

Chiller Controller

i 300



Thank you for using our CONOTEC's products.

Please be sure to read "Handling Precautions" before use, and use this product correctly.

After reading this user manual, keep it in a place where you can see at any time.

It will be much more convenient when you use this product after reading this user manual.

Manual Version : V3.0

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1 Handling Precautions

Thank you for purchasing our CONOTEC's products.

In order to use this product, please be aware of the details below.

Safety Precautions

Warnings

1. This product has not been manufactured as a safety device; therefore, in the case that this product is going to be used for controls, such as devices from which you feel concerned about personal injury, serious damage to the peripheral devices and enormous property damage, please use it with double safety devices attached.
2. Please do not connect, inspect or repair it when power is on.
3. The panel must be attached to use. It can be the cause of electric shock.
4. When connecting power, please be sure to identify the terminal number and connect them.
5. Please never disassemble, process, improve or repair this device.

Caution

1. Prior to installation of this instrument, please well understand the safety regulations, warnings and how to use and use this device only within its specified relevant specifications or capacity.
2. Do not install or wire it on the motors and solenoids, etc. which are extremely inductive loaded
3. When extending sensors, please use the same lines and do not make them longer than necessary.
4. Do not use any parts which cause arc when directly opened or closed at the same power or its nearby.
5. Please keep the power line away from the high-tension power cable, and do not install it in a place where water, oil or dust is severe.
6. Please do not install it in the place of being exposed to direct sunlight or rain.
7. Please do not install it in the place of strong magnetism, noise, severe vibration and shock.

8. Please keep it away from the place where strong alkaline and strong acidic materials directly come out.
9. Do not spray water directly onto the device for the purpose of cleaning during the installation in the kitchen
10. Do not install it in a location where the temperature /humidity exceed the rated ones.
11. Please use it with the sensor wire not being broken or scratched.
12. Use an independent pipe and keep the sensor wire away from the signal line, power and load wires
13. Please note that the follow-up services are not available when arbitrarily disassembling or modifying this product.
14. A display on the terminal connection diagram is a safety phrase of caution or warning.
15. Do not use near devices causing strong high-frequency noise (high-frequency welders, high-frequency sewing machines, high-frequency radios, large SCR controller).
16. When using methods other than specified by the manufacturer, injury or property damage may occur.
17. Please keep out of children's reach, since it is not a toy.
18. Please install it by the related professional or qualified person.
19. When wiring the product, terminals and screws should be tightened with sufficient torque. Contact failure may cause a fire.
20. Do not use a load that surpassed the rated value of switching capacity of relay contact point. This may cause insulation failure, contact weld, and poor contact.
21. We disclaim all the responsibility for damages caused by the negligence of the consumer or by not complying with a warning or caution statements specified above.

 **Danger**

■ **Caution, danger of electric shock**

1. Electric shock - Please do not touch the AC terminals while the power is on. You may get an electric shock.
2. When checking the input power, please be sure to shut off the input power.

