CONOTEC®
CONOTEC CO., LTD.

Digital Temperature Controller

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FOX-2001FD

Operating Manual

Model	Sensor	Output	Temp. range	Function
FOX-2001FD	NTC	Relay (4EA)	-55.0℃ ~ +99.9℃	temp. control

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

■ Part name
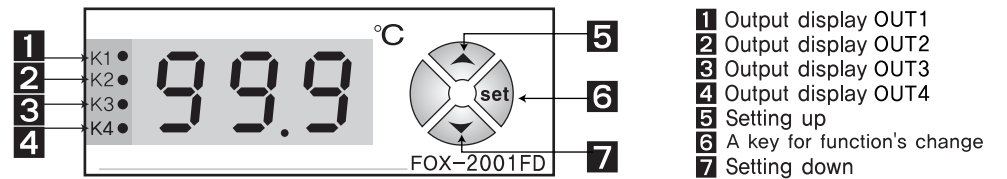
1 Output display OUT1
2 Output display OUT2
3 Output display OUT3
4 Output display OUT4
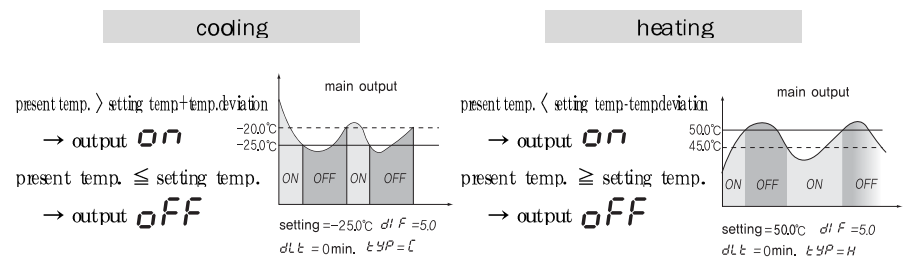5 Setting up
6 A key for function's change
7 Setting down

■ The function of each key

1. [set] : A key to change of the programs & setting temperature.
2. [◁][▷] : A key to change of the program's set values & temperature.

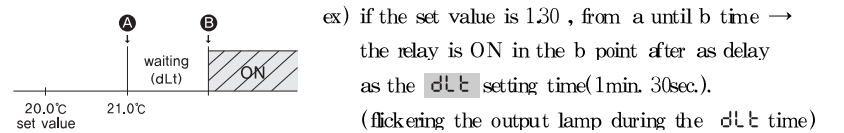### ■ Detailed manual

1. E81 : To change the set values for the main output.
2. E82 : To change the set values for the auxiliary output.
3. HSP : Setting function of the highest limit of temperature range (Maximum set point allowed to the end user)
   Impossible to set up the set value more than HSP set value
   ex) HSP = 25℃ setting ⇒ impossible to raise the set value more than 25℃
4. LSP : Setting function of the lowest limit of temperature range (Minimum set point allowed to the end user)
   Impossible to set up the set value less than LSP set value
   ex) LSP = 10.0℃ setting ⇒ impossible to lower the set value less than 10.0℃
5. tYP : Selection of the cooling or heating function
6. diF : 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.

┌ ex ⇒ The method of the temp. deviation when ON/OFF control ┐

cooling	heating
present temp. 〉 setting temp+temp.deviation → output ON	present temp. 〈 setting temp-tempdeviation → output ON
present temp. ≦ setting temp. → output OFF	present temp. ≧ setting temp. → output OFF

