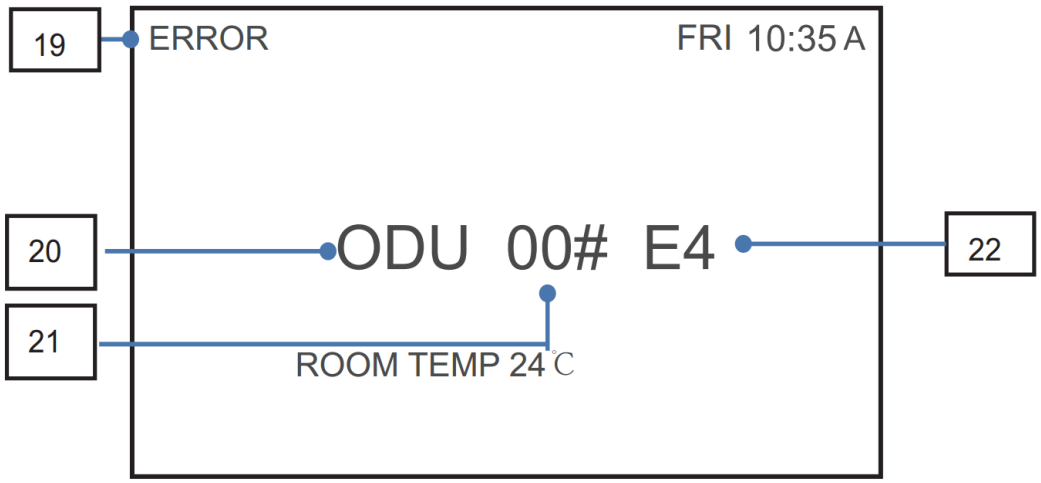
Only the backlight is turned ON when the button is pressed for the first time when the wired controller backlights are off.

1.2 Display Description

Main Display Interface for Normal VRF indoor unit

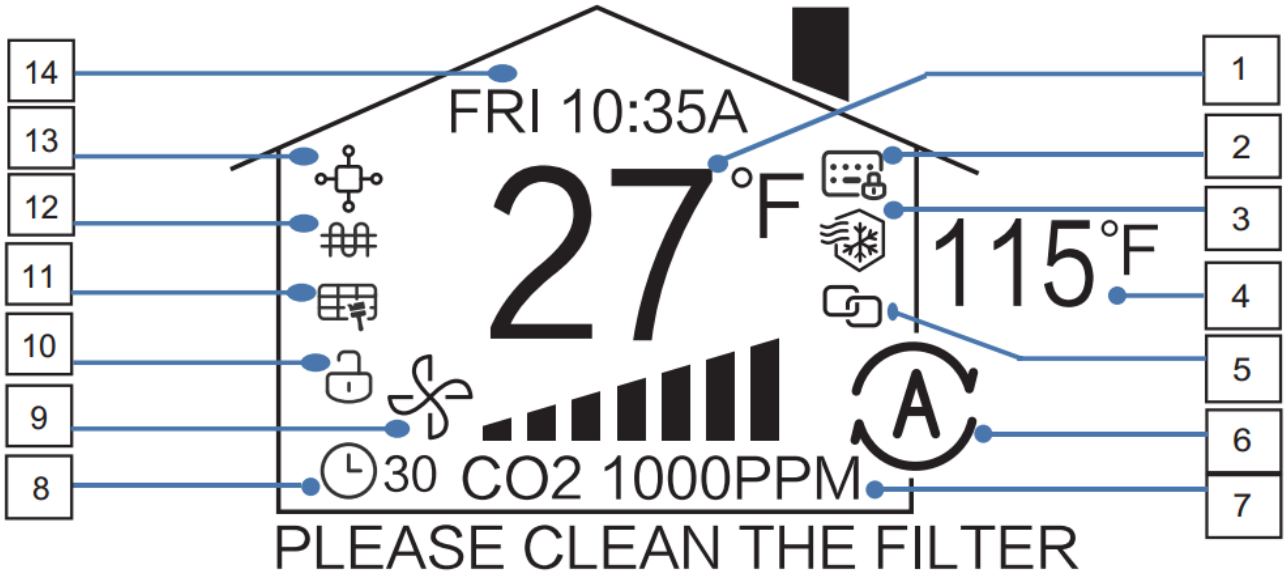


Fault Display Interface



No	Description	Implication
1	Set Temperature	Displays the set indoor temperature
2	Mode Display	Displays the running mode set by the wired controller
3	Room Temperature Display	Displays the current indoor temperature
4	E-heat Icon	Turns ON when indoor temperature
5	Fresh Air Processing Unit Icon	Turns ON when the wired controller connects to the Fresh Air Processing Unit. One wired controller can be independently connected to one fresh air processing unit.
6	Group Control Icon	Turns ON when the central controller controls multiple IDUs (max 16 IDUs)
7	Secondary Wired Controller Icon	This is displayed when the wired controller is set to secondary one
8	Function and Key locking Icon	Turns ON when the wired controller locks the ON/OFF function, mode, schedule, temperature setting or engages the button lock
9	Central Controller / IMMPRO Locking Icon	Turns ON when the wired controller/IMMPRO locks the IDU functions and the wired controller cannot use the corresponding functions of the IDU
10	IDU Filter Indicator	Displayed as an icon when it is time to clean the filter or element
11	Schedule	Turns ON when the schedule is available on the wired controller
12	Extension or Timer Icon	Turns ON when the EXTENSION or timer is enabled on the wired controller
13	Sterilization Function	
14	Fan Speed Display	Displays the fan speed set by the wired controller
15	Vertical Louver	Displays the louver status when the IDU supports vertical louver
16	Horizontal Louver	Displays louver status when the IDU supports horizontal louver
17	Time Display	Time display
18	Invalid Operation Prompt	Displays for two seconds when the operation is invalid
19	Error Indication	Displays the “Error” message if the system is faulty
20	Faulty IDU/ODU	“IDU” or “ODU” is displayed respectively when the IDU or ODU fails ; IDU or ODU is not displayed if the wired controller fails
21	Faulty IDU/ODU address	Displays the address of faulty unit if an error occurs in the IDU or ODU; the address is not displayed when the wired controller fails
22	Error Code	Displays the error code if the system is faulty

Main Display Interface for HRV:

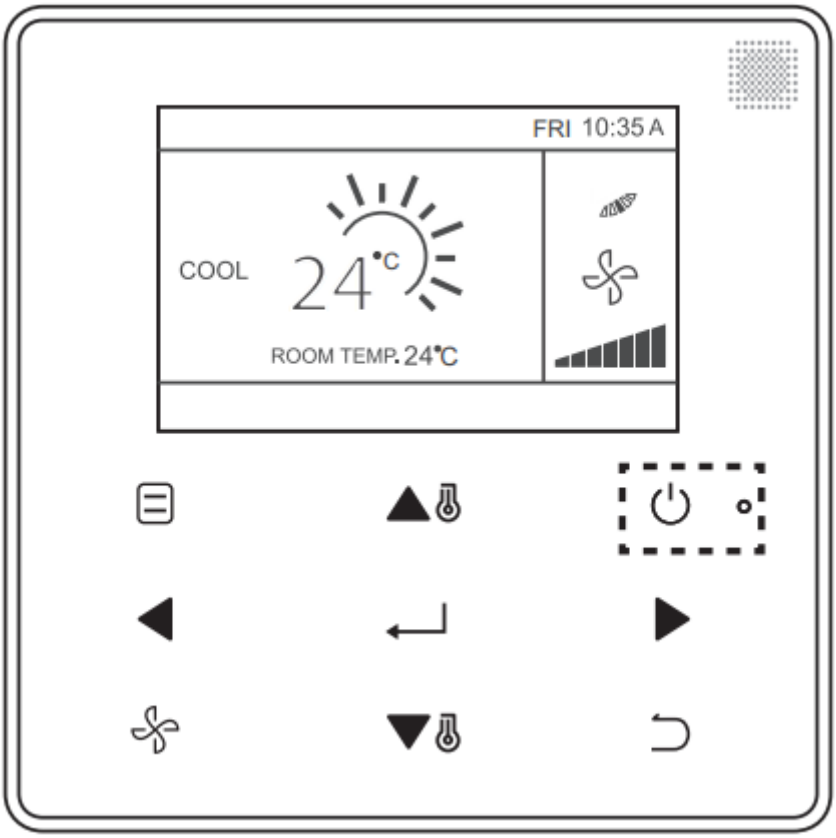


No	Description	Implication
1	Set Temperature	Displays the set indoor temperature
2	Central Controller / IMMPRO Locking Icon	Turns ON when the central controller/IMMPRO locks the IDU functions and the wired controller cannot use the corresponding functions of the IDU
3	Cold Draft Prevention	In heating mode the fan does not run when the indoor unit heat exchanger temperature is equal to or lower than the setting temperature
4	Outdoor temperature	Displays the current outdoor temperature
5	Interlock Function	When the HRV is connected via PQE with AC system, HRV can be on/off automatically based on IDU running status
6	Mode display	Displays the running mode set by the wired controller
7	CO2 concentration display	Displays the CO2 CONCENTRATION
8	Extension or Timer Icon	Turns ON when the EXTENSION or Timer is enabled on the wired controller
9	Fan Speed display	Displays the fan speed set by the wired controller
10	Function and key locking icon	Turns on when the wired controller locks the on/off function, mode, schedule, temperature setting or engages the button lock
11	Filter Indicator	The following icon will light up if the pressure difference switch detects that the pressure is not proper
12	E- Heat Icon	Turns On when the E-heat is on
13	Secondary Wired Controller icon	This icon will be displayed when the wired controller is set as a secondary wired controller
14	Time Display	Displays the time

2 Basic Operations

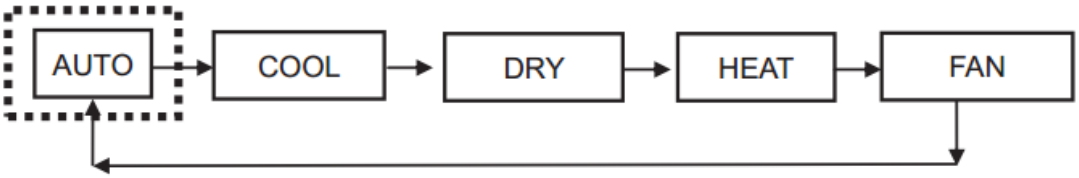
2.1 ON/OFF

Press ON/OFF  to turn the IDU ON/OFF. The LED is lit when the unit is turned ON as shown in the picture below:



2.2 Setting the MODE

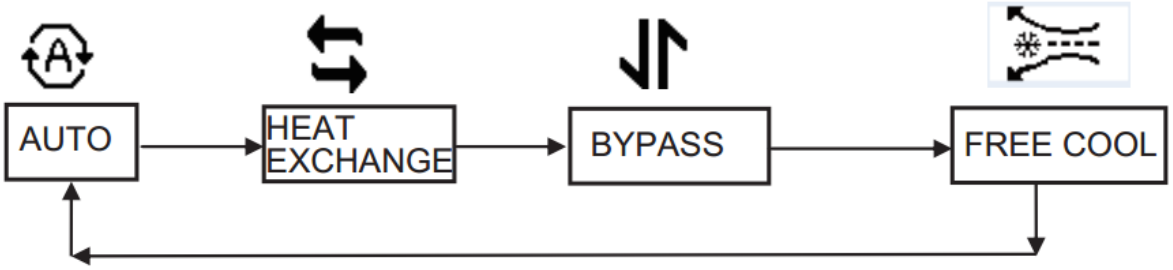
Press MODE  to set the mode of the IDU, as shown in the picture below:



Important points:

1. When the wired controller is connected to the IDU through the CN2 port , it has the above 5 operating modes by default.
2. When the wired controller is connected to the IDU through the X1X2 or D1D2 ports, the operating mode can be set for the wired controller depending up on the air conditioning system. When the wired controller is connected to the heat pump system, AUTO mode is not available.

Press MODE  to set the mode of the IDU, as shown in the picture below:



Note:

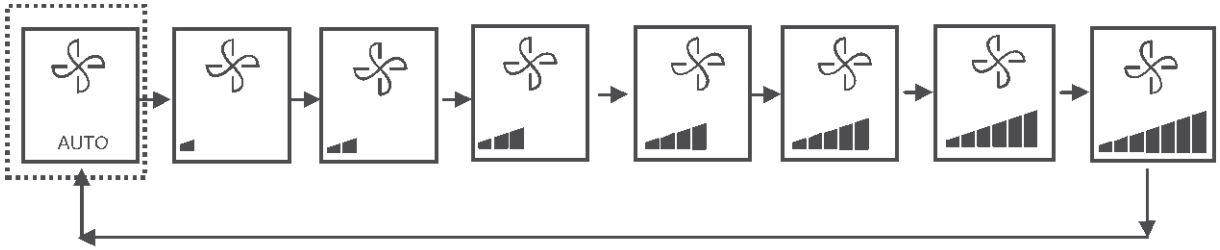
Connected with HRV

1. When the Auto Mode is selected, the fan speed is automatic and the fan speed selection button does not work.
2. When the “Heat Exchange”, “Bypass”, “Free Cooling” mode is selected, the fan speed can be set

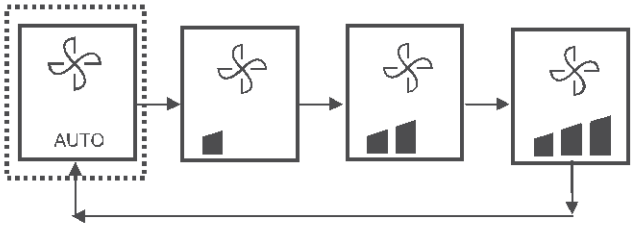
2.3 Setting the Fan Speed

In COOL, Heat or Fan mode, press Fan to change the fan speed. When the IDU supports 7 fan speeds, press Fan to set the fan speed circulation as shown in the picture below.

