ISO 9001:2008 CE

CONOTEC®
CONOTEC CO., LTD.

Digital Temperature Controller

www.conotec.co.kr

-FOX-2002
-FOX-2002RS
-FOX-2002SR

Setting temperature

| 25.0 | present temp. | • display the present temperature |

↓ set

• By pressing the set key, the set value is flicked and press ▲▼ key to change the set value.

| 10.0 | flickering the setting temp. |

↓ set

| setting temp. change | • By pressing the set key after changing of the set value, the set value is saved and also the present temp. is displayed. |

| o-U | confirm letter setting O-K |

| 25.0 | present temp. |

Setting for programs

start

set press for more than 5sec.

| 10.0 |

E81 main output ◄ ▲▼ ► E82 auxiliary function

E81 (main output):
- set → HSP
- 99.9 99.9 ~ LSP
- set → LSP
- -55.0 HSP ~ -55.0
- set → tYP setting type
- set → HEt setting for heating – output relay / CoL setting for cooling – output relay
- set → dIS selection of the deviation style
- Pn deviation ±
- P deviation +
- set

(middle column):
- dIF setting for the temperature deviation
- set → 0.1 19.9 ~ 0.1
- set → dLt setting for the delay time
- set → 0.00 9.59(minute, second) ~ 0.00
- set → Cor correction of the temperature
- set → 0.0 5.0 ~ -5.0
- set → LoC lock function
- set → on in order not to change the program setting
- oF in order to change the program setting

E82 (auxiliary function):
- set → ALS selection of the alarm style
- set → H Hi- only applicable to the Hi-alarm
- HL Hi,Low- applicable to both Hi-alarm and Low-alarm
- L Low- only applicable to the low-alarm
- set → HPr setting for the highest alarm temperature
- set → 99.9 99.0℃ ~ -55.0℃
- set → LPr setting for the lowest alarm temperature
- set → -55.0 99.0℃ ~ -55.0℃
- set

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

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

Operating Manual

Model	Sensor	Output	Temp. Range	Function
FOX-2002	NTC	relay	-55.0°C ~ +99.9°C	temp. control
		relay		alarm control
FOX-2002RS	NTC	relay	-55.0°C ~ +99.9°C	temp. control
		SSR (12VDC3mA Max)		alarm control
FOX-2002SR	NTC	SSR (12VDC3mA Max)	-55.0°C ~ +99.9°C	alarm control
		relay		temp. control

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

■ Part name

1 Temp. output lamp
2 Alarm temp. output lamp
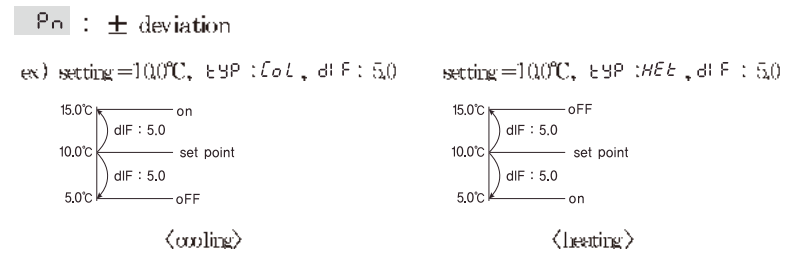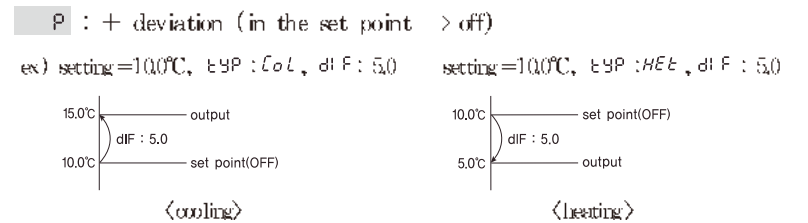3 Setting up
4 Change function switch
5 Setting down
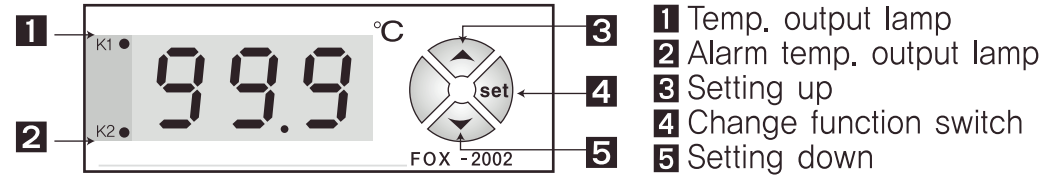
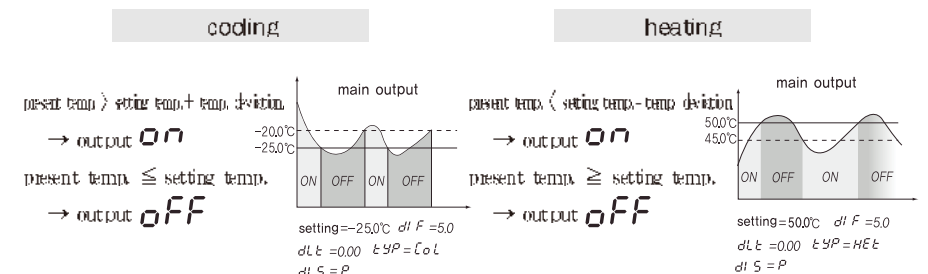### ■ The function of each key.