2 Components

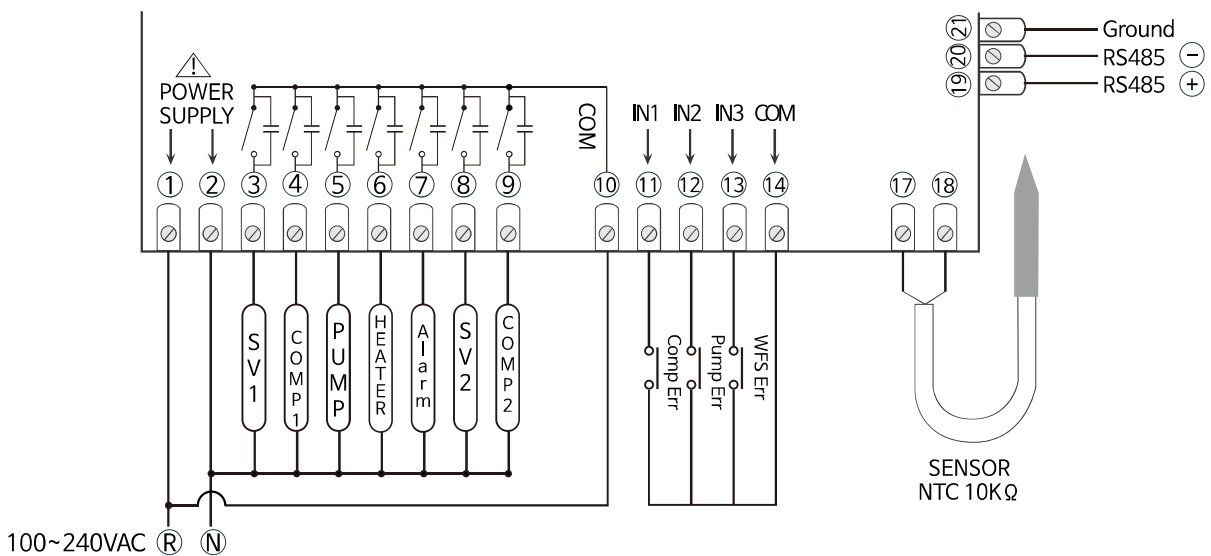
■ specifications

Input Voltage	100~240VAC 50~60Hz
Digital Input Port	3 Ports
Digital Output Port	7 Ports
Analog Port	Sensor : 1 Port(NTC10K) Temperature Range : -55.0 ~ 99.9°C
Communication	12-/24-/48-/96-/192- Bps Modbus Protocol(RS485) Within 1.2KM

