



Digital Humidity Controller

CONOTEC CO., LTD.

www.conotec.co.kr

User Manual

Digital humidity controller



FOX-1SH

FOX-1H

FOX-1H-2

1 Safety Precaution

Please read all precautionary information before use, to ensure proper usage.

※ The specification and external dimensions etc of the Product contained in this Manual can be changed without prior notice for further improvement in the product performance.

Warning

- This Product is not designed to be used as a safety device. Please add a secondary safety device if this Product is used as a controller for a device that has the potential of causing personal injury, damage to the surrounding machine or damage to other properties.
- Do not perform any wiring, maintenance or repair work while the Product is connected to power.
- Check the terminal number before connecting to power.
- Do not disassemble, process, improve or repair the Product.

Caution

- Please read and observe safety warnings and cautions as well as the method of operation before installation, and use the Product within the scope of specified and permitted usage.
- Do not wire or install the Product on a motor or a solenoid having a high level of inductive load.
- If the sensor of the Product needs to be extended, make sure to use the same cable as the original. The length of cable should be kept at a minimum.
- Do not use a part that may generate arc when it is open or closed near or on the same power supply.
- Keep the power cable away from a high voltage wire. Install the Product away from water, oil and excessive dust.
- Install the Product away from direct sunlight and rain.
- Install the Product away from strong magnetic force, noise, vibration and impact.
- Keep the Product away from a place exposed to strong alkaline or acid materials.
- Do not splash water directly onto the Product to clean in case the Product is installed in the kitchen.
- Do not install the Product in a place exposed to high temperature/humidity.
- Use the sensor cable with care not to allow cut or scratch.
- Keep the sensor cable away from a signal cable, power cable, power and load cable. Use a separate cable pipe.
- Please note that no after-sales service will be available if the Product is disassembled or altered without permission.
- Please observe the hazard and precautionary statements shown on the terminal wiring diagram.
- Do not use the Product near a device generating a significant level of high frequency (such as high frequency welding machine, high frequency sewing machine, high frequency radio, high capacity SCR controller etc).
- Use of the Product in violation of the manufacturer's instructions may cause personal injury or physical damage.
- Keep the Product away from the reach of children as this is not a toy.
- The Product must be installed by a qualified technician only.
- The Company will not be held responsible for any damage caused by non observance of the above instructions or the user's negligence.

Hazard

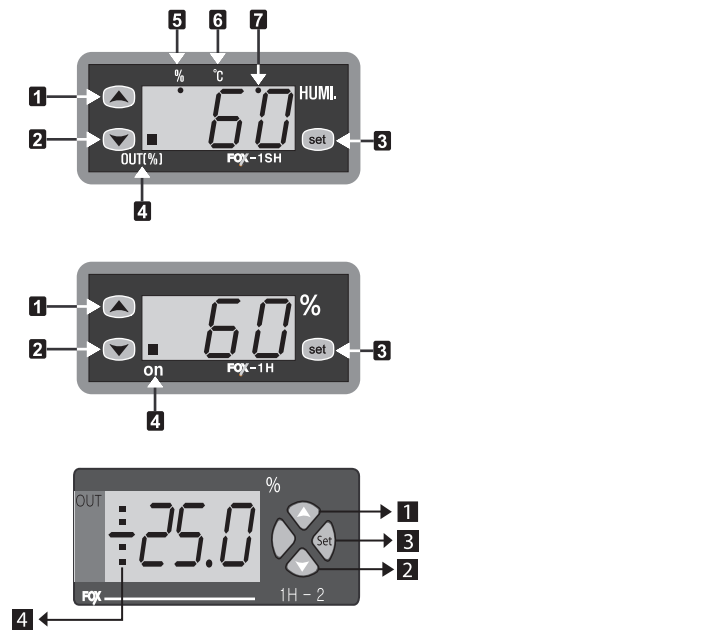
- Hazard related to electric shock
- 1. Electric shock - Do not touch the AC terminal while current is flowing. It may cause electric shock.
- 2. Disconnect the input power before checking the input power.

