Version 1.6.1(2024.10.29)

WWW.CONOTEC.CO.KR

CONOTEC

CONOTEC CO., LTD.

DIGITAL TEMPERATURE CONTROLLER

ISO 9001:2008

ISO 14001

FOX-8STC

Instruction Manual

- A user manual for this product is posted on the company website.
- Please download the technical document and communications manual on the company website

595.28 pt

Conotec offers excellent service. For any issues or repairs, please contact the distributor where you bought the product

※Product specifications may change without notice to improve performance. Please read and follow all handling instructions carefully

※ This device is suitable for the following environments.

Ambient Temp : 0℃ ~ 60℃

Ambient Temp : less than 80%Rh

Rated Power Supply : 220VAC ±10% 50/60Hz

■Mainly produced products and developments
-Digital Temperature/Humidity Controller
-Digital Timer, Current/Voltage Meta
-Develop other products

Table of Contents

01 Safety Precautions

Please read the safety precautions carefully for correct operation of the product.

※ The specifications and dimensions specified in this instruction manual may be changed without any notice for performance enhancement.

⚠ Warning

1. This product was not made as a safe device. Therefore, this product should be attached with dual safety devices if it is used for the control purposes (e.g. a device vulnerable to accident and property damage, etc.).
2. Do not wire, inspect or service this product while the power is being supplied.
3. You must attach this product to a panel. Otherwise, it may cause an electric shock.
4. When connecting the power, you must check the terminal number.
5. Do not ever disassemble, process, modify or repair this product.

⚠ Caution

1. Please make yourself familiar with all the operation instructions, safety precautions and warnings before using this product. Comply with related specifications and capacity requirements
2. Do not wire or install this product to any unit with high inductive load (e.g. motor, solenoid, etc.).
3. Use a shielded cable with a proper length when extending a sensor.
4. Do not use any part that generates an arc when used in the same power or directly switched in close proximity.
5. Keep the power cable away from a high-voltage cable and do not install this product in any place that is full of water, oil and dust.
6. Do not install this product in any place that is exposed to direct sunlight or rain.
7. Do not install this product in any place that is subject to strong magnetic power, noise, vibration or shock.

8. Keep this product away from any place that generates strong alkaline or acid substances. Use a separate pipe.
9. Do not sprinkle water onto this product for cleaning when installing it in the kitchen.
10. Do not install this product in any place where the temperature/ humidity ratings are exceeded
11. The sensor cable should not be cut or cracked..
12. Keep the sensor cable away from a signal cable, a power cable or a load cable. Use a separate pipe.
13. Keep in mind that the follow-up service will not be available if this product has been arbitrarily disassembled and modified
14. ⚠ symbol on the terminal wiring diagram indicates a safety statement that alerts a warning or caution.
15. Do not use this product near any device generating strong high-frequency noise (e.g. high-frequency welding machine high-frequency sewing machine, high-frequency radio, large-capacity SCR controller, etc.).
16. Using this product in any method other than those specified by by the manufacturer may lead an injury or a property damage
17. The product is not a toy. Keep it away from children.
18. The product should be installed only by an expert or a qualified person.
19. The company will not be liable for any damage caused by the violation of the above warnings and cautions or by a consumer's fault

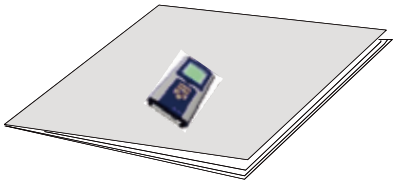
⚠ Danger

Caution: Risk of electric shock

- Electric shock – Do not touch the AC terminal while the current is flowing. It may cause an electric shock.
- You must disconnect the input power when servicing it.

02 Component Products

[Products]



[Instruction]

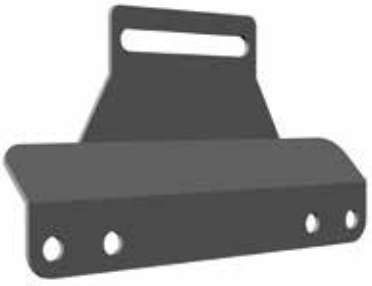
※ Provide when ordering
panel attachment type

[Stop bar]

[FS-600R]

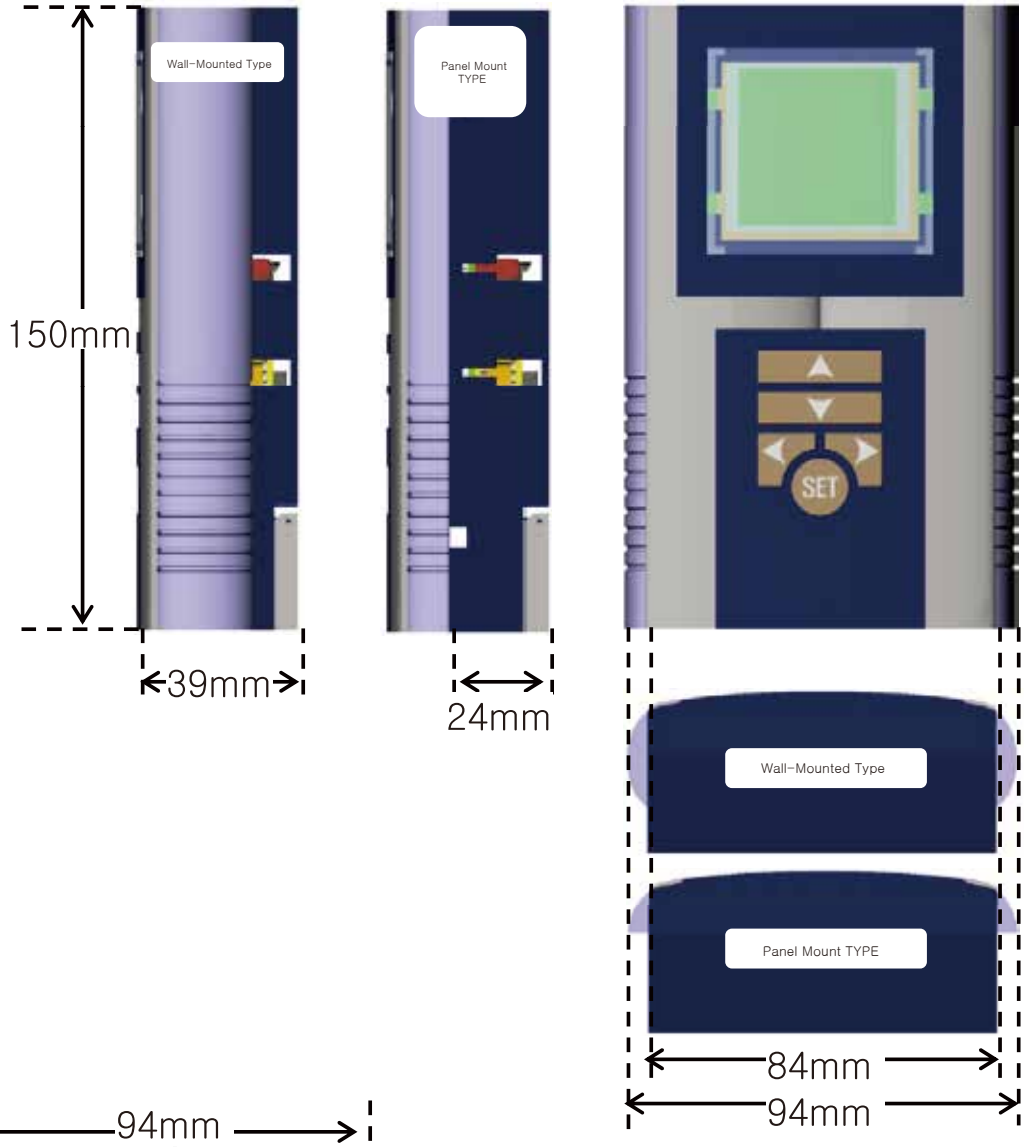
※ Provide when ordering
wall type

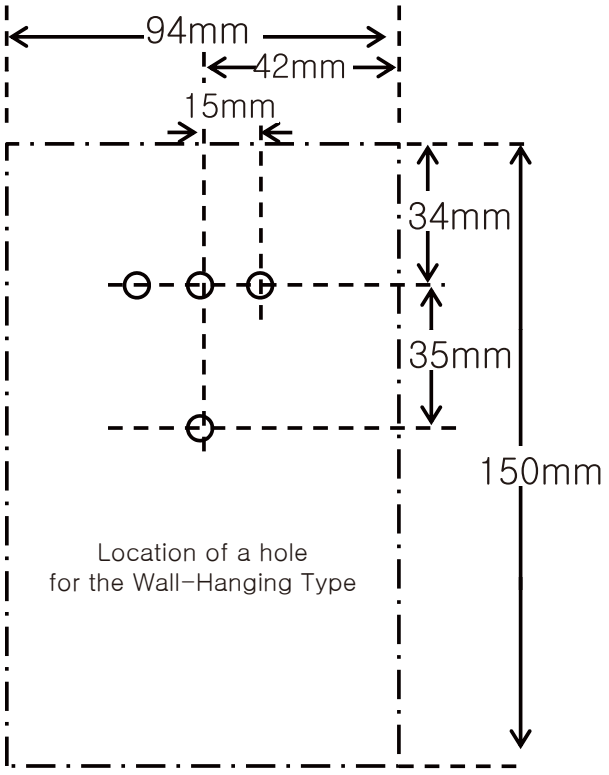
[PRODUCT]

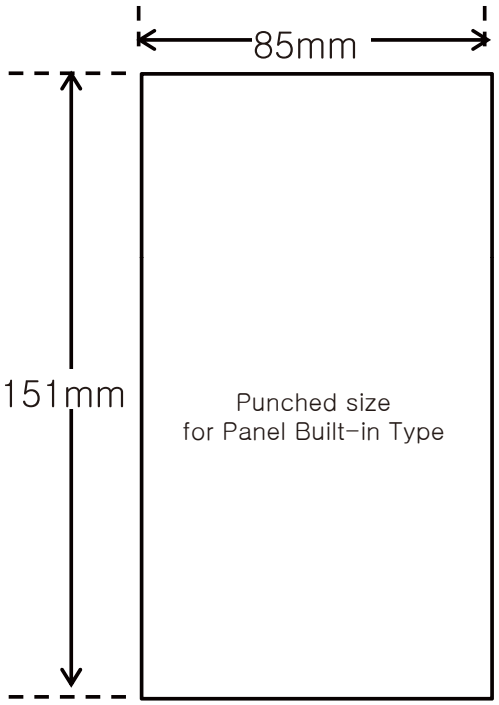


[FS-600R Bracket]

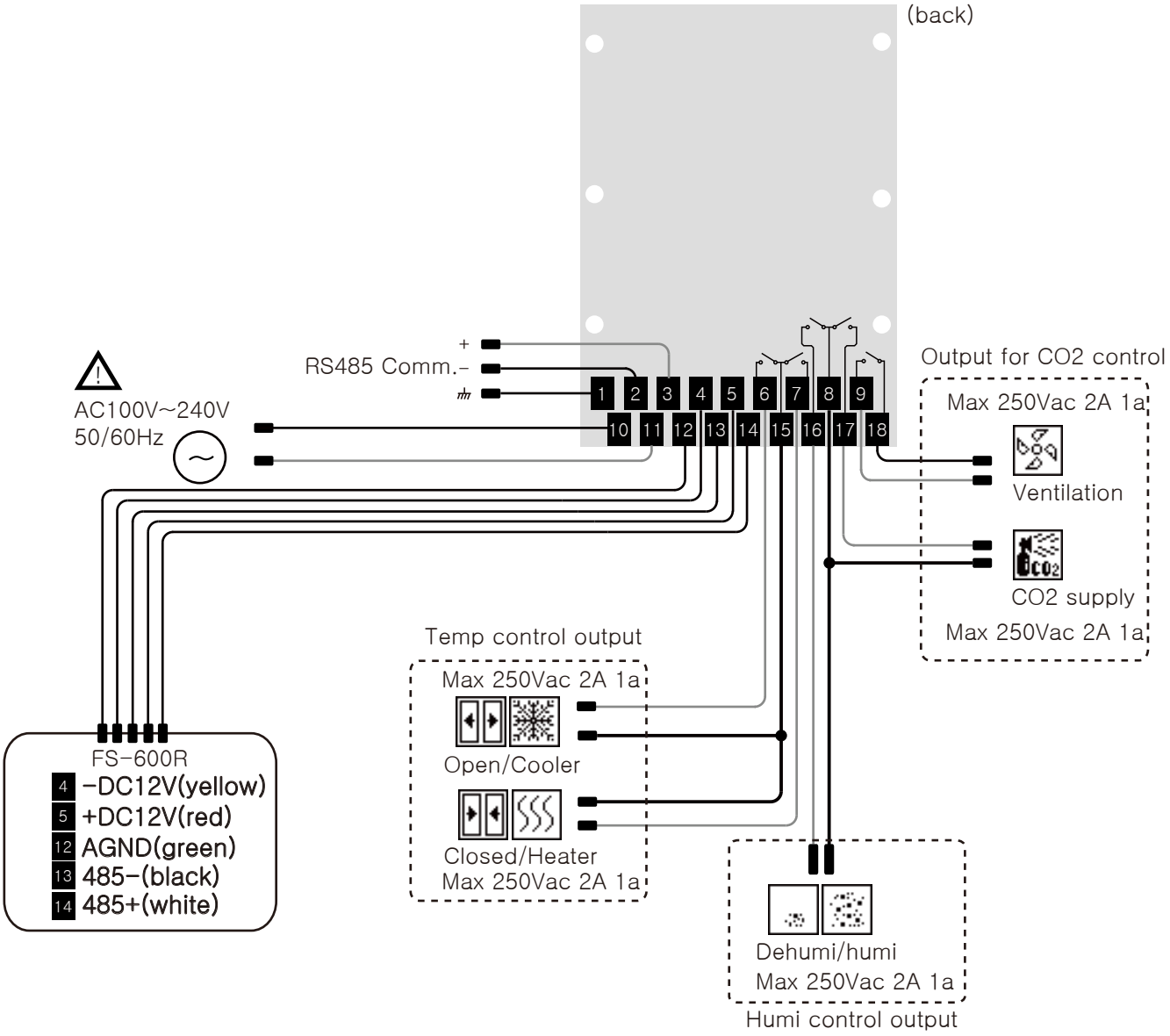
03 Product Dimensions and Panel Cutout Dimensions







04 Terminal connection method



[Sensor Specifications]

■ Temp, Humi, Carbon Dioxide, Illumination Integrated

Model name : FS-600R

-Temp Display Range : -20.0~65.0℃
-Temp precision : ±0.1℃
-Humi Display Range : 0~100%
-Humi precision : ±0.1%
-CO2 Display Range : 0~5000ppm
-CO2 precision : ±3%
-illuminance Display Range : 0~54600Lux
-illumination precision : ±2%

05 Main Functions

▶Choose two systems: mushroom/plant cultivation and indoor air purification systems

You can select and use a system suitable for your environment between mushroom/plant cultivation and indoor air purification systems.

• Mushroom/plant cultivation:
Creating an environment suitable for mushroom/plant growth by controlling temp, carbon dioxide, humi, and illuminance by setting time for each of the nine channels.

• Indoor air purification systems :
Creating an environment suitable for indoor air by controlling temp, carbon dioxide, and humi.

▶Carbon dioxide/temperature/humidity/light control

• Mushroom/plant cultivation:
Select CO2 setting and output according to channel time setting / temp and door opening / humi setting / clear day and cloudy day illuminance setting / illumination setting

• Indoor air purification systems :
Temp/humi/CO2 (ventilation) settings

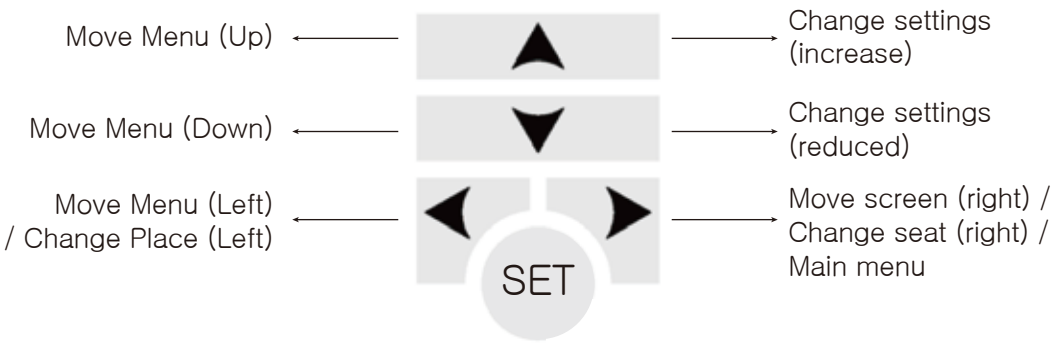
▶RS485 Communication Function (MODBUS-RTU)

▶High/low temperature, high humidity/low humidity, high CO2/low CO2 alarm

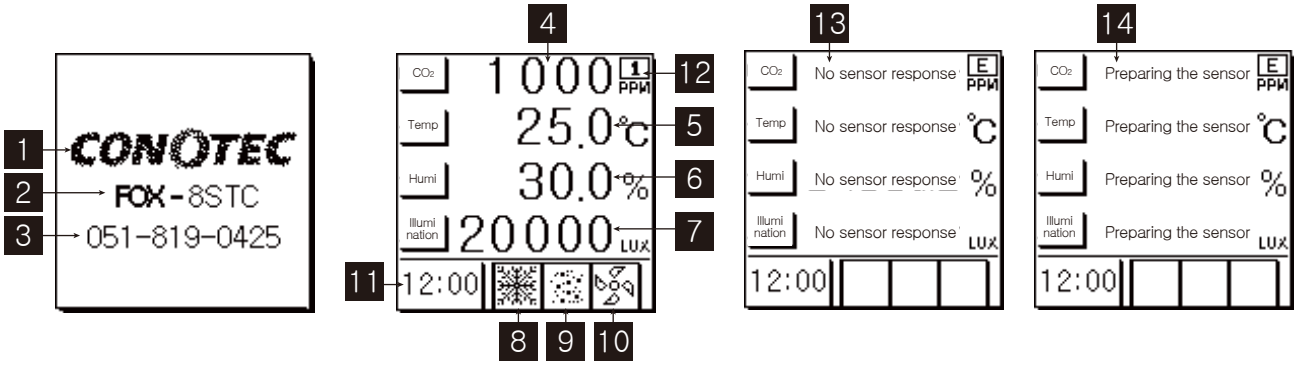
▶Application of graphic LCD provides a convenient use environment

▶High-definition digital temperature, humidity, CO2, illumination sensor applied

06 Input keys



07 Major display units



1 Company logo
2 Model name
3 Company number
4 CO2 sensor status
5 Temp sensor status
6 Humi sensor status
7 illuminance sensor status
8 Displaying the temp-related relay output (Heater/cooler, open/close shown)
9 Displaying the humi -related relay output (Dehumi/humi shown)
10 Displaying the CO2-related relay output (CO2 supply /ventilation shown)
11 Current time
12 LCD check box (Channel 1 to 9, A: Indoor air cleaning, P: Mushroom/Plant cultivation, E: Error marked)
13 Error marked(Sensor disconnection error, displayed if sensor country is different)
14 Warm-up(Sensor Measurement Ready When Sensor Is Powered - Sensor Stabilization)

08 Setting menu

The setting menu is largely divided into two categories : the main menu and the environment setting menu.