setting =-25.0℃ diF =5.0
dLt = 0min. tYP = C

setting =50.0℃ diF =5.0
dLt = 0min. tYP = H

7. dLt : Delay time of the output
   It is widely used as the followings
   - 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
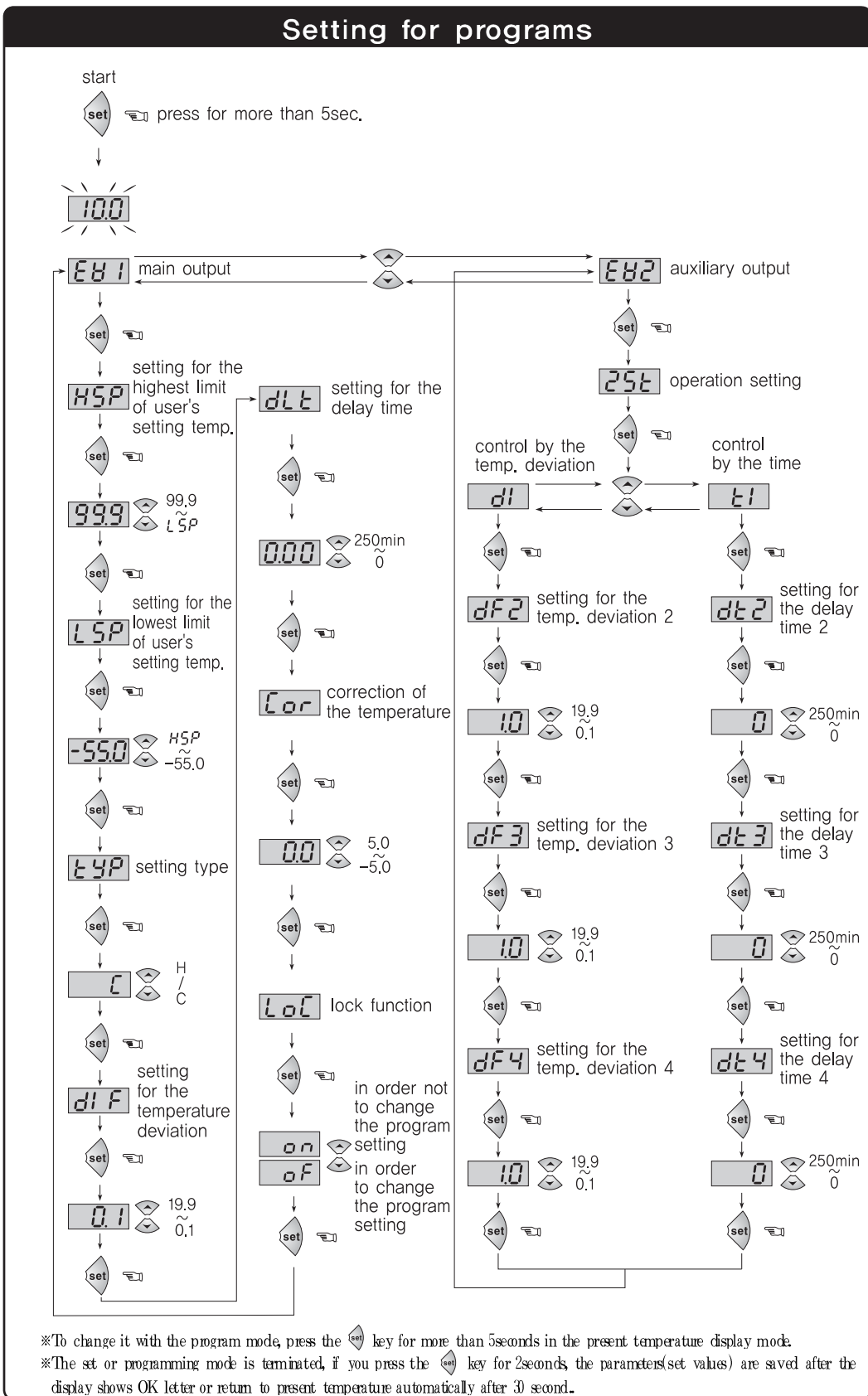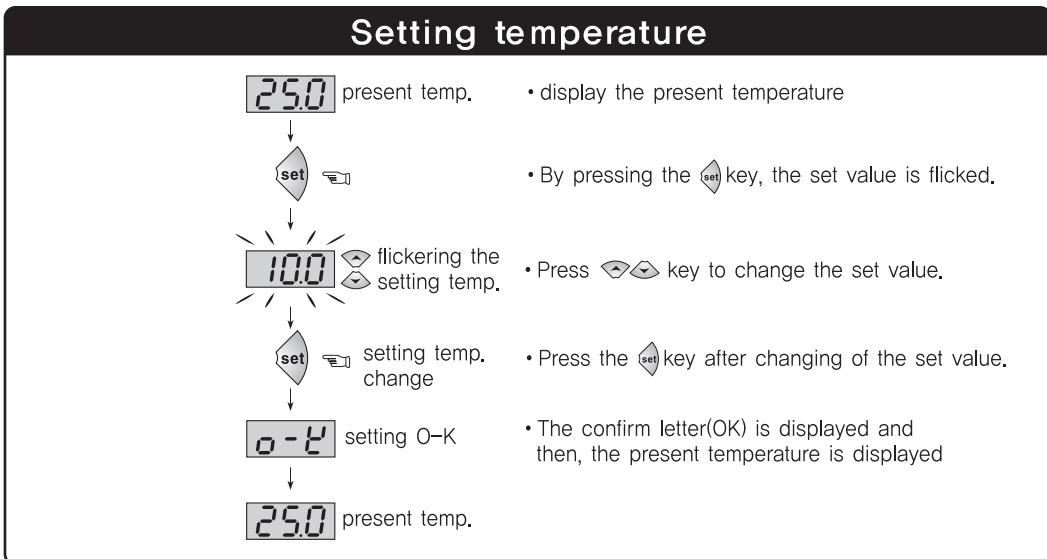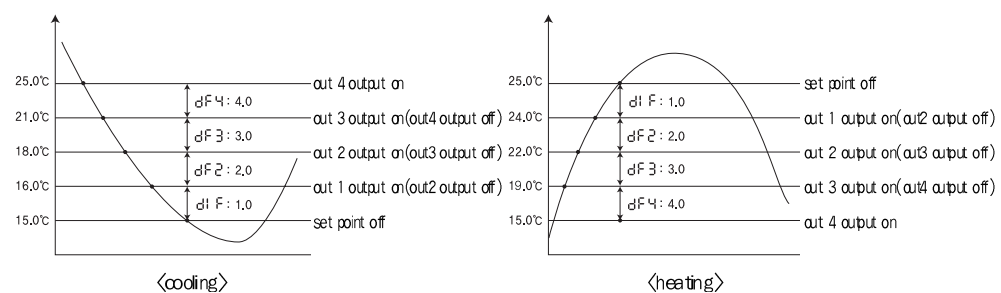

