



Digital Temperature Controller

CONOTEC CO., LTD.

www.conotec.co.kr



FOX-2000TT

※ Regarding the English-language manual, please download it at our home page.

Setting temperature	Setting time	Setting program
<p>oP1 open 1 temperature setting</p> <p>99.9°C ~ -55.0°C</p> <p>CL1 close 1 temperature setting</p> <p>99.9°C ~ -55.0°C</p> <p>It is indicated only when setting $EYP = 2$</p> <p>oP2 setting of Open 2 temperature</p> <p>99.9°C ~ 0.1°C</p> <p>CL2 setting of Close 2 temperature</p> <p>-0.1°C ~ -99.9°C</p> <p>o-t</p> <p>present temperature</p>	<p>Pn1 open 1 ON time setting</p> <p>999 ~ 1</p> <p>PF1 open 1 OFF time setting</p> <p>999 ~ 1</p> <p>Ln1 setting of "ON" time for Close 1 operation</p> <p>999 ~ 1</p> <p>LF1 setting of "OFF" time for Close 1 operation</p> <p>999 ~ 1</p> <p>It is indicated only when setting $EYP = 2$</p> <p>Pn2 setting of "ON" time for Open 2 operation</p> <p>999 ~ 1</p> <p>PF2 setting of "OFF" time for Open 2 operation</p> <p>999 ~ 1</p> <p>Ln2 setting of "ON" time for Close 2 operation</p> <p>999 ~ 1</p> <p>LF2 setting of "OFF" time for Close 2 operation</p> <p>999 ~ 1</p> <p>o-t</p> <p>Present temperature</p>	<p>LoL On-Lock off-Unlock but, except for the set value</p> <p>off on/off</p> <p>EYP 1 stage/2 stage control selection</p> <p>2 / 1</p> <p>Cor correct the difference between the displayed and the actual value</p> <p>10.0 ~ -10.0</p> <p>$EYP = 2$</p> <p>dIF deviation is not applied at the set</p> <p>25.0 ~ 0.1</p> <p>onS on time unit selection</p> <p>min / sec</p> <p>oFS off time unit selection</p> <p>min / sec</p>

※ Press the Key continuously for 5 seconds under the current temperature indicating condition to change to Program Setting Mode.
 ※ All data memory is to be completed automatically after 10 seconds if pressing KEYS for 2 seconds or no pressing keys.

Manual for Digital Temperature Controller

Model	Sensor	Control output	Temperature range	Function
FOX-2000TT	NTC	Relay contact	-55.0°C ~ +99.9°C	Control by temperature and time

※ Thank you for purchasing CONOTEC product. This user manual is provided to prevent product damage by carelessness and to inform the users of exact way of operations. Please keep it well and refer to it when you have any question in using the product.

Parts Name

1	OP	2	CL	3	ON	4	OF	5	6	1 Second	6 Minute
2	OP	7	CL	8	ON	9	OF	10	7 2 Open	7 Time	
3	CL	8	ON	9	OF	10	5	8 3 Close	8 Setting UP		
4	ON	9	OF	10	5	8 3 Close	8 Setting UP		9 4 Output ON	9 Setting temperature	
5	OF	10	5	8 3 Close	8 Setting UP		9 4 Output ON		10 5 Output OFF	10 Setting DOWN	

The function of each key

- : A key to change of the setting temperature and program
- : A key to change of the setting time
- : A key to change of the setting values