[Main menu]

-Items that need to be operated frequently during use have been placed in the main menu
-Based on the selection of the Mushroom/plant cultivation mode & Indoor air purification systems mode, the optimized menu items are displayed.
-Please refer to the table below to check the output according to the operation mode and setting items.

<Main Menu Setting>

Operation Mode		Setting Items	Output
Mushroom /plant cultivation	Channel Setting	channel usage, setting time	
	CO2 control	CO2 on a sunny day / CO2 on a cloudy day (When selecting illuminance ON in detail settings	None. CO2 supply Ventilation
		CO2 Setting (When selecting illuminance OFF in detail settings)	
	Temp control	Open 1 Temp/Closed Temp (When selecting the 1 step of opening/closing in detail settings)	Open/Close
		Open 1 Temp/Closed Temp Open 2 Temp Deviation/Close 2 Temp Deviation (When selecting the 2 step of opening/closing in detail settings)	
		Temp Setting (When selecting Temp in detail settings)	Cooler/Heater
	Humi control	Humi Setting	Dehumi/humi
Indoor air purification systems	CO2 control	CO2 Setting	Ventilation
	Temp control	Temp Setting	Cooler/Heater
	Humi control	Humi Setting	Dehumi/humi

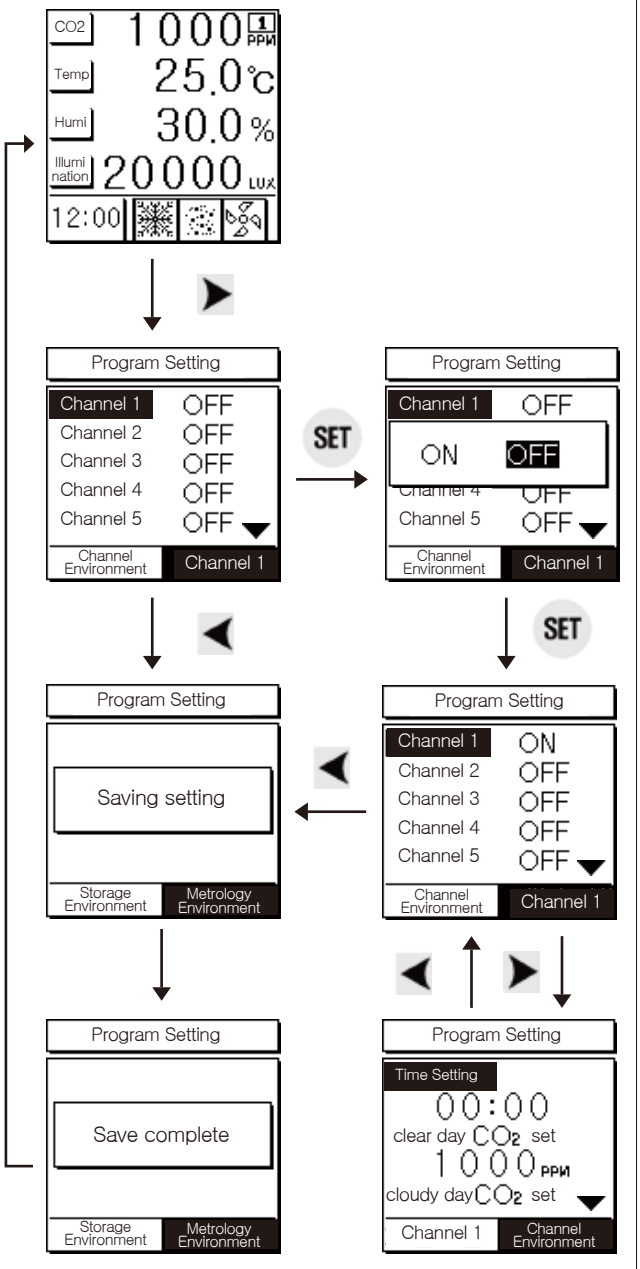
<Preferences menu>

-The advanced settings for setting the main menu are displayed.
-Temp Environment : Displays detailed settings for controlling temp.
-Humi Environment : Displays detailed settings for controlling humi.
-CO2 Environment : Displays detailed settings for controlling CO2.
-Alarm Environment : Items are displayed to set the alarm status and sound a buzzer.
-Other environments : Displays various settings and items that set the current time.
-Comm environment : Items for 485 communication (Modbus RTU) are displayed.

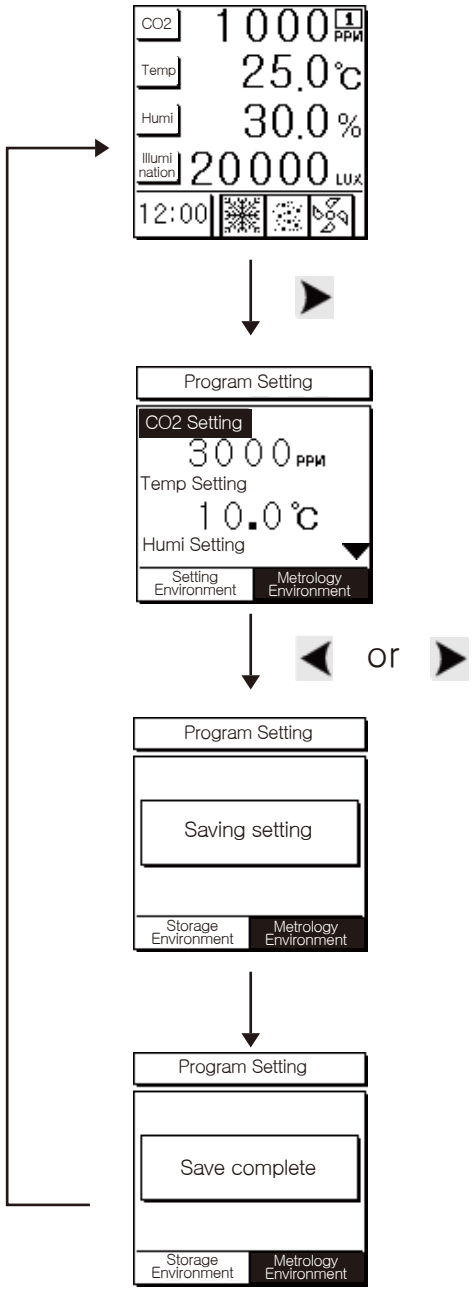
09 Main Menu Description

You can select the mushroom/plant cultivation mode and the indoor air cleaning mode from the preference menu.
Depending on the mode selected, the main menu is marked as follows.

Mushroom/plant cultivation mode



Indoor air purification systems mode

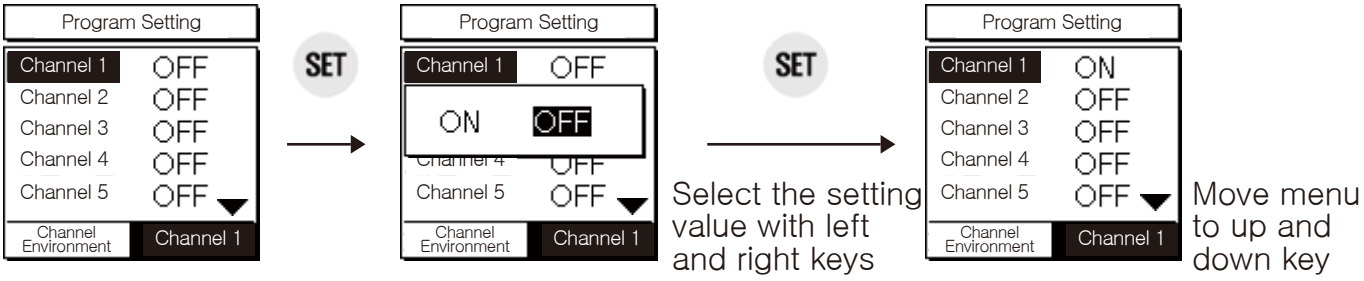


Only the representative menu was displayed for each operation mode, and the details of the settings will continue on the next page.
If there is no key input, the settings are automatically saved after one minute and returned to the current screen state.

■ Description of main menu in mushroom/plant cultivation mode

In the case of mushroom/plant cultivation, 24 hours a day can be divided into 9 channels to control temp/humi/CO2 for each channel. Temp control is divided into door opening and closing control and temp control by devices such as coolers/heaters, CO2 control is divided into sunny/cloudy day Co2 settings or simple CO2 settings, depending on whether or not the illuminance sensor is used.

▶Channel Environment

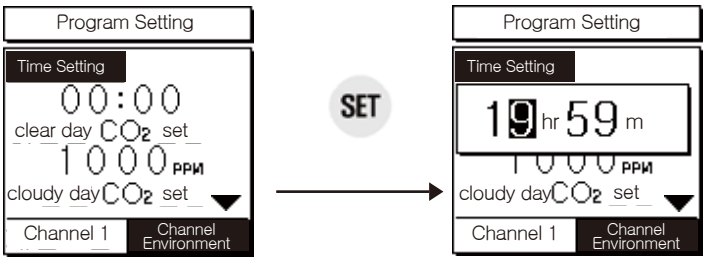


Select the setting value with left and right keys

Move menu to up and down key

- You can enter up to 9 channels and move to the next channel when selecting ON per channel

▶Time Setting



Move settings to left and right keys
Change settings to up and down keys

■ Time-by-hour channel setup example

Channel	Time Setting	Operation Time
Channel 1	04:00	04:00~07:10
Channel 2	07:10	07:10~10:30
Channel 3	10:30	10:30~12:00
Channel 4	12:00	12:00~16:20
Channel 5	16:20	16:20~18:40
Channel 6	18:40	18:40~20:05
Channel 7	20:05	20:05~23:00
Channel 8	23:00	23:00~04:00

Functions included in each channel are executed within the operating time range.
-Channel 1 OFF:
Channel 1 ranges from 0 to 23:59
-Channel 2 ON:
Channel 1 range
< Channel 2 time setting

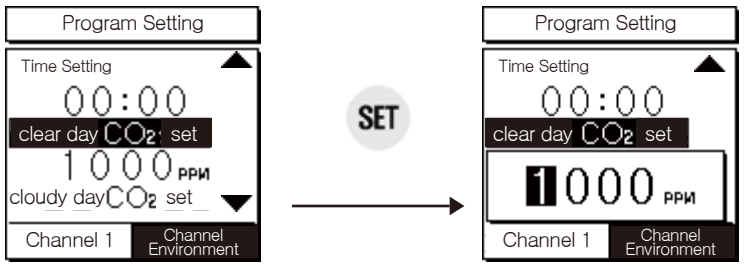
▶CO2 Setting

In the Mushroom/plant culture, the CO2 setting menu varies depending on the use of the illuminance sensor.

1. Sunny day CO2 Setting

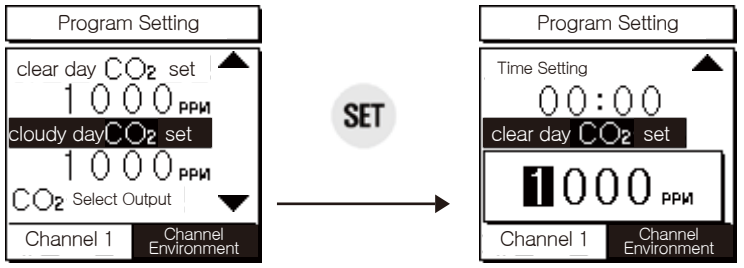
-Appears when set to Use Illumination (ON) in the Preferences menu
-If the current illumination value is greater than the Sunny day setting value, perform CO2 control with the clear day setting value of CO2

2. Cloudy day CO2 Setting



Move settings to left and right keys
Change settings to up and down keys

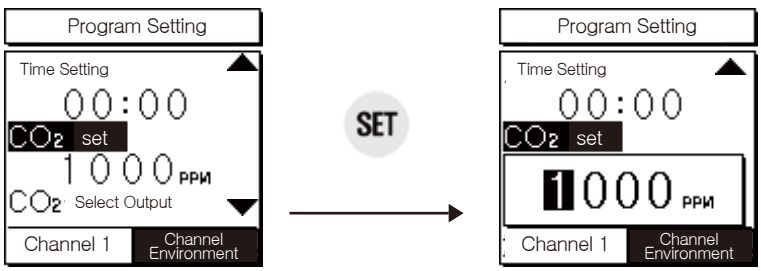
-Appears when set to Use Illumination (ON) in the Preferences menu
-If the current illuminance value is smaller than the bright day setting value and larger than the cloudy day setting value, perform CO2 control with the cloudy day CO2 setting value



Move settings to left and right keys
Change settings to up and down keys

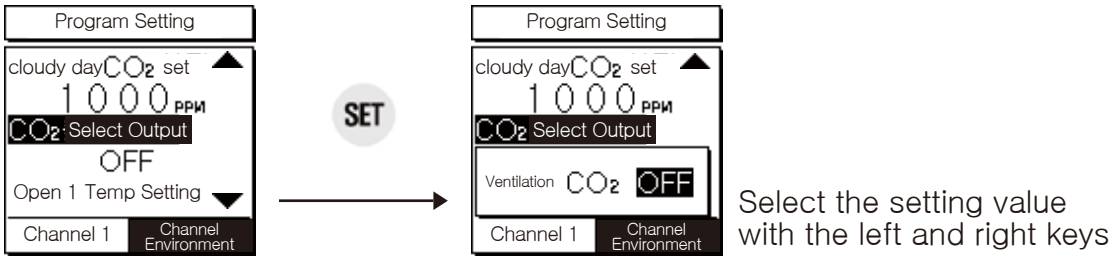
3. CO2 Setting

-Appears when set to Use Illumination (OFF) in the Preferences menu
-If the current illuminance value is smaller than the bright day setting value and larger than the cloudy day setting value, perform CO2 control with the cloudy day CO2 setting value



Move settings to left and right keys
Change settings to up and down keys

▶CO2 Select Output



Select the setting value
with the left and right keys

- Ventilation (FAN) output and CO2 supply output according to carbon dioxide can be selected, and there is no output when OFF.

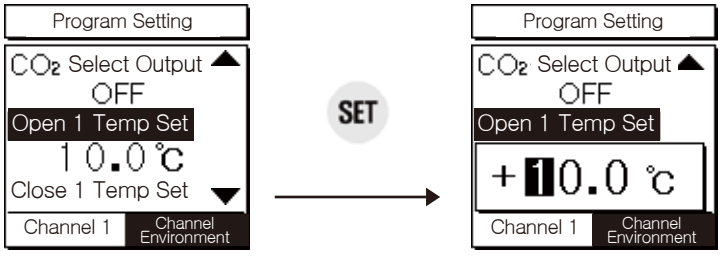
▶Temp Setting

In mushroom/plant cultivation, there are three different temp setting, depending on the selection of door opening and closing control (selectable 1st or 2nd stage) or temp control in "Environment Menu – Temp Setting".

1. Door opening/closing 1–tier mode

–Applies when selecting "Environmental Settings Menu – Temp Environment – Door Opening and Closing Settings/One Step Control".
–It is a function that can open and close doors such as greenhouses according to temp, and you can set the open 1/closed1 temp.
–The rate at which the door opens and closes can be adjusted by setting the time in "Preferences Menu – Temp Environment – Time Settings".

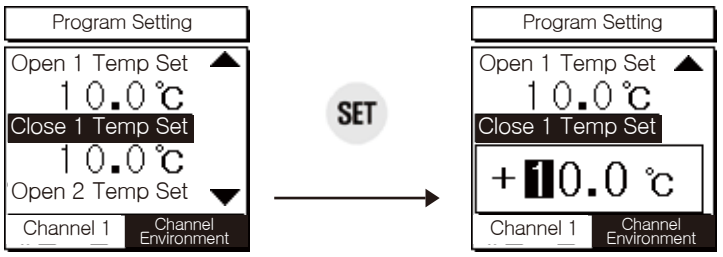
[Open 1 Temp Setting]



Open1 When the current temp is higher than the temp setting, Open Relay Operation

Move settings to left and right keys
Change settings to up and down keys

[Close 1 Temp Setting]



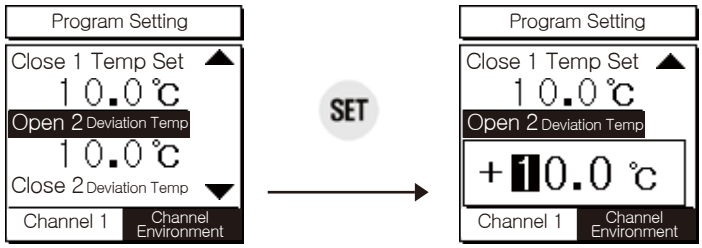
Close1 When the current temp is lower than the temp setting, Close Relay Operation

Move settings to left and right keys
Change settings to up and down keys

2. Opening and closing of doors a two-stage mode

-Applies when selecting "Environment Menu - Temp Environment - Opening and closing of doors/Second Stage Control".
-An additional Open 2 temp deviation/Close 2 temp deviation setting menu appears, including the Open 1 temp/Close 1 temp setting value in the Open 1st Stage Mode.
-The menu that determines the speed of closing/opening during two-stage control is located in "Preferences Menu - Temp Environment - Time Settings".

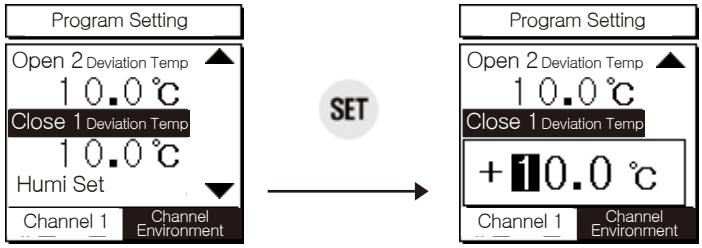
[Open 2 Temp Setting]



Open relay operation when current temp is greater than Open 1 temp setting
+ Open 2 deviation temp

Move settings to left and right keys
Change settings to up and down keys

[Close 2 Temp Setting]

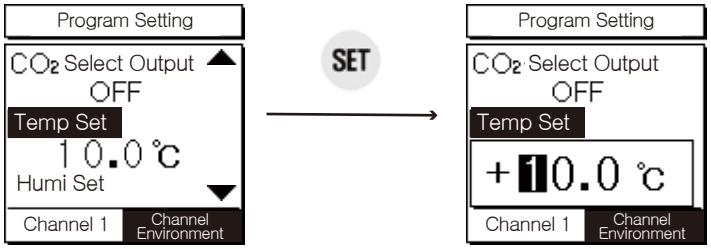


Close relay operation when current temp is greater than Close 1 temp setting
+ Close 2 deviation temp

Move settings to left and right keys
Change settings to up and down keys

3. Temp Setting

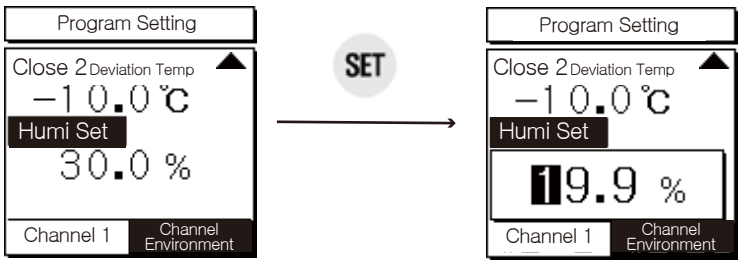
-Applies when "Preferences Menu - Temp Environment - Temp Control" is selected.
-It is used to control temp by devices such as coolers or heaters.