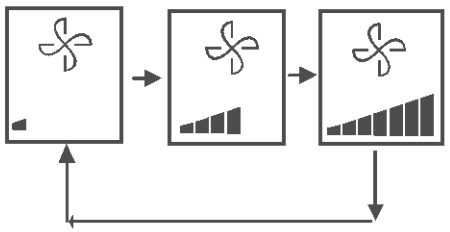
When the IDU supports 3 fan speeds, press FAN to set the fan speed circulation as shown in the picture below:



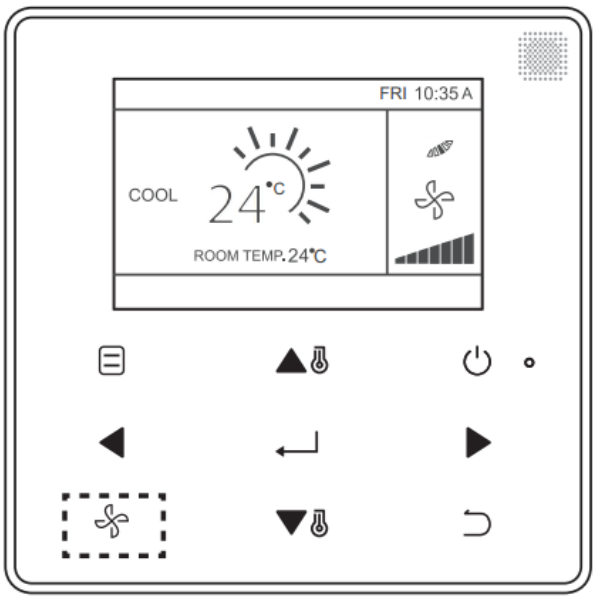
The sequence of 7 fan speeds



The sequence of 3 fan speeds

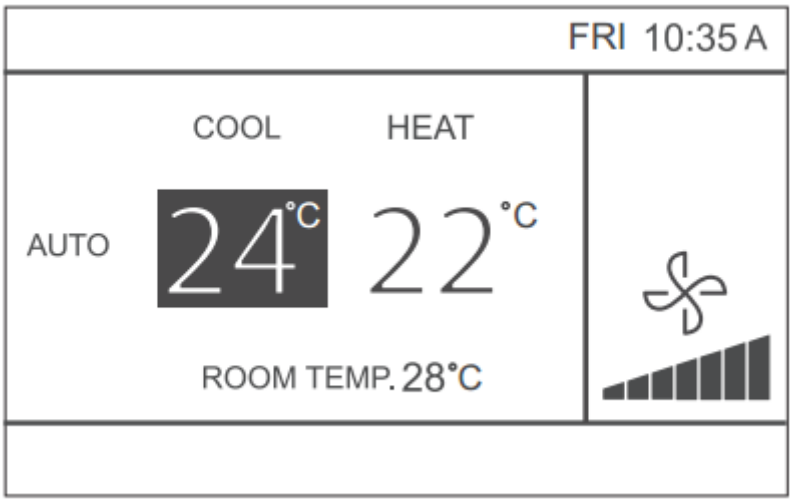


The sequence of 3 fan speeds of HRV Auto Fan



2.4 Setting the Temperature (For normal IDUs)

In the Auto, Cool, Dry or Heat mode, press TEMP UP ▲ or TEMP DOWN ▼ to adjust the temperature. In AUTO mode dual set point, adjust the set temperature for cooling when the COOL set temperature is highlighted as shown in the picture below:



Press the Left ◀ or Right ▶ button within 10 seconds to switch between the set temperatures for cooling and heating in AUTO mode

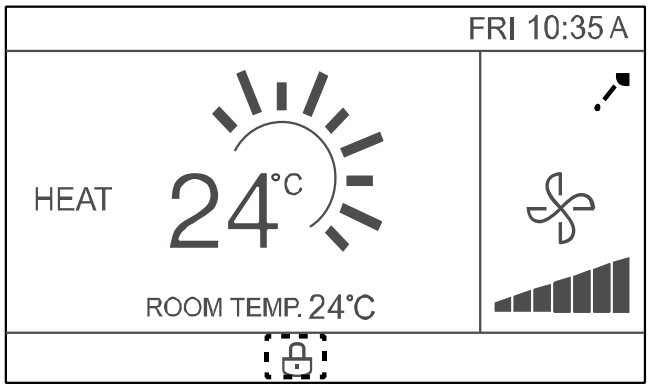
The set operation temperature range is 17°C ~ 30°C (62°F~86°F)

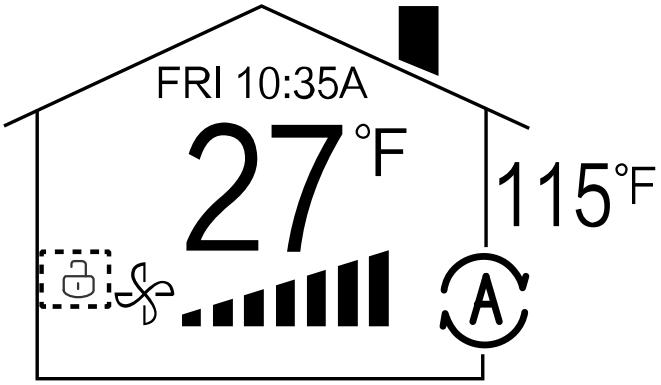
Important Points:

1. When the wired controller is connected to the IDU through the CN2 port, the automatic mode temperature of wired controller is set to single set point.
2. When the wired controller is connected to the IDU through the X1X2 or D1D2 port, the air conditioning system connected to the wired controller will decide whether the automatic mode temperature is set to single set point or dual set point.

2.5 Key lock

Press the BACK button for 3 seconds while the backlight is illuminated. The icon is displayed. All the buttons are disabled. Use the button now and the icon will flicker 3 times to prompt.



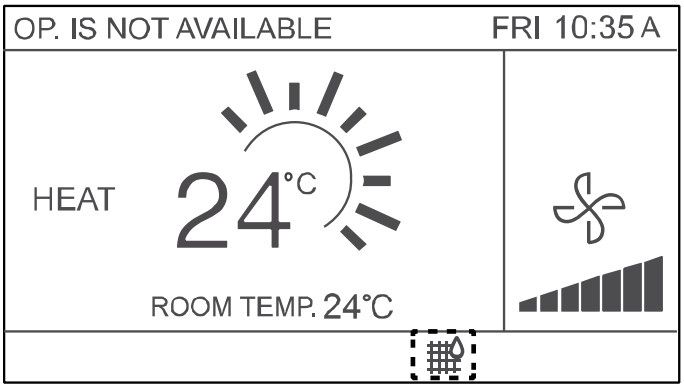


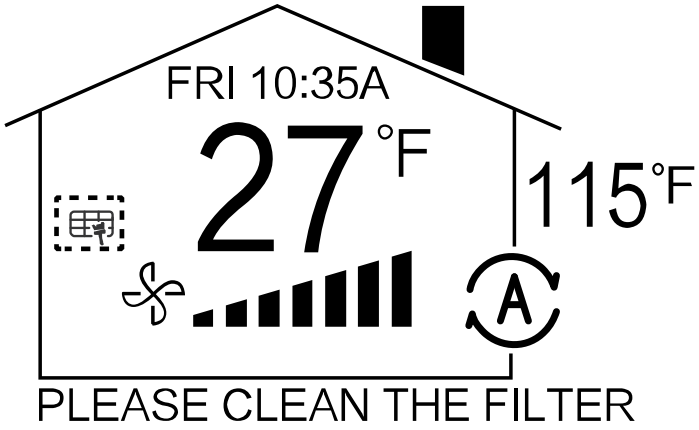
To cancel the key lock mode, hold BACK for 3 seconds while the backlight is already illuminated

2.6 Reset Filter Indicator

When it is to clean or replace the filter, the filter indicator will be displayed. Hold the fan speed button and Left

at the same time for 1 second to clear the icon display.

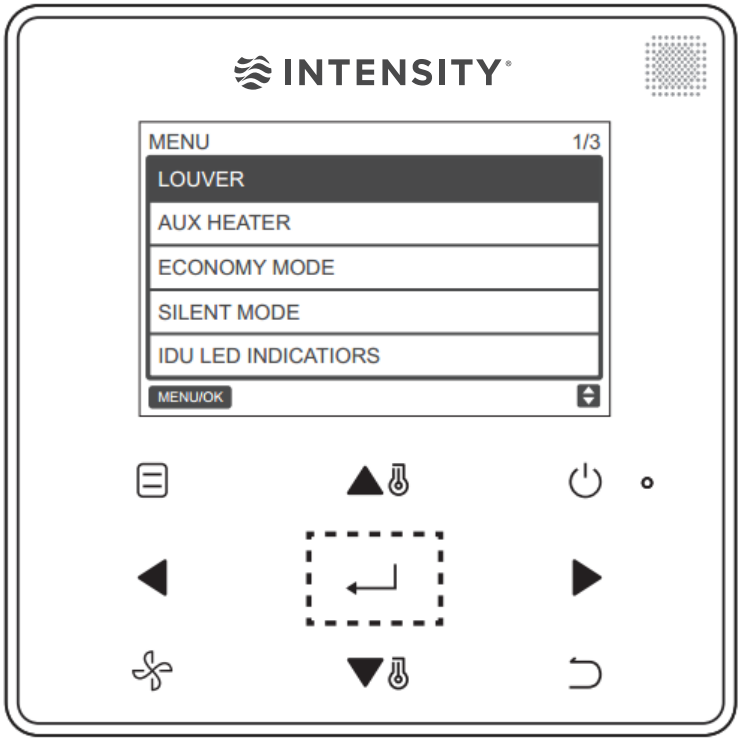




Wash, clean or replace the filter or element. For details, refer to the manual provided together with the indoor unit
For the HRV, if the pressure difference switch detects that the pressure difference is not proper, it means the filter needs to be cleaned/changed and then the pressure difference will be normal and then the clean filter icon will disappear.

3 Quick Reference Menu

Press the Menu/OK ↵ button to enter the Quick reference menu. Press TEMP UP ▲ and TEMP DOWN ▼ to select and item. Press MENU/OK ↵ to enter. On the last level of the menu, press MENU/OK ↵ to confirm and return to the homepage. Press BACK ⮌ to confirm and return to the previous level. If a button on the Menu interface is not pressed within 30 seconds, the system will return to the homepage. This menu provides the basic functions which can be operated by the end customer while operating the indoor unit.



The various functions that is available to be controlled by the Quick Reference menu of the controller may be listed as follows:

1. **Louver*:** This function is used to configure the airflow direction settings. The airflow direction louver is operated up and down (Left and Right). The fixed airflow directions of the vertical louver can be configured in five positions.
2. **Auxiliary Heater:** Used to set “AUTO”, “ON” or “OFF”
3. **Economy Mode:** Used to set “ON ” or “OFF”
4. **Silent Mode:** Used to set “ON” or “OFF”
5. **IDU LED Indicators:** Used to turn ON/OFF the IDU LED indicators.
6. **Temperature unit:** Used to select whether temperature values will be displayed in Celsius or Fahrenheit
7. **Timer:** This function is used to configure the timer to automatically Turn ON/OFF the unit.

8. **Schedule:** This function is used to create a weekly schedule which can be followed by the indoor units.

9. **Date and Time:** used to manage the date and time inside the controller.

10. **Daylight Saving Time:** Used to adjust the clock for daylight saving time.

11. **Room Temperature:** Used to set whether to display the indoor room temperature or not

12. **Wired Controller Lock:** This allows setting lock for the ON/OFF function, Mode function, temperature function and scheduling function.

13. **Keypress Tone:** Used to turn ON/OFF the keypad tones

14. **LED Indicator:** Use to enable or disable the function of LED indicator.

15. **Off Timer:** Used to do the Off Timer setting. After doing the off timer setting, the indoor unit will turn off after the set timing if it is turned on from the wired controller

16. **Sterilization:** If the sterilization function is available for the indoor unit, it can be turned on or turned off using this setting

17. **Language:** There are 4 languages available for the controller, using this setting the language for the wired controller maybe changed. The four languages available for the wired controller are English, Polish, Spanish and French

Important Points

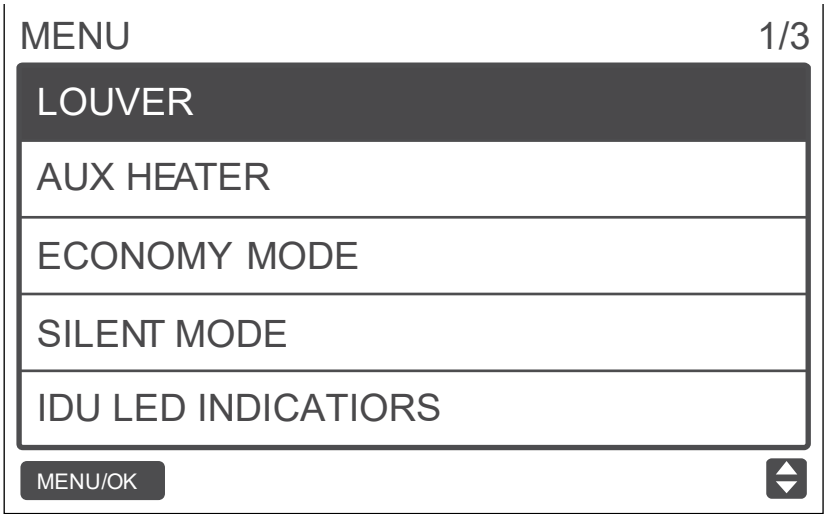
***This function is not available on all models.

1. If two remote controllers are in control of a single indoor unit, the following menu items cannot be set in the secondary controller. In this case, the following items should be configured with the main remote controller only
That is : Temperature unit , Timer function, Schedule, Daylight Saving Time, Wired Controller Lock

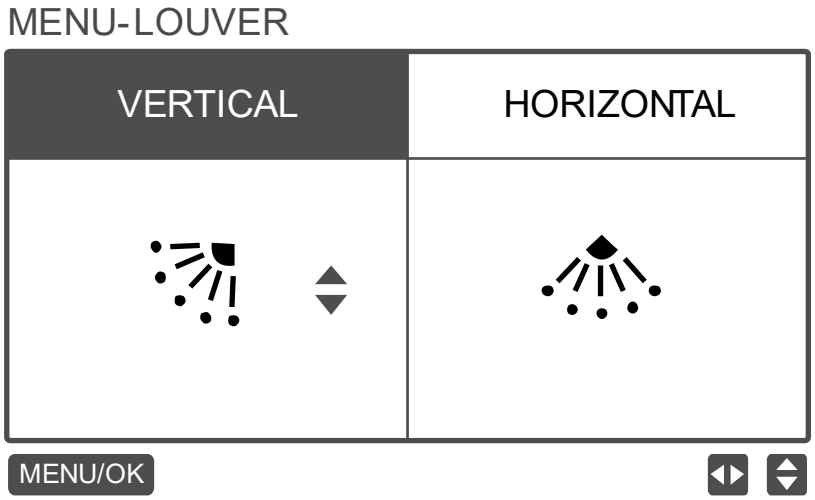
2. There is no schedule function when the wired controller is connected through the CN2 port of the IDU.

3.1 LOUVER

The first Quick Reference Menu function available for the customer is LOUVER. For using the LOUVER function of the controller, the IDU must have an integrated LOUVER.