2 Model Composition

Model	Output	Sensor	Humidity Range
FOX-1H	1c 250Vac2A	HCPV-220	10%~95%Rh
FOX-1H-2			
FOX-1SH	1a 250Vac2A	DS-SH series	0%~100%Rh

Model	FOX-2SH	FOX-1SH	FOX-1H/1H-2
Humidity Range	0% ~ 100 RH		10% ~ 95RH
Sensor	DS-SH104, DS-SH112 DS-SH504, DS-SH512 DS-SH704, DS-SH712		HCPV-220
Level 1 Output		○	
Level 2 Or time output	○	-	-
Dew condensation prevention sensor heating function		○	-
Deviation method selection function	P(+deviation) or Pn(±deviation)	Pn(+deviation)	Pn(+deviation)
Output operation delay time setting function	○	-	-
Lock function	○	-	-

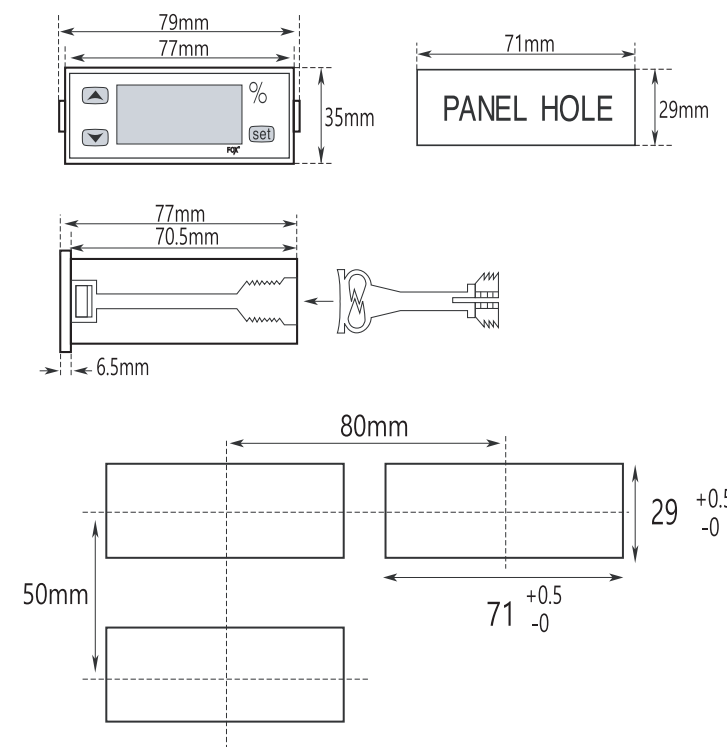
3 Front Operation & Display



- 1 Up switch (UP)
- 2 Down switch (DN)
- 3 Set switch (SET)
- 7 Sensor communication status display
- 4 Output display
- 5 Humidity display (FOX-1SH model)
- 6 Temperature display(FOX-1SH model)

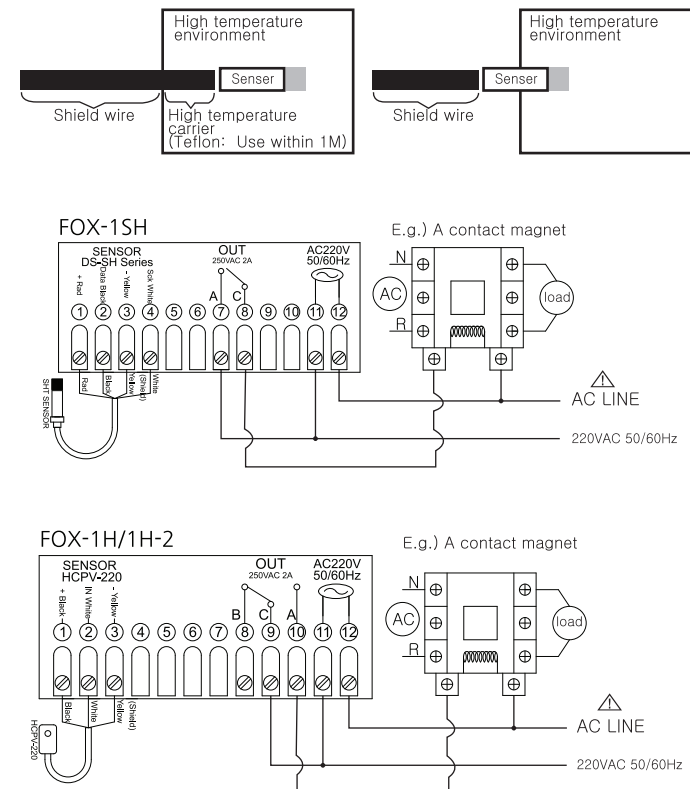
- * The communication status light blinks when sensor communication is not smooth
- * **FOX-1SH(R)** : Humidity display and control + Temperature display
The current status display has two modes and UP (increase) /DN (decrease) switches can change "humidity display /temperature display".
- * **FOX-1H** : Humidity display and control function