ex) if the set value is 13.0 , from a until b time → the relay is ON in the b point after as delay as the dLt setting time(1min. 30sec.). (flickering the output lamp during the dLt time)

8. Cor : Correction of the present temperature.
   - It is used for the correction of an discrepancy between the display temperature and real temperature

   ex) real temp. : 10.0℃ ⟶ Cor : 0.0 ⇒ -2.0 correction → 10.0℃ display
   display : 12.0℃

9. LoC : The lock function
   As a safety device, it is used in order not to change the set values except for the main user.
   ON - setting for the lock function.
   OFF - removal for the lock function

10. di : auxiliary output → operation by the temp. deviation set value
11. dF2 : setting for the temp. deviation of the temp.2 - see the no.6
12. dF3 : setting for the temp. deviation of the temp.3 - see the no.6
13. dF4 : setting for the temp. deviation of the temp.4 - see the no.6

ex) setting : 15.0℃, tYP : C
diF : 1.0, dF2 :2.0, dF3 :3.0, dF4 :4.0

ex) setting : 25.0℃, tYP : H
diF : 1.0, dF2 :2.0, dF3 :3.0, dF4 :4.0

〈cooling〉 〈heating〉

Setting temperature

25.0 present temp. • display the present temperature

[set] • By pressing the [set] key, the set value is flicked.

10.0 flickering the setting temp. • Press [◁][▷] key to change the set value.

[set] setting temp. change • Press the [set] key after changing of the set value.

o-U setting O-K • The confirm letter(OK) is displayed and then, the present temperature is displayed

25.0 present temp.

Setting for programs

start

[set] press for more than 5sec.

10.0

E81 main output ⟷ E82 auxiliary output

HSP setting for the highest limit of user's setting temp.

99.9 ~ LSP

LSP setting for the lowest limit of user's setting temp.

-55.0 HSP ~ -55.0

tYP setting type

C H/C

diF setting for the temperature deviation

0.1 19.9 ~ 0.1

dLt setting for the delay time

0.00 250min ~ 0

Cor correction of the temperature

0.0 5.0 ~ -5.0

LoC lock function

on / oF in order not to change the program setting / in order to change the program setting

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2St operation setting

control by the temp. deviation ⟷ control by the time

di ⟷ ti

dF2 setting for the temp. deviation 2

1.0 19.9 ~ 0.1

dt2 setting for the delay time 2

0 250min ~ 0

dF3 setting for the temp. deviation 3

0.0 5.0 ~ -5.0

dt3 setting for the delay time 3

0 250min ~ 0

1.0 19.9 ~ 0.1

0 250min ~ 0

dF4 setting for the temp. deviation 4

dt4 setting for the delay time 4

1.0 19.9 ~ 0.1

0 250min ~ 0

※ To change it with the program mode, press the [set] key for more than 5seconds in the present temperature display mode.
※ The set or programming mode is terminated, if you press the [set] key for 2seconds, the parameters(set values) are saved after the display shows OK letter or return to present temperature automatically after 30 second.

