

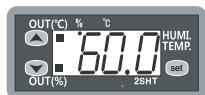

CONOTEC®

 Digital Humidity
Controller

CONOTEC CO., LTD.

www.conotec.co.kr

Operating manual



- Digital temp./humi. controller
- temp. output : 1Relay(1a)
- humidity output : 1Relay(1a)
- Digital temp./humi. sensor application
- Applicable in the high temperature upto 80°C

CNT-2SHT(R)

※ Thank you for selecting our products.
please read carefully this instruction to reduce any damages or operation mistakes.

Regarding the English - language manual, please download it at our homepage.

1 Model composition

Model	Output	Sensor	RS485
CNT-2SHT	TEMP : 1a 250Vac2A	DS-SH Series	0.0%~100.0%Rh -39.9°C~80.0°C
CNT-2SHT(R)	HUMI : 1a 250Vac2A		support

2 Safety and Hazard instructions

Read carefully this instruction manual before use and use the product properly.

※ The specifications, appearance and dimension may be changed for improvement of performance without a prior notice

WARNING

- This product is not made as a safety device, so when it is used for a control of devices feared to cause casualties, damages to the peripheral devices or huge property loss, the double safety devices should be arranged before use.
- Avoid connecting lines, checking and repairing the products while power is supplied.
- Connect power after making sure the terminal number.
- Never disassemble modify, improve or repair the product.

Safety

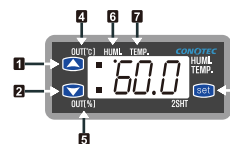
- Be well-informed of how to use, safety regulations, warnings, etc before installation of this device and apply it to the extent of the defined specifications and relevant capacity without fail.
- Avoid wiring or installation to a motor or solenoid with a large inductive load.
- Use a shield cable for extension of the sensor and ensure not to make it longer than the necessity.
- Ensure not to use the parts generating arc when switching at the same power source or near to it.
- Keep the power cable away from a high-tension power line and ensure not to install it at a place with serious oil and dirt.
- Avoid strong magnetic field or serious noise, vibration or impact.
- Keep away from the place where strong alkaline or acid material is directly released and use an independent pipe line.
- When it is installed at kitchen, ensure not to pour water directly over the product for cleaning.
- Keep the sensor cable away from signal line, power source, power line or loaded line and use an independent pipe line.
- Note that the mark of in terminal connection diagram is the safety expression for warnings or cautions.
- Avoid using the product close to the device generating noises(high frequency welder, high frequency sewing machine, high frequency radio, large capacity SCR Controller, etc).
- The use in any way other than what is instructed by the manufacturer may cause injury or property loss.
- It is not a toy and keep it out of reach of children's hand.
- The installation of this device should be performed by an expert or a qualified personnel without fail.
- We shall not take any responsibility for the damage caused by non-compliance with the above-mentioned warnings or cautions or by any consumer's mistake.

DANGER

Attention, Danger related to electric shock

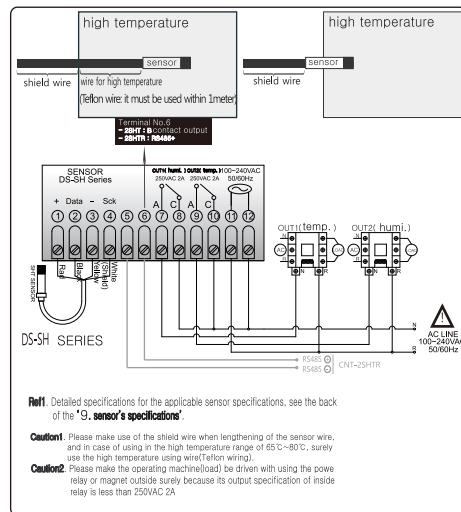
- Electric shock -Do not touch AC terminal during application of electric current. It may cause electric shock.
- Cut the power supply without fail during checking the input power.

3 Part name



Humidity display and control + temperature display
for the currency status display, there're 3 kinds of mode,
as a switch of <UP(increase), DN(decrease)>,
you can change the display like "Humidity/Humi&Temp/Temp".