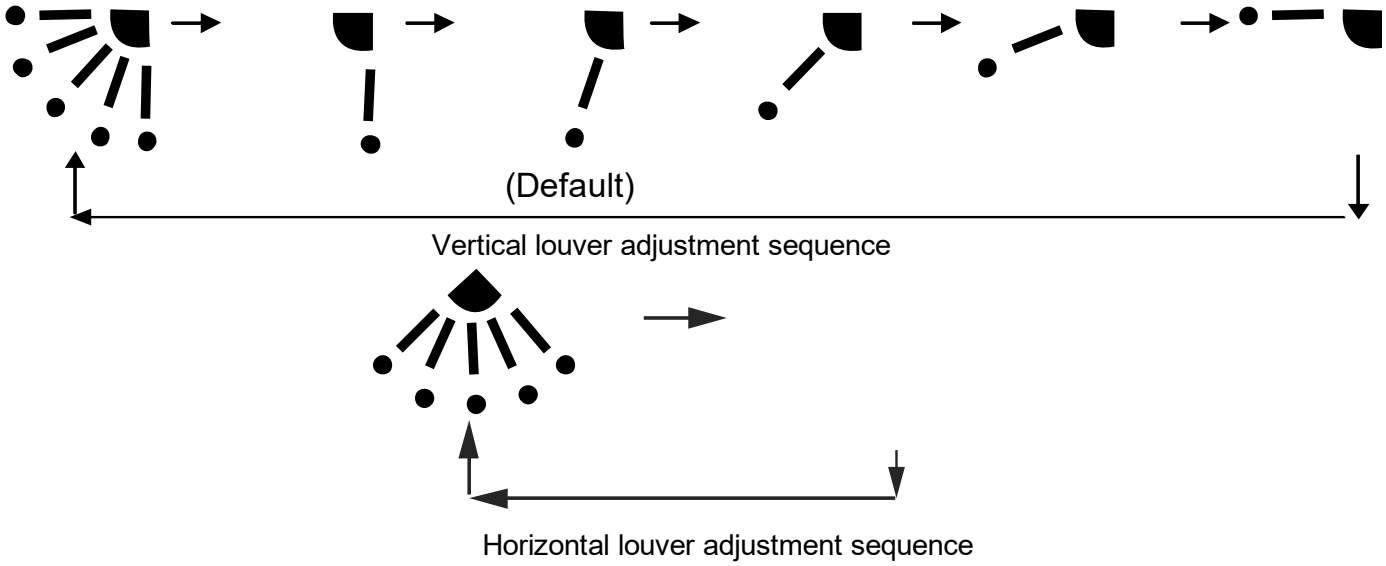


Choose LOUVER on the menu interface and press MENU/ OK ↵ , to enter the louver settings as shown in the picture below.



Press the Left and right button to switch between the horizontal and vertical louver settings. Press TEMP UP ▲ and TEMP DOWN ▼ to set the louver status. If the IDU does not support horizontal swing, only vertical swing can be set.

The figures below show the vertical and horizontal louver sequence respectively.



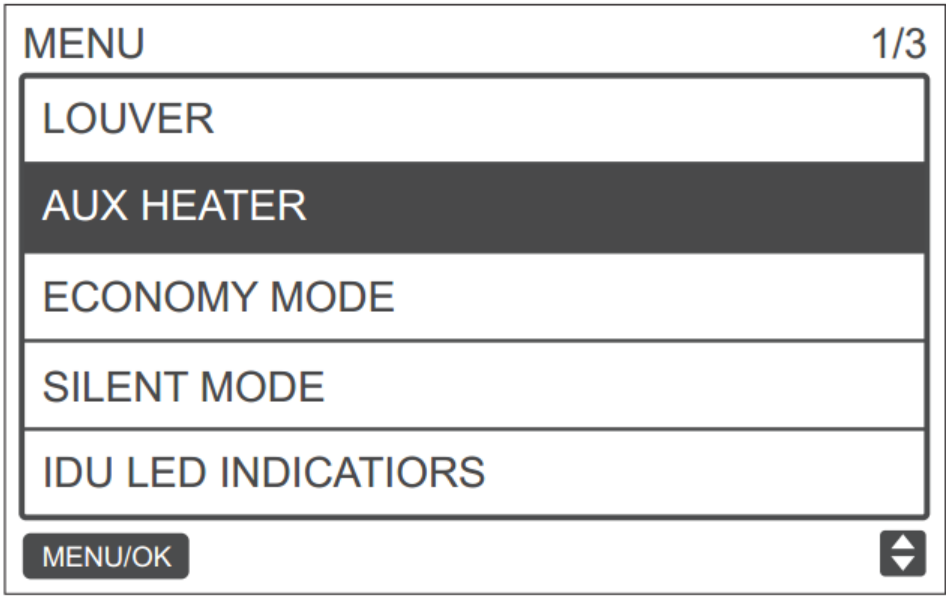
Vertical louver adjustment sequence

Horizontal louver adjustment sequence

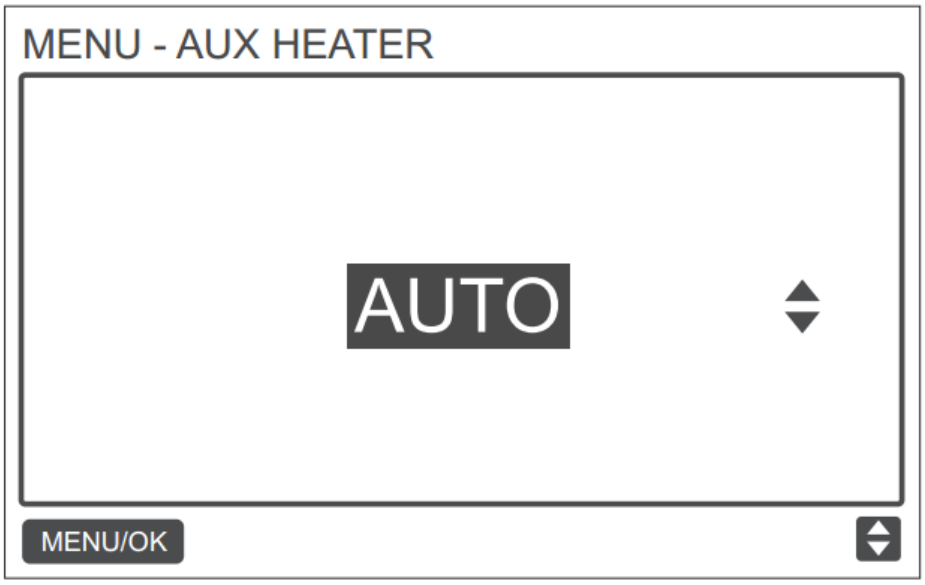
Horizontal louver will move the louvers from left to right ion a pre-determined fashion. This pattern is non-adjustable.

3.2 AUX HEATER

The second quick reference menu available for the customers is Auxiliary heater. When the IDU supports E-heat and the wired controller is ON, the AUX HEATER function can be set in the heating modes. Choose AUX HEATER on the menu interface as shown below and press MENU/OK ↵ to enter this setting.

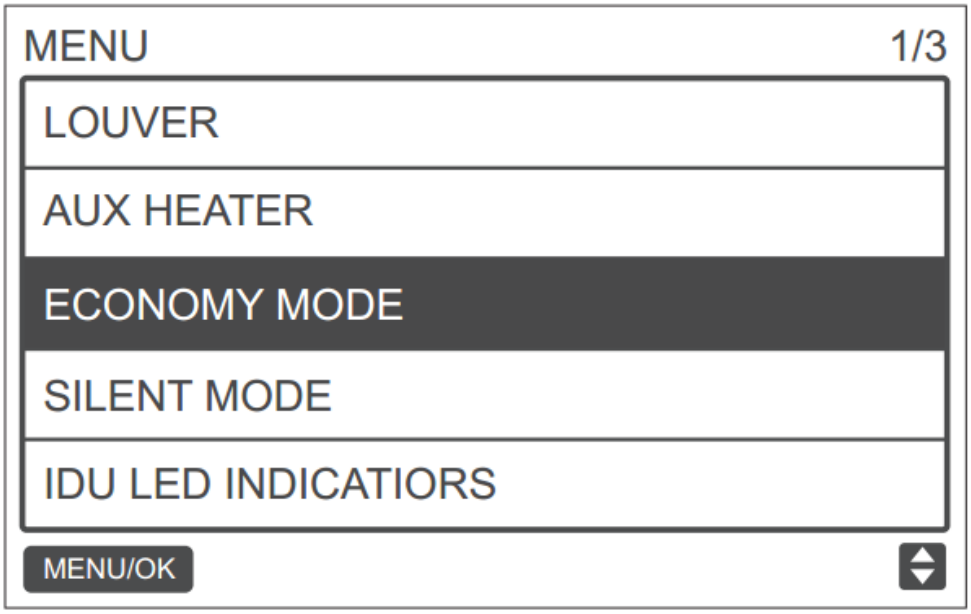


Press TEMP UP ▲ or TEMP DOWN ▼ to set whether the aux heater is AUTO, ON or OFF as shown in the picture below. When set to AUTO, the ON/OFF state of E-heat depends up on AUX HEATER activation temperature setting in service menu (Service Menu- IDU Configuration- Aux Heater) and the operation state of IDU and ODU, despite the AUX HEATER activation temperature setting in service menu.

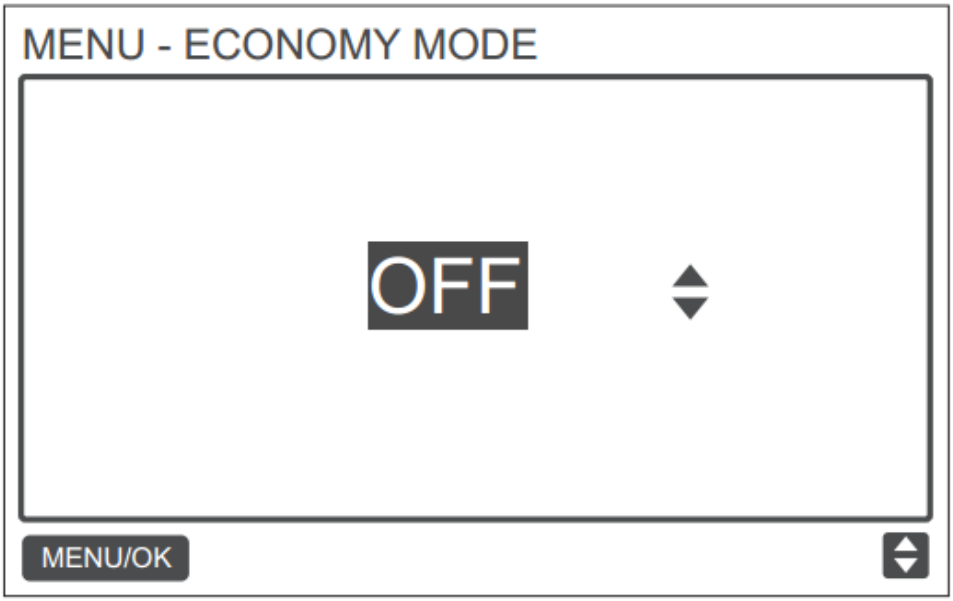


3.3 ECONOMY MODE (Except HRV)

The third option available in the quick reference menu is ECONOMY MODE. When the IDU supports the ECONOMY MODE and the wired controller is ON, the ECONOMY MODE can be set for operation in cooling and heating modes, Choose ECONOMY MODE on the menu interface as shown below and press MENU/OK ↵ to enter this setting.

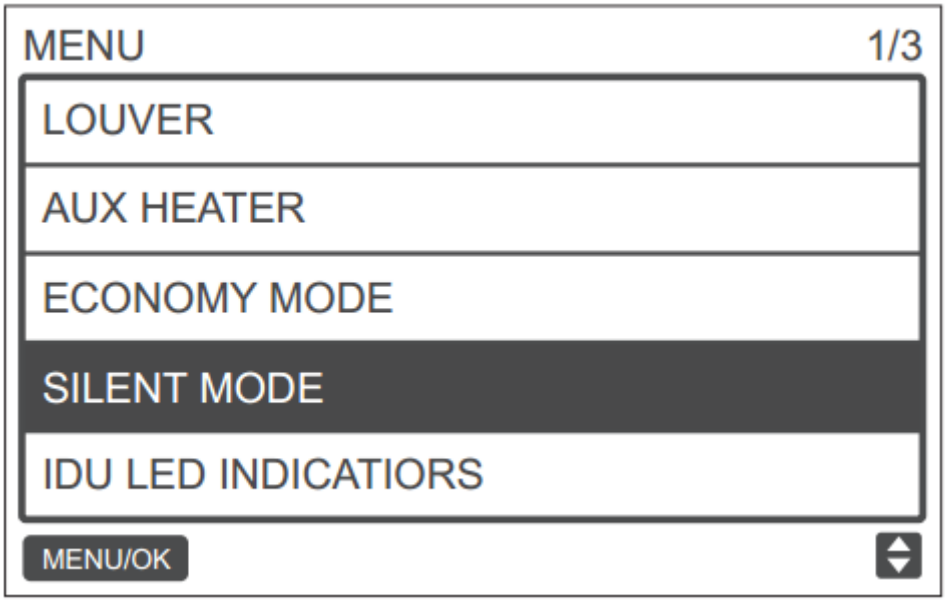


Press the TEMP UP ▲ OR TEMP DOWN ▼ button to set the economy mode as ON or OFF as shown in the picture below:

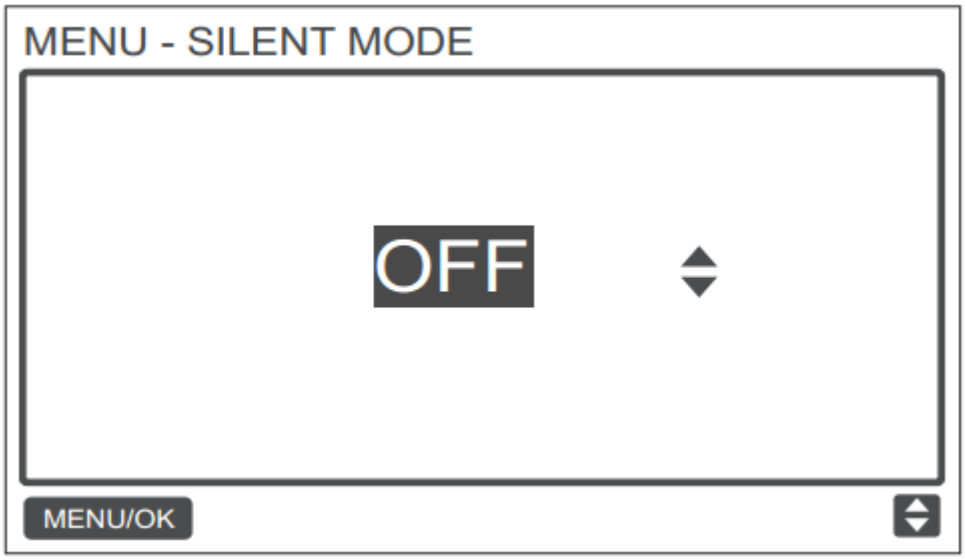


3.4 SILENT MODE

The fourth option on the Quick reference menu is Silent Mode. When the IDU supports the Silent Mode and the wired controller is ON, silent mode can be set for operation in cooling mode and heating mode. Choose Silent Mode on the menu interface as shown below and press MENU/OK ↵ to enter this setting