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 : set values of the main output
2. E82 : set values of 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 = 25.0℃ setting → impossible to raise the set value more than 25.0℃

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(CoL) & Heating(HEt)
6. dIS : Selection of the temperature deviation

   P : + deviation (in the set point > off)

   ex) setting=10.0℃, tYP : CoL, dIF : 5.0   setting=10.0℃, tYP : HEt, dIF : 5.0

   〈cooling〉   〈heating〉

   Pn : ± deviation

   ex) setting=10.0℃, tYP : CoL, dIF : 5.0   setting=10.0℃, tYP : HEt, dIF : 5.0

   〈cooling〉   〈heating〉

7. 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.- temp. deviation → output ON
present temp.≤ setting temp. → output OFF	present temp.≥ setting temp. → output OFF

   setting=-25.0℃ dIF =5.0 dLt =0.00 tYP=CoL dIS=P
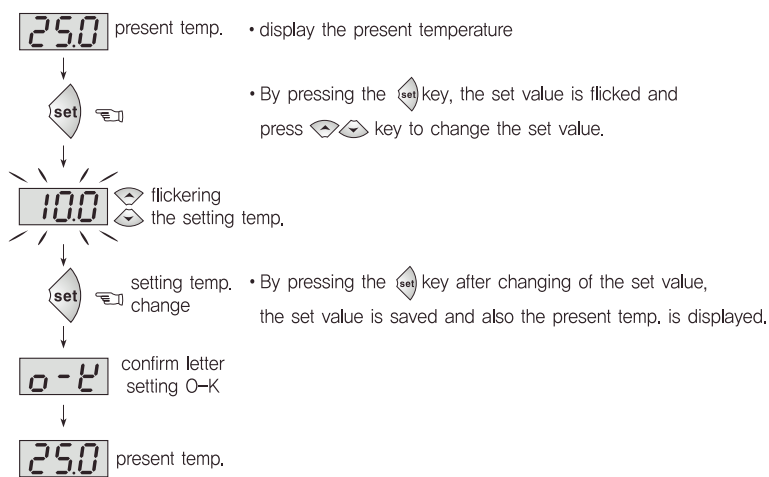   setting=50.0℃ dIF =5.0 dLt =0.00 tYP=HEt dIS=P

8. 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 1.30,
   from Ⓐ until Ⓑ time → the relay is ON in the Ⓑ point after as delay as the dLt setting time (1min30sec).
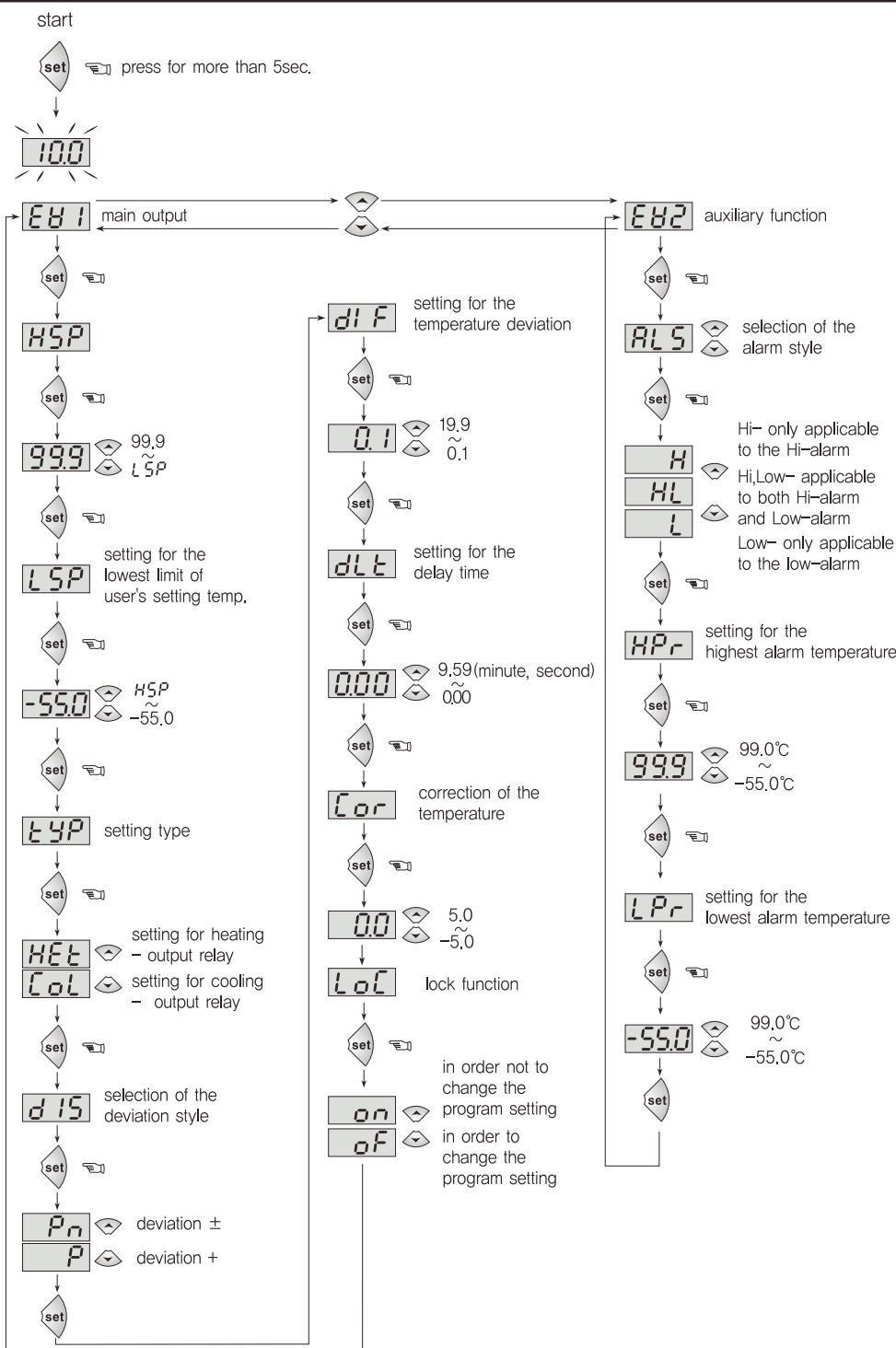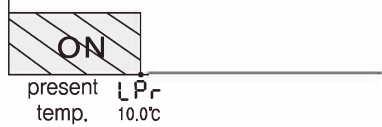   (flickering the output lamp during the dLt time)
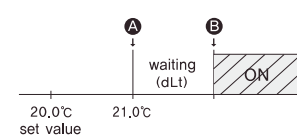
9. Cor : Correction of the present temperature.
   It is used for the correction of an discrepancy between the display temperature and real temperature.