Detailed manual

- oP1** : Setting of Open 1 temperature
 - Activated when the present temperature is higher than the setting temperature (**oP1**).
 - ex) **oP1** = 30.0°C, **dIF** = 5.0°C, **EYP** = 1
- CL1** : Setting of Close 1 temperature
 - Activated when the present temperature is lower than the setting temperature (**CL1**).
 - ex) **CL1** = -10.0°C, **dIF** = 5.0°C, **EYP** = 1
- oP2** : Setting of Open 2 temperature
 - Activated when the present temperature is higher than the setting temperature (**oP1** + **oP2**).
 - ex) **oP1** = 10.0°C, **dIF** = set at 5.0°C
 - If setting **oP2** as 20°C, the set value will be (**oP1** + 20°C)
 - It is indicated only when setting the **EYP** : 2
- CL2** : Setting of Close 2 temperature
 - Activated when the present temperature is lower than the setting temperature (**CL1** + **CL2**).
 - ex) **CL1** = -10.0°C, **dIF** = set at 5.0°C
 - If setting **CL2** as -10°C, the set value will be (**CL1** - 10°C)
 - It is indicated only when setting the **EYP** : 2
- Pn1** : Setting of "ON" time for Open 1 operation
 - Output ON time when it is satisfied with the terms of No. 1
- PF1** : Setting of "OFF" time for Open 1 operation **oP1**
 - Output OFF time after time elapsed of No. 5 **Pn1**

[**Pn1** = 10S, **PF1** = 20S]
- Ln1** : Setting of "ON" time for Close 1 operation
 - Output ON time when it is satisfied with the terms of No.2 **CL1**
- LF1** : Setting of "OFF" time for Close 1 operation
 - Output OFF time after time elapsed of No. 7 **Pn1**

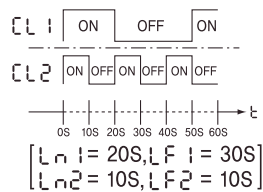
[**Ln1** = 10S, **Ln2** = 20S]
- Pn2** : Setting of "ON" time for Open 2 operation
 - Output ON time when it is satisfied with the terms of No.3 **oP2**
- PF2** : Setting of "OFF" time for Open 2 operation
 - Output OFF time after time elapsed of No. 9 **Pn2**

When the current temperature is more than the value 1 stage and 2 stage, 2 stage control takes priority.

[**Pn1** = 20S, **PF1** = 30S]
[**Pn2** = 10S, **PF2** = 10S]
- Ln2** : Setting of "ON" time for Close 2 operation
 - Output ON time when it is satisfied with the terms of No.4 **CL2**

12. L F 2 : Setting of " OFF "time for Close 2 operation.

- The output "OFF" time after the time of No. 1 L n 2 is past.



In case of the present value is more than 1 step set value and 2 step set value, 2 step control is priority.

13. L o c : Set DATA lock funtion

As a safety menu, in order not to change the SV except for the main user.

In case of setting ON - all SVs are Lock except of the set data

In case of setting OFF - all SVs are Unlock except of the set data

14. t y p : Control method selection

- 1:1 stage setting & 1 stage control only

- 2:1 stage setting/2 stage setting & 1 stage control / 2 stage control

When the PV is higher than 1 and 2 stage SV, 2 stage control takes priority.

15. d i f : Deviation temperature setting

- The regular interval is required between ON and OFF (Setting ON/OFF interval).

- If ON and OFF repeatedly operate too frequently, relays or other output contacts are quickly damaged, or hunting (oscillation phenomenon) occurs due to the external noise. Setting up and using the deviation temperature is the function to protect the contact point of the instrument and others etc.

16. C o r : Current temperature correction

- In case that the actual temperature and the temperature indicated on the display window of the unit is different while the product itself has not a problem, it is the function to make the present temperature same as the actual temperature by calibration. (Comparing with a mercury temperature thermometer or an existing thermometer)

ex) real value : 10.0°C → C o r : 0.0 ⇒ correct to -2.0 → displays to 12.0°C (corrected PV)