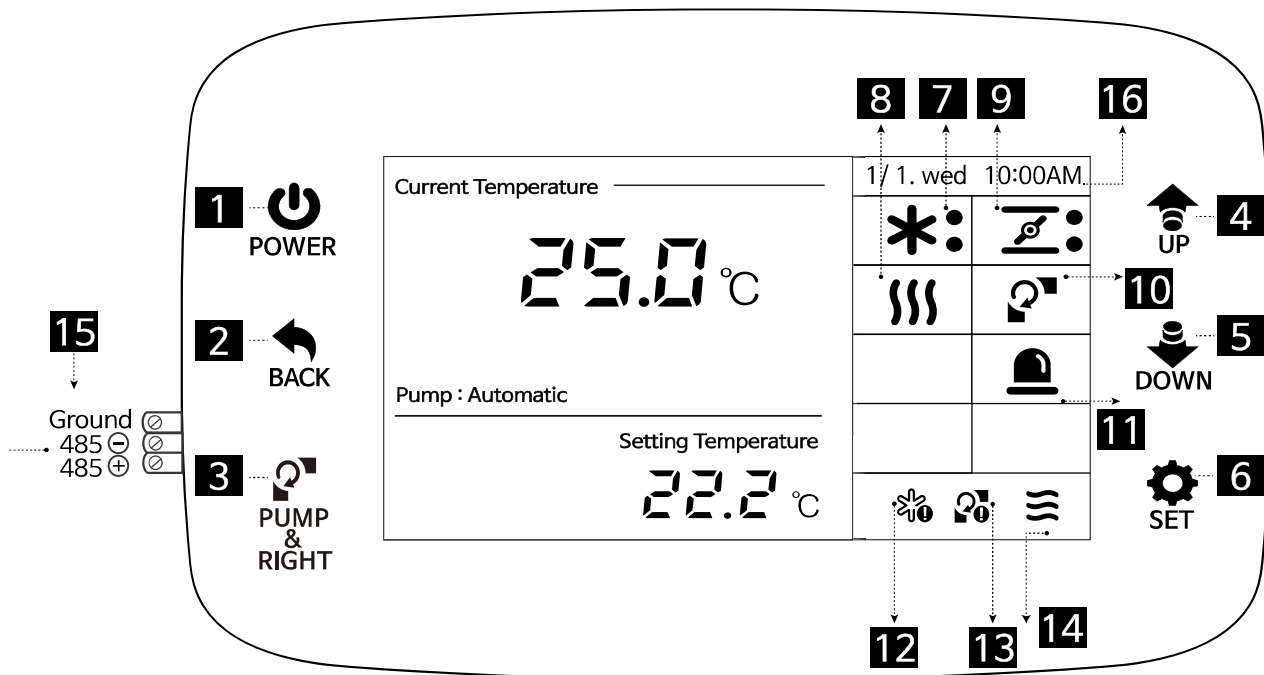
■ Input output specification

OUT1	SV 1
OUT2	COMP1
OUT3	PUMP
OUT4	HEATER
OUT5	ALARM
OUT6	SV2
OUT7	COMP2

IN1	COMP ERR
IN2	PUPM ERR
IN3	WFS ERR

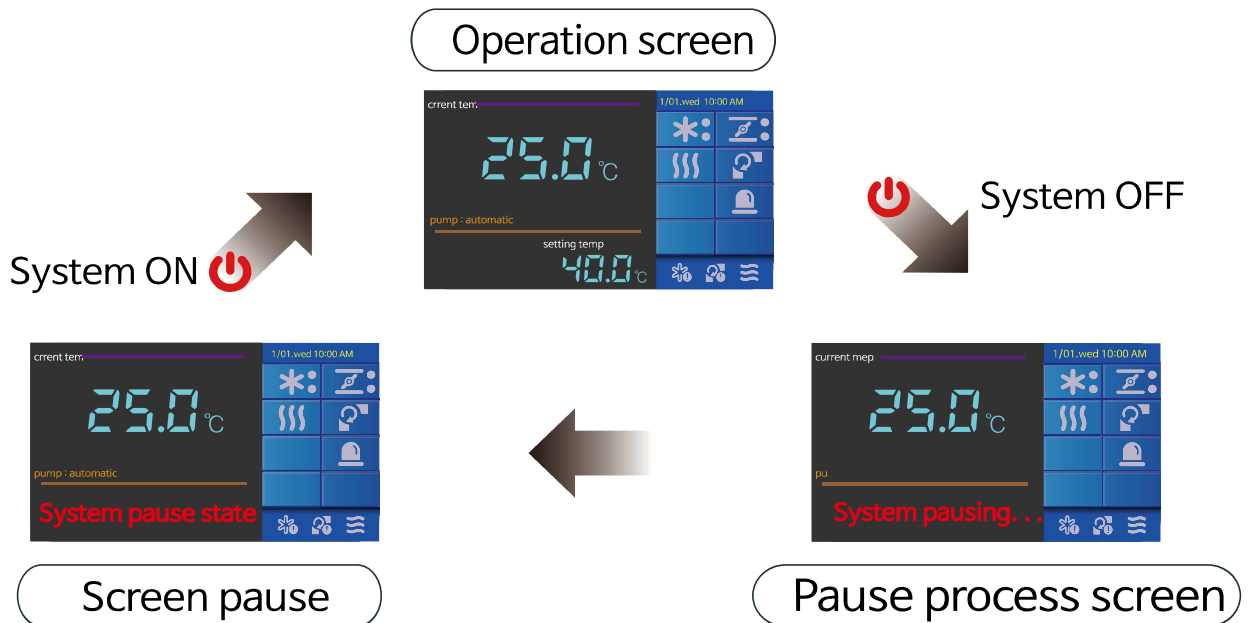


3 Switch and Display

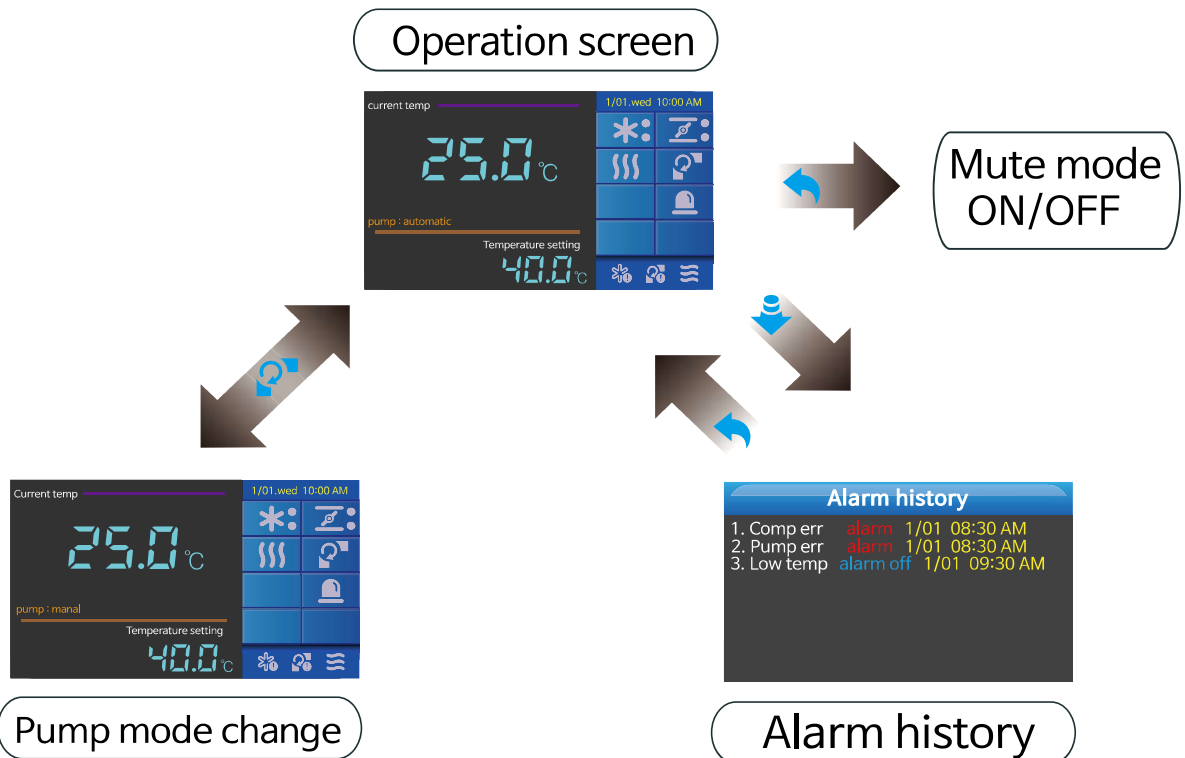


- 1** Power: A button to start or stop a system.
- 2** Cancel: A button to move to the previous menu at the time of setting or to return to the basic screen
- 3** Pump: A button for automatic operation of the pump operation mode / and to switch to the manual operation
- 4** Top: A button to move to the menu in the setting or a button that increases the setpoint upon changing
- 5** Bottom: A button to move to the menu in the setting or a button that decreases the setpoint upon changing
- 6** Check: A button to enter the setting menu or to select setpoint.
- 7** Comp output status icon
- 8** Heater output status icon
- 9** SV output status icon
- 10** Pump output status icon
- 11** Alarm output status icon
- 12** Comp out status err icon
- 13** Pupm out status err icon
- 14** WFS out status err icon
- 15** RS485 communication
- 16** Current time

■ Basic operating



■ Pump mode change / Alarm history/ Mute mode



- * **Manal** : Pump output always ON
- * **Automatic** : Pump output on during cooling operation (⚙️ press over 3 seconds Initialize alarm history)