4 Dimension and panel hole sizes



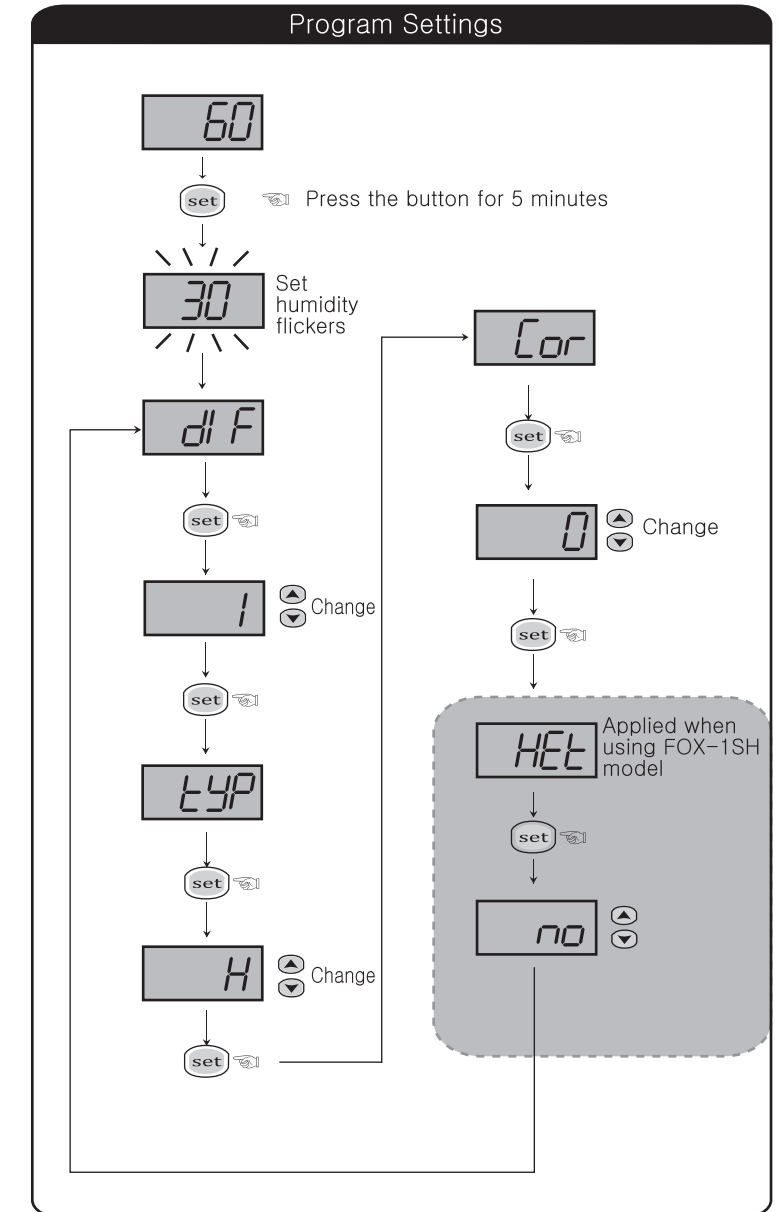
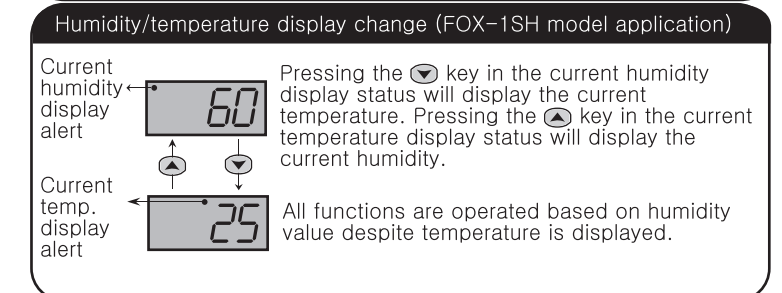
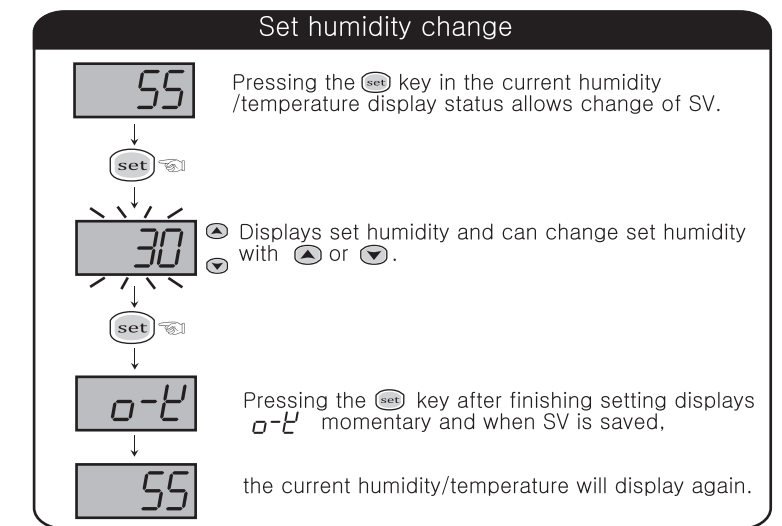
5 Terminal connection diagram