Move settings to left and right keys
Change settings to up and down keys

- Cooler relay operation when the current temp is higher than the set temp
  Heater relay operation when the current temp is lower than the set temp

▶Humi Setting

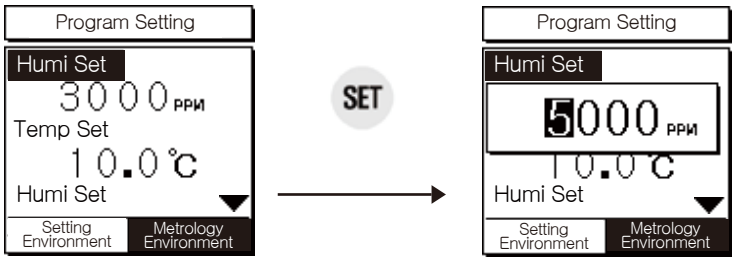


Move settings to left and right keys
Change settings to up and down keys

- When humidification is selected, the current humidity is lower than the set humidity
  When dehumidification is selected, the current humidity is higher than the set humidity

In the case of indoor air cleaning mode, CO2/temperature/humidity can be simply set and used.
In this mode, functions such as illuminance sensor and door opening /closing control are not available. In addition, during CO2 control, the output is controlled only by ventilation output.

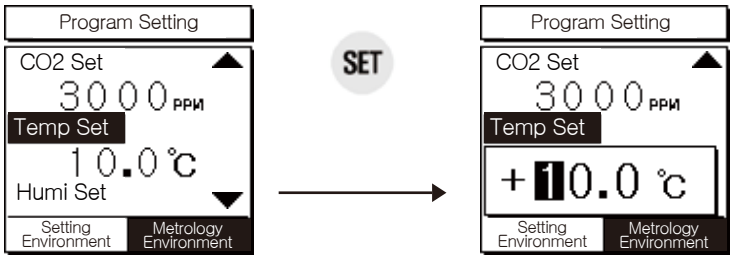
▶CO2 Setting



Move settings to left and right keys
Change settings to up and down keys

- Operation when the current CO2 is higher than the setting CO2

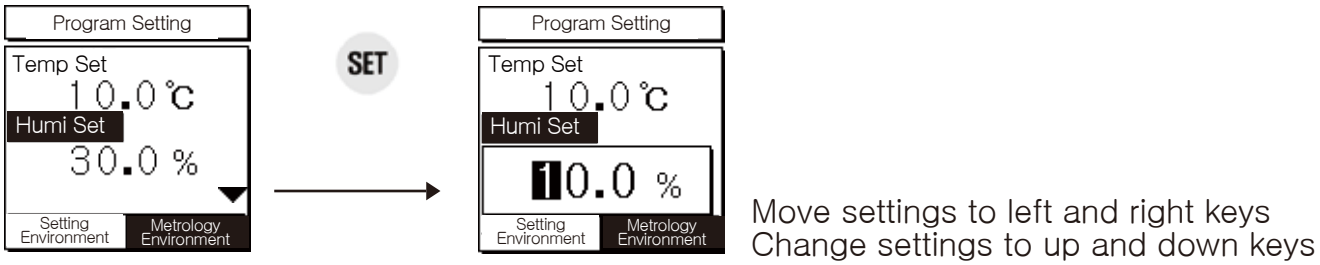
▶Temp Setting



Move settings to left and right keys
Change settings to up and down keys

- Cooler relay operation when the current temp is higher than the set temp, Heater relay operation when the current temp is lower than the set temp

▶Humi Setting



Move settings to left and right keys
Change settings to up and down keys

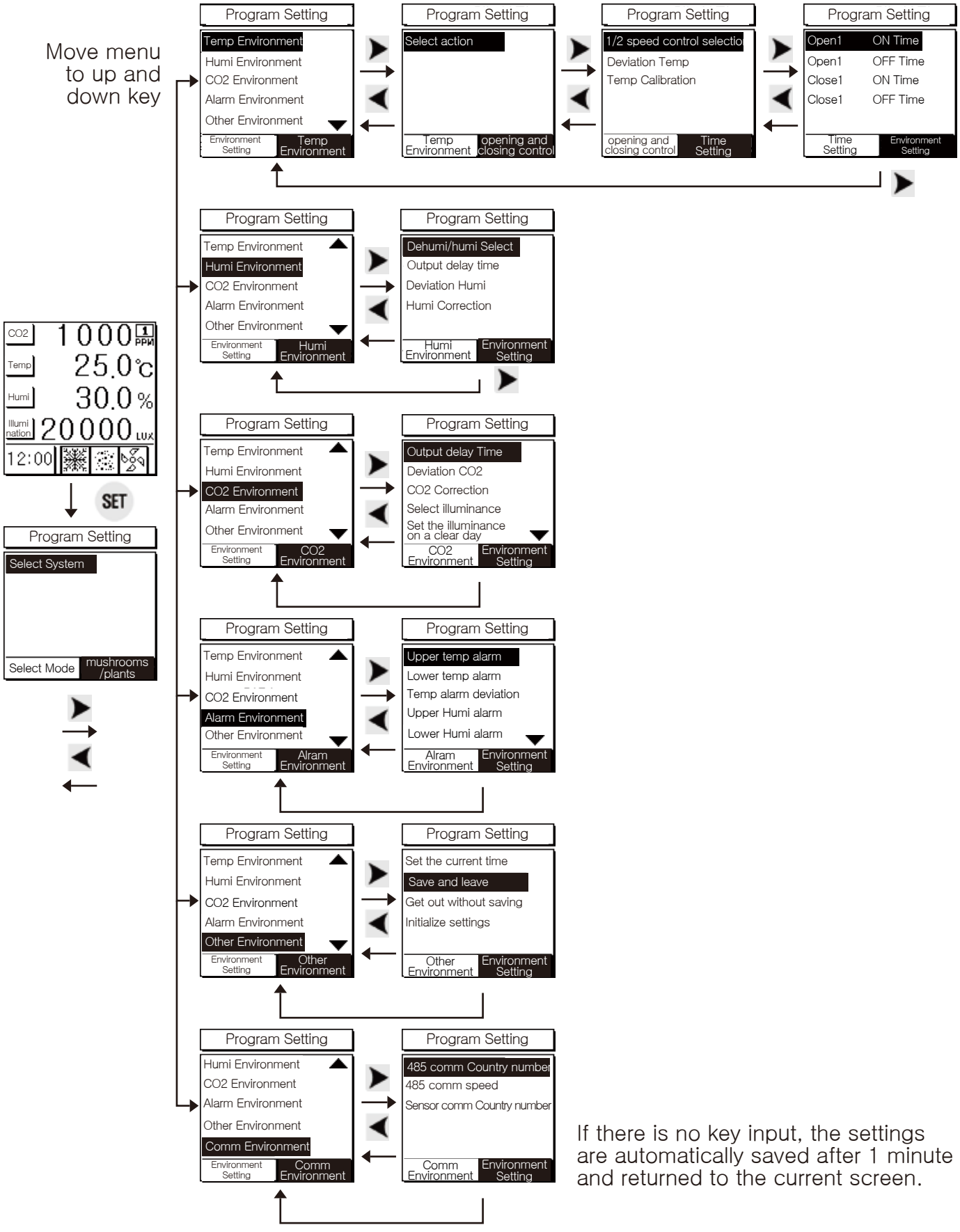
- When humidification is selected, the current humidity is lower than the set humidity
  When dehumidification is selected, the current humidity is higher than the set humidity

10 Setting Menu Guide

When selecting mushroom/plant cultivation mode and indoor air cleaning mode from the environment setting menu,
the menu of the temp environment and the CO2 environment will change, and the temp environment will only provide the functions necessary for the user depending on the selection of operation and the 1/2 control selection for door opening and closing control.
Details will continue on the next page.

※ It consists of six temp environments, humi environment, CO2 environment, alarm environment, other environments, communication environments.

Program setting



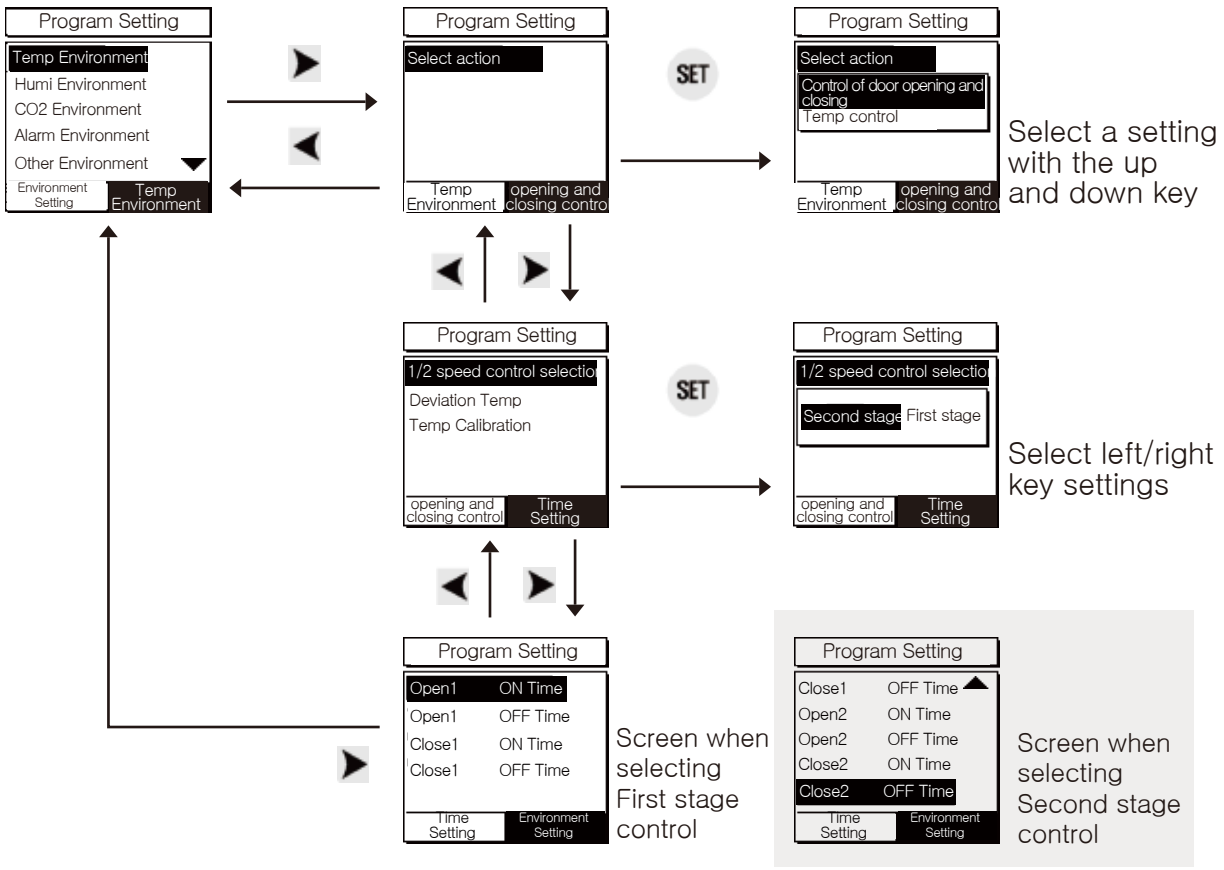
If there is no key input, the settings are automatically saved after 1 minute and returned to the current screen.

The detailed functions of the temperature environment menu are changed by the user's selection, providing only the functions required by the user.

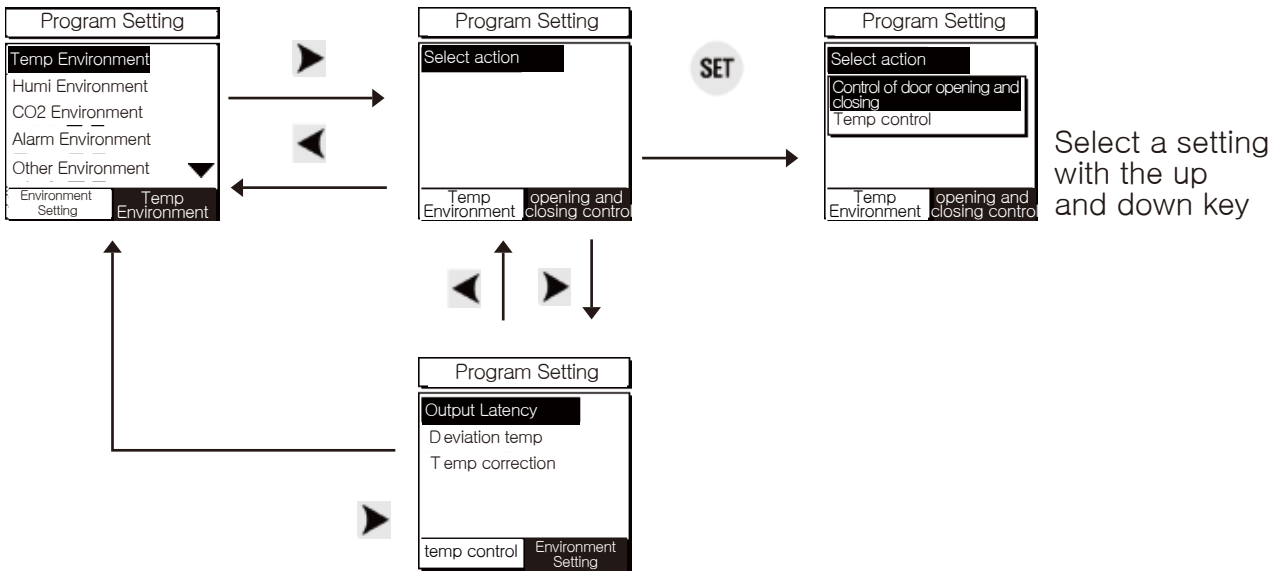
<table>
<tr><th>Operation Mode</th><th>Operation Select</th><th colspan="2">Setting Items</th></tr>
<tr><td rowspan="7">Mushroom /plant cultivation</td><td rowspan="3">Control of door opening and closing</td><td>1/2 speed control selection</td><td>Open 1 ON time, Open 1 OFF time, Closed 1 ON time, Closed 1 OFF time (select one stage)
Open 1 ON time, Open 1 OFF time, Closed 1 ON time, Closed 1 OFF time, Open 2 ON time, Open 2 OFF time, Closed 2 ON time, Closed 2 OFF time (if selected in 2 stages)</td></tr>
<tr><td>Deviation Temp</td><td rowspan="6">In mushroom/plant cultivation mode, deviation temp and temp correction are the same regardless of operation selection It is applied and the output delay time is not required when opening and closing the door , so it is used only for temperature control.

The menu in indoor air cleaning mode is the same as the menu in temp control.</td></tr>
<tr><td>Temp Correction</td></tr>
<tr><td rowspan="3">Temp control</td><td>Output delay time</td></tr>
<tr><td>Deviation Temp</td></tr>
<tr><td>Temp Correction</td></tr>
<tr><td colspan="2" rowspan="3">Indoor air purification systems</td><td>Output delay time</td></tr>
<tr><td>Deviation Temp</td></tr>
<tr><td>Temp Correction</td></tr>
</table>

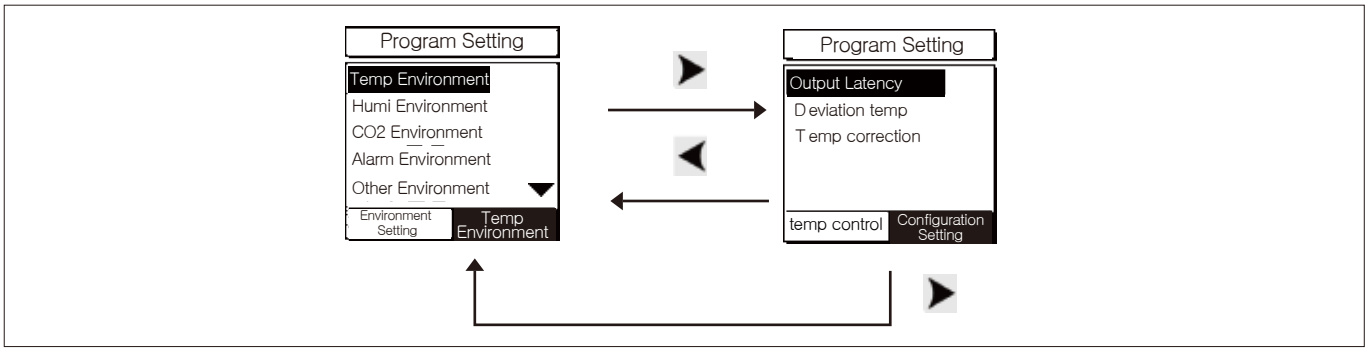
■ When selecting the door opening/closing control in mushroom /plant cultivation mode, the first and second stage control screens



■ Screen when selecting temperature control in mushroom/plant cultivation mode

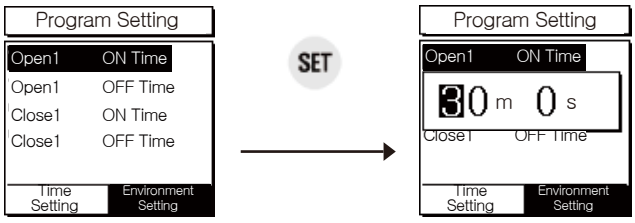


■ Screen in Indoor Air Cleaning Mode



▶ 1 step time control

※ 1/2-step time control is a menu that determines the time to open and close a door when selecting the door opening and closing control.

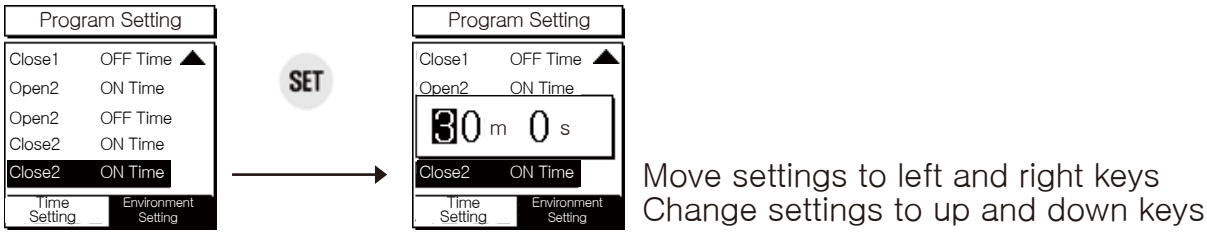


Move settings to left and right keys
Change settings to up and down keys

- Open 1-step control time:Open 1 ON time(Open operation ON)/ Open 1 OFF time(Open operation OFF)
  Closed 1 step control time:Closed 1 ON time(Closed operation ON) / Closed 1 OFF time (Closed operation OFF)

Open 1 ON time, open 1 OFF time, close 1 ON time,
and close 1 OFF time are commonly applied for each CH,
see (output specification) for more examples.