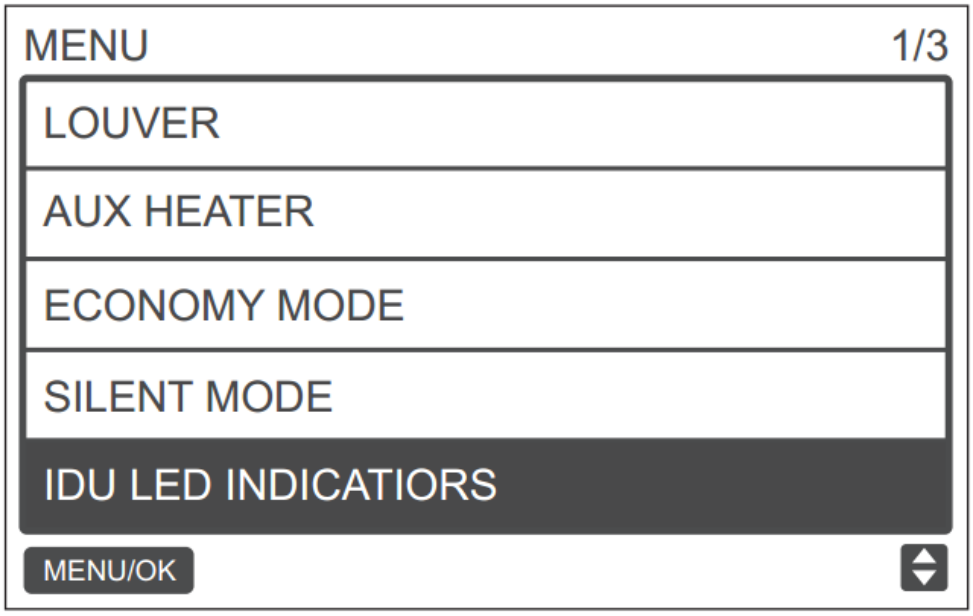


Press TEMP UP ▲ or TEMP DOWN ▼ to set whether the silent mode is ON or OFF as shown below.

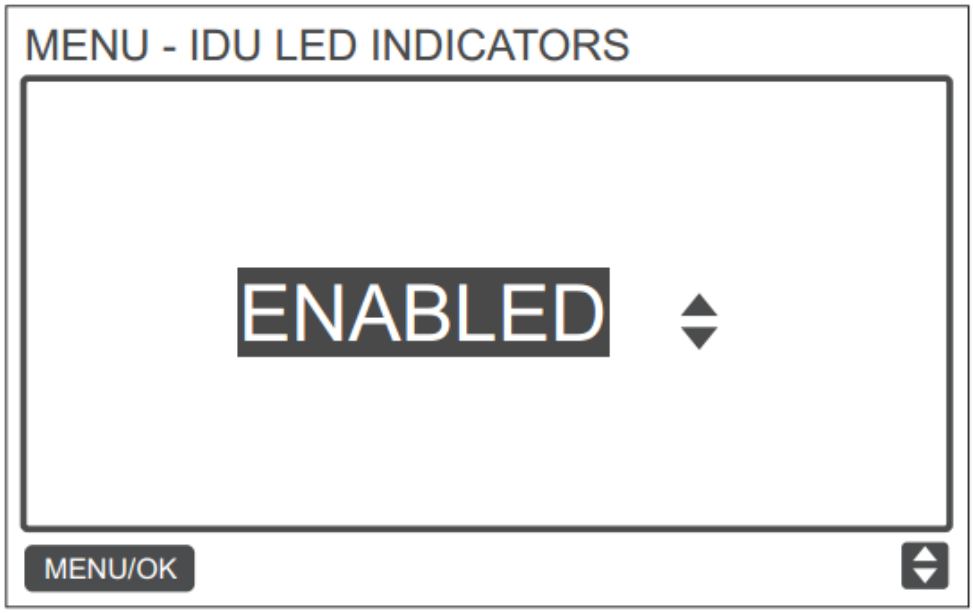


3.5 IDU LED INDICATORS

The fifth setting on the Quick reference menu of the wired controller is IDU LED Indicators.

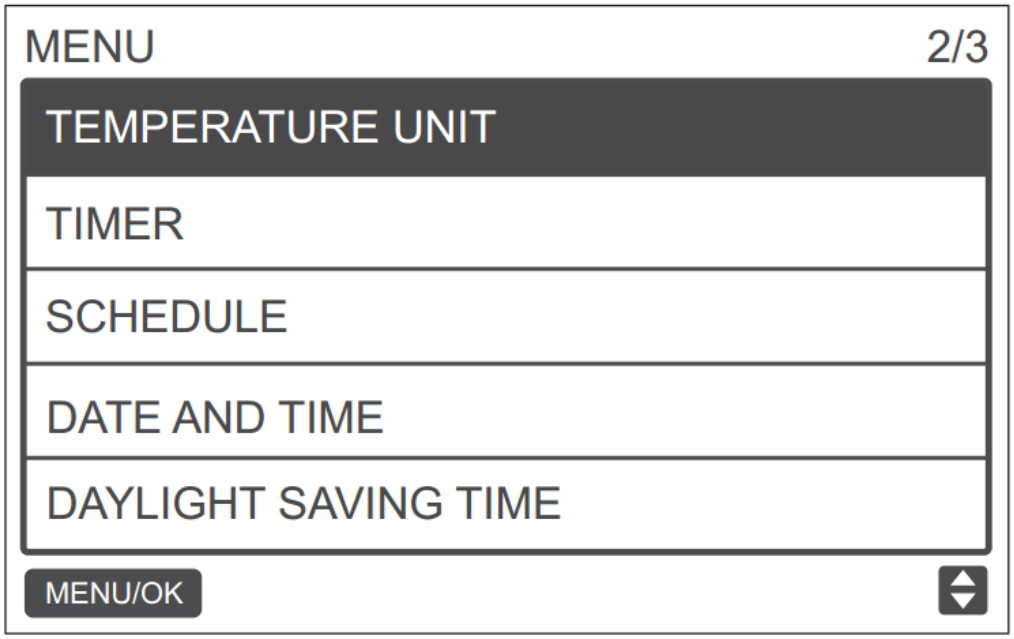


When the IDU LED setting is enabled, the LED turns ON when the IDU starts. Choose IDU LED indicators on the menu interface as shown in the picture above and press MENU/OK ↵ to enter this setting. Press TEMP UP ▲ or TEMP DOWN ▼ to set whether the LED is ENABLED or DISABLED as shown in the picture below:

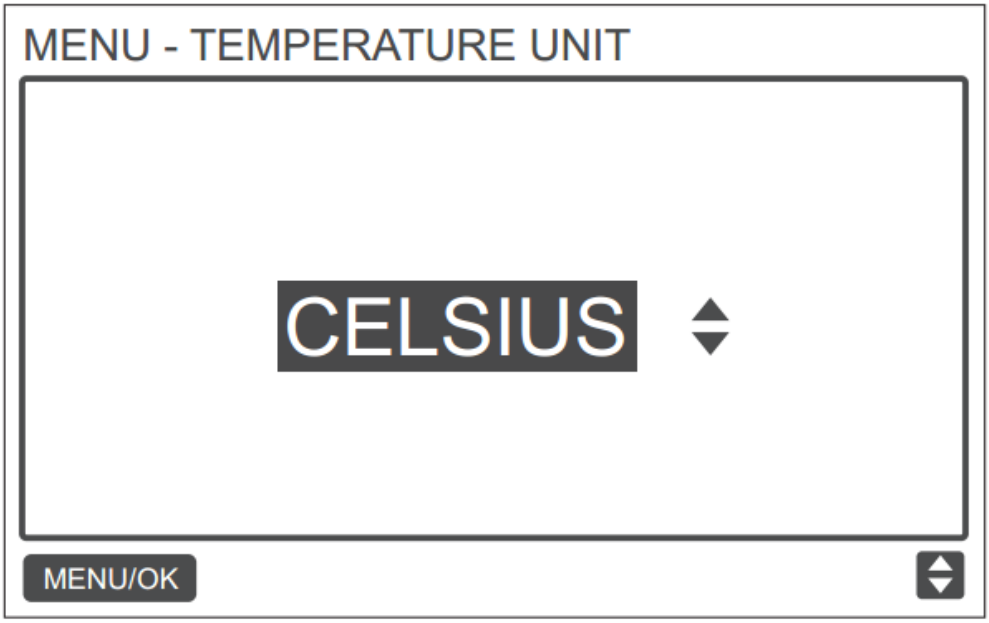


3.6 TEMPERATURE UNIT

This is the sixth setting on the quick reference menu. Using this setting, we can set the temperature unit being displayed on the wired controller. Choose TEMPERATURE UNIT on the menu interface as shown below and press MENU/OK ↵ to enter this setting.

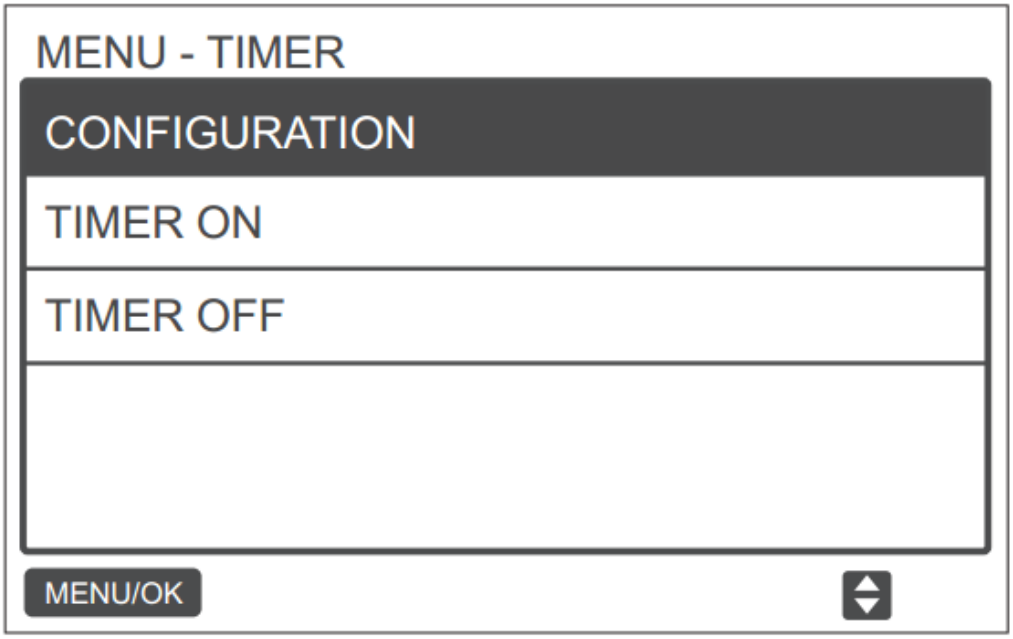


Press TEMP UP ▲ or TEMP DOWN ▼ to select between Celsius and Fahrenheit as shown in the picture below:



3.7 TIMER

The seventh function available on the quick reference menu of the controller is TIMER. Choose TIMER on the menu interface and press MENU/OK ↵ to enter this setting. Choose CONFIGURATION in the schedule level 1 menu and press MENU/OK ↵ to enter this setting.



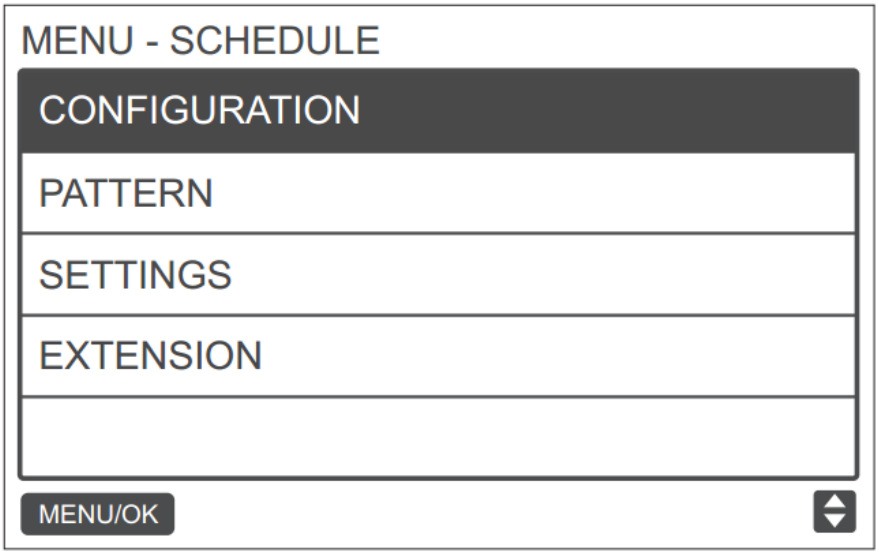
Press the TEMP UP ▲ or TEMP DOWN ▼ to select DISABLED or ENABLED for the timer as shown in the picture below. Press MENU/OK ↵ to confirm and return to the homepage. Press Back ⮌ to confirm and return to the previous level.

3.8 SCHEDULE

It is the eighth function on the quick reference menu. This function lets us to set a schedule for the various indoor units. Make sure that the clock is set before setting the schedule. Choose SCHEDULE on the menu interface and press MENU/OK ↵ to enter this setting.

1. CONFIGURATION:

Choose CONFIGURATION in the schedule menu as shown in the figure below and press MENU/OK ↵ to enter this setting.

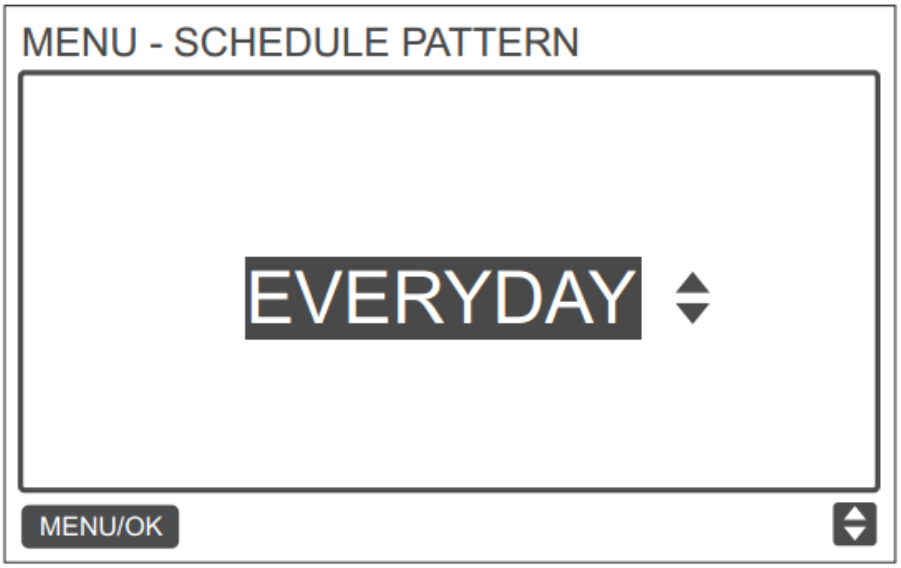


Press TEMP UP ▲ or TEMP DOWN ▼ to select between DISABLED, SIMPLE or STANDARD for the weekly schedule.. Press MENU/OK ↵ to confirm and return to the previous level.

