

CONOTEC

CONOTEC CO., LTD.
DIGITAL TEMPERATURE CONTROLLER



CNT-CS24

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

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 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

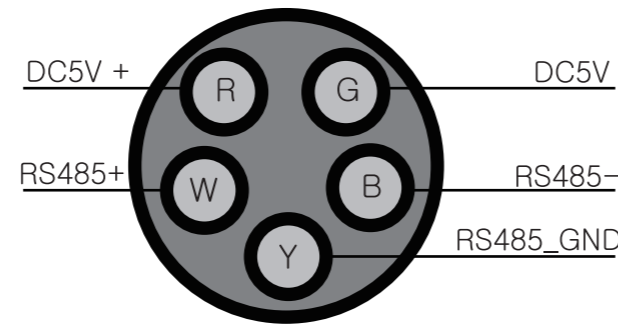
- Electric shock – Do not touch the AC terminal while the current is flowing. It may cause an electric shock.
- You must disconnect the input power when servicing it.

02 Model Types

Model	Sensor	Temp measurement range	Humi measurement range	Power	Function
CNT-CS24	SHT30	-20°C~60.0°C -4°F~140°F	0%~100%Rh	5VDC 20mA	RS485 Comm

03 Terminal wiring diagram

[CNT-CS24]



04 Function details

1 Temp Units Setting

- ℃ Display in Celsius when set up
- °F Display in Fahrenheit when setting up

⚠ Caution :If you change the temp unit, the setting values in the E.LD and HEE menus will be initialized, so reset the changing setting values.

• Temp calibration setting

-There is no problem with the product itself, but the ability to correct errors and temperatures occurring in the input sensor when the reference temperature is different from the reference temperature (e.g., mercury thermometer or existing thermometer, thermostat)

Ex) Actual temp : 10.0°C → Modifying 0.0 to -2.0
Measurement temp : 12.0°C → Reply to 10.0 (Revised Current Temp)

• Humi calibration setting

-There is no problem with the product itself, but the function of correcting when the error and humidity of the input sensor are different from the reference humidity

Ex) Actual Humi : 30.0% → Modifying 0.0 to -3.0
Measurement Humi : 33.0% → Reply to 30.0 (Revised Current Humi)

• Sensor heater setting

-When humidity is very high, dew can form around the device, so to prevent dew formation during high humidity, heat is generated inside the sensor

ON: Sensor heater operates to generate heat.
OFF : Sensor heater is not working.

• Set communication country number

-RS485 When using communication, a country number between 1 and 99 must be designated.

• Set communication speed

-1200BPS / 2400BPS / 4800BPS / 9600BPS / 19200BPS

• Set communication data type

-Change the type of communication data to Float or Interger.
-Float (FL) and Interger (IN) selections

05 Communication Specifications and Output

Application Specifications	in conformity EIA RS485
Maximum number of connections	32 units (but address settings can be set from 1 to 99)
communication method	Two-wire half-duplex, asynchronous
communication speed	1200/2400/4800/9600/19200Bps
communication distance	within 1.2Km
Protocol	BCC
StartBit, StopBit	fixed 1bit
ParityBit, DataBit	none, fixed 8bit

[Func 0x04 : Read Input Registers]

- You can receive simple information such as current temperature, temperature unit, and output status.

[Request]

Address	Command	Starting address		Number of data		CRC16	
		Upper Byte	Lower Byte	Upper Byte	Lower Byte	Lower Byte	Upper Byte
1BYTE	0x04	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE

[Response]

Address	Command	Number of Byte	Data1		Daten		CRC16	
			Upper Byte	Lower Byte	Upper Byte	Lower Byte	Lower Byte	Upper Byte
1BYTE	0x04	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE	

[MAP]

NO	Address	Description	Range	Unit	Shipping value
30001	0000	Product Model Name	"CN"		ASCII
30002	0001	Product Model Name	"T-"		ASCII
30003	0002	Product Model Name	"CS"		ASCII
30004	0003	Product Model Name	"24"		ASCII
30005	0004	Product Model Name	blank		
30006	0005	Product Model Name	blank		
30007	0006	Product Model Name	blank		
30008	0007	Product Model Name	blank		
30009	0008	Product Model Name	blank		
30010	0009	Product Model Name	blank		
30011	000A	Firmware version	the front decimal place		
30012	000B	Firmware version	the last decimal place		

30101	0064	Current temperature	Sensor error: -9999	℃/°F	
30102	0065	Current Humidity	Sensor error: -9999	%	
30103	0066	Dew point	Sensor error: -9999	℃/°F	
30104	0067	Temperature unit	bit0	0:Celsius / 1:Fahrenheit	
		Heater operation	bit1	0 : ON / 1 : OFF	
		Temp measurement error	bit2	0 : Temp measurement error / 1 : Normal	
		Humi measurement error	bit3	0 : Humi measurement error / 1 : Normal	
		Open error	bit4	0 : Open error / 1 : Normal	

[Func 0x03 : Read Holding Registers]

- You can read the settings.