▶2 step time control



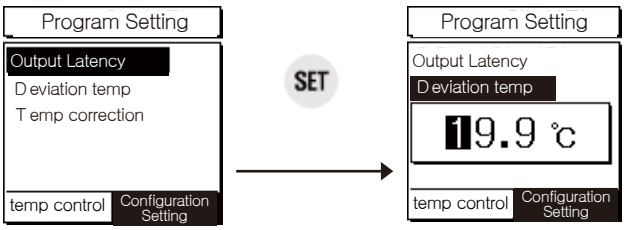
Move settings to left and right keys
Change settings to up and down keys

- Open 2-step control time:Open 2 ON time(Open operation ON)/ Open 2 OFF time(Open operation OFF)
  Closed 2 step control time:Closed 2 ON time(Closed operation ON) / Closed 2 OFF time (Closed operation OFF)

The two-stage time control is a measure to prevent harm to crops by setting different opening and closing times when the temp suddenly drops or rises. Open 1 ON hour, open 1 OFF time, close 1 ON time, close 1 OFF time, close 1 OFF time, open 2 ON time, open 2 OFF time, close 2 ON time and close 2 OFF are commonly applied for each CH, see (output specification) for a detailed example.

▶Deviation Temp

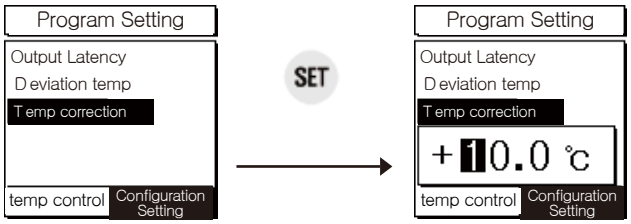
※ It is commonly applied for door opening and closing control and temp control.



Move settings to left and right keys
Change settings to up and down keys

- In ON/OFF control, a certain interval is required between ON and OFF (ON/OFF width setting) If ON and OFF operate too often, the output contact point other than the relay or other output contact point may be damaged quickly or hunting (power generation phenomenon, chattering) may occur due to external noise, etc. To prevent this phenomenon, setting and using the deviation temp is a function to protect the contact point of the device, etc.

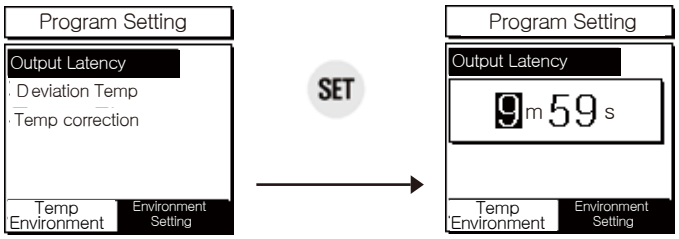
▶Temp correction



Move settings to left and right keys
Change settings to up and down keys

- There is no problem with the product itself, but the ability to correct errors in the sensors input from the outside and the reference temp (e.g., mercury thermometer or existing thermometer or thermostat in use) when the temperature is different
  Example) If the display temp is 25.0°C and the actual temp is 27.0°C, if the temp sensor calibration value is set to +2.0°C, the display temp of the product becomes 25.0+2.0 = 27.0°C.

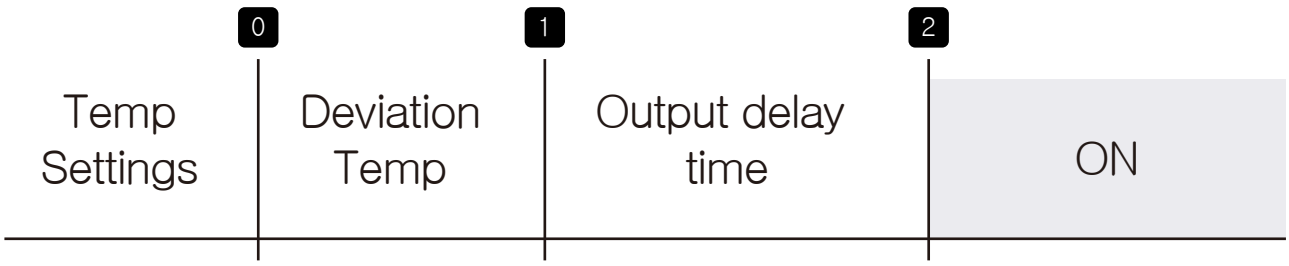
▶Output delay time



Move settings to left and right keys
Change settings to up and down keys

- Use when a controlled object frequently repeats the ON/OFF operation and causes a problem (freezer, compressor, etc.) Activation machine protection in case of instantaneous power failure or power cycle

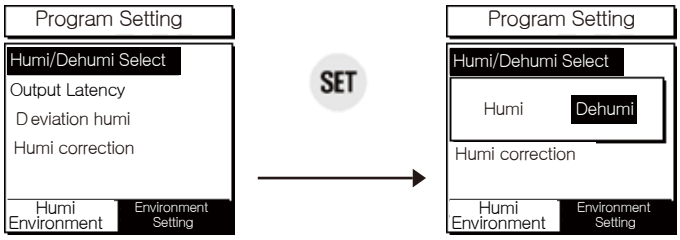
Example) When the setting is set to 1 minute, the relay is turned on at 2 points after being delayed by 1 minute from 1 point to 2 points.



Humi Environment Details

Operation Mode	Setting Items	
Mushroom /plant cultivation & Indoor air purification systems	Humi Dehumi Select	For examples of humi and dehumi, please refer to (humidity control output).
	Output delay time	
	Deviation Humi	
	Humi Correction	

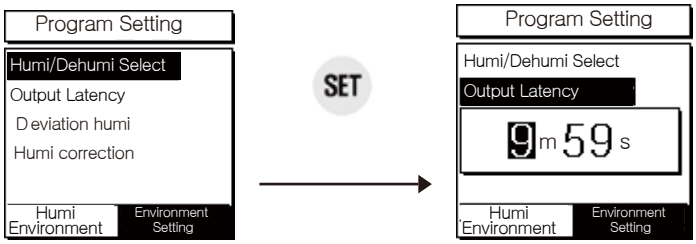
▶Humi/Dehumi selection



Select the setting value with the left and right keys

- Humidification and dehumidification options available

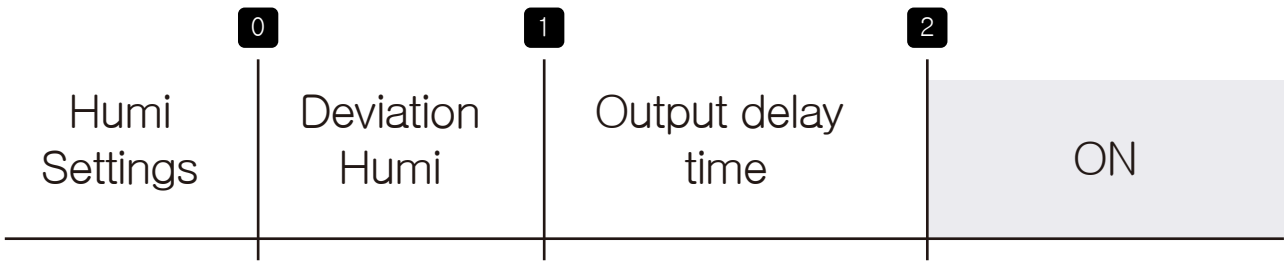
▶Output delay time



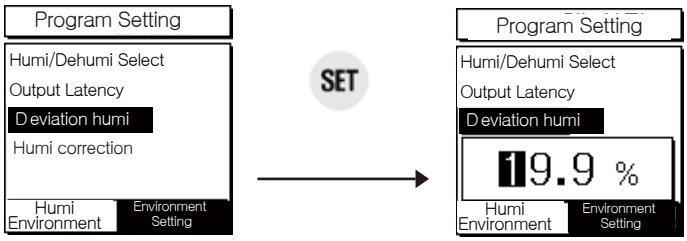
Move settings to left and right keys
Change settings to up and down keys

- Use when a controlled object frequently repeats the ON/OFF operation and causes a problem (freezer, compressor, etc.) Activation machine protection in case of instantaneous power failure or power cycle

Example) When the setting is set to 1 minute, the relay is turned on at 2 points after being delayed by 1 minute from 1 point to 2 points.



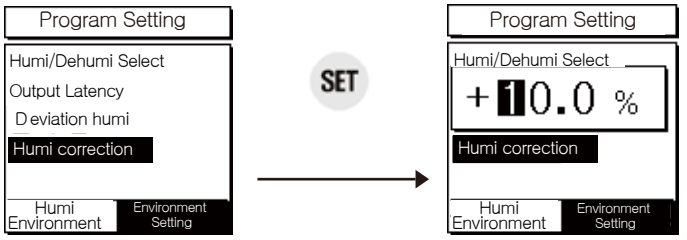
▶Deviation humi



Move settings to left and right keys
Change settings to up and down keys

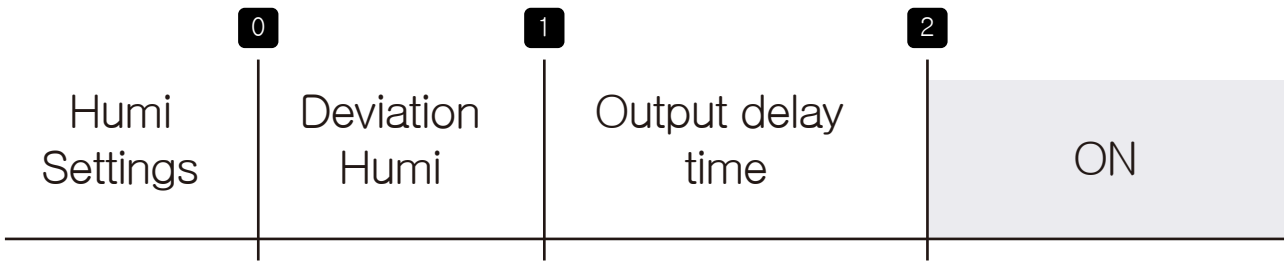
- In ON/OFF control, a certain interval is required between ON and OFF (ON/OFF width setting) If ON and OFF operate too often, the output contact point other than the relay or other output contact point may be damaged quickly or hunting (power generation phenomenon, chattering) may occur due to external noise, etc. To prevent this phenomenon, setting and using the deviation tempis a function to protect the contact point of the device, etc.

▶Humi correction



Move settings to left and right keys
Change settings to up and down keys

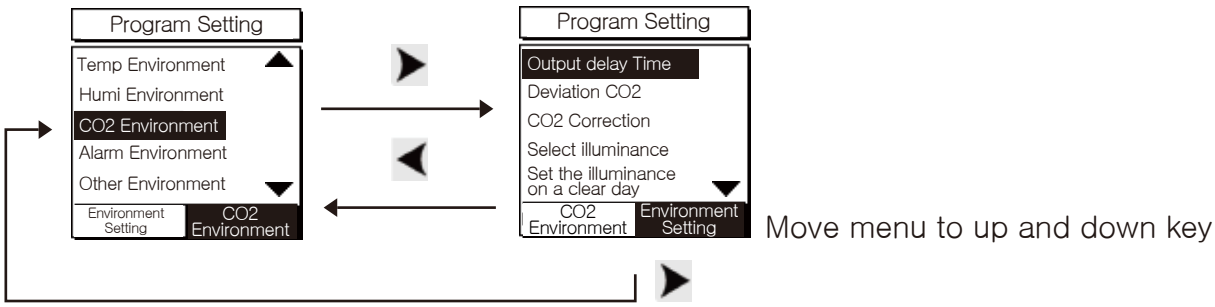
- If the humidity displayed by the product differs from other precision hygrometers, it matches the humidity of the product with other precision hygrometers.
  Example) Display humidity: 25.0% and actual humidity: 27.0%
  If the humidity sensor correction value is set to +2.0%, the display humidity of the product will be 25.0+2.0 = 27.0%.



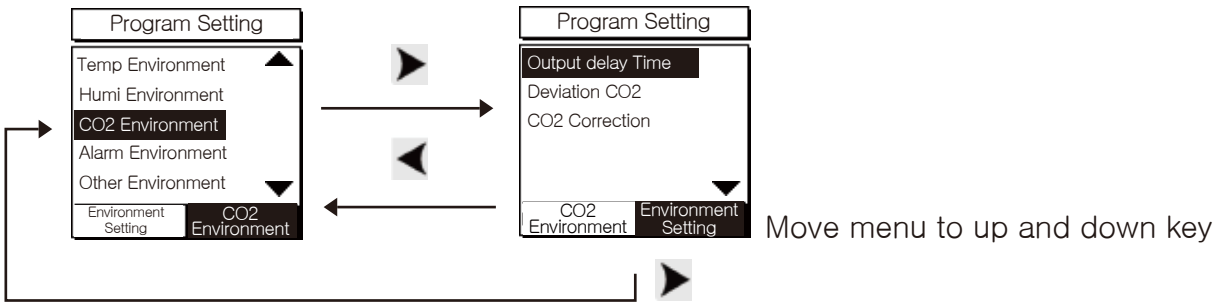
The detailed functions of the CO2 environment menu change according to the operation mode selection, providing only the necessary functions for the user.

Operation Mode	Setting Items	
Mushroom /plant cultivation	Output delay time	In the mushroom/plant cultivation mode, it is configured to allow users to grow more conveniently using illumination, see (CO2 control output) for detailed illumination use examples. When in indoor air cleaning mode, there is no illuminance control function, only monitoring is possible.
	Deviation CO2	
	CO2 Correction	
	Select illuminance	
	Sunny Day Illumination Setting	
	Cloudy Day Lighting Setting	
Indoor air purification systems	Output delay time	
	Deviation CO2	
	CO2 Correction	

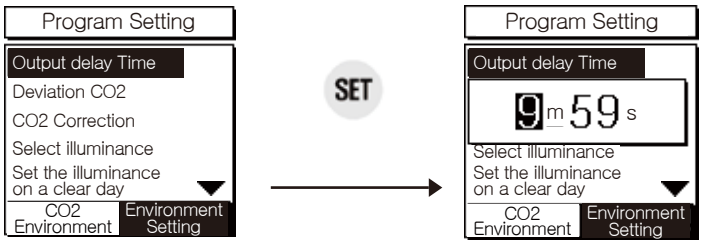
■ Screen in mushroom/plant cultivation mode



■ Screen in indoor air purification systems mode



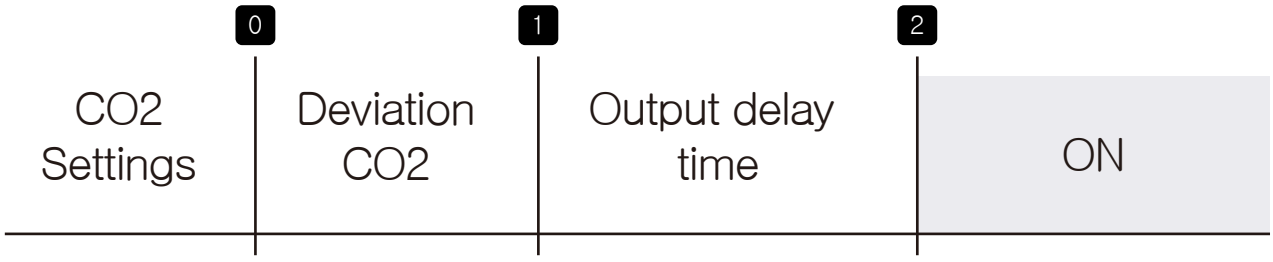
▶Output delay time



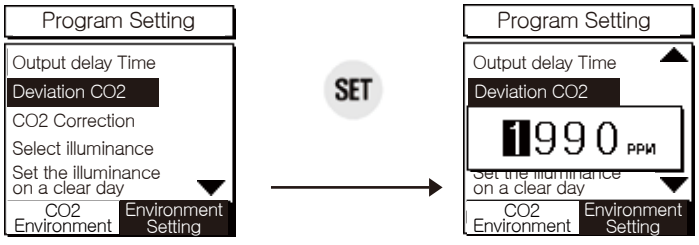
Move settings to left and right keys
Change settings to up and down keys

- Use when a controlled object frequently repeats the ON/OFF operation and causes a problem (freezer, compressor, etc.) Activation machine protection in case of instantaneous power failure or power cycle

Example) When the setting is set to 1 minute, the relay is turned on at 2 points after being delayed by 1 minute from 1 point to 2 points.



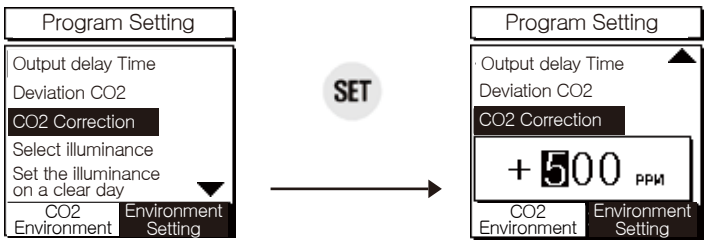
▶Deviation CO2



Move settings to left and right keys
Change settings to up and down keys

- In ON/OFF control, a certain interval is required between ON and OFF (ON/OFF width setting) If ON and OFF operate too often, the output contact point other than the relay or other output contact point may be damaged quickly or hunting (power generation phenomenon, chattering) may occur due to external noise, etc. To prevent this phenomenon, setting and using the deviation temp is a function to protect the contact point of the device, etc.

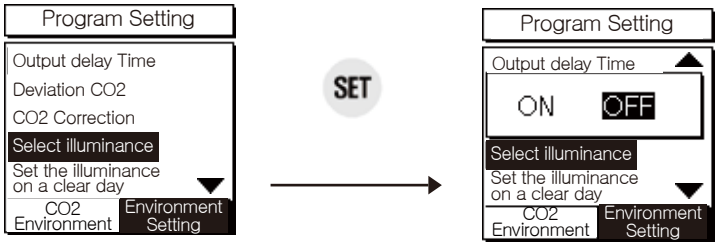
▶CO2i correction



Move settings to left and right keys
Change settings to up and down keys

- If the carbon dioxide shown in the product differs from that of other precision carbon dioxide systems, the product's carbon dioxide is matched with that of other precision carbon dioxide systems.
  For example, if the CO2 sensor correction value is set to +100ppm when the CO2:1000ppm and the actual CO2:1100ppm, the product's marked CO2 will be 1000ppm+100ppm=1100ppm.

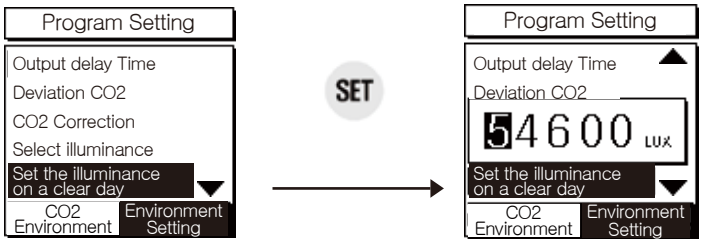
▶Illumination selection



Select the setting value with the left and right keys

- On/off determines whether or not the illuminance is selected.