SIMPLE: Requires simply to set the time to Turn On/Turn Off the units
STANDARD: Requires setting the timer, time ON/OFF, mode, fan speed and set temperature.

2. PATTERN

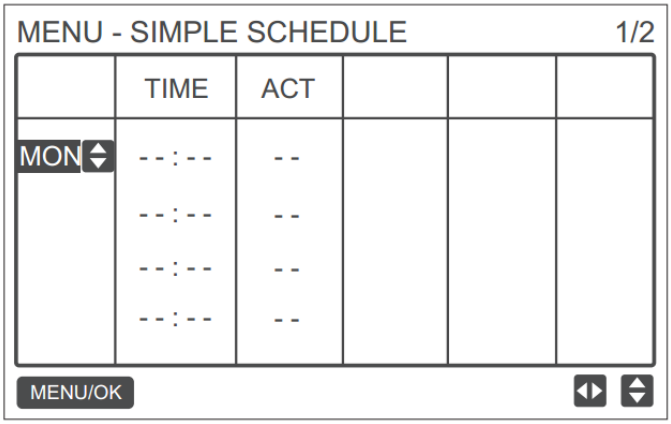
Choose daily pattern in this menu and press MENU/OK ↵ to open the menu. Press TEMP UP ▲ or TEMP DOWN ▼ to select the daily pattern as shown in the picture below.



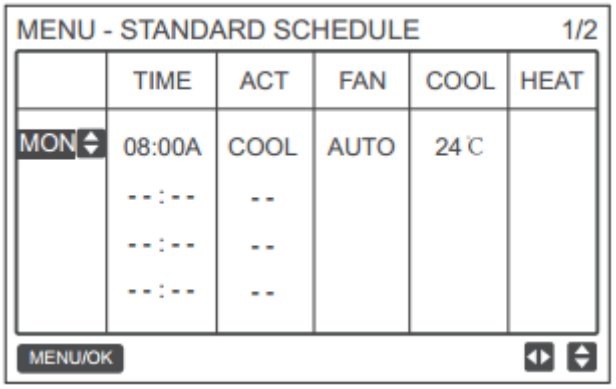
No.	Button	Description
1	EVERYDAY	Sets the schedule for each day from Monday to Sunday separately.
2	5+2	Sets a schedule for Monday to Friday and a separately schedule for Saturday and Sunday
3	6+1	Sets one schedule for Monday to Saturday and a separate schedule for Sunday
4	Weekly	Sets one schedule from Monday to Sunday

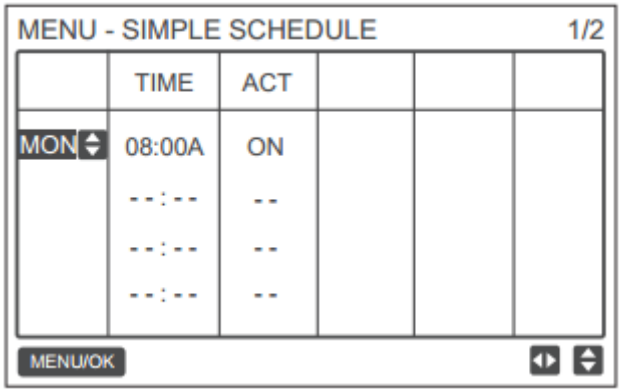
3. SETTINGS

Choose SETTING in the schedule menu and press MENU/OK ↵ to open the schedule settings as shown in the picture below. Press the Left ◀ or Right ▶ to move the cursor.



Press TEMP UP and TEMP DOWN to adjust the parameters. The parameters which can be set are shown below:



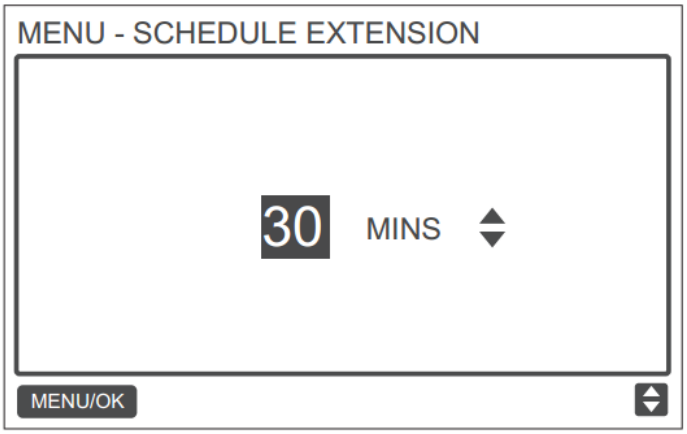


Parameter	Description
WEEK	Selects the specific day for timer settings
TIME	Sets the timer. Up to 8 time points can be set for each day
ACT	Sets automatic ON/OFF and the running mode
FAN	Sets the fan speed
COOL	When AUTO or COOL mode is set, sets the cooling temperature value
HEAT	When AUTO or HEAT mode is set, sets the heating temperature value

After setting the schedule, press MENU/OK ↵ to confirm and return to the homepage. Press BACK to confirm the setting and return to the previous level.

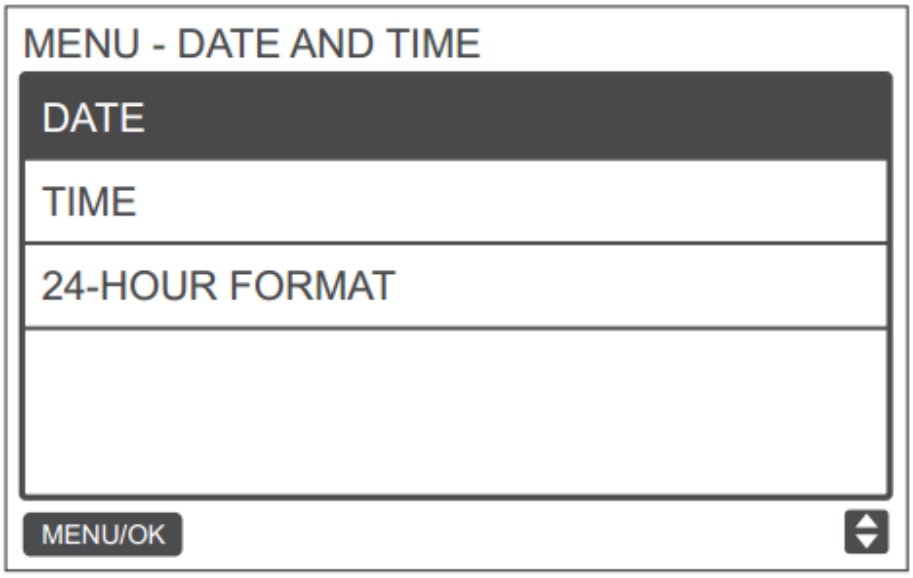
4. EXTENSION

The EXTENSION function can only be set when the weekly schedule is enabled.
The EXTENSION function will set the amount of time by which the settings can be extended before returning to the predetermined schedule pattern. Choose EXTENSION in the schedule menu and press MENU/OK ↵ to enter this setting. Press TEMP UP ▲ or TEMP DOWN ▼ to adjust the extension time to any of the following values: 30 min, 60 min, 90 min, 120 min, 150 min, 180 min and NONE (cancels extension) as shown in the picture below:



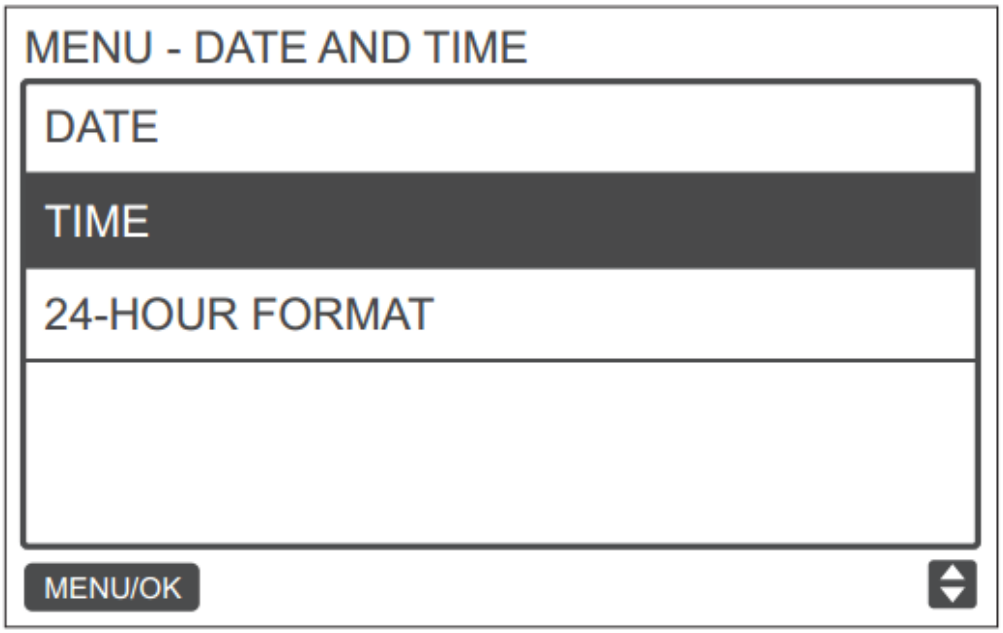
3.9 DATE AND TIME

This is the ninth function on the Quick reference menu. Choose Date and Time on the menu interface and press MENU/OK ↵ to enter this setting.

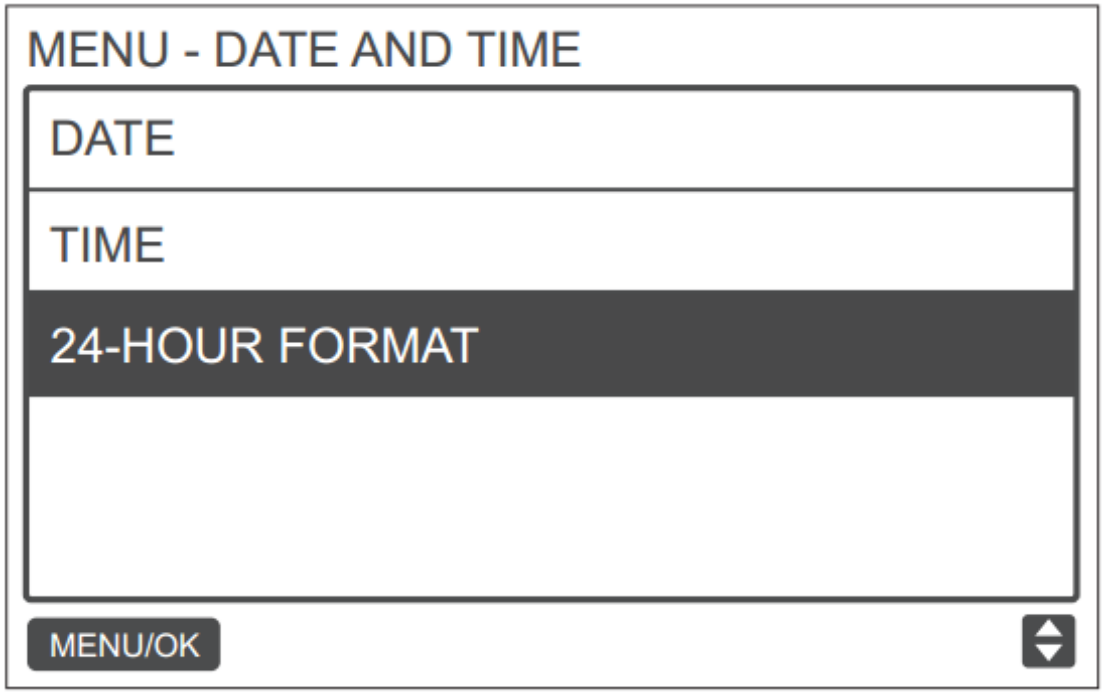


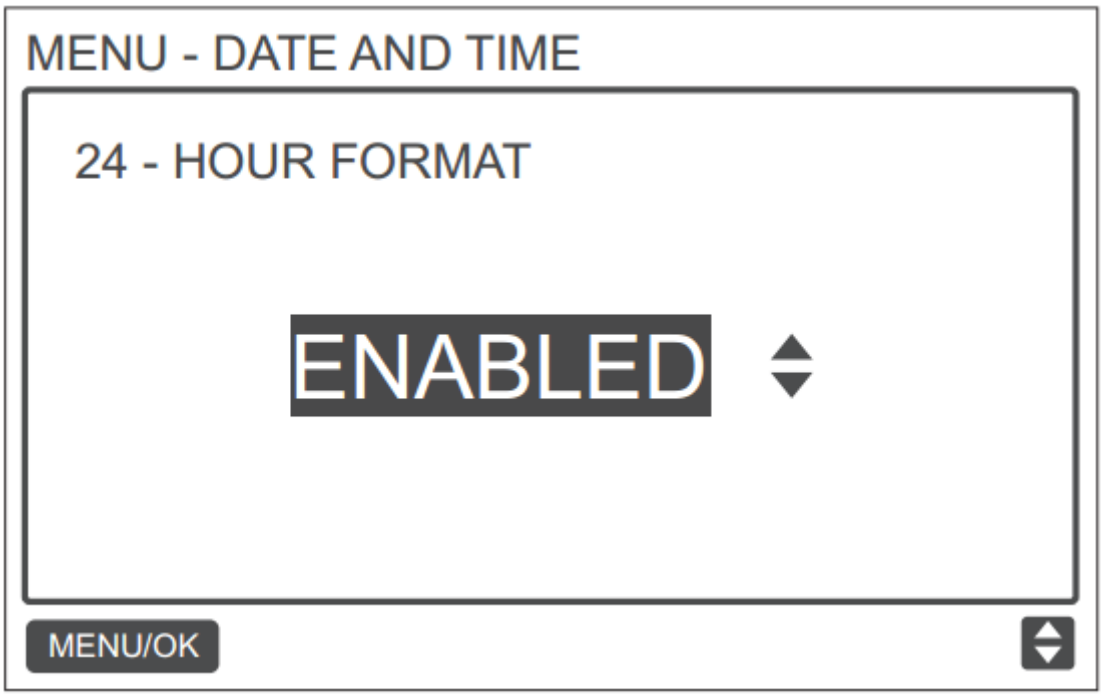
Press the LEFT ◀ or RIGHT ▶ button to move the cursor and press TEMP UP ▲ or TEMP DOWN ▼ to set the date as shown in the picture below.