4 Connection



7 Detailed explanation

1. **Temp** Setting menu for user's temperature

- Set the temperature point for the relay output

2. **Humid** Setting menu for user's humidity

- Set the humidity point for the relay output

3. **Chg** Setting time for the display changing temp. & humi. display.

- Available to change the display in the state of present with the switch UP/DOWN.

"Humi. display mode" ↔ "Temp.&Humi. display mode" ↔ "Temp. display mode"
Please refer to that due to light the LED on the top of display to fit each of display mode. (Reset is required when power is off.)

4. **SEL** Setting group selection menu

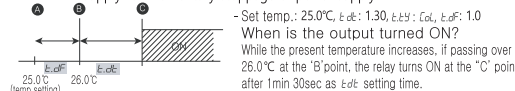
H : Humidity setting group selection t : Temp. setting group selection

5. **Col** Setting the output type for temperature.

Col : cooling Hct : heating

6. **Edt** Setting the output delay time for the temperature.

- It is widely used as the following
 - in case of operating the ON/OFF control very often (cooler, compressor, etc)
 - to protect the operation machinery when re-input of the power supply or momentary stoppage of power supply

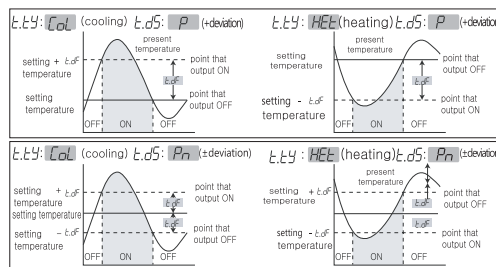


7. **Eds** Setting the type of temperature deviation (Hysteresis)

P : + deviation Pn : ± deviation

8. **Edf** Setting for temperature deviation

In the ON/OFF control, it needs at regular interval between ON and OFF. By operating the ON/OFF control frequently, the relay or its output contact can be damaged quickly and it also occurs the hunting (oscillating, chattering) by virtue of external noise. You can make use of the temperature deviation in order to protect its relay or contact and so on.



9. **Edo** Correction of the present temperature.

Correction function for a discrepancy between the present's display value and the actual value (accurate value)

ex) An actual temperature : 55.0°C, the present temperature : 57.0°C
if set the **Edo** value as -2.0, the present temperature will be displayed 55.0°C

Caution. Actual temperature is validated the performance and accurately calibrated by using the equipment to produce. If an inaccurate equipment calculated on the basis of the actual temperature calibration, it can be caused problems with product operation.

10. **RS485** Communication address setting

The product FOX-2SHTR supports RS485 communications. When communicating with the master device for mutual recognition is the ability to set the communication address.

11. **RS485** Communication speed setting

The product FOX-2SHTR supports RS485 communications. When communicating with the master device to the exchange of accurate data must match the communication speed.

12. **LoL** Setting data lock function

As a safety device, it is used in order not to change the set value except for a main user

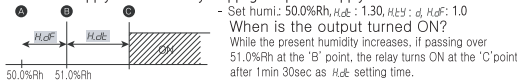
Loon Lock on **Loof** Lock off

13. **Edy** Setting the output type for humidity

H : humidity d : dehumidity

14. **Edt** Delay time of the output

- It is widely used as the following
 - in case of operating the ON/OFF control very often
 - to protect the operation machinery when re-input of the power supply or momentary stoppage of power supply



15. **Eds** Setting the type of humidity deviation (Hysteresis)

P : + deviation Pn : ± deviation

16. **Edf** Setting the deviation for humidity

By operating the ON/OFF control frequently, the relay or its output contact can be damaged quickly and it also occurs the hunting (oscillating, chattering) by virtue of external noise. You can make use of the temperature deviation in order to protect its relay or contact and so on.