※ Up to 10 alarm histories are recorded, and if exceeded, from 1 Proceeds in the form of an overwrite sequentially.

4 Setting menu list

■ Setting Temperature

List	Initial value	Range	Function
Setup temperature	20.0°C	-55.0 ~ 99.9°C	Setup temp for standard When reached setting temp turn off
Cooling deviation	1.0°C	0.1 ~ 20.0°C	Inner temp > setup temp - (cooling deviationX1) ==> cooling1 step running Inner temp > setup temp - (cooling deviationX2) ==> cooling2 step running
Sensor Calibration	0.0°C	-10.0 ~ 10.0°C	The function to correct the current temperature and make it the same as the actual temperature.
Cooling step	2Step	none ~ 2Step	Choose step mode when cooling.
Assist operation	Preheat	Preheat/freeze/unused	Setup assist operation mode (setup heater mode)
Operation deviation	0.0°C	0.0 ~ 20.0°C	Inner temp < (Setting temp + Operation deviation) ==> Assist operation

■ Setting delay Time

List	Initial value	Range	Function
Comp delay	0sec	0 ~ 600sec	A delay by the set time, comp output
Pump delay	0sec	0 ~ 600sec	A delay by the set time, pump output.
Pump down	0sec	0 ~ 600sec	When cooling is stopped, SV is closed and only the compressor is output for the set time.
System delay	5sec	0 ~ 600sec	Output OFF after a delay time when equipment is stopped If pump down is in progress, operate separately before terminating