Open the TIME setting and press the LEFT ◀ or RIGHT ▶ button to move the cursor and press TEMP UP ▲ or TEMP DOWN ▼ to set the time as shown in figure below:



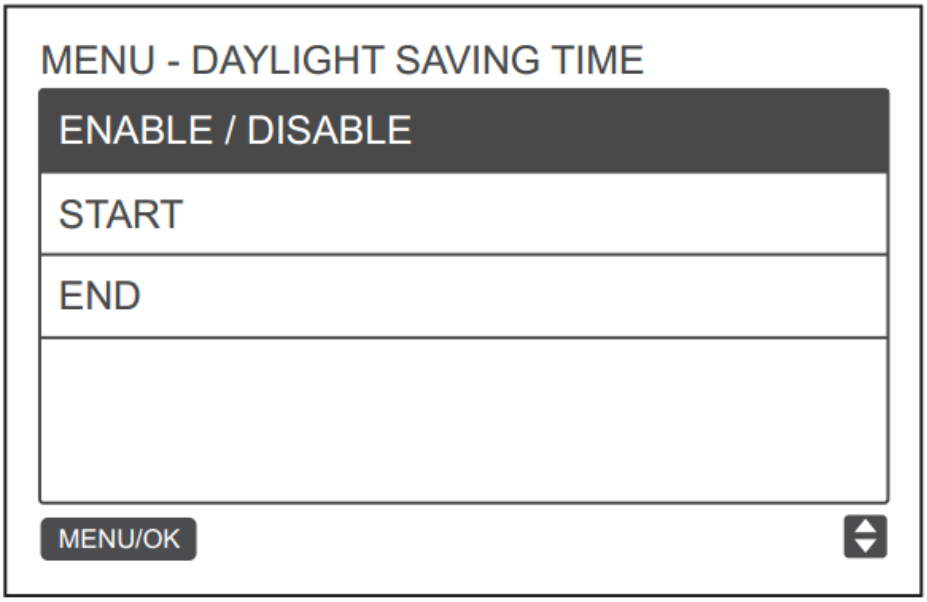
Open 24-HOUR FORMAT and press TEMP UP or TEMP DOWN to select the time format, as shown in the picture below. When it is disabled, the controller will use the 12-hour format.


MENU - DATE AND TIME
DATE
TIME
24-HOUR FORMAT
MENU/OK


MENU - DATE AND TIME
24 - HOUR FORMAT
ENABLED
MENU/OK

3.10 DAYLIGHT SAVING TIME

This is the tenth function on the quick reference menu. When enabled, the clock automatically moves forward by an hour at 2 a.m. on the specified start date and it goes back by an hour at 2 a.m. on the specified end date. Choose DAYLIGHT SAVING TIME on the menu interface and press MENU/OK ↵ to enter this setting as shown below:



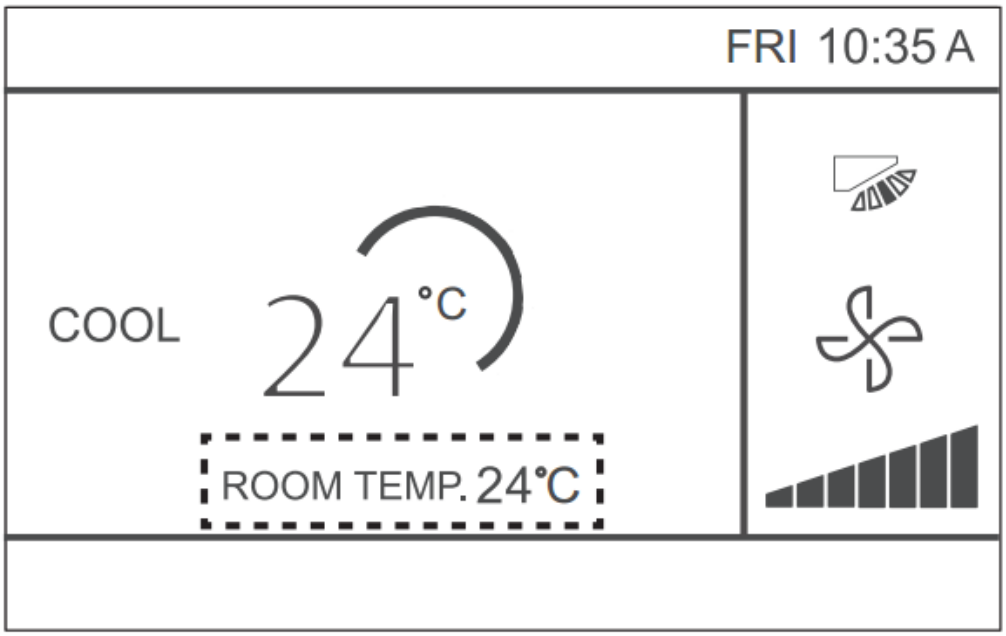
ENABLE/DISABLE: Press TEMP UP ▲ or TEMP DOWN ▼ to enable or disable the daylight saving time.

START: Use the cursor to choose START and press MENU/OK ↵ to enter the setting. Press the LEFT or RIGHT button to move the cursor and press TEMP UP or TEMP DOWN to set the start time for daylight saving as shown in the picture below:

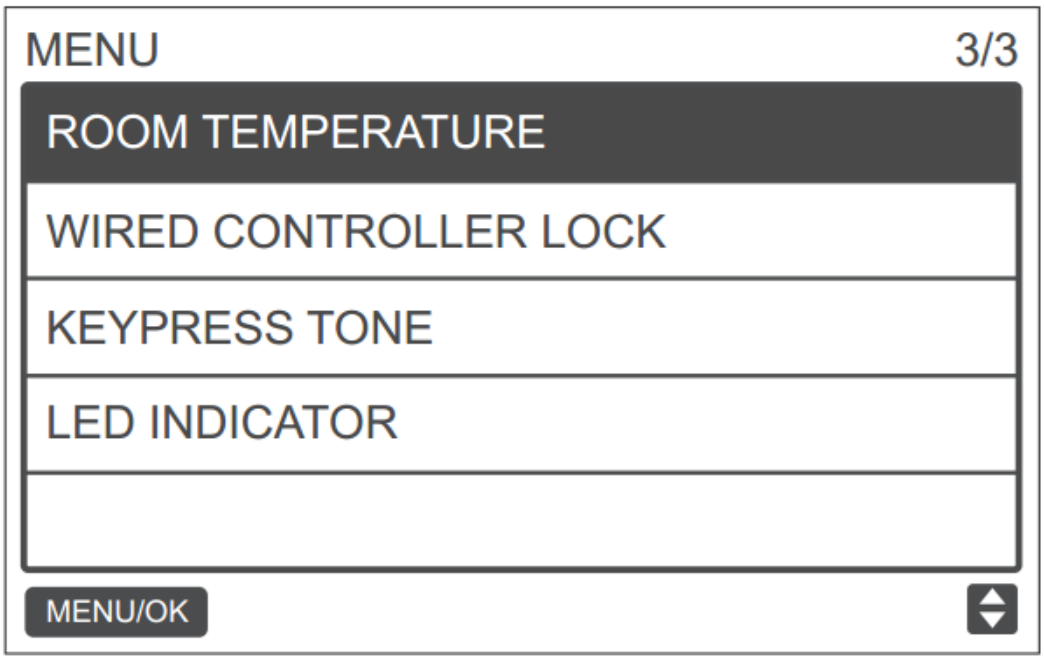
END: Use the cursor to choose END and press MENU/OK ↵ to enter this setting. Press the LEFT or RIGHT button to move the cursor and TEMP UP or TEMP DOWN button to set the end time for daylight saving time as shown in the picture below:

3.11 ROOM TEMPERATUTRE (Except HRV)

When the room temperature display is set, the current room temperature will be displayed on the homepage as shown in the picture below:



Choose ROOM TEMPERATURE on the menu interface as shown in the picture below and press MENU/OK ↵ to enter this setting.



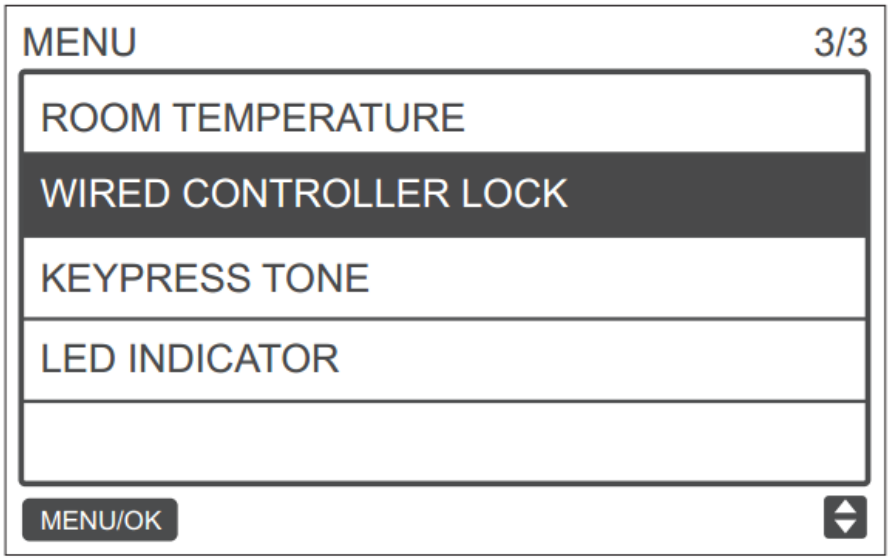
Press TEMP UP and TEMP DOWN to select whether to display the indoor temperature on the main screen.

3.12 WIRED CONTROLLER LOCK

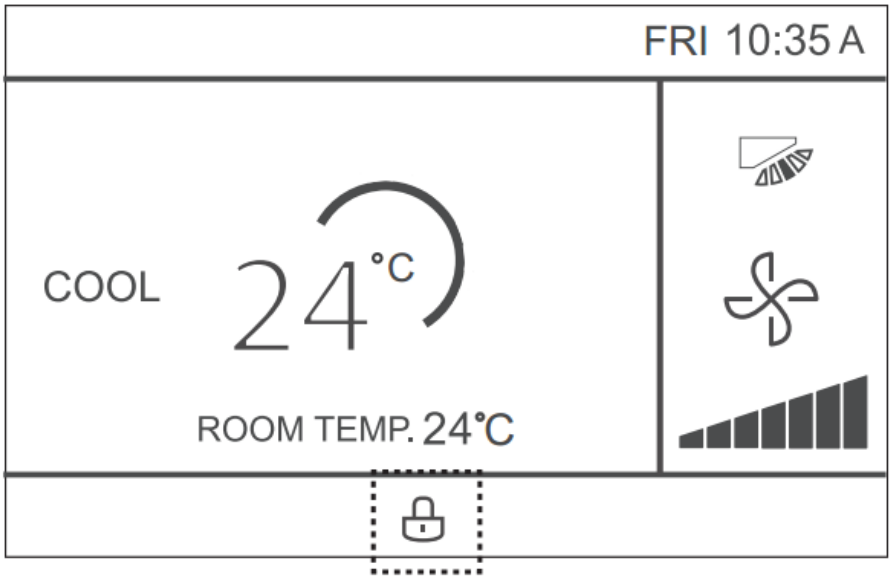
The wired controller can lock the following functions on the IDU and as a result they cannot be adjusted by the user from the remote controller.

1. Switch ON/OFF function
2. Running Mode
3. Temperature Setting
4. Fan Speed Setting
5. Schedule Setting

Choose WIRED CONTROLLER LOCK on the menu interface as shown in the picture below and press MENU/OK to enter this setting.



When ON/OFF, MODE, TEMPERATURE, FAN SPEED or SCHEDULE are locked, the lock icon will display on the homepage as shown below:

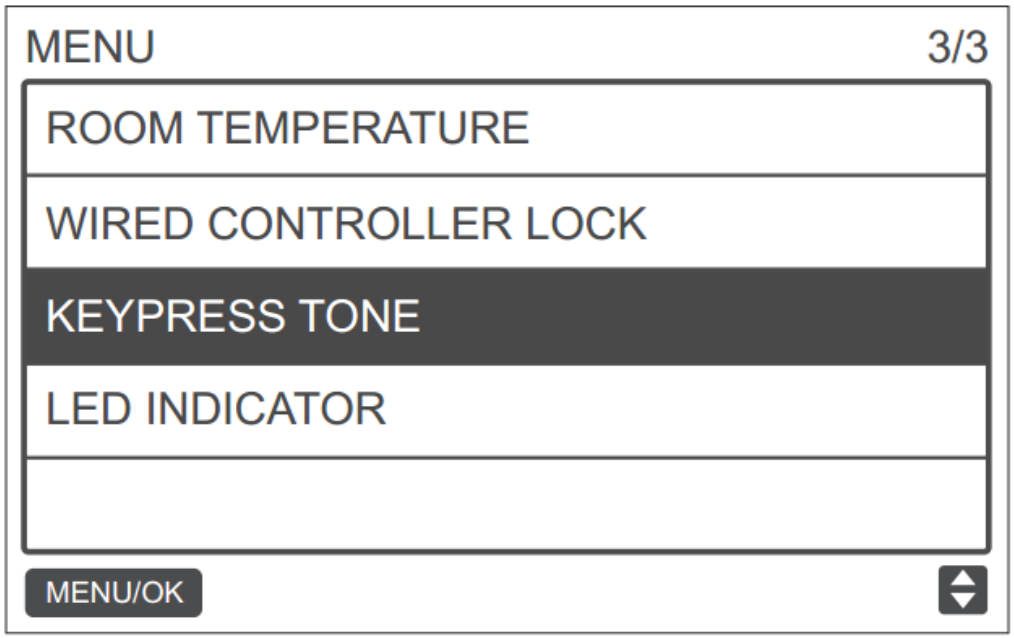


The unit cannot be switched ON/OFF using the ON/OFF button when the ON/OFF is locked. When we press ON/OFF while the unit is locked, the screen would display the following message for 2 seconds.