14. **t1** : auxiliary output → operation by the delay time set value
15. **dt2** : setting for the delay time of the temp.2 - see the no.7
16. **dt3** : setting for the delay time of the temp.3 - see the no.7
17. **dt4** : setting for the delay time of the temp.4 - see the no.7

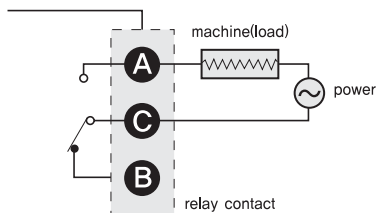ex)setting : 15.0℃ **tYP** : C, **dLt** : 1min, **dt2** :2min, **dt3** :3min, **dt4** :4min.
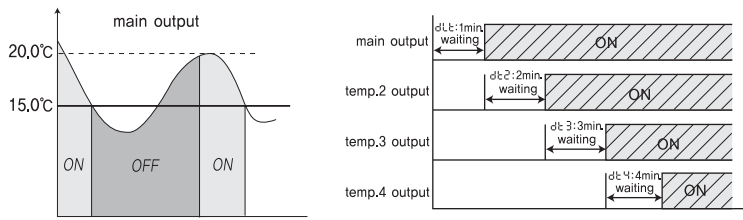
■ temp. range & set value when deliver

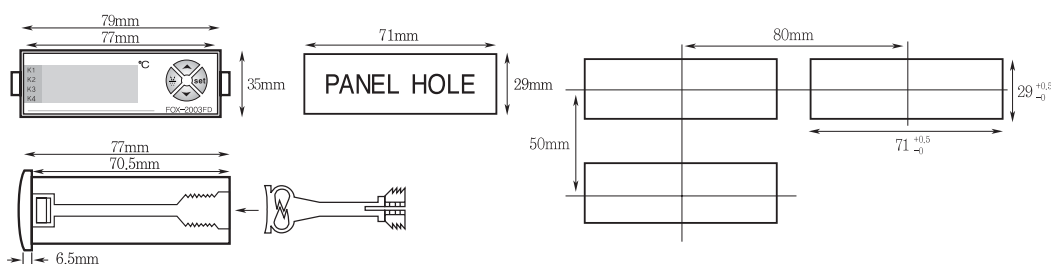|	Function	Display	Range	Set values when deliver	Remarks
Setting temp.	Setting temp.		-55.0℃~99.9℃	10.0℃	
Program Setting / E81	Setting for the highest limit of user	HSP	LSP~99.9℃	99.9℃	It is irrelevant to the relay output.
	Setting for the lowest limit of user	LSP	-55.0℃~HSP	-55.0℃	It is irrelevant to the relay output.
	Selection of the type	tYP	C/H	C	H - heating C - cooling
	Temperature deviation	diF	0.1℃~19.9℃	1.0℃	hysteresis +
	Delay time	dLt	0~250min	0min	
	Correction of temp.	Cor	-5.0~5.0		correct for an discrepancy between the display temp. and real temp.
	Lock function	LoC	on/oF	oF	on - setting for the lock function oF - removal of the lock function however, except for the setting temperature value.
E82	auxiliary output	2St	di/t1	di	di - operation by the temp.deviation t1 - operation by the delay time
	temp.2 - temp. deviation	dF2	0.1℃~+19.9℃	1.0℃	setting for the set value of the temp.2 output ※the main output ON point basis
	temp.3 - temp. deviation	dF3	0.1℃~+19.9℃	1.0℃	setting for the set value of the temp.3 output ※temp2 output ON point basis
	temp.4 - temp. deviation	dF4	0.1℃~+19.9℃	1.0℃	setting for the set value of the temp.4 output ※temp3 output ON point basis
	Delay time for the output of the temp.2	dt2	0~250min	0min	It is applied to the delay time after operating the main output.
	Delay time for the output of the temp.3	dt3	0~250min	0min	It is applied to the delay time after operating the temp. 2 output.
	Delay time for the output of the temp.4	dt4	0~250min	0min	It is applied to the delay time after operating the temp. 3 output.