⚠ Caution: Shield wire must be used for sensor wiring, and the SHT series sensor must use the high temperature wire (Teflon wire) when used in 80°C or higher temperature environment.



※ Caution: Since the output specification of internal relay is below 250VAC 2A, power relay or magnet must be used for exterior to use the operation machine (load).

6 Program setting method (FOX-1SH)



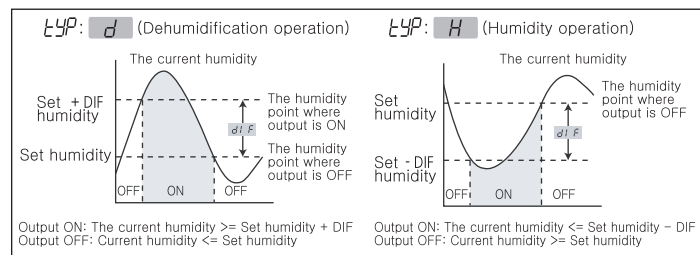
7 Detail description of the function

d/F Variation humidity settings

- Frequent ON and OFF will shorten the lifespan of the relay or the output contact or cause hunting (generation, chattering) by noise from outside.
- To prevent the occurrence, the function protects the contact light of the equipment by setting an interval between ON and OFF in ON/OFF control.

LYP Output type settings

- Select dehumidification (d) and humidity (H) functions



Cor The current humidity calibration

The function calibrates the current humidity to be consistent with the actual humidity if the humidity shown in the display window and the actual humidity are different despite the product has no problem.

E.g.) Actual Humidity: 55% Rh, Current Humidity: Suppose the Cor value is set -2 when 57% Rh, the current humidity will be displayed at 55% Rh.

Caution 1. The performance of the actual humidity is verified. Please use calibrated equipment for calculation. Calibration based on humidity calculated with incorrect equipment may cause product malfunction.

HET Humidity sensor heating function

Humidity sensor heating function (the function is available for FOX-1SH only)
Dew forms around the sensor devices if humidity is extremely high; hence, the function generates heat inside the sensor to prevent dew formation if the current humidity is 95% or more.