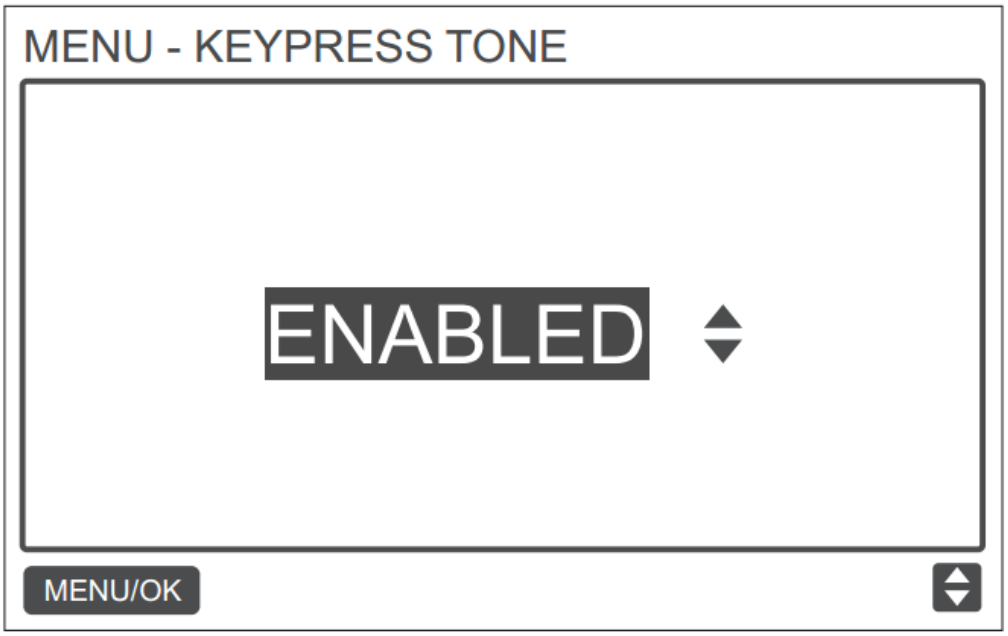
"OP. IS NOT AVAILABLE"

3.13 KEYPRESS TONE

This is the thirteenth function on the quick reference menu. Choose KEYPRESS TONE on the menu interface as shown in the picture below to enter this setting.

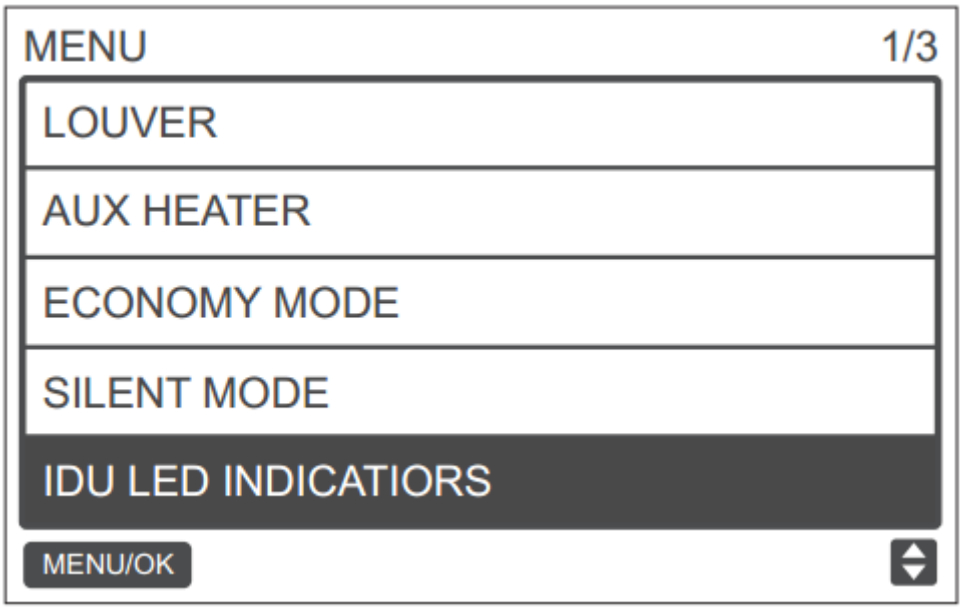


Press TEMP UP or TEMP DOWN to set the KEYPRESS TONE ENABLED or DISABLED as shown in the picture below:

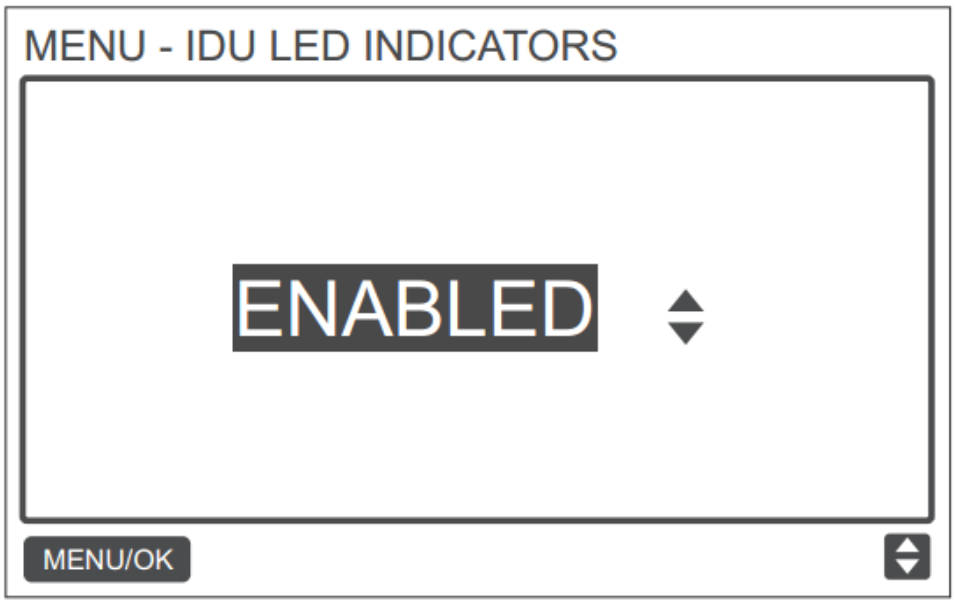


3.14 IDU LED INDICATORS (Except HRV)

This is the last function on the quick reference menu. When the IDU LED setting is enabled, the LED turns ON when the IDU starts. Choose IDU LED INDICATORS on the menu interface as shown in the picture below and press MENU/OK ↵ to enter this setting.

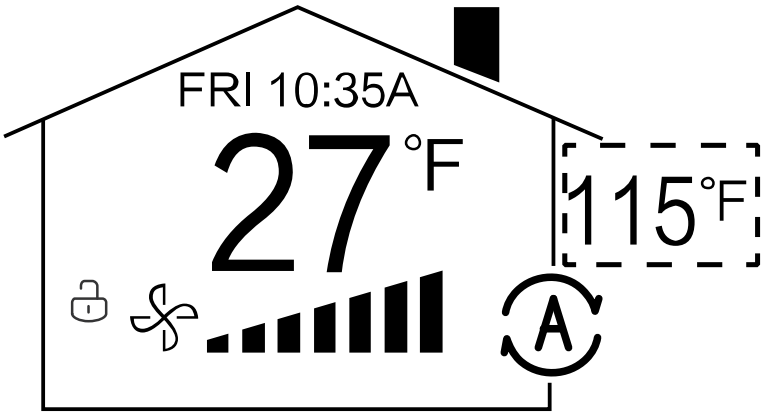


Press TEMP UP or TEMP DOWN to set whether the LED is ENABLED or DISABLED as shown in the picture below:

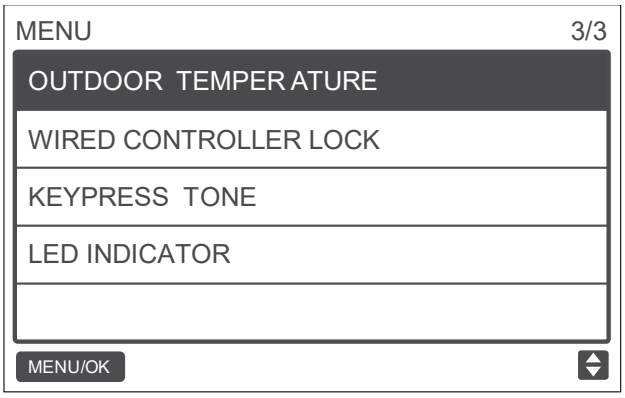


3.15 Outdoor Temperature Display (For HRV Only)

When the outdoor temperature display is set, the current outdoor temperature will be displayed on the homepage as is shown in the figure below:



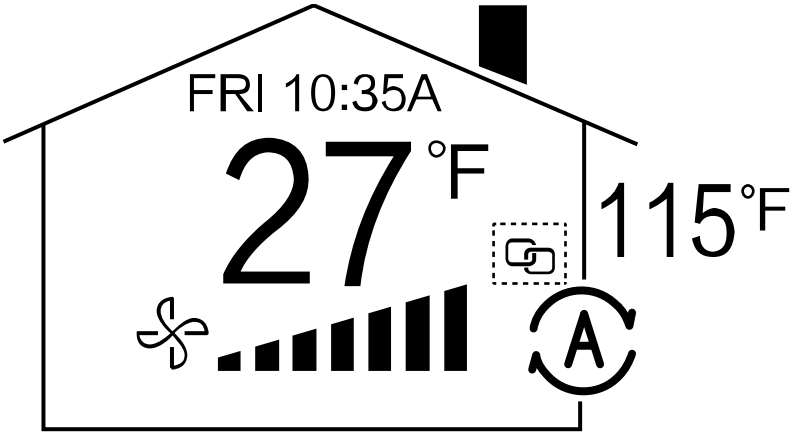
Choose OUTDOOR TEMPERATURE on the menu interface as shown in the figure below and press MENU/OK ↵ to enter this setting.



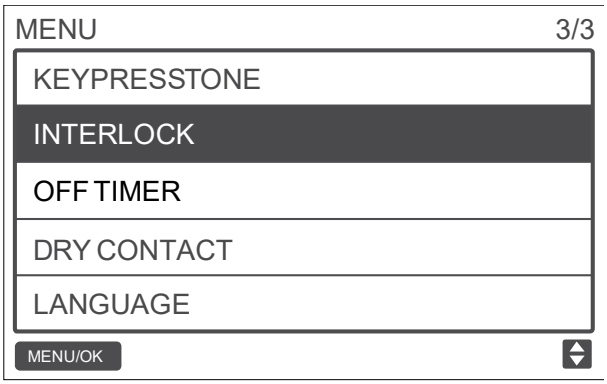
Press TEMP UP ▲ and TEMP DOWN ▼ to select whether to display the outdoor temperature or not

3.16 Interlock Function (For HRV only)

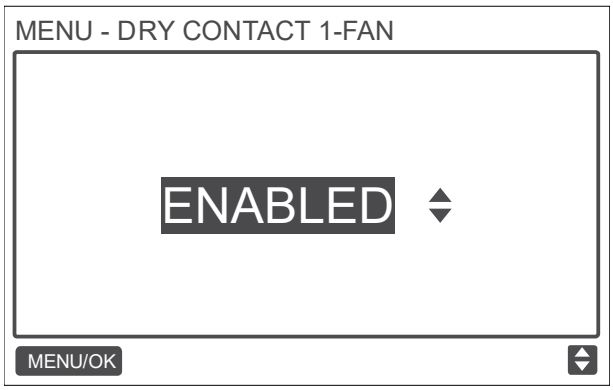
When the interlock function display is set, the current outdoor temperature will be displayed on the homepage as is shown in the picture below. HRV needs to connect via PQE to VRF system and switch SW1-2 on HRV PCB needs to set to group control mode.



Enter the Interlock menu as is shown in the figure below:

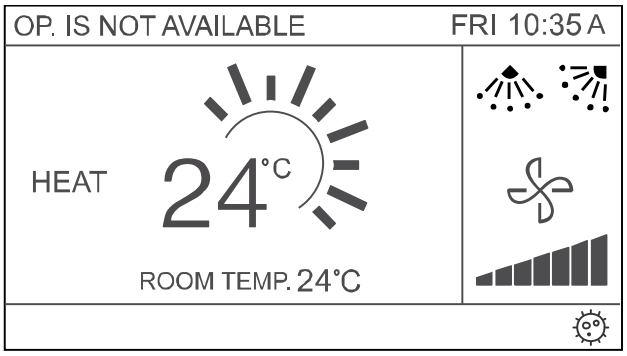


Press TEMP UP ▲ and TEMP DOWN ▼ to set the INTERLOCK ENABLED or DISABLED as shown in the figure below:

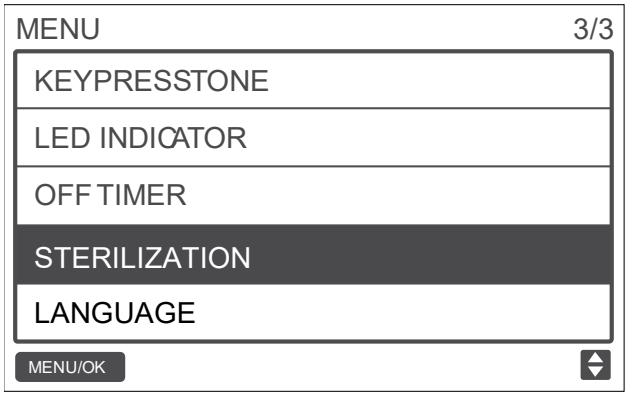


3.17 Sterilization Function

When the Sterilization Function display is set, the icon will be displayed on the homepage as is shown in the picture below. If an IDU does not have Sterilization Function, this function of the wired controller will not be available.