17. o n S : Output ON time unit selection

- SEC : second unit

- Min : minute unit

18. o f S : Output OFF time unit selection

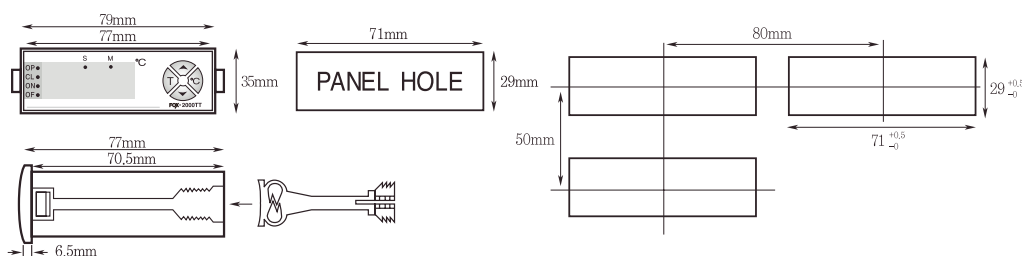
- SEC : second unit

- Min : minute unit

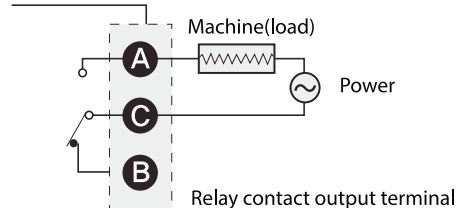
■ Setting range & set value at factory

Function	Display	Range	Value at factory	Remark
Temp. setting	o P 1	-55.0°C ~ +99.9°C	10.0°C	open 1 temperature
	C L 1	-55.0°C ~ -99.9°C	10.0°C	close 1 temperature
	o P 2	0.1°C ~ -99.9°C	10.0°C	open 2 temperature
	C L 2	-0.1°C ~ -99.9°C	-10.0°C	close 2 temperature
Time setting	P n 1	1 ~ 999	10	open 1 operation ON time
	P F 1	1 ~ 999	1	open 1 operation OFF time
	L n 1	1 ~ 999	10	close 1 operation time ON time
	L F 1	1 ~ 999	1	close 1 operation time OFF time
	P n 2	1 ~ 999	10	open 2 operation ON time
	P F 2	1 ~ 999	1	open 2 operation OFF time
	L n 2	1 ~ 999	10	close 2 operation time ON time
	L F 2	1 ~ 999	1	close 2 operation time OFF time
Program setting	L o c	o n / o f	o f	o n - lock function ON o f - lock function OFF but, except for SV
	t y p	1/2	1	1stage/2stage control selection
	d i f	0.1°C ~ 25.0°C	1.0	t y p = 2 deviation not applied
	C o r	-10.0°C ~ +10.0°C		correction difference from display
	o n S	sec / min	sec	time unit setting
	o f S	sec / min	min	time unit setting

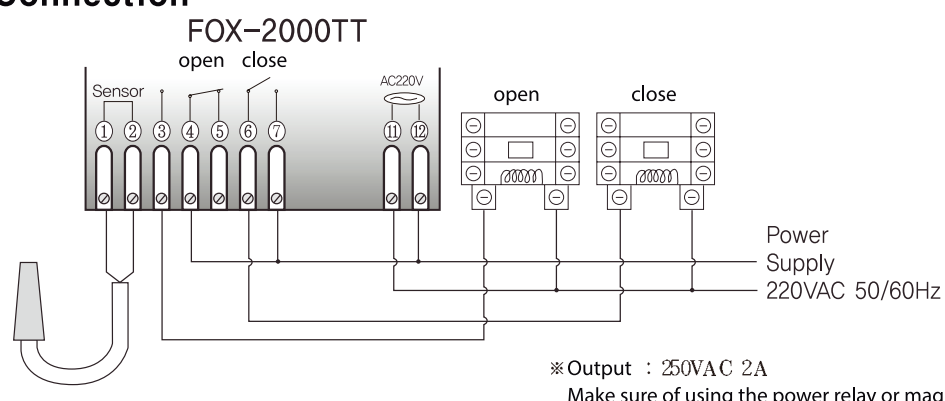
■ Dimension & Panel size



■ Relay junction



■ Connection



■ Cautions for Safety

⚠ Warning

Please use this item after set up safety device doubly in which is applied at dangerous equipment such as serious human injury or serouls damages property & important machine because this item is not designed as a safety device.