17. **Edo** Correction of the present humidity

Correction function for a discrepancy between the present's display value and the actual value (accurate value)

ex) An actual humidity value : 55.0% RH, the present humidity : 57.0% RH
if set the **Edo** value by -2.0% RH, the present humidity will be displayed 55.0%

Caution. Actual humidity is validated the performance and accurately calibrated by using the equipment to produce. If an inaccurate equipment calculated on the basis of the actual humidity calibration, it can be caused problems with product operation.

18. **HEL** Heating element for humidity sensor

It is possible to be covered with dew when the humidity is high. If the present humidity is 95%RH, it is generated heat inner its sensor in order to prevention of dewy.

YES It is operated the heating function automatically if the humidity is more than 95%RH. It is removed if the humidity is less than 95%RH

no The heating function will be prohibited.

Caution It must be set up "NO" because the heating function can not be used for more than 95%RH

※ R.F) The present temperature's display can be increased a little while operating of the humidity sensor's heating function

8 Setting range & Set value when deliver

Model	Division	Function	Range	set value when deliver
C N T 2 S H T R	Temp. setting	Edt Temp. setting	-39.9~119.9°C	10.0°C
		Edy Type setting for output	Col / Hct	Col
		Eds Output delay time setting	0.0~19min 59sec	0min 0sec
		Edf Type setting for output deviation	P / Pn	P
		Edo Setting for output deviation	0.1 ~ 19.9	0.1
		Edc Temp. correction	-10.0 ~ +10.0	0.0
	Humi. setting	Hdt Humidity setting	0.0~100.0%RH	30.0%RH
		Hdy Type setting for output	d / H	H
		Hds Output delay time setting	0.0~19min 59sec	0min 0sec
		Hdf Type setting for output deviation	P / Pn	P
		Hdo Setting for output deviation	0.1 ~ 19.9	0.1
		Hec Humidity correction	-10.0 ~ +10.0	0.0
Common	communication	LoL Sensor's heating setting	YES / no	no
		Loon / Loof lock function	Loon / Loof	Loof
		Chg Temp.&Humi. changing display time	1 ~ 30sec	2sec
communication	RS485	Adc 485 communication address	01 ~ 99	01
		RS485 communication speed	120 (1200Bps) 240 (2400Bps) 480 (4800Bps) 960 (9600Bps) 1920 (19200Bps)	960 (9600Bps)

9 Sensor's specifications

< DS-SH series >

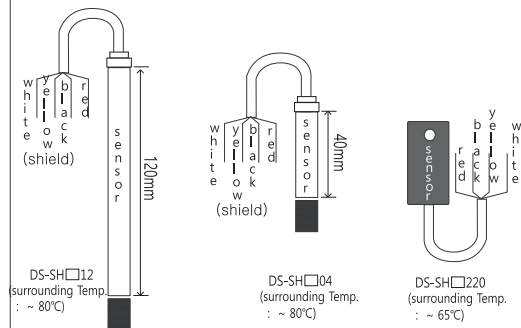
Model : DS-SH□□□□

A(Humidity Accuracy)

- 0 : ±4.5%
- 1 : ±3.0%
- 5 : ±2.0%

H(Housing Type)

- 04 : Stainless Body Length 40mm(Ambient temp. : to 80°C)
- 12 : Stainless Body Length 120mm(Ambient temp. : 80°C)
- 220 : Plastic Case



Caution1. When using a communication shield wire, the distance sensor installation is within 20m.

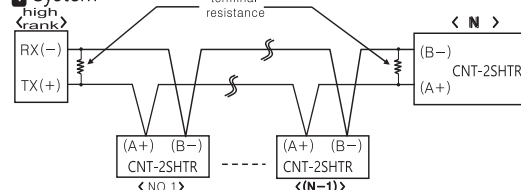
Caution2. In addition to using the shield, when using a wire, the distance sensor installation is within 3m.

Caution3. Installation direction refers to the shown above.