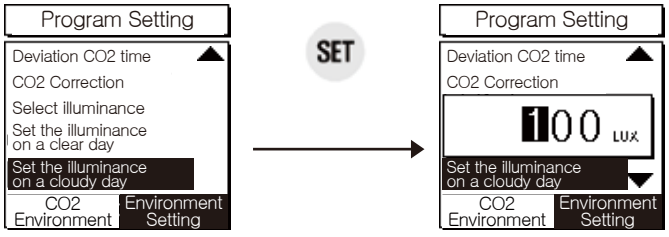
▶Sunny Day Illumination Settings



Move settings to left and right keys
Change settings to up and down keys

- By specifying the illuminance setting on a sunny day, the CO2 setting changes depending on the illuminance.

▶Cloudy Day Illumination Settings

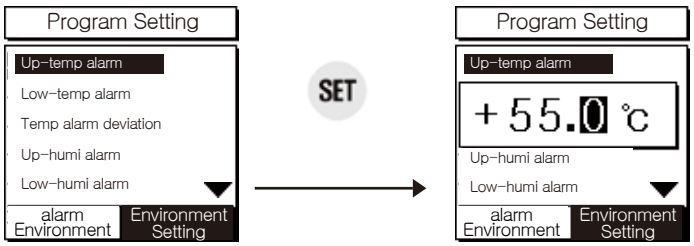


Move settings to left and right keys
Change settings to up and down keys

- By specifying the illuminance setting on a cloudy day, the CO2 setting changes depending on the illuminance.

Operation Mode	Setting Items	
Mushroom /plant cultivation & Indoor air purification systems	Up-temp alarm	The upper and lower limits of the temperature /humidity/CO2 are set to cause a buzzer when the measurement is above or below the upper limit, allowing the user to detect abnormal signals. Details continue on the next page.
	Low-temp alarm	
	Temp alarm deviation	
	Up-humi alarm	
	Low-humi alarm	
	Humi alarm deviation	
	Up-CO2 alarm	
	Low-CO2 alarm	
	CO2 alarm deviation	
	Set alarm time	

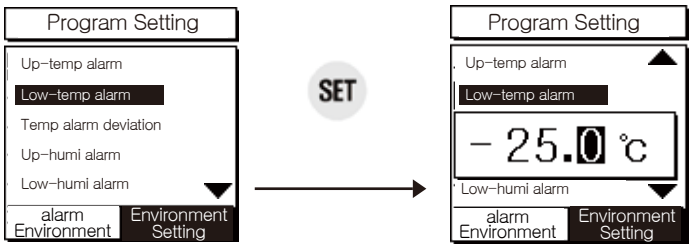
▶Up-temp alarm



Move settings to left and right keys
Change settings to up and down keys

- Set the point at which a high-temp alarm is generated when the current temp is above a certain temp.
  High temp alarm occurrence: When the current temp is above the upper temp limit setting (buzzer ON)
  Release after high temp alarm: When the current temp is below (the upper limit setting value - the temp alarm deviation setting value) (buzzer OFF)

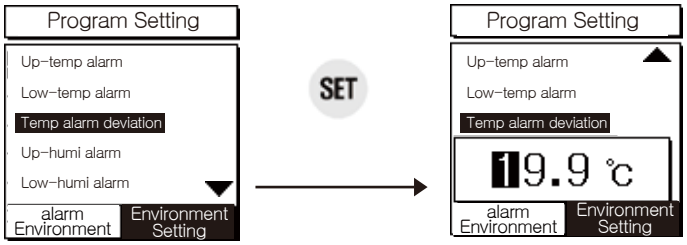
▶Low-temp alarm



Move settings to left and right keys
Change settings to up and down keys

- Set the point at which a low-temp alarm is generated when the current temp is below a certain temp. Low-temp alarm occurrence: When the current temp is below the set temp lower (buzzer ON)
  Release after low temp alarm: When the current temp is above (lower temp setting value + temp alarm deviation setting value) (buzzer OFF)

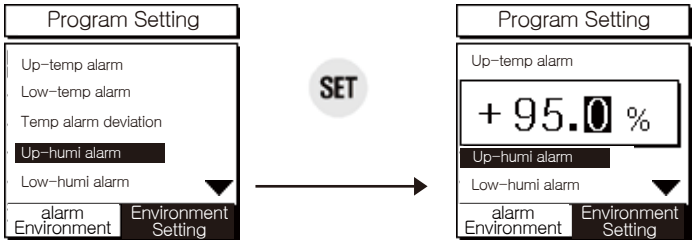
▶Temp alarm deviation



Move settings to left and right keys
Change settings to up and down keys

- Sets the hysteresis width between alarm generation ON and OFF, and applies to both high and low temperature alarms.

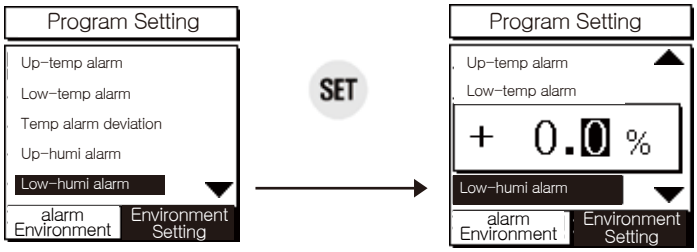
▶Up-humi alarm



Move settings to left and right keys
Change settings to up and down keys

- Set the point at which a high-Humi alarm is generated when the current Humi is above a certain Humi.
  High Humi alarm occurrence: When the current Humi is above the upper Humi limit setting (buzzer ON)
  Release after high Humi alarm: When the current Humi is below (the upper limit setting value - the Humi alarm deviation setting value) (buzzer OFF)

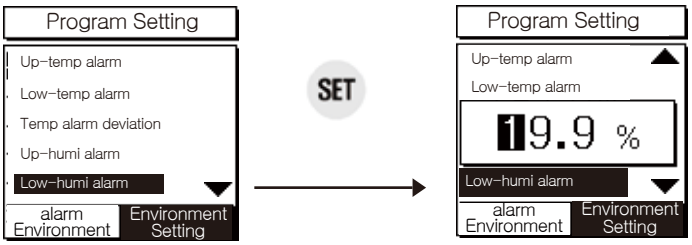
▶Low-humi alarm



Move settings to left and right keys
Change settings to up and down keys

- Set the point at which a low-Humi alarm is generated when the current Humi is below a certain Humi. Low-Humi alarm occurrence: When the current Humi is below the set Humi lower (buzzer ON)
  Release after low Humi alarm: When the current Humi is above (lower Humi setting value + Humi alarm deviation setting value) (buzzer OFF)

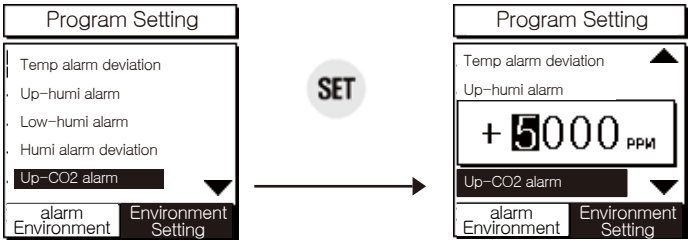
▶Humi alarm deviation



Move settings to left and right keys
Change settings to up and down keys

- Sets the hysteresis width between alarm generation ON and OFF, and applies to both high and low Humi alarms.

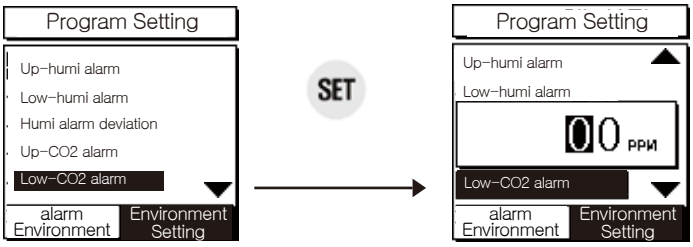
▶Up-CO2 alarm



Move settings to left and right keys
Change settings to up and down keys

- Set the point at which a high-CO2 alarm is generated when the current CO2 is above a certain CO2.
  High CO2 alarm occurrence: When the current CO2 is above the upper CO2 limit setting (buzzer ON)
  Release after high CO2 alarm: When the current CO2 is below (the upper limit setting value - the CO2 alarm deviation setting value) (buzzer OFF)

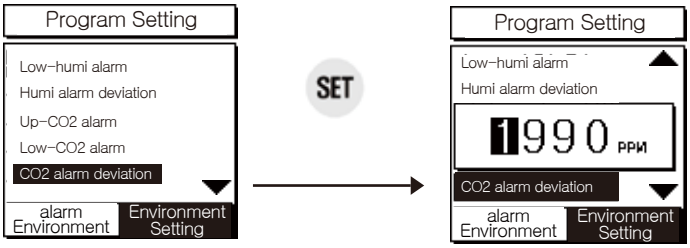
▶Low-CO2 alarm



Move settings to left and right keys
Change settings to up and down keys

- Set the point at which a low-CO2 alarm is generated when the current CO2 is below a certain CO2. Low-CO2 alarm occurrence: When the current CO2 is below the set CO2 lower (buzzer ON)
  Release after low CO2 alarm: When the current CO2 is above (lower CO2 setting value + CO2 alarm deviation setting value) (buzzer OFF)

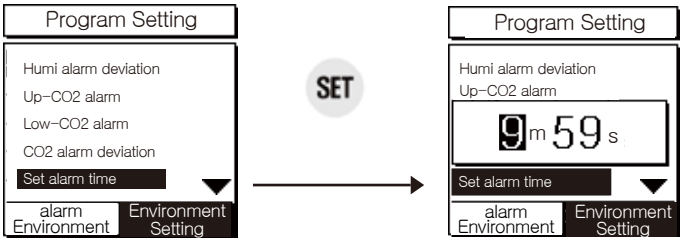
▶CO2 alarm deviation



Move settings to left and right keys
Change settings to up and down keys

- Sets the hysteresis width between alarm generation ON and OFF, and applies to both high and low CO2 alarms.

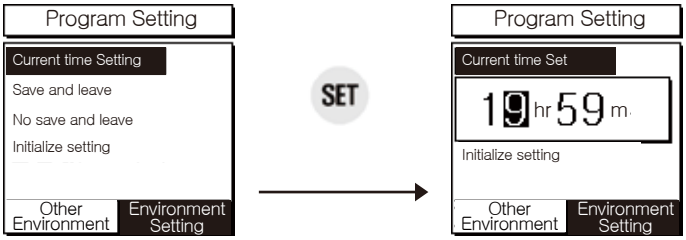
▶Set alarm time Setting



Move settings to left and right keys
Change settings to up and down keys

- During the alarm time, the buzzer is turned on and when the alarm time is set to 0 seconds, the buzzer is turned off.

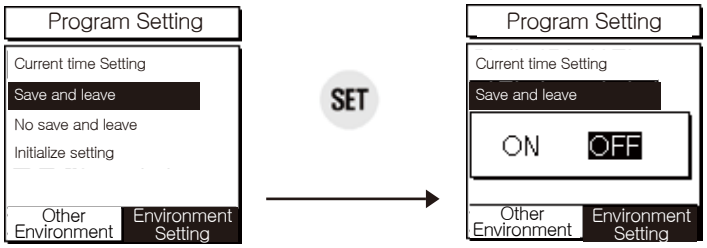
▶Current time Setting



Move settings to left and right keys
Change settings to up and down keys

- If the time displayed on the measurement screen and the exact time do not match, the time is changed.

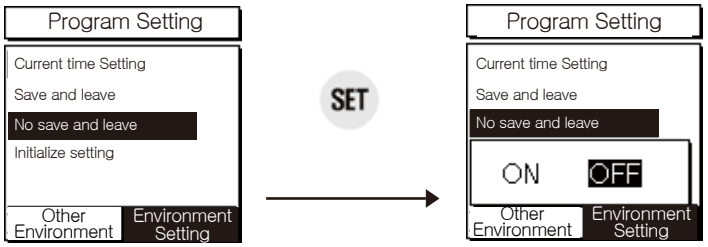
▶Save and leave



Select the setting value with the left and right keys

- ON Select: Store the changed settings in memory and exit the Settings menu.
- OFF Select: You can continue with the setup.

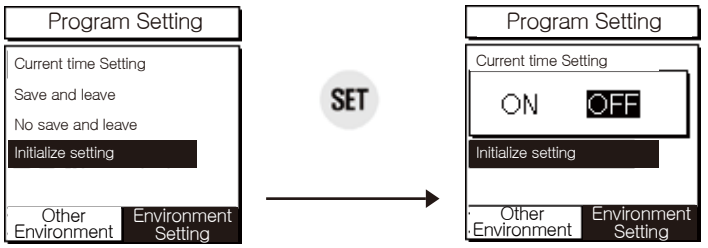
▶No save and leave



Select the setting value with the left and right keys

- ON Select: Store the changed settings in no memory and exit the Settings menu.
- OFF Select: You can continue with the setup.

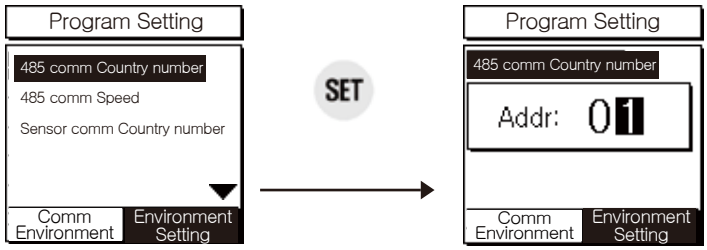
▶Initialize setting



Select the setting value with the left and right keys

- ON Select: It is a function that restores all settings to the initial factory value.
- OFF Select: You can continue with the setup.

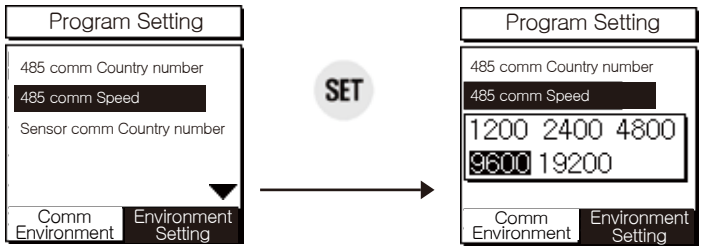
▶485 comm Country number



Move settings to left and right keys
Change settings to up and down keys

- Comm addresses are used to identify individual devices by assigning addresses from 1 to 99 to each device during serial comm.

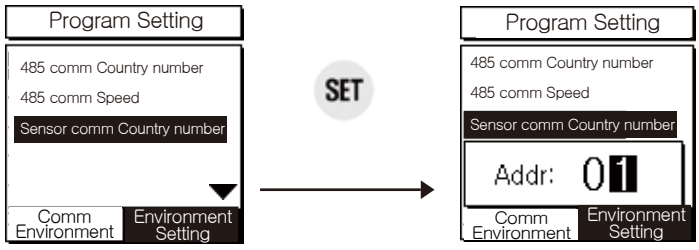
▶485 comm Speed



Change settings to left and right keys
and up and down keys

- This is the communication speed during serial communication. The speed must be matched with the HOST system such as PC.

▶Sensor comm Country number



Change settings to left and right keys
and up and down keys

- ID that requests measurements from FS-600R (sensor) as 8STC becomes the main host.
  For example, if you set the sensor communication station ID to number 1 and raise the switch corresponding to ID number 1 of the FS-600R, you will find the same ID and read the measured value.
- Up to nine units can be read, and for more information on sensor switches, see (Sensor Features).

11 Set value in release

Setting Items		Forwarding value	Setting range
Temp Group	Select action	Door opening/closing control	Temp control/door opening&closing control
	Select 1st and 2nd Stage Control	1st stage	1st/2nd stage
	Deviation Temp	1.0℃	0.1~19.9℃
	Temp correction	0.0℃	-10.0 to +10.0℃
	Output delay time	1 s	0 s ~ 9 ms 59 s
	Open 1 ON time	10 s	0 s~29 m 59 s
	Open 1 OFF time	60 s	0 s~29 m 59 s
	Closed 1 ON time	10 s	0 s~29 m 59 s
	Closed 1 OFF time	60 s	0 s ~ 29 m 59 s
	Open2 ON time	10 s	0 s~29 m 59 s
	Open 2 OFF time	60 s	0 s~29 m 59 s
	Closed 2 ON time	10 s	0 s~29 m 59 s
	Up-temp alarm	95.0℃	Lower temp limit ~ +65.0℃
	Low-temp alarm	-20.0℃	-20.0℃~ Upper temp limit
	Temp alarm deviation	1.0℃	0.1~19.9℃
	Temp Setting	10.0℃	-20.0~+65.0℃
	Set each CH Open 1 Temp	10.0℃	Each CH closed 1 Temp setting ~ +65.0℃
	Set each CH Closed 1 Temp	10.0℃	-20.0℃~Each CH open 1 temp setting
	Each CH Open 2 deviation temp	10.0℃	0.1~65.0℃
	Each CH Close 2 deviation temp	-10.0℃	-20.0~ -0.1 ℃
Humi Group	Humi/dehumi selection	Dehumi	Dehumi/humi
	Output delay time	1s	0 s ~ 9 m 59 s
	Humi deviation	1.0%	0.1~ 19.9%
	Humi compensation	0.0%	-10.0 ~+10.0%
	Up-humi alarm	95.0%	Humi lower limit ~100.0%
	Low-humi alarm	0.0%	0.0% ~ Humi upper limit
	Humi alarm Deviation	1.0%	0.1~19.9%
	Humi setting	30.0%	0.0~100.0%
	Each CH humi setting	30.0%	0.0~100.0%
CO2 Group	Output delay time	1s	0 s ~ 9 m and 59 s
	Deviation CO2	100ppm	10~1990ppm
	CO2 correction	Oppm	-500~+500ppm
	CO2 high limit alarm	5000ppm	CO2 lower limit ~ 5000 ppm
	CO2 lower limit alarm	Oppm	0 ppm to CO2 upper limit
	CO2 alarm deviation	100ppm	10~1990ppm
	CO2 setting	1000ppm	0 ~ 5000ppm
	CO2 setting for each CH on a sunny day	1000ppm	0 ~ 5000ppm
	CO2 setting for each CH on a cloudy day	1000ppm	0 ~ 5000ppm
	output selection for each CH	OFF	OFF/CO2 Supply/Ventilation

Setting Items		Forwarding value	Setting range
Illumination Group	Select illuminance	OFF	OFF/ON
	Sunny Day Illuminance Setting	23000Lux	Cloudy Day Illumination Setting ~ 54600 Lux
	Cloudy Day Illuminance Setting	1000Lux	10 Lux ~ Sunny Day Illumination Setting
Other Group	Select System	mushroom/plant cultivation	Indoor air cleaning/mushroom/plant cultivation
	alarm time	0 s	0 s to 59 m ~ 59 s
	485 comm Country number	Number 1	Number 1 ~ 99
	485 comm speed	9600bps	1200/2400/4800/9600/19200bps
	Sensor comm Country number	Number 0	Number 0 ~ 8
	Show each CH	OFF	OFF/ON
	Time each CH	0 m	0 m ~ 23:59 m

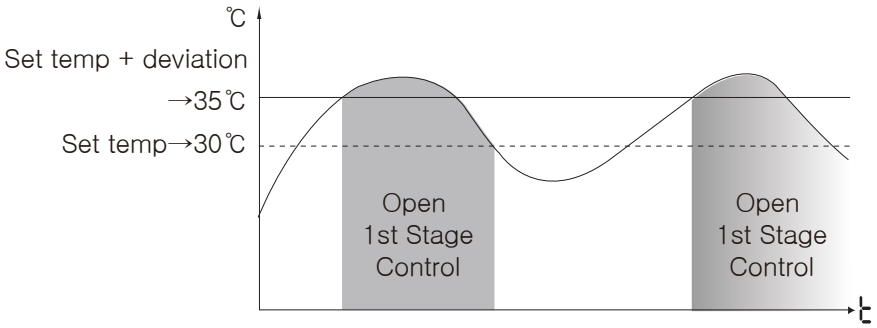
※ For each CH time setting range, refer to 'time setting'.