YES The heating function operates automatically in 95% or more humidity and the function is disabled when humidity level is below 95%.

NO The automatic heating function is not used.

8 Setting range and default set

	Display	Function	Range	Default set
		Humidity settings	0%RH ~ 100%RH	30
1H / 1H-2	LYP	Function selection	d (dehumidification) / H (humidification)	H (humidification)
	d/F	Humidity deviation settings	$\pm 1\% \sim \pm 9\%RH$	1
	Cor	Humidity calibration	-10 ~ +10%	0
1SH	HET	Humidity sensor Heating function	YES / NO	NO

9 Application sensor specification

1. Analogue voltage output type humidity sensor (FOX-1H, FOX-1H-2 application)

Product name	Humidity accuracy	Operation temperature
HCPV-220	+5%RH(at25 °C)	-40 °C ~ 85 °C

2. Digital temperature/humidity sensor (SHT Series): FOX-1SH Application

- Capacitive-type humidity sensors and semiconductor type temperature sensors, built-in memory
- High precision digital temperature and humidity sensor
- Accurate humidity measurement by temperature calibration
- Sensor heating function for preventing dew formation of the sensor device
- Ensures stable operation in high temperature compare to the conventional sensors.
- Permanent stainless sensor rod
- Sinter filter to ensure stable operation
- The sensor installation distance is recommended within 60m (Must use the shield wire)

Model Name	Accuracy	Sensor rod length	Operation range
DS-SH104	$\pm 3\%$	40mm	-40 °C ~ 100 °C
DS-SH112		120mm	
DS-SH504	$\pm 2\%$	40mm	
DS-SH512		120mm	

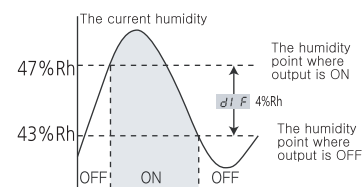
Caution: To use in 80°C or more environment, please use a stainless material sensor rod.

The HET menu is applied to FOX-1SH only.

10 Examples of the use of the humidity controller

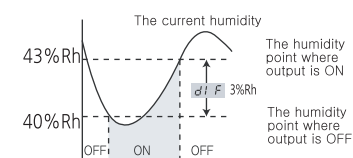
1 What are the setting temperature and the program value to turn off the dehumidifier at 43% Rh and operate at 47% Rh?

User set humidity change: 43%Rh Program Settings: **LYP: d** **d/F: 4%Rh**



2 What are the setting temperature and the program value to turn off the humidifier at 43% Rh and operate at 40% Rh?

User set humidity change: 43%Rh Program Settings: **LYP: H** **d/F: 3%Rh**



11 A simple troubleshooting technique

■ If error message is displayed while using the product:

- **E-1** means damage to the data memory element due to powerful noise impact from outside while using the product. In such a case, contact our company for customer service.
- While the controller is equipped with supplementary measures for outside noise, the product inside may be damaged if noise in 2KV level is applied to the product.
- **σ-E** display means communication defect with the sensor. Please check connection, wire short, and connection order to the sensor. If the problem persists, please contact our customer service department.
- **L-E** or **H-E** is shown when humidity display has exceeded the range. If the error is displayed despite maintaining normal surrounding humidity, please contact our customer service department.
- Warranty Period: One year from the date of purchase

The above product specifications are subject to change without advanced notice to improve the performance. Please be well-acquainted with and keep the above mentioned cautions.

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

■ Address: 56, Ballyongsandan 1-ro, Jangan-eup, Gijang-gun, Busan, 46034, Rep. of KOREA

■ A/S Service: TEL 051-819-0425~7
(Please return the Product to the Company for A/S services.)
Direct Line: 070-7815-8266

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

■ This Product is suitable in the following environment:
Ambient temperature: 0°C ~ 60°C
Ambient humidity: 80%Rh max.
Rated power: AC 100~240VAC 50/60Hz

■ Main product and development
- Digital temperature/humidity controller
- Digital timer, Current/Voltage Meter
- Development of other products