⚠ Cautions

- Be well acquainted with way of operation, safety regulations and warnings and make sure to use ; the product in accordance with the defined specification and within the related capacity.
- Do not connect wiring or make installation with the motors or solenoids having big inductive load.
- In extending the sensor, use the same wire, and do not make it long unnecessarily.
- Do not use the parts to generate arc in opening and closing at the same or nearby power supply.
- Power cable should be kept away from high-voltage cable, and should not be installed in the place of much water, oil or dust.
- Do not install in the place exposed to direct sunlight or rain.
- Do not install in the place exposed to strong magnetism, noise, vibration and impact.
- Keep away from the place where strong alkali or strong acid material is directly discharged.
- Do not spray water directly for cleaning when installing in the kitchen.
- Do not install in the place where the temperature and humidity exceed rated range.
- Use the product not to cut the sensor line or to get flaw on it.
- Sensor line should be kept away from the signal line, power supply, driving power and load line, and independent piping should be used for it.
- This product may not be serviced when disassembled and modified as you like.
- The mark ⚠ on the wiring diagram is the safety wording for warning or caution.
- Do not use near the devices which emit strong high frequency noise (High frequency welder, High frequency sewing machine, High frequency two-way radio, High capacity SCR controller).
- If the product is used by the way other than defined by the manufacturer, it may cause personal injury or property loss.
- As it is not a toy, keep out of the reach of the children.
- The installation should be done by an expert or a qualified person.
- Our company does not assume any responsibility for the damage and loss caused by non-complying with the above warnings and cautions or through the mistakes of the consumers.

⚠ Danger

■ Cautions, Danger of electric shock

- Electric shock - Do not touch AC socket while the power is connected. You may get electric shock.
- Make sure to block the input power when you check the power input.

Simple Fault Diagnosis method

■ In case ERROR is displayed during product operation

- E r 1 is displayed when inside memory cell of various data is damaged by strong noise from outside during the product operation. Please ask for A/S to our company in this case.
- This controller is prepared for the external noise, but cannot endure the noise without limit.
- In case the noise of 2KV or more flows in, the inside of the product may be damaged.
- In case o -E (open error) or S -E (short error) is displayed, the sensor has problem. Check the sensor.

■ Warranty : 1 year from the date of purchase

■ Model & Ouput specifications

	2001 (sensor : 1EA)	2001D (sensor : 1EA)	2001T (sensor : 1EA)	2001F (sensor : 1EA)	2000TT (sensor : 1EA)
temp. output	1 stage ouput	2 stage ouput	3 stage ouput	4 stage ouput	control by temp. and time (for a greenhouse only)

	2001 (sensor : 1EA)	2002 (sensor : 1EA)	2003, 2003S (sensor : 1EA)	2004 (sensor : 2EA)	2005 (sensor : 2EA)	2006 (sensor : 2EA)	
Temp. output	○	○	○	○	○	temp.1	temp.2
Alarm output	-	○	-	-	○	alarm 1	alarm 2
Defrost output	-	-	○	○	○	-	-
Fan output	-	-	○	○	○	-	-

■ Application

- Green house is set to be controlled temperature by openning and closing the door.

- If you want to make it slow openning and fast closing, open it at 30°C , close at 10°C ?

Set o P 1 (open 1 temperature) at 30 C and C L 1 (close 1 temperature) at 10 C.

And due to opening should be slowly, the operation amount is reduced as less as setting P n 1 (open 1 operation ON time) and much as P F 1 (open 1 operation OFF time).

ex) P n 1 = 1 minute, P F 1 = at setting for 3 minutes

Move : Open for 1 minute, stop for 3 minutes and open for 1 minute, stop for 3 minutes repeatedly. If making P F 1 increase or reduce P n 1, can be opened much slowly.

And due to closing should be fast, the operation amount is increased as much as setting L n 1 (close 1 ON time) and less as L F 1 (close 1 OFF time).

ex) L n 1 = 3 minutes, L F 1 = at setting for 1 minute

Move : Close for 3 minutes, stop for 1 minute and close for 3 minutes, stop for 1 minute repeatedly. If making L n 1 (close 1 ON time) value increase more or reduce L F 1 (close 1 OFF time) value more, can be closed much fast.

※ 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.

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※ This device works proper operation with :
Ambient Temp : 0 ~ 60°C
Ambient Humi. : below 80%RH
Regular power : 220VAC ±10% 50/60Hz

■ Main product and development
-Digital temp./humi. controller
-Digital timer, Current/Voltage meter
-Development of other products.