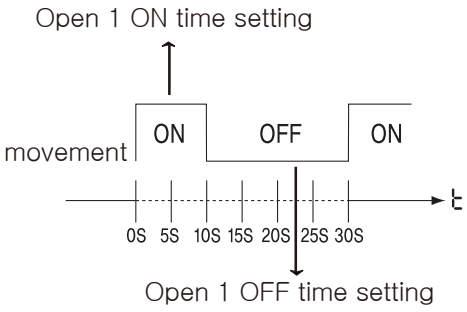
12 Output Specification

▶Temp control output

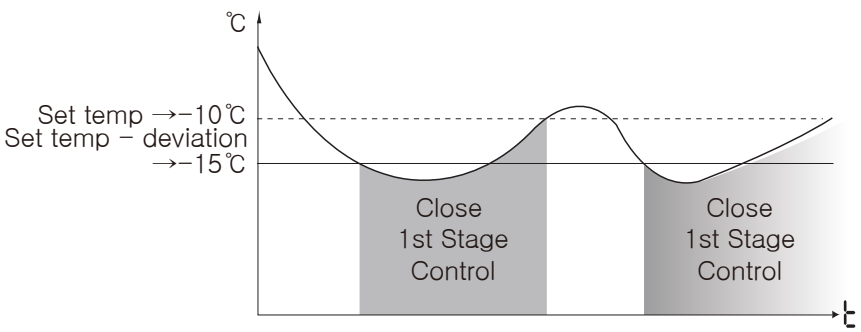
■ Door opening&closing control / 1st stage control

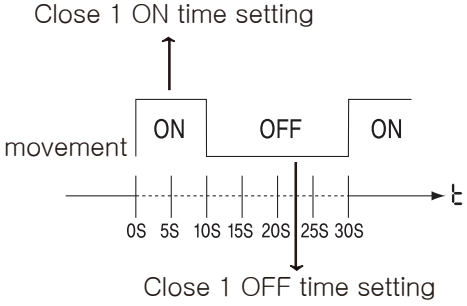
-Open 1 Temp Setting Example (Set temp: 30.0°C, deviation: 5.0°C)





-Close 1 Temp Setting Example (Set temp: -10.0°C, deviation: 5.0°C)

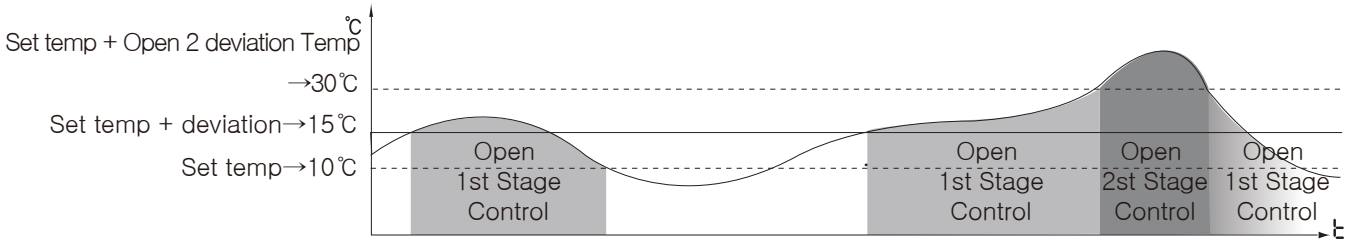


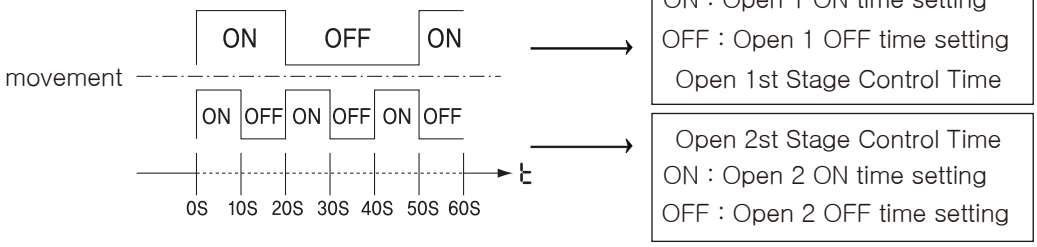


■ Door opening&closing control / 2st stage control

-Open 2 Temp Setting Example

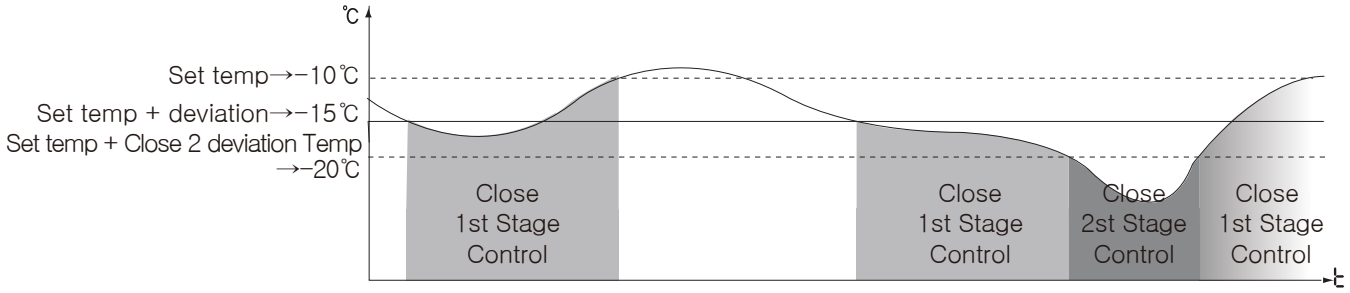
(Set temp: 10.0°C, deviation: 5.0°C, Open 2 deviation Temp:20.0C)



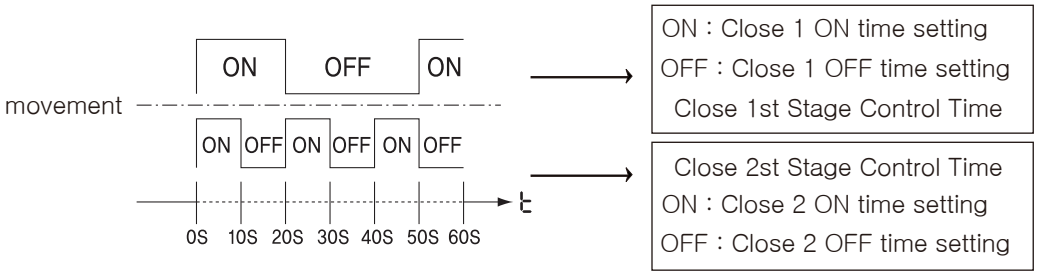


-Close 2 Temp Setting Example

(Set temp: -10.0°C, deviation: 5.0°C, Close 2 deviation Temp:-10.0C)

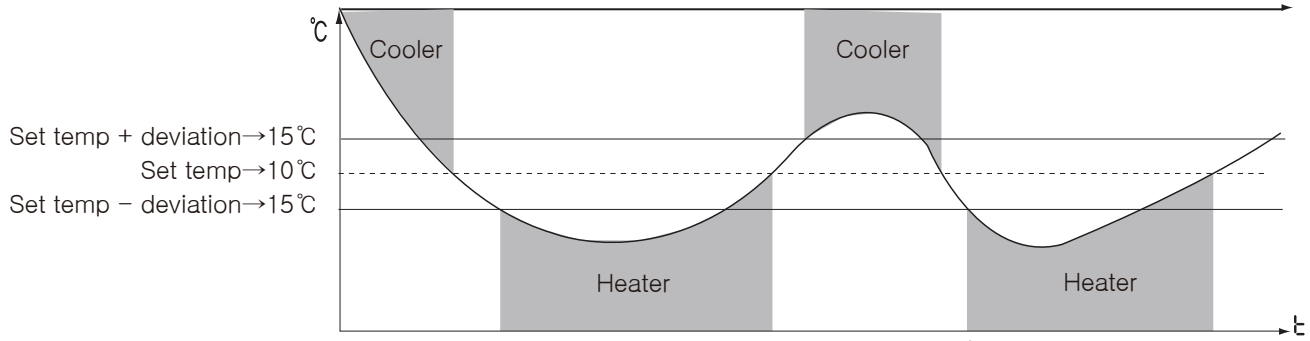


■ Temp control



-Heater/cooler Setting Example

(Set temp: 10.0℃, deviation: 5.0℃)



※ When it comes to mushroom/plant cultivation

- The temperature is controlled by channel time.

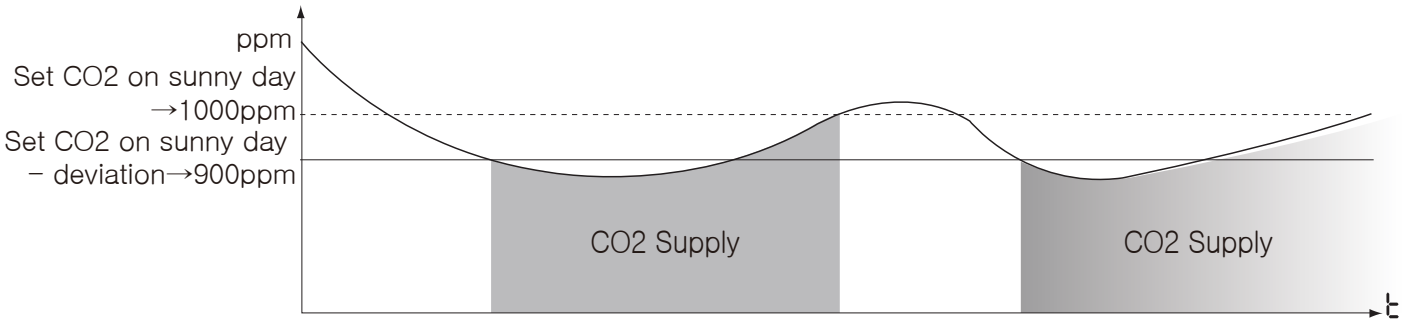
When it's indoor air cleaning

-Temperature is controlled, not by channel time.

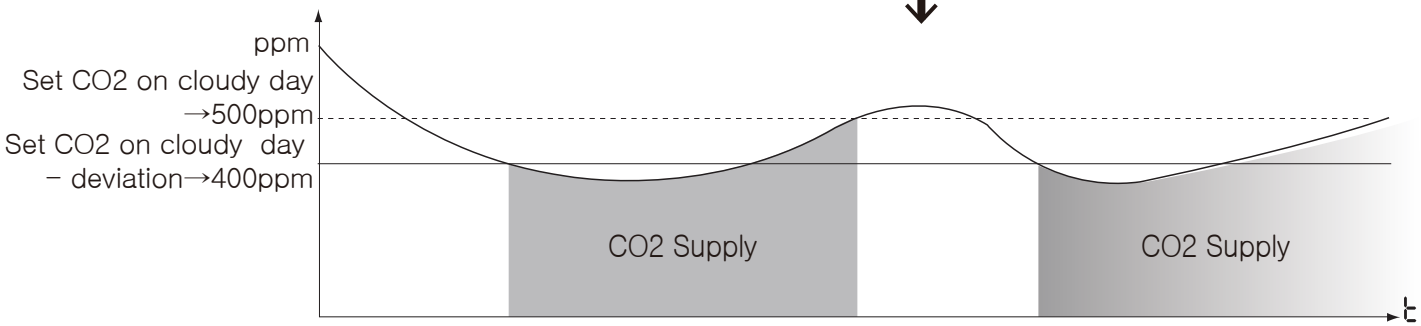
▶CO2 control output

■ Illumination Select

-Output: Examples of CO2 supply setting (Sunny day CO2 setting: 1000ppm, Cloud day CO2 setting: 500ppm, deviation: 100ppm)

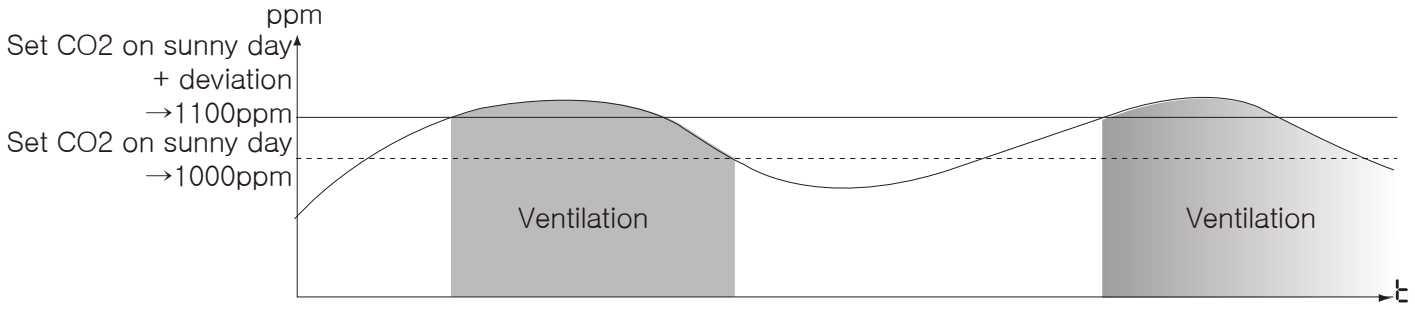


※ Illumination >= Sunny Day Illumination Setting

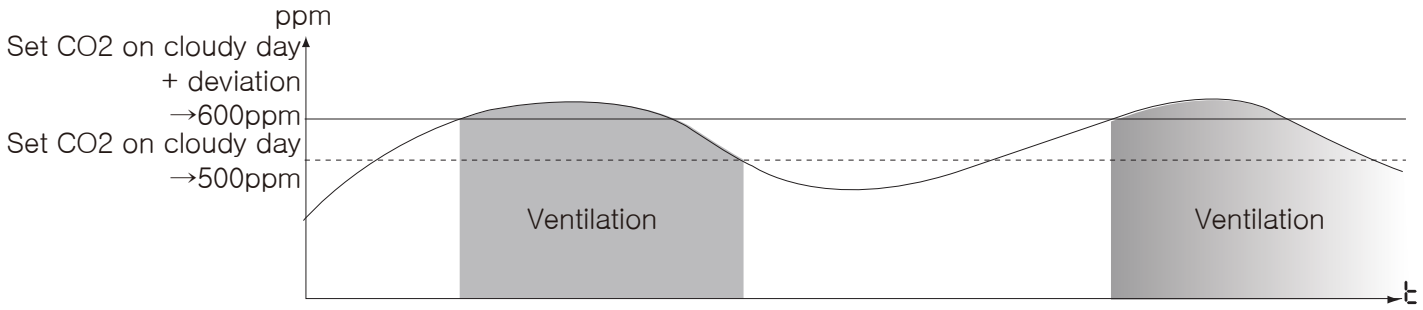


※ Sunny Day Illumination Settings > Illumination > = Cloudy Day Illumination Setting
-The output is turned off when the illuminance value does not reach the illuminance setting on a cloudy day.

-Output: Example ventilation setting (Sunny day CO2 setting: 1000ppm, cloudy day CO2 setting: 500ppm, deviation: 100ppm)



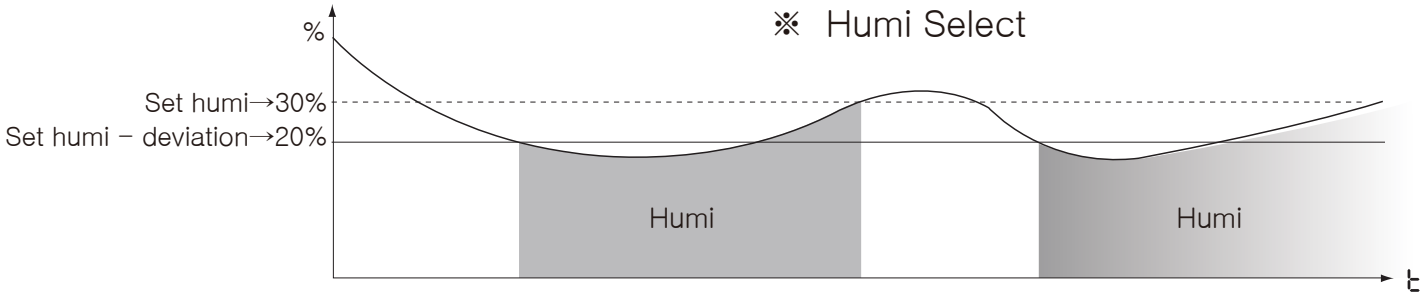
※ Illumination >= Sunny Day Illumination Setting

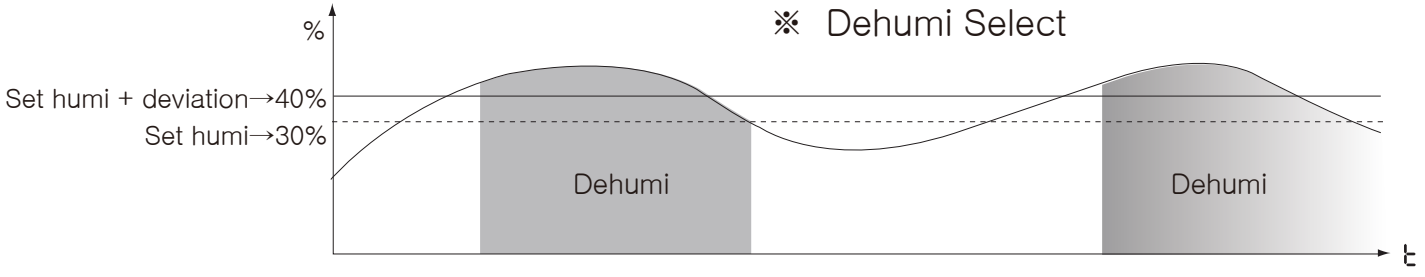


※ Sunny Day Illumination Settings > Illumination > = Cloudy Day Illumination Setting
−The output is turned off when the illuminance value does not reach the illuminance setting on a cloudy day.