■ Exterior Input Setting

List	Initial value	Range	Function
Comp Input Time	5sec	0 ~ 600sec	The function detects signal of Comp. input during the setting time or sets up detection time to set the alarm when not detected.
Comp Input Type	NC	NC / NO	Input type : Normal Close or Normal Open
Pump Input Time	5sec	0 ~ 600sec	The function detects signal of pump input during the setting time or sets up detection time to set the alarm when not detected.
Pump Input Type	NC	NC / NO	Input type : Normal Close or Normal Open
Water Circulation Time	5sec	0 ~ 600sec	The function detects signal of the water circulation switch input during the setting time or sets up detection time to set the alarm when not detected.
Water Circulation Type	NC	NC / NO	Input type : Normal Close or Normal Open

■ Other Setting

List	Initial value	Range	Function
Communication Code No.	1	1 ~ 99	To use the RS485 communication, appoint area codes from 1 to 99.
Communication Speed	96-Bps	12- ~ 192- bps	Controls communication speed.
Blackout Recovery	0sec	0 ~ 180sec	Delay time when power supply or system operation
Setting time	-		Set the time on the main screen (yy/mm/d/h/m/s)
Initialize settings	Not used	Not used/used	If the signal is continuously detected for a set amount of time, a water flow warning is generated

■ Alarm Setting

List	Initial value	Range	Function
high-temperature alarm	99.9°C	-55.0 ~ 99.9°C	Alarm if current temperature is higher than set temperature.
Low temperature alarm	-55.0°C	-55.0 ~ 99.9°C	Alarm if the current temperature is lower than the set temperature.
Temperature alarm deviation	1.0°C	0.1 ~ 10.0°C	Set the deviation required for the occurrence/release of temperature alarms
Equipment operation time	-	-	Menu to check the operating hours of the accumulated equipment

※ Please refer to the homepage manual for detailed setting.

5 Alarm Content List

■ Alarm contents

Occurrence list	Causes of alarm
Comp Err	Occurs when a compression abnormality on the D.I. is detected
Pump Err	Occurs when a pump abnormality on the D.I. is detected
WFS Err	Occurs when a water circulation abnormality on the D.I. is detected
Temperature sensor (open/short)	If the sensor part is open circuit or short circuit
High temp/Low temp	When inner temperature is higher or lower than the temperature alarm setting

■ Controller response in the event of an alarm

1) Comp Err

- Turn off all compressor when a compressor alarm occurs. (other normal operation)
- Turn off all compressor outputs even when pump down is in progress.

2) Pump Err

- Turn off all equipment outputs in progress.

3) WFS Err

- Turn off all equipment outputs in progress.

4) Sensor connection Err

- Turn off all outputs in progress.
- Normal operation is possible when the sensor is operated by the user. (manual recovery)

5) High/low temperature generation

- Alarm output only without automatic action. (checking sensor and equipment)

Product Warranty

This product was manufactured after undergoing strict quality management and tests of CONOTEC Inc. The warranty period of this product will be one year after purchase in accordance with the Consumer Injury Compensation Rule. So, please certainly write down the purchasing date and place at the place where the product is purchased.

If the user is failed to write down the information, the warranty will be one year and six months since the release date.

Product Name	
Model Name:	
Purchasing Date	YYYY MM DD
Purchasing Place	

Please prepare this Product Warranty when there is a default in manufacturing or natural malfunction within the period of Product Warranty and visit the purchasing place of main office of CONOTEC for the free repair.

Repair cost can be charged for the following cases or the Warranty period is passed.

- Please be sure to read this manual instruction. If a user requests After Service and the product has no problem, certain cost will be charged.
- In case of malfunction due to carelessness of a user or that a user fixes or remodels the product arbitrarily
- In case of malfunction due to wrong electric capacity
- In case of malfunction due to shocks like fallings
- In case that a user does not abide by this manual instruction
- In case of malfunction due to natural disasters (Fire, Flood damage, Earthquake, Lighting, etc.)

A/S center

- Purchasing place
- A/S Department under CONOTEC Quality Management Division : T: 070-7815-8266, F: 051-819-4562



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