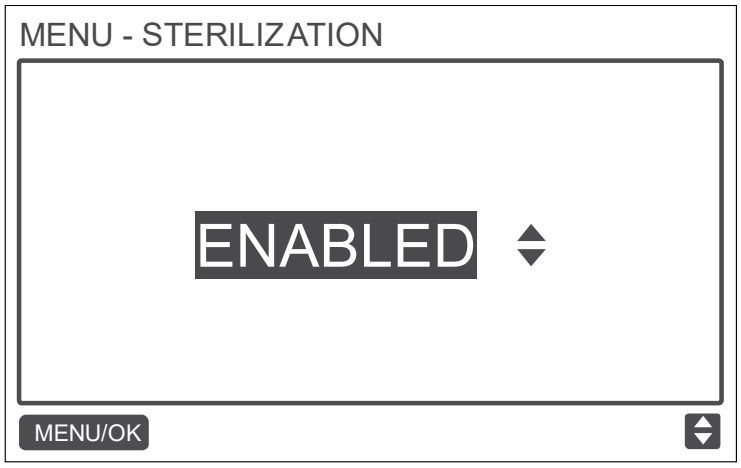


Sterilization Function Display Icon



Accessing the Sterilization Function Menu

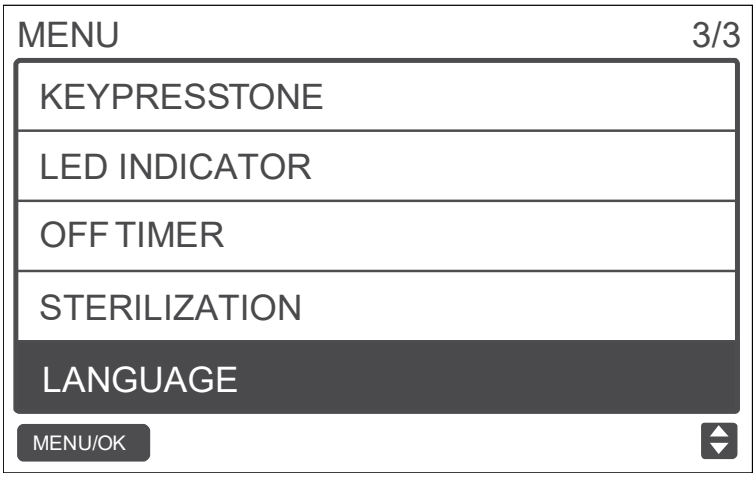
Press TEMP UP ▲ and TEMP DOWN ▼ to select the STERILIZATION ENABLED or DISABLED as shown in the figure below:



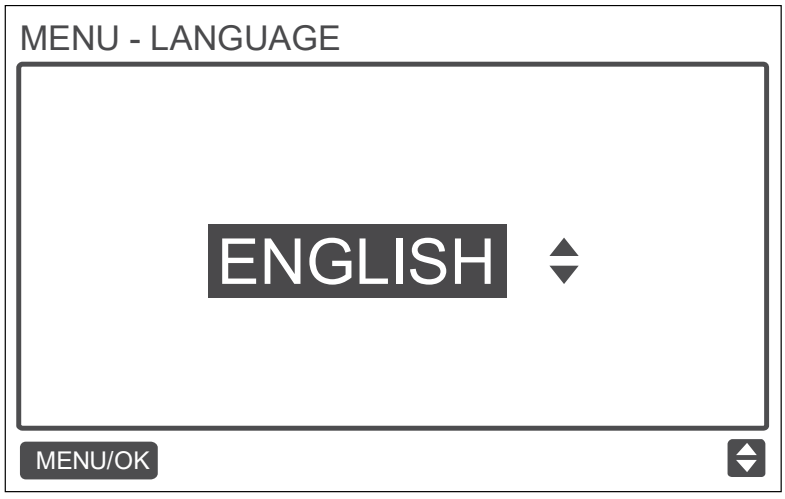
Setting the Sterilization Function Display

3.18 Setting the Language

Enter the Language setting Menu to choose the language as is shown in the figure below:

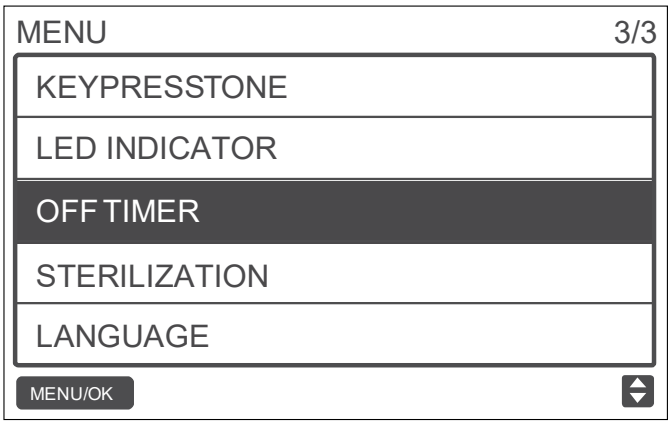


Press TEMP UP ▲ and TEMP DOWN ▼ to select the LANGUAGE as shown in the figure below. The 4 languages that are available for this wired controller are English, Polish, French and Spanish



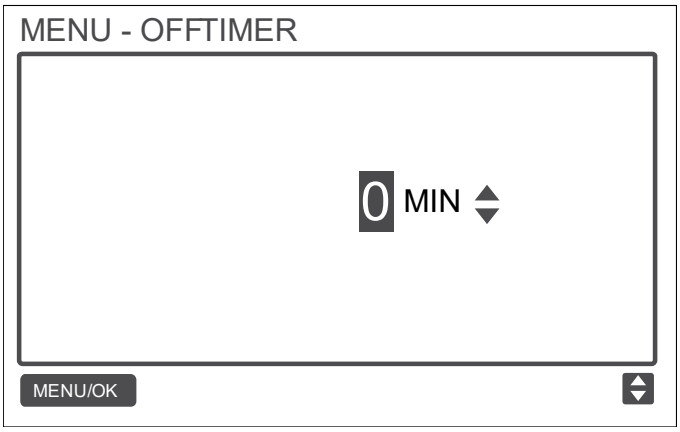
3.19 Setting the Off Timer

Enter the Off Timer Setting Menu, as is shown in the figure below:



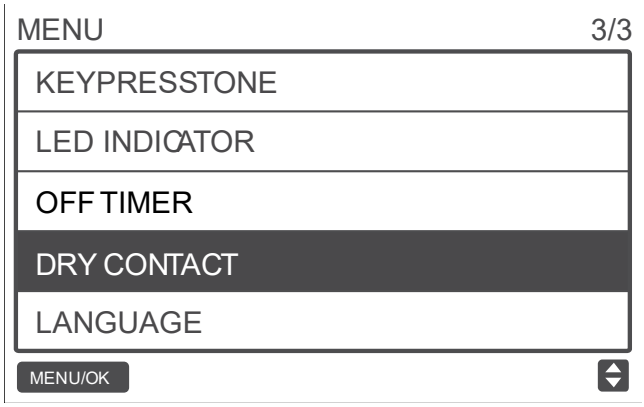
Accessing the Off Timer setting menu

Press TEMP UP ▲ and TEMP DOWN ▼ to select the Off Time as shown in the figure below:

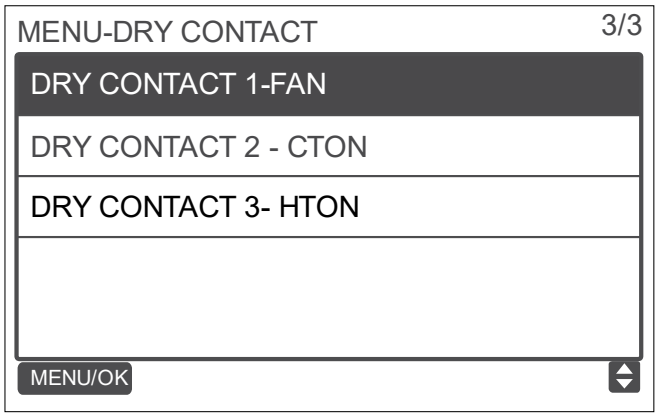


3.20 Setting the Dry Contact (HRV)

Enter the Dry Contact Menu as shown in the figure below:



Press TEMP UP and TEMP DOWN to select the Dry Contact 1-3 as shown in the figure below:

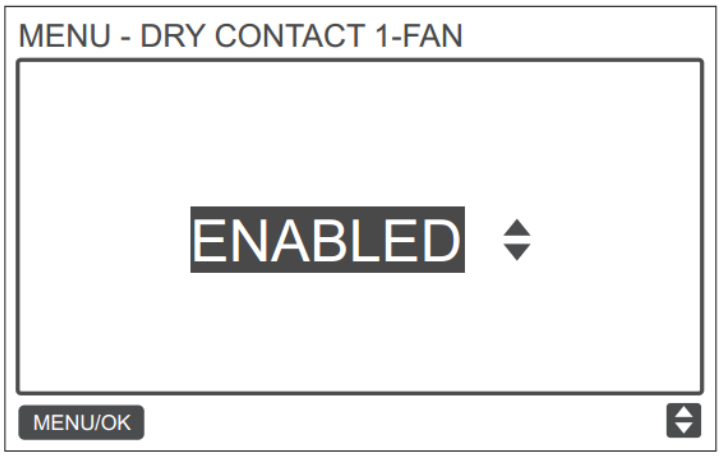


There are 3 Dry Contact Options available in this controller which can be controlled.

DRY CONTACT1-FAN represents the dry contact for connecting an exhaust fan on the PCB of the HRV

DRY CONTACT2-CTON represents the dry contact for connecting the Economiser from the HRV PCB side

DRY CONTACT3-HTON represents the dry contact for connecting the Humidifier from the HRV PCB side and controlling it



Go inside the second level menu to Enable or Disable a Dry contact function, the Enable or Disable here will mean the corresponding equipment will turn on or turn off respectively.

Functions

Part 4
Troubleshooting

1 TROUBLESHOOTING

In this section, we will try to provide some basic troubleshooting for the controller.

1.1 No Display on the Wired Controller

CASE 1
REASON: IDU is not powered ON
SOLUTION: Turn ON the IDU

CASE 2
REASON: Wired Controller connection error.
SOLUTION: First power OFF the IDU and check if the wired controller connection is correct or not. Refer to the installation and commissioning part for correct wiring connections.

CASE 3
REASON: Wired Controller is damaged.
SOLUTION: Replace the wired controller

CASE 4
REASON: Power Supply failure of IDU board.
SOLUTION: replace the IDU board.

1.2 E9: Wired Controller and IDU communication fault

CASE 1
REASON: No address set for IDU or IDU address is duplicated.
SOLUTION: Set an address for the IDU ; duplicated addresses are not allowed.

CASE 2
REASON: Main/Secondary controller is not set when two wired controllers control one or multiple IDUs
SOLUTION: Set one wired controller to secondary wired controller.

CASE 3
REASON: The D1/D2 line sequence of wired controller is inconsistent with that of the main wired controller.
SOLUTION: Replace the wired controller.

CASE 4
REASON: Wired Controller damaged.
SOLUTION: Replace the wired controller.

CASE 5
REASON: IDU Board fault
SOLUTION: Replace the IDU board.

1.3 F7: Wired controller EEPROM fault

CASE 1

REASON: EEPROM data error

SOLUTION: Press “MODE” + “MENU” + “TEMP UP” + “TEMP DOWN” for more than 3 seconds to reset the wired controller until the default status appears

CASE 2

REASON: Wired controller damaged.

SOLUTION: Replace the wired controller.

1.4 For any "Group" the number of IDUs is not consistent with the actual number of connected IDUs

CASE 1

REASON: D1/D2 communication wiring error or bad contact in individual IDU. IDU addresses have not been set or duplicate addresses.

SOLUTION: Check and adjust the D1/D2 communication line. Set the IDU addresses. Make sure that there is no duplicate address in the same system.

CASE 2

REASON: Main/Secondary controller is not set when two wired controllers control one or multiple IDUs

SOLUTION: Set one wired controller to secondary wired controller.

CASE 3

REASON: Board failure in individual IDU.

SOLUTION: Replace the board for affected IDU.

2 Frequently Asked Questions

In this section, we have tried to answer some of the frequently asked questions that may come to the mind of the user or the installer while using the CA120-VRF connected with indoor unit scenario.

FAQ 1 Group Control

Under the group control, the following points need to be taken into attention:

1. When the wired controller detects the connection with multiple IDUs at the same time, it will send a command to disable the remote control signal receiving function of the IDU.
2. The IDU remote control reception enabling can be changed through the “Field Settings”. If the remote controller reception enabling status of IDU is set, the status of IDUs under group control may not be consistent
3. In group control, the wired controller is synchronized to the state of the IDU with the smallest address.
4. In group control, there will be no error prompt on the wired controller except when the IDU with the smallest address has been disconnected. Once the IDU except the smallest address IDU is powered ON again, the remote controller send and receive function would be automatically restored.
5. In group control, regardless if the remote controller send and receive function have been enabled in the settings or not, when the centralized controller/IMMPRO is used to update the state of the IDU that does not have the smallest address, this may result in the states of the other IDUs in group control to become inconsistent.

FAQ 2: The remote controller signal cannot be received by the wired controller once it starts up

Solution: Once the wired controller starts up, the remote controller receiving function of the wired controller is disabled. The user needs to go to the Field settings of the controller and enable the remote controller receiving function of the wired controller again. (Refer to Installation & Commissioning part of this manual)

FAQ 3: The icon for group control in the IMMPRO and centralized controller

Solution: There will be the icon of group control in the IMMPRO and centralized controllers when the group control function of the wired controller is activated. The indoor units will not be shown separately in the IMMPRO or centralized controllers.

FAQ 4: The location of timer in the wired controller connection.

Solution: The timer set in the wired controller is stored inside the wired controller and not inside the indoor unit. If there is any miscommunication or the X1X2 connection is disturbed. The timer stored in the wired controller will not be executed.

FAQ 5: Setting the Static Pressure in Group Control

Solution: In case of group control, the static pressure setting will be set for the smallest address indoor unit and the static pressure for all the remaining indoor units under this group control will be same as that of this smallest address indoor unit.

Part 5
Appendix

1 Appendix 1

In this section, we have given the details about the outdoor unit information which is available to be checked by the Field Settings menu of the wired controller

No	Information
1	Unit Address
2	Outdoor ambient (T4) temperature °C
3	T2/T2B average temperature °C
4	Main Heat Exchanger pipe temperature (T3) °C
5	Discharge temperature of compressor A °C
6	Discharge temperature of compressor B °C
7	Inverter Compressor A current (A)
8	Inverter Compressor B current (A)
9	--
10	Fan Speed
11	EXV A position
12	EXV B position
13	EXV C position
14	Operating Mode
15	Priority Mode
16	Total Capacity requirement correction of indoor unit
17	Number of outdoor units
18	Total capacity of outdoor unit
19	Inverter Module heatsink temperature A °C
20	Inverter Module heatsink temperature B °C
21	--
22	--
23	Plate heat exchanger outlet temperature T6B °C
24	Plate heat exchanger inlet temperature T6A °C
25	System discharge superheat degree
26	--
27	Number of working indoor units
28	--
29	Compressor discharge pressure (*0.1 MPa)
30	Reserved
31	Most recent error or protection code
32	Inverter compressor A frequency
33	Inverter compressor B frequency
34	Unit capacity
35	Program version No.
36	Address of VIP indoor unit
37	--
38	--

2 Appendix 2

In this section, we have provided the details about the indoor unit information which is available to be checked by the Field settings menu of the wired controller. The information which are on offer are as follows:

No	Information
1	IDU Communication Address
2	Capacity (HP) of IDU
3	IDU network address
4	Set Temperature Ts
5	Room Temperature
6	Actual T2 indoor temperature
7	Actual T2A indoor temperature
8	Actual T2B indoor temperature
9	Fresh Air unit Ta temperature
10	--
11	Target Superheat degree
12	EXV degree
13	Software version no.
14	Fault code

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Note: Product specifications change from time to time as product improvements and developments are released and may vary from those in this document.