▶Humi control output

−Output: Example ventilation setting (Sunny day CO2 setting: 1000ppm, cloudy day CO2 setting: 500ppm, deviation: 100ppm)





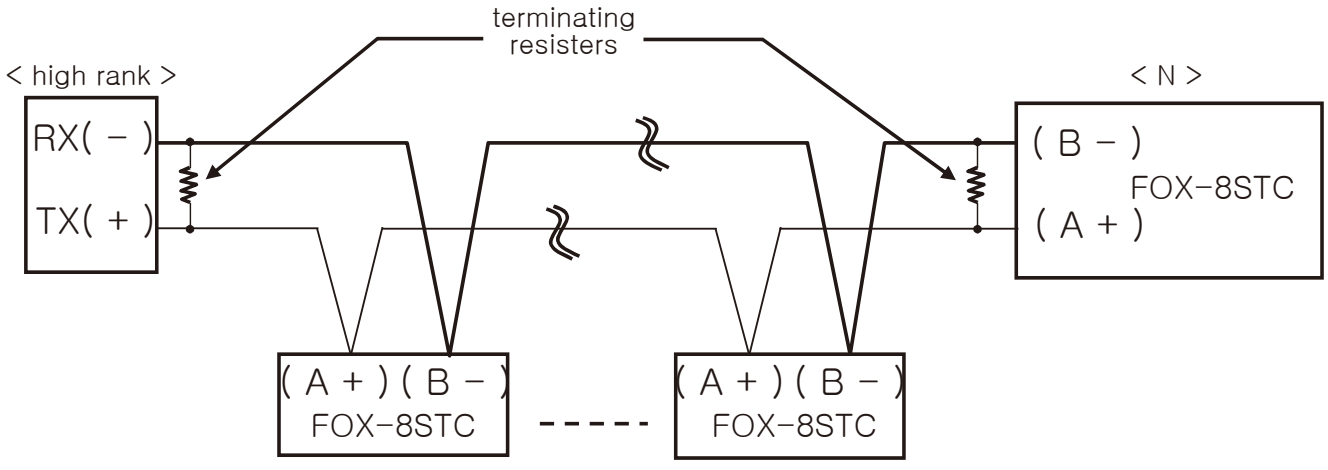
※ When it comes to mushroom/plant cultivation
− The Humi is controlled by channel time.
When it's indoor air cleaning
−Humi is controlled, not by channel time.

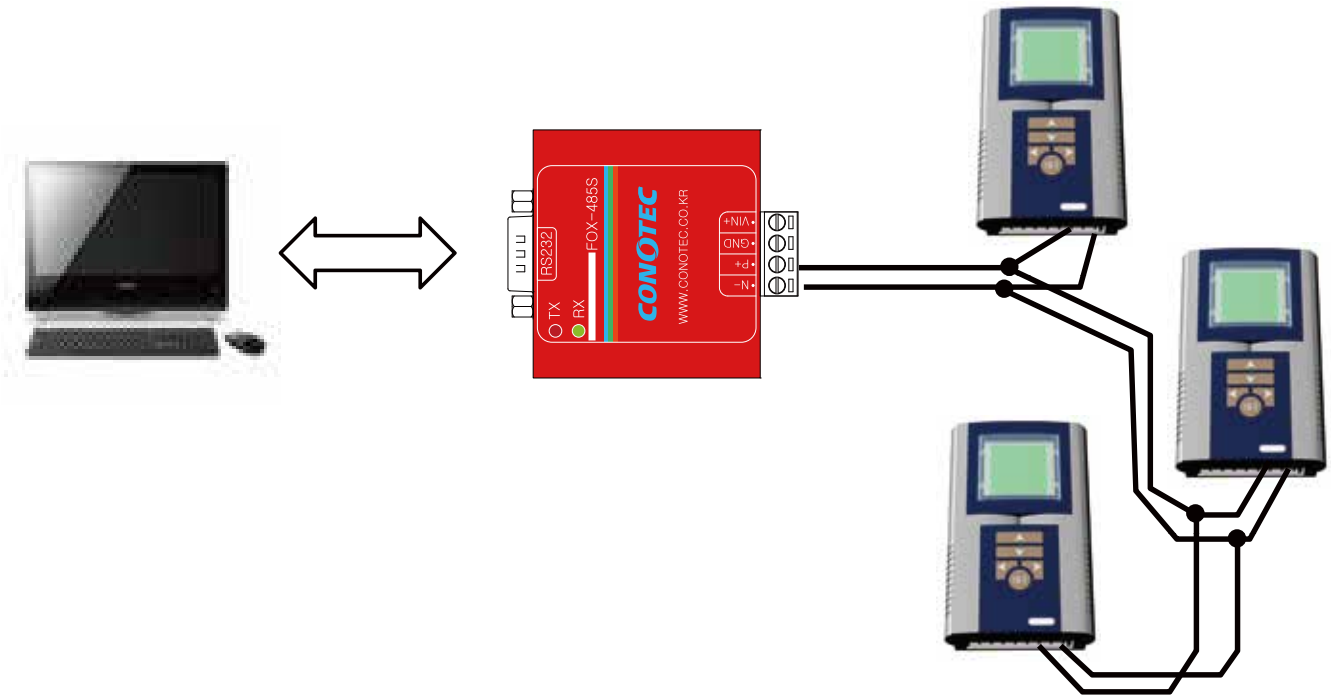
Communication Control Output

■ Interface

Application Specifications	EIA RS485 Compliance
Maximum number of connections	32 units (However, the comm station number can be set from 1-99)
Comm method	Two-wired half-two-fold
Way of comm	asynchronous
Commu distance	within 1.2KM
Comm speed	1200/2400/4800/9600/19200bps (optional)
Start Bit	1 bit fixed
Stop Bit	1 bit fixed
Parity Bit	None.
Data Bit	8 bit fixed
Protocol	Modbus RTU

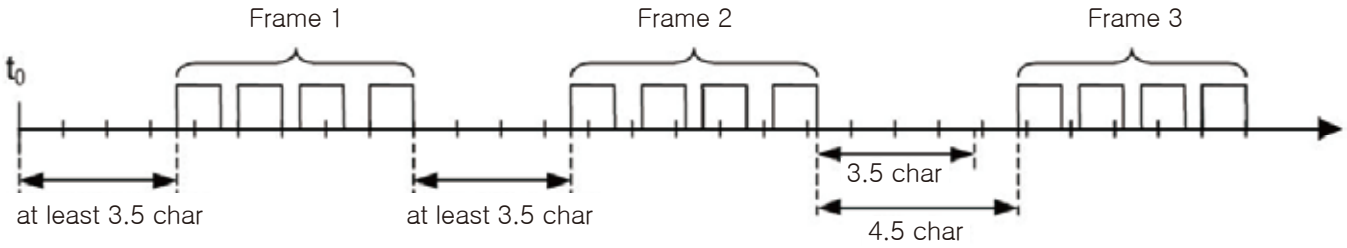
■ System Configuration





-There is a "RS485" for 1:N communication using the RS485 comm standard, when this device becomes the SLAVE device.
-A separate RS485 to 232 converter is required to comm with the PC program. (Buy separately)
-For comm cables, use Twist Pair wire suitable for RS485 comm.

■ Moubus RTU Configuration



MODBUS message

Start	Address	Function	Data	CRC Check	End
≥3.5 char	8 bits	8 bits	N X 8 bits	16 bits	≥3.5 char

■ Definition of Comm Commend and Block

Country number	Command	Starting point	Number of data	CRC 16
①	②	③	④	⑤

CRC16 Check Sum calculation range

1. Country number: Country code where the parent system identifies the 8STC and can be set within the range of 1 to 99.
2. Command: input register read command
3. Start address: Address of the input register to be read.
4. Number of Data: No. of Points CRC16: A Check Sum that inspects the entire 16 bit data to be read from the start point, which more a ccurately monitors errors that may occur in data transmission between the sender and the receiver and requires retransmission to ensure reliable data transmission and reception.

<FOX-8STC Response Format>

Country number	Command	Starting point	Data (Top)	Data (low rank)	CRC 16
①	②	③	④	⑤	⑥

CRC16 Check Sum calculation range

1. Country number: Country code where the parent system identifies the 8STC and can be set within the range of 1 to 99.
2. Command: Input register read command (see Modbus Mapping Table)
3. Data count: The number of 8 bit data to read from the start point (see Modbus Mapping Table)
4. Data (Top): Top data of read value (1Byte)
5. Data (Sub): Subdata of read value (1Byte)
6. CRC16:Check Sum Code that inspects the entire Block.

<Error handling>

Country number	Response Command (command)+80H	Exception code	CRC 16

Exception Code:

-(01H) If the command is not supported.
-(02H) When the starting point of the requested data is inconsistent with the one that can be transmitted by the device.
-(03H) When the number of requested data is inconsistent with the number that the device can transmit.
-(04H) When the requested command is not processed normally.

■ Moubus Mapping Table

<Read discrete input(Func02)>

NO	Address	Sortation	Set range	Unit	Comparison
100001	0000	Open/cooler	0:OFF 1:ON		
100002	0001	Close/Heater	0:OFF 1:ON		
100003	0002	Dehumi/humi	0:OFF 1:ON		
100004	0003	CO2 supply	0:OFF 1:ON		
100005	0004	Ventilation(Fan)	0:OFF 1:ON		
100006	0005	Boozer	0:OFF 1:ON		

<Read input registers(Func04)>

NO	Address	Sortation	Set range	Unit	Comparison
300001	0000	Temp measurements	-20.0~65.0	℃	
300002	0001	Humi measurements	0.0~100.0	%	
300003	0002	CO2 measurements	0~5000	ppm	
300004	0003	Illumination measurements	1~54600	Lux	
300005	0004	Error Indication	0:Normal 1:Cut off		
300006	0005	LCD check box	0:P 1~9 Number 10:A 11:E		P: Mushroom/plant cultivation 1~9:Show Channel A: indoor air purification systems E:Sensor open error
300007	0006	Open/Cooler (LCD output display)	0:OFF 1:ON		Bit0
		Closed/Heater (LCD output display)	0:OFF 1:ON		Bit1
		Humi/Dehumi (LCD output display)	0:OFF 1:ON		Bit2
		CO2 supply (LCD output display)	0:OFF 1:ON		Bit3
		Ventilation (Fan) (LCD output display)	0:OFF 1:ON		Bit4
		Boozer (LCD output display)	0:OFF 1:ON		Bit5
		Humi/Dehumi (Select output display)	0:Humi 1:Dehumi		Bit6
		Temp/ door opening&losing (Select output display)	0:Cooler/Heater 1:Open/Close		Bit7

<Read Holding Register (Func03)/Write Single Register (Func06)/ Write Multiple Register(Func16)>

<Temp-related Settings Group(Func:03/06/16,RW:R/W)>

NO	Address	Sortation	Set range	Unit
400001	0000	Select action	1 : Temp control 2 : Control of door opening and closing	
400002	0001	Control of door opening and closing	1 : 1 stage 2 : 2 stage	
400003	0002	Deviation Temp	1~199:0.1~19.9	℃
400004	0003	Temp correction	-100~+100:-10.0~+10.0	℃
400005	0004	Output delay time	0~9	m
400006	0005		0~59	s
400007	0006	Open 1 ON time	0~29	m
400008	0007		0~59	s
400009	0008	Open 1 OFF time	0~29	m
400010	0009		0~59	s
400011	000A	Close 1 ON time	0~29	m
400012	000B		0~59	s
400013	000C	Close 1 OFF time	0~29	m
400014	000D		0~59	s
400015	000E	Open 2 ON time	0~29	m
400016	000F		0~59	s
400017	0010	Open 2 OFF time	0~29	m
400018	0011		0~59	s
400019	0012	Close 2 ON time	0~29	m
400020	0013		0~59	s
400021	0014	Close 2 OFF time	0~29	m
400022	0015		0~59	s
400023	0016	Up-temp alarm	Low-temp X 10~650: Low-temp ~ 65.0	℃
400024	0017	Low-temp alarm	-200~Up-temp X 10 -20.0~Up-temp	℃

NO	Address	Sortation	Set range	Unit
400025	0018	Temp alarm deviation	1~199:0.1~19.9	℃
400026	0019	Temp Setting	-200~650:-20.0~65.0	℃
400027 ~400035	001A ~0022	Set each CH Open 1 temp	Set each CH Close 1 temp X 10~650: Set each CH Close 1 temp~65.0	℃
400036 ~400044	0023 ~002B	Set each CH Close 1 temp	-200~Set each CH Open 1 temp X 10: -20.0~Set each CH Open 1 temp	℃
400045 ~400053	002C ~0034	Set each CH Open 2 temp	1~650:0.1~65.0	℃
400054 ~400062	0035 ~003D	Set each CH Close 2 temp	-200~-1:20.0~0.1	℃

<Humi-related Settings Group(Func:03/06/16,RW:R/W)>

NO	Address	Sortation	Set range	Unit
401001	03E8	Dehumi/humi Select	1 : Dehumi 2 : humi	
401002	03E9	Output delay time	0~9	m
401003	03EA		0~59	s
401004	03EB	Deviation humi	1~199:0.1~19.9	%
401006	03EC	Humi Correction	-100~+100:-10.0~+10.0	%
401007	03ED	Up-humi alarm	Low-humi X 10~1000: Low-humi~100.0	%
401008	03EE	Low-humi alarm	0~Low-humiX10: 0.0~Low-humi	%
401009	03EF	Humi alarm deviation	1~199:0.1~19.9	%
401010	03F0	Humi Setting	0~1000:0.0~100.0	%
401011 ~ 401018	03F1 ~03F9	Set each CH Humi	0~1000:0.0~100.0	%

<Illumination-related Settings Group(Func:03/06/16,RW:R/W)>

NO	Address	Sortation	Set range	Unit
403001	0BB8	Illumination select	1:OFF 2:ON	
403002	0BB9	Sunny day Illumination Setting	Cloudy day Illumination Setting ~54600	Lux
403003	0BBA	Cloudy day Illumination Setting	10 ~ Sunny day Illumination Setting	Lux

<CO2-related Settings Group(Func:03/06/16,RW:R/W)>

NO	Address	Sortation	Set range	Unit
402001	07D0	Output delay time	0~9	m
402002	07D1		0~59	s
402003	07D2	Deviation CO2	10~1990	ppm
402004	07D3	CO2 Correction	-500~+500	ppm
402005	07D4	Up-CO2 alarm	Up-CO2 ~ 5000	ppm
402006	07D5	Low-CO2 alarm	0 ~ Up-CO2	ppm
402007	07D6	CO2 alarm deviation	10~1990	ppm
402008	07D7	CO2 Setting	0 ~ 5000	ppm
402009 ~402017	07D8 ~07E0	Each CH sunny day CO2 Setting	0 ~ 5000	ppm
402018 ~402026	07E1 ~07E9	Each CH cloudy day CO2 Setting	0 ~ 5000	ppm
402027 ~ 402035	07EA ~07F2	Each CH CO2 output select	1: OFF 2:CO2 Supply 3:Ventilation	ppm

<Other-related Settings Group(Func:03/06/16,RW:R/W)>

NO	Address	Sortation	Set range	Unit
404001	0FA0	System Select	1:indoor air purification systems 2:Mushroom/plant cultivation	
404002	0FA1	Alarm time	0~59	m
404003	0FA2		0~59	s
404004	0FA3	Current time	0~23	hr
404005	0FA4		0~59	m
404006	0FA5	485 comm Country number	1~99	number
404007	0FA6	485 comm speed	1:1200 / 2: 2400 / 3:4800 / 4:9600 / 5:19200	bps
404008	0FA7	Sensor comm Country number	1~99	number
404009 ~404017	0FA8 ~0FB0	Show each CH	1: OFF 2:ON	
404018 ~404035	0FB1 ~0FC2	Set each CH time	0~23	hr
			0~59	m

※For each CH time setting range, see 'Time setting'

■ 300007(0006) bit data configuration

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Temp/ door opening&closing	Humi /Dehumi	Alarm Output	Ventilation Output	CO2 supply Output	Humi/Dehumi Output	Close/Heater Output	Open/Cooler Output
0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1
Low rank 1Byte							

BitF	BitE	BitD	BitC	BitB	BitA	Bit9	Bit8
-	-	-	-	-	-	-	-
0	0	0	0	0	0	0	0
High rank 1Byte							

13 FS-600R

※ Characteristics

-Transfer CO2 (carbon dioxide), temperature, humidity, illumination sensor values (RS-485)

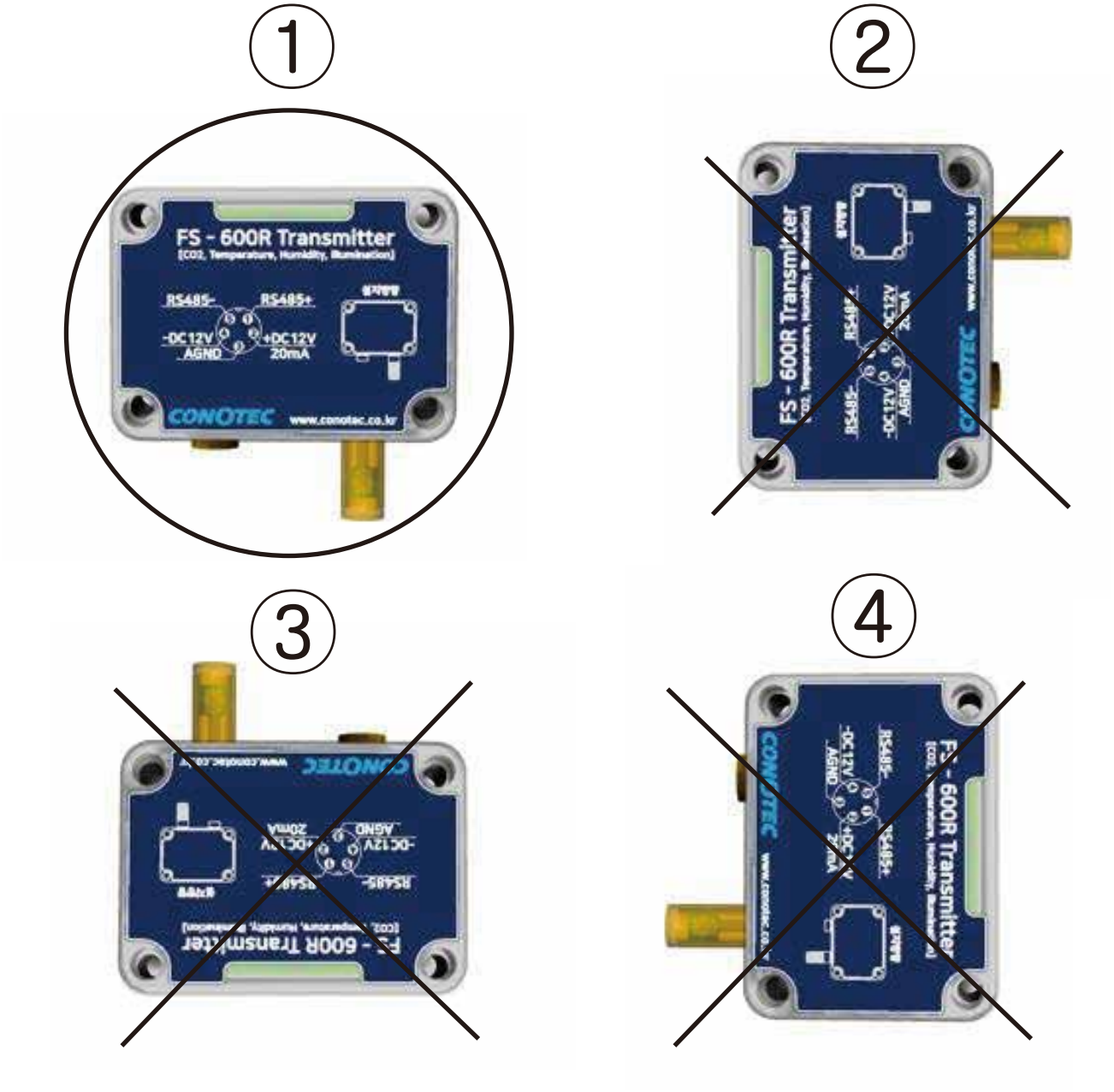
-Equipped with dual sensor NDIR CO2 sensor, long-term recalibration is not required.