■ Relay junction

■ Connection

FOX-2001FD

※output : 250VAC 2A
Please make use of the power relay or magnet surely.
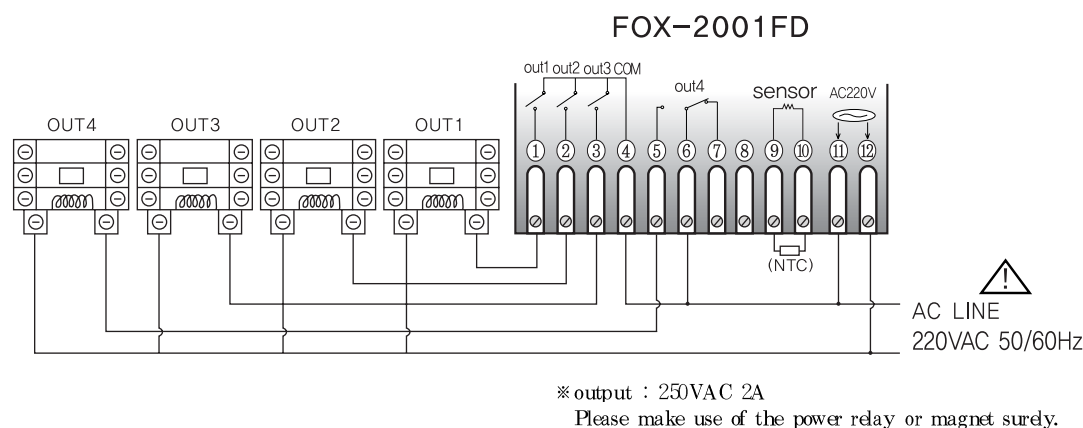
■ Size & dimension

■ Safety and Hazard Instructions

⚠ Safety

Pls use this item after installing the duplex safety device in which is applied to dangerous factors such as serious human injury or serious damages of property & important machine because this item is not designed as safety device

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Error message

Er1 Memory error. Turn the power off and turn it on again
If the error message persists, please request us A/S by return

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

S-E Sensor error. The sensor is short-circuited. Check the cable

## ■ The terms of guarantee : within 18months after shipment date.

■ Model & output spec

	2001 (sensor : 1EA)	2001D (sensor : 1EA)	2001T (sensor : 1EA)	2001F (sensor : 1EA)	2000TT (sensor : 1EA)	
temp. output	one-stage output	two-stage output	three-stage output	four-stage output	control by the temperature & time (for greenhouses)	

|	2001 (sensor : 1EA)	2002 (sensor : 1EA)	2003, 2003S (sensor : 1EA)	2004 (sensor : 2EA)	2005 (sensor : 2EA)	2006 (sensor : 2EA)	
						temp. 1	temp. 2
temp. output	○	○	○	○	○	○	○
alarm output	–	○	–	–	○	alarm 1 ○	alarm 2 ○
defrost output	–	–	○	○	○	–	
FAN output	–	–	○	○	○	–	

■ ex) application

- ex) heater → turn off at 30.0℃, turn on at 25.0℃, temp. 2 output at 20.0℃, temp.3 output at 18.0℃, temp.4 output at 15.0℃ How to operate(setting for the temperature & programs)?
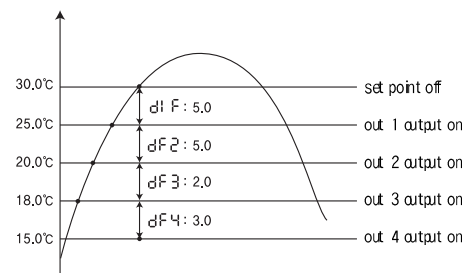
〈 setting temp. 〉 (see the setting temperature)
setting : 30.0℃

〈setting programs〉 (see the setting for program)
main setting
tYP : H
diF : 5.0 (due to the on/off's interval → 5.0℃)
auxiliary setting
2St : di
dF2 : 5.0
dF3 : 2.0
dF4 : 3.0

- ex) cooler → turn off at 0.0℃, restart at 2.0℃, auxiliary output → 1minute interval How to operate(setting for the temperature & programs)?
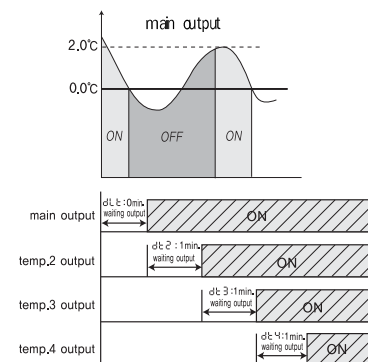
〈 setting temp. 〉 (see the setting temperature)
setting : 0.0℃

〈setting programs〉 (see the setting for program)
main output
tYP : C
diF : 2.0 (due to the on/off interval → 2.0℃)
dLt : 0minute (set value when deliver)
auxiliary setting
2St : t1
dt2 : 1minute
dt3 : 1minute
dt4 : 1minute