[Request]

Address	Command	Starting address		Number of data		CRC16	
		Upper Byte	Lower Byte	Upper Byte	Lower Byte	Lower Byte	Upper Byte
1BYTE	0x03	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE

[Response]

Address	Command	Number of Byte	Data1		Daten		CRC16	
			Upper Byte	Lower Byte	Upper Byte	Lower Byte	Lower Byte	Upper Byte
1BYTE	0x03	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE	

→ If data count = 26, total 26 data, 52 bytes received

[Func 0x06 : Write Single Register]

- You can change one setting value item at a time.
- If written normally, the contents of Request and Response are the same.

[Request / Response]

Address	Command	Write address		Data		CRC16	
		Upper Byte	Lower Byte	Upper Byte	Lower Byte	Lower Byte	Upper Byte
1BYTE	0x06	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE

[Func 0x10 : Write Multiple Registers]

- You can change the setting value multiple items at once.
- When you write multiple registers, if there is an error in the data, it will not be written all over.

[Request]

Address	Command	Starting address		Number of data		Data1		Daten		CRC16	
		Upper Byte	Lower Byte	Upper Byte	Lower Byte	Upper Byte	Lower Byte	Upper Byte	Lower Byte	Upper Byte	
1BYTE	0x10	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE

[Response]

Address	Command	Starting address		Number of Byte		CRC16	
		Upper Byte	Lower Byte	Upper Byte	Lower Byte	Lower Byte	Upper Byte
1BYTE	0x10	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE	1BYTE

[MAP]

NO	Address	Menu Name	Description	Range	Unit	Forwarding value
40001	0000	CDT	Comm Data Type setting	0 : Float / 1 : Int		FL
40002	0001	UNT	Setting Temperature Units	0 : °C / 1 : °F	℃/°F	C
40003	0002	TCOR	Temp calibration setting	-0.0-0.0 / -0-0		0.0
40004	0003	HOCF	Humi correction setting	-0.0-0.0	%	0.0
40005	0004	HTR	Sensor heater setting	on / off		off
40006	0005	ADR	Comm country number	1 ~ 99		1
40007	0006	BPS	Comm speed	1200/2400/4800/9600/19200		9600

[Exception Response]

Returns error information when you send a command that is not supported by this product or when there are other errors.

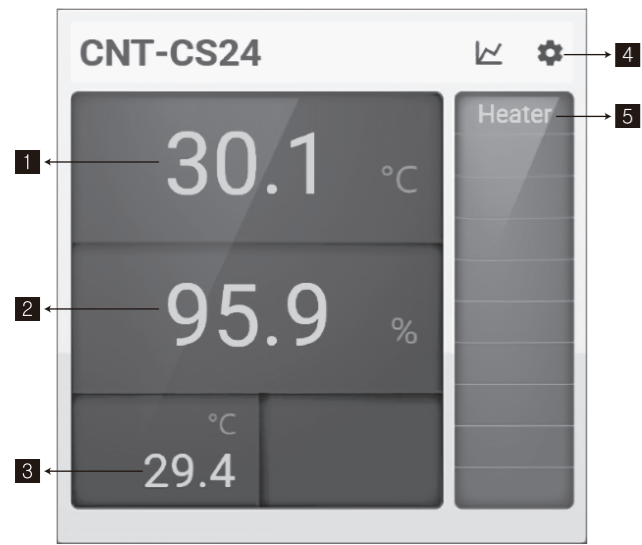
Address	Command	Error Code	CRC16		0x01: Unsupported Commands 0x02: Starting address error 0x03: Data count error 0x04: Requested Commands abnormal treatment
			Lower Byte	Upper Byte	
1BYTE	incoming command+0x80	1BYTE	1BYTE	1BYTE	

06 How to mark and use ALLONE

■ Instructions for Use

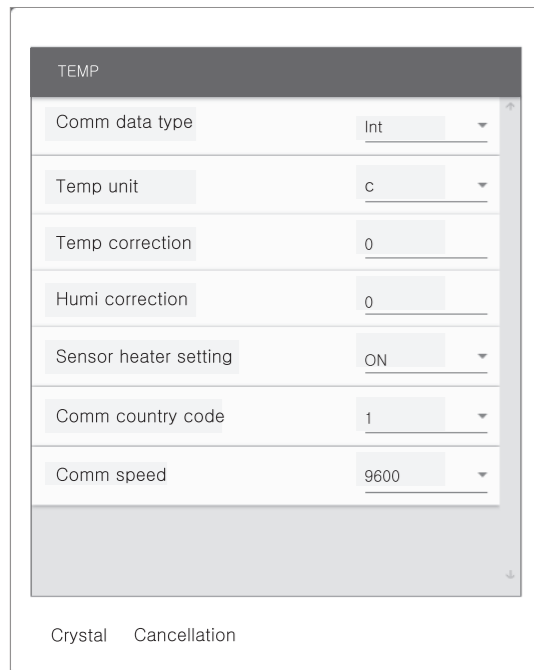
- The description below is how to use the status indication, setting, and setting value change in ALLONE.
- For other functions such as installation and product registration, please refer to the ALLONE documentation.
- If you use more than two products, please change the country code for each product.