-A special filter is used to block the penetration of liquids and various pollutants, while gas and water vapor are freely used to reduce errors in the CO2 sensor.

-Please refer to the precautions when installing the sensor for the direction of installation in the wall installation type.

The FS-600R is equipped with an illuminance sensor, which should be fixed so that the illuminance sensor faces upward, and it is recommended to install it in a place where the illuminance can be measured most appropriately.

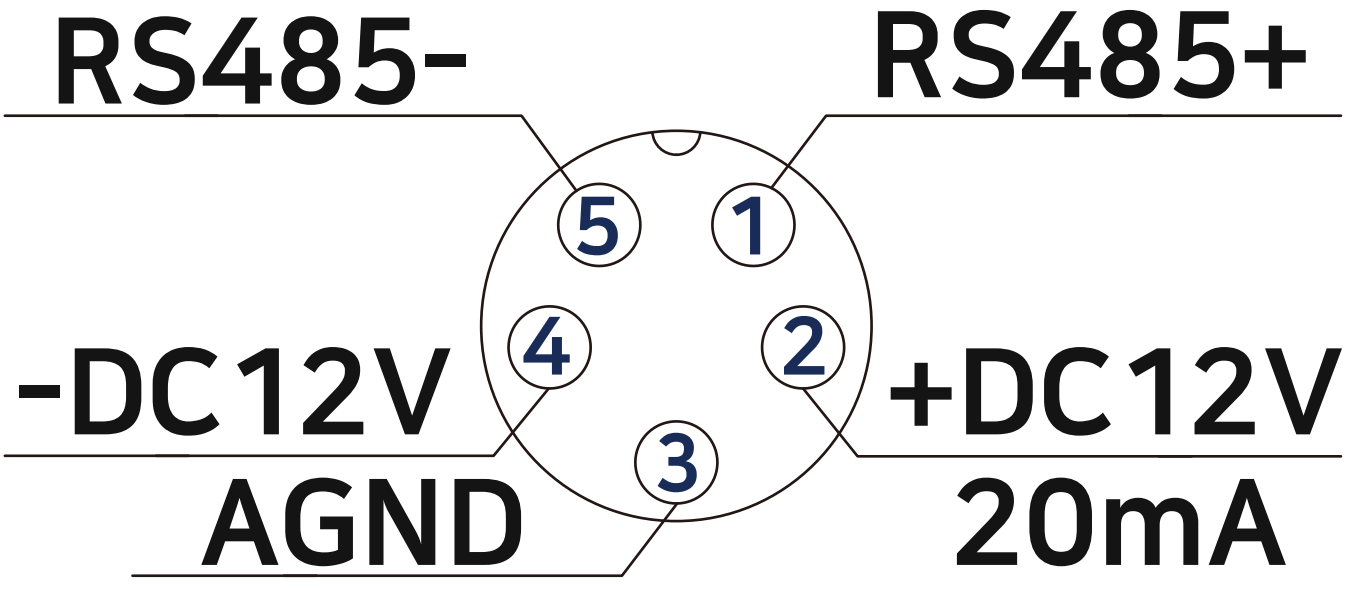
※ If it is a shadow or an unfavorable location for illuminance measurement, there may be errors in the measurement.



1. When installing FS-600R, it must be installed in the same direction as the O(No. 1) mark.
2. Do not interrupt the power supply while in use.
3. Wrong installation direction or interruption of power supply during use can cause moisture inside the product, which can cause product failure, and problems with illuminance measurement.
4. If the power supply needs to be cut off, it is recommended to keep it in a conditioned environment as a non-moisturizing secret.
5. We will not be responsible for problems caused by incorrect installation and storage carelessness, so please be careful.

■ Thank you for purchasing our Conotech Co., Ltd. product.

Special filters for measuring carbon dioxide are attached to the left and right sides of this product (FS-60OR).
Please note that defects due to user carelessness, such as tearing or pressing, will be charged, so be aware of this.
In addition, this product is waterproof to IP67, but do not open the product as it may cause moisture if the user opens the product.
This may result in a cost for product defects.



<Temp sensor>

Category	Content	Comparison
Measurement range	-20.0~65.0℃	
Angular resolution	0.01℃	
Repeated Accuracy	±0.1℃	
Response time	(Min) 5 ~ (Max) 30 Sec	

<Humi sensor>

Category	Content	Comparison
Measurement range	0~100%RH	
Angular resolution	0.03%RH	
Repeated Accuracy	±0.1%RH	
Response time	4Sec	

<Illumination sensor>

Category	Content	Comparison
Measurement range	0~54600 Lux	
Angular resolution	30 Lux	
Repeated Accuracy	0.75~1.65 Times	
Response time	(Min) 2.9 ~ (Max) 4.5 ms	

<CO2 sensor>

Category	Content	Comparison
Measurement method	NDIR Way	
Measurement range	0~5000 ppm	
Degree of precision	±2%	@10~50℃
Response time	0~80% < 30 Sec	
Signal update interval	Every 2.0 Seconds	
Response time	@25℃ < 90 Sec	
Automatic temp/humi conditions	0~50℃, 0~95%RH	
Storage Temp	-40 ~ 70℃	

■ Data Request Format

Byte	1	2	3	4	5	6	7	8	9	10
content	STX	ID	R	X	Z	T	H	L	ETX	BCC

■ Data Response Format

Byte	1	2	3	4	5	6	7	8	9	10
content	STX	ID	R	D	Z	CO2 Value				T

Byte	11	12	13	14	15	16	17	18	19	20
content	Mark	Temp Value				H	Humi Value			

Byte	21	22	23	24	25	26	27	28
content	L	Illumination Value					ETX	BCC

※ The contents of each item are displayed in ASCII format.

-STX:Start Code [02H]
-ID:Address Code, Terminal ID [30H-38H]
-RX: Read request R[52H],X[58H]
-ZTHL: Carbon dioxide, temperature, humidity, and ultrasonic measurements Z[5AH], T[54H], H[48H], L[4CH]
-CO2 Value : Carbon dioxide value display
ex) 3000 ppm:[33H],[30H],[30H],[30H]
-Temperature Value : Display temperature value
- When it's a video, the 11th Byte is [31H]
- When it's below zero, the 11th Byte is [30H]

-Humidity Value: Displaying Humidity Values
-Illumination Value: Display illumination values
-ETX: End Code [03H]
-BCC: stands for Block Check Character, which represents the XOR operation value from the beginning of the protocol (STX) to ETX.

■ Request to read Setting Format

Byte	1	2	3	4	5	6	7	8	9
content	STX	ID	R	X	Z/T H/L	S	Sortation	ETX	BCC

-Read Request: R[52H], X[58H]
-ZTHL: Carbon dioxide, temperature, humidity, and illumination setting Z[5AH], T[54H], H[48H], L[4CH]
-Classification: '0' [30H] indicates the corresponding sensor calibration value.

■ Read Setting Response Format

Byte	1	2	3	4	5	6	7	8	9	10	11	12	13	14
content	STX	ID	R	D	Z	S	Sortation	Code	CO2 Correction value				ETX	BCC

Byte	1	2	3	4	5	6	7	8	9	10	11	12	13	14
content	STX	ID	R	D	Z	S	Sortation	Code	Temp Correction value				ETX	BCC

Byte	1	2	3	4	5	6	7	8	9	10	11	12	13	14
content	STX	ID	R	D	Z	S	Sortation	Code	Humi Correction value				ETX	BCC

Byte	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
content	STX	ID	R	D	Z	S	Sortation	Code	Illumination Correction value					ETX	BCC

-Read response: R[2H, D[44H]
-When the eighth V LIVE is (+) when the 8th (+) days)

■ Request to write Setting Format

Byte	1	2	3	4	5	6	7	8	9	10	11	12	13	14
content	STX	ID	W	X	Z	S	Sortation	Code	CO2 Correction value				ETX	BCC

Byte	1	2	3	4	5	6	7	8	9	10	11	12	13	14
content	STX	ID	W	X	T	S	Sortation	Code	Temp Correction value				ETX	BCC

Byte	1	2	3	4	5	6	7	8	9	10	11	12	13	14
content	STX	ID	W	X	H	S	Sortation	Code	Humi Correction value				ETX	BCC

Byte	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
content	STX	ID	W	X	L	S	Sortation	Code	Illumination Correction value					ETX	BCC

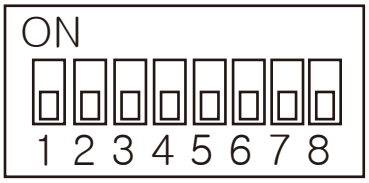
-Write request: W[57H], X[58H]
-Classification: You can set the corresponding sensor calibration value at '0' [30H].
-When the 8th Byte sign is (+) [31H], (-) [30H]
Example) Temperature +2.0°C calibration method
From byte 8, [31H], [30H], [30H], [32H], [30H] =>+0020 => +2.0°C
-CO2 calibration value range: ±500 ppm
-Temperature calibration range: ±10.0°C
-Humidity correction value range: ±10.0%
-Illumination correction value range: ±5000lux

■ Write Setting response Format

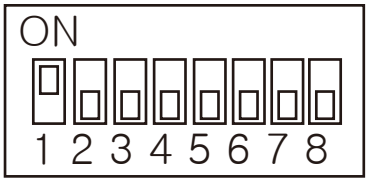
Byte	1	2	3	4	5	6	7	8	9
content	STX	ID	W	D	Z/T H/L	S	Sortation	ETX	BCC

-Write response: W[57H], D[44H]
-ZTHL: Carbon dioxide, temperature, humidity, and illumination set values Z[5AH], T[54H], H[48H], L[4CH]

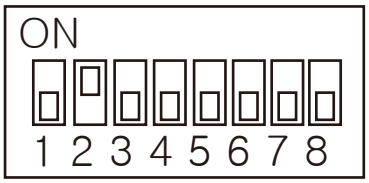
8-pin Dip Swich ID Setting



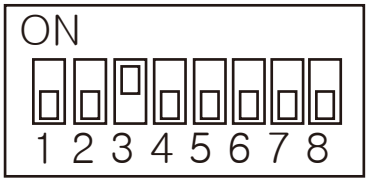
Set to ID 0 and send data when requested



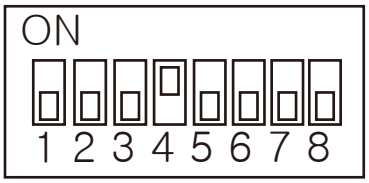
Set to ID 1 and send data when requested



Set to ID 2 and send data when requested



Set to ID 3 and send data when requested



Set to ID 4 and send data when requested

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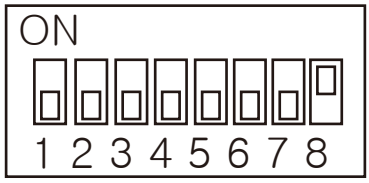
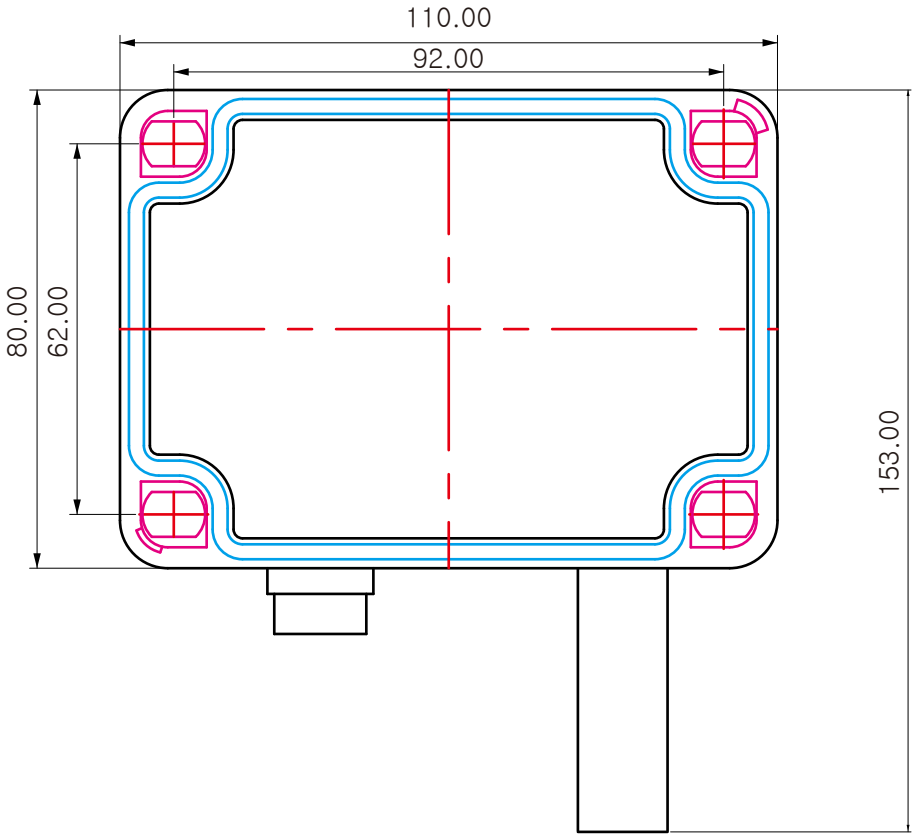
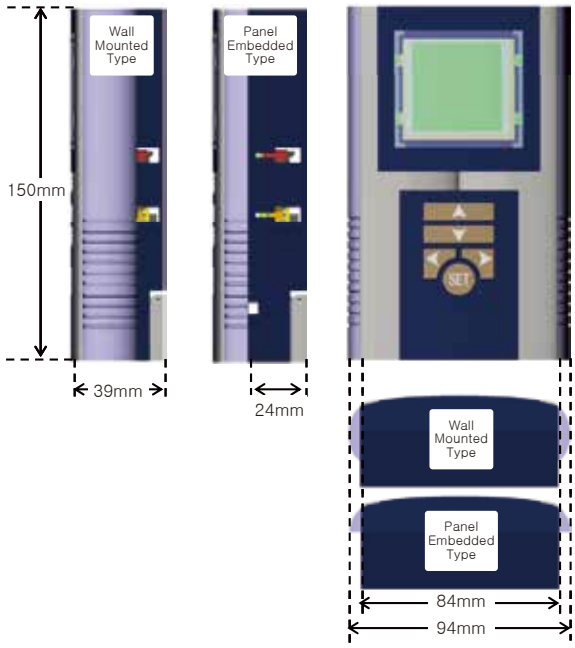


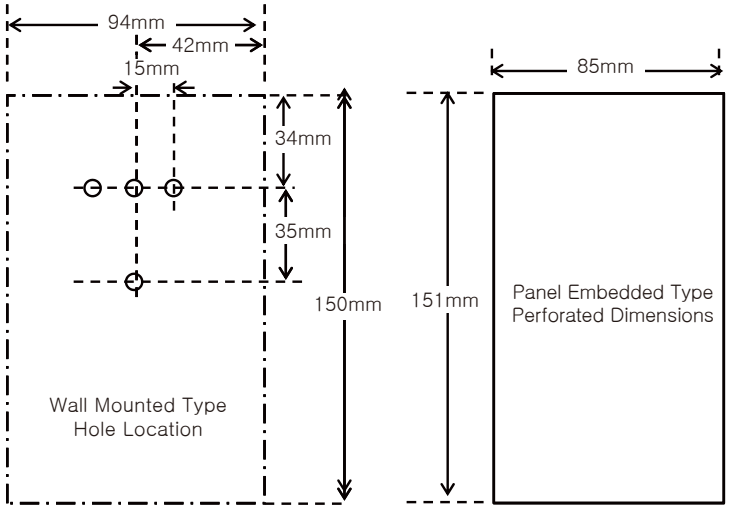
Set to ID 8 and send data when requested



12 Diemension and panel hole size

(Unit : mm / error : ±0.5)





Written Guarantee of Quality

This product was made through Conotec Co., Ltd.'s strict quality control and inspection process.

The free warranty period of the product is one year after purchase in accordance with the consumer damage compensation regulations, so please write down the purchase date and purchase place at the place of purchase.

If it is not listed, the free warranty period will be applied from the company's release date to 1 year and 6 months.

Name of the product	
Model name	
Date of purchase	(year) (month) (date)
Place of purchase	

If manufacturing defects or spontaneous failures occur within the free quality guarantee period, prepare a quality guarantee issued when purchasing the product, and visit the place of purchase and the headquarters to receive free repairs.

A predetermined repair fee may be charged if the free warranty period has passed or in the following cases.

- If it is not a failure, there will be a cost if you request the service, so please read the manual
- In the event of a failure due to careless handling or arbitrary repair or renovation by the consumer
- In the event of a failure due to incorrect use of electrical capacity
- When a failure occurs due to an impact such as a drop, etc
- Failure to comply with the content of the User's Guide
- Where a failure occurs due to a natural disaster (fire, flood, earthquake, lightning, etc.)

A/S

- Place of purchase
- A/S department of Conotec Quality Management Team Co., Ltd
  T: 070-7815-8266, F:051-819-4562

※ The above specifications may be changed without any notice for performance enhancement. Please make yourself fullyfamiliar with and follow the above precautions.

■ Warranty period: One year from the date of purchase

■ Address : (Street address) 56, Ballyongsandan 1-rp, Jangan-eup, Gijang-gun, Busan, ROK
(Land-lot address) 901-1, Ballyong-ri, Jangan-eup, Gijang-gun, Busan, ROK (46034)

• Product service : 070-7815-8289
• Customer service : 051-819-0425 ~ 0427
• FAX : 051-819-4562
• Email : overseas-sales@conotec.co.kr
• SNS : Facebook, Instagram, Twitter, YouTube ▶ 'Search for 'Conotec'
• Website : www.conotec.co.kr

◈ Installation precautions

■ This device sholuld be connected to a protective earth terminal and a power supply in order to prevent an electric shock.

■ Do not block the air outlet.

◈ Operation precautions

※ An operating environment of this device is as follows.

■ Ambient temperature : 0 ~ 60℃
■ Ambient humidity : 80%RH or less
■ Indoor uses only
■ Pollution class 2
■ Altitude under 2000m
■ Installation category : II

■ This device should be laid out in a way that its power cord is easy to handle.

■ Using this product in any method other than those specified by the manufacturer may damage its protection function

■ Major products and development

- Temperature/humidity controller
- Counter and timer controller
- Current and voltage panel meter
- Temperature/humidity indicator
- Oven controller
- CO2 controller
- PID controller
- Unit cooler controller
- Heat pump controller
- Chiller controller
- Thermo-hygrostat controller
- Short message alarm
- Temperature/ humidity transmitter
- Smartphone app and monitoring system

※ This manual was prepared in the Naver Nanum fonts.

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