10 Communication interface (CNT-2SHTR)

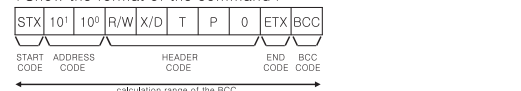
specification	in conformity EIA RS485
The method of communication	two wire half-duplex operation
synchronous system	asynchronous system
communication distance	within 1.2Km
communication speed	1200/2400/4800/9600/19200Bps
StartBit	fixed 1bit
StopBit	fixed 1bit
ParityBit	none
DataBit	fixed 8bit
Protocol	BCC

1 System

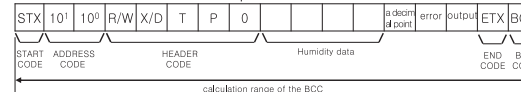


2 Definition between communication command and block

< Show the format of the command >



< Show the format of the response >



① START CODE

Show the lead(head) of the block
STX → [02H]

② ADDRESS CODE

A high rank system can discriminate the channel code number among FOX-2SHTR. It is available to set between 01 and 99(BCD ASCII)

③ HEADER CODE : Show the command name as an alphabetic letter

RX(reading demand) → R[52H], X[58H]
RD(reading response) → R[52H], D[44H]
WX(writing demand) → W[57H], X[58H]
WD(writing response) → W[57H], D[44H]
TP(temperature measuring value) → T[54H], P[50H], 0[30H]

④ Composition of data

Data is displayed as "Hexa decimal"

(negative number : 2's complement)

⑤ Decimal point - 0[30H] there is no "decimal point"

1[31H] there is "decimal point"

⑥ Error- 0[30H]: there is no "error"

1[31H]: interrupted of the sensor's cable

2[32H]: low error

3[33H]: high error

⑦ Output- 0[30H]: Output OFF // 1[31H]: Output ON

⑧ END CODE : show the end(close) of the block ETX → [03H]

⑨ BCC(Black Check Character)

Show the XOR arithmetic and logic values from the start(STX) to the ETX

the others : As of no response of the ACK

① in case of not equivalent to the channel after receiving STX

② in case of generating the receive buffer overflow

③ in case of not equivalent to the communication's set values or baud rate

④ treatment : in case of no response of the ACK

① check the cable

② check the communication's condition(set values)

③ if the main cause of the status is the noise, try to do communication practicing 3times until recovering normally

④ change the communication speed in case of bring about the communication's error frequently

11 How to diagnose a breakdown

■ Indicating ERROR on using items

■ This **Er** is the damage of memory data for various of inner-DATA due to be got nosied strongly from outside while using this items. Please request us A/S by return. Although our controller is designed as the complementary measures regarding these noise from outside, it is not endurable against these noise with endlessly.

■ If noise(2KV) disordering become an inflow, the inner-part will be damaged.

■ **o-E** - Sensor error. The sensor is interrupted. Check the cable.

If the error message persists, please request us A/S by return.

■ **L-E** or **H-E** displayed when exceeding the range of humidity.

Even if the ambient humidity of environment remaining in the normal state, these characters to be displayed, please request us A/S by return

* WARRANTY PERIOD : 1 YEAR FROM THE DATE OF PURCHASE

※ The product's specification can be changed without any notification to improve its quality.

When using this product, please observe the information of caution & warning due to give rise to disordering.

Regarding the English-language manual, please download it at our homepage.

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e-mail: conotec@conotec.co.kr url: www.conotec.co.kr

◆ Installation Precautions

◆ WARNING: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE CONNECT to the protective earth ground and the mains supply.

◆ Do not block the vents.

◆ Handling Precautions

This Product is suitable in the following environment:

Ambient temperature: 0°C ~ 60°C Ambient humidity: 80%Rh max.

Using for indoor only Pollution Degree 2

Altitude 2000 or less Installation Category II

◆ Avoid equipment placement that is difficult to operate power cord.

If using the equipment in a manner not specified by the equipment manufacturer may impair the protection provided by the equipment.

◆ Rated power: AC 100~240VAC 50/60Hz 3VA

■ Major Products Manufactured and Developed

-Digital Temperature/Humidity Controller

-Digital Timer, Current/Voltage Meters

-Variety of products developed available