■ Name by Status Screen Part



- 1 Current temp 2 Current humi 3 Dew point 4 Setting Key
5 Heater output

■ Change Setting Window

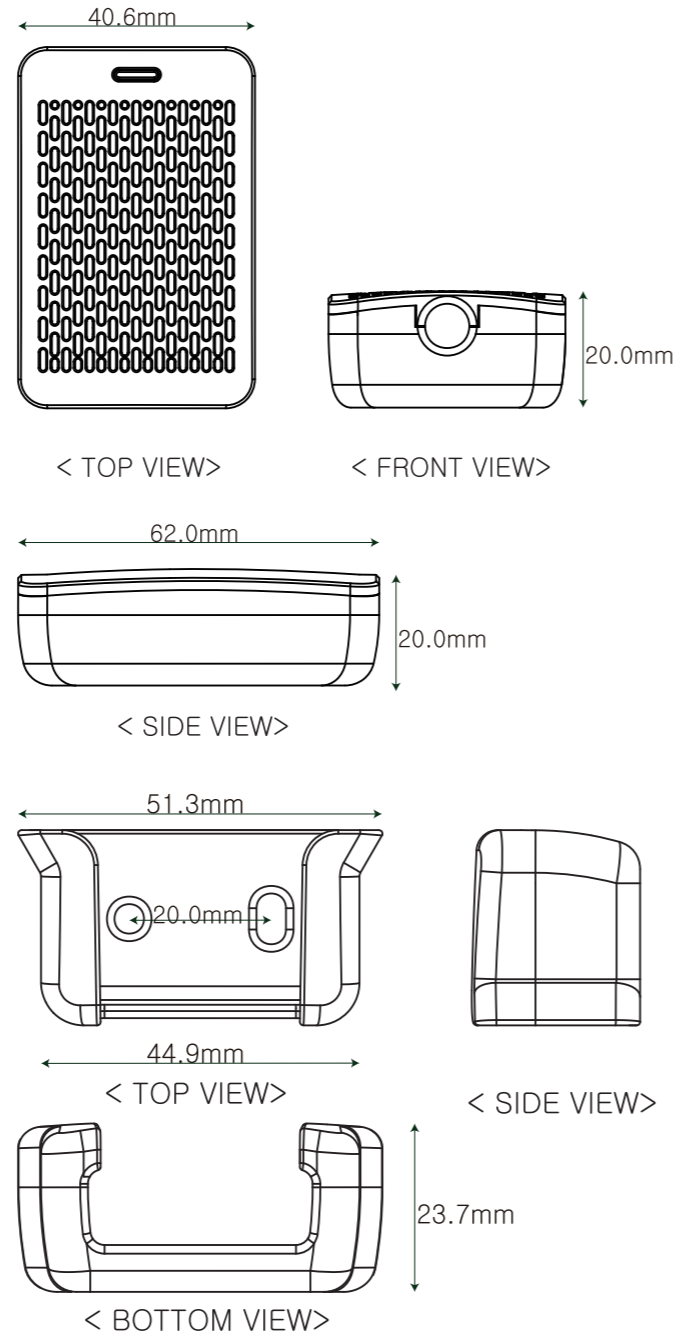


■ How to Change Setting

- The Change Setting window is entered by pressing the Setting key in the Status display window.
- For a detailed description of these settings, see the feature details.
- When changing the settings, select the calibration settings directly by entering the numbers and the remaining settings directly by pressing the downward right triangle button.
- After you have finished changing the settings, click Modify to make the changes.
- If you change the temperature unit, the setting values in the t.co and HET menus will be initialized, so reset the changing setting values.
- Even if you click Modify and then Cancel, it will not be canceled.
- When the setting is complete, press the cancel button to close the setting value change window.

07 Dimension and panel hole sizes

(Unit : mm / error : ±0.5)



08 Easy error diagnosis instructions

- ✳ If an error is displayed while the product is running
- **E-1** : It is case where the product was subject to a strong external noise and internal data memories have been damaged. In this case, contact us for product service.
- Although this controller was designed to withstand a certain level of external noise, it is not supposed to withstand all levels of noise.
- Noise introduction can damage the interior.
- In the case of N-S in the status display window of ALLONE, comm is disconnected. Please check the connection status of the sensor.
- In the case of O-E and S-E in the status display window of ALLONE, the sensor element is damaged, in this case, request 'A/S' to us.

✳ The above specifications may be changed without any notice for performance enhancement. Please make yourself fully familiar 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 : conotec@conotec.co.kr
- SNS : Facebook, Instagram, Twitter, YouTube ▶ 'Search for 'Conotec'
- Website : www.conotec.co.kr

◆ Installation precautions

- This device should 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°C
- 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.