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

10. 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.

11. `HPr` : setting temp. of the highest alarm.
    -To prevent an excess of temperature highest limit under control.
12. `LPr` : setting temp. of the lowest alarm.
    -To prevent an excess of temperature lowest limit under control.
13. `ALS` : style of alarm output
    `H` : output on-only the present temperature is more than `HPr` set value
    ex) `HPr` : 50.0℃

    `HL` : output on-the present temperature is both more than `HPr` and less than `LPr`
    ex) `HPr` : 50.0℃, `LPr` : 10.0℃

    `L` : output on - only the present temperature is less than `LPr` set value.
    ex) `LPr` : 10.0℃

■ 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	`EU 1`	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 output relay.
		Selection of the function	`tYP`	`CoL/HEt`	`CoL`	`HEt` - heating `CoL` - cooling
		Selection of the deviation style	`diS`	`P/Pn`	`P`	`Pn` - deviation ± `P` - deviation +
		Temperature deviation	`diF`	0.1~19.9	1.0	
		Delay time	`dLt`	0.00~9.59	0.00	(minute, second)
		Correction of temp.	`Cor`	-5.0~5.0	0.0	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.
	`EU2`	style of the alarm output	`ALS`	L HL H	HL	L - lowest alarm temp. HL - both L and H H - highest alarm output
		highest alarm temp.	`HPr`	-55.0~99.9	99.9	
		lowest alarm temp.	`LPr`	-55.0~99.9	-55.0	

■ ex) SSR junction
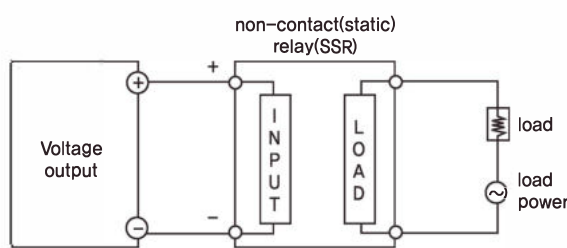
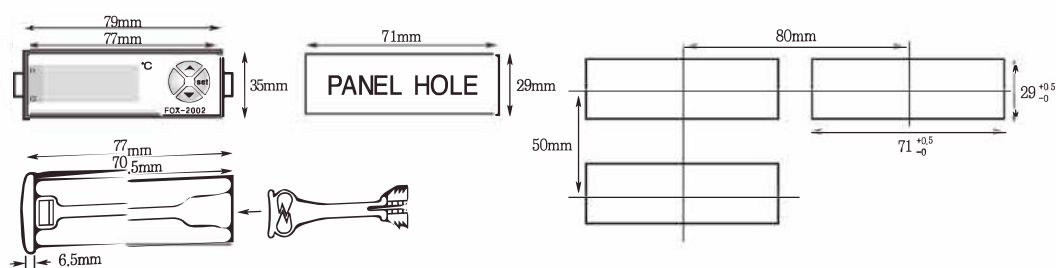※ Please make sure that the SSR's capacity should be used more than load capacity.

■ ex) Relay junction

■ Connection

FOX-2002

2002-RS SSR	2002-SR SSR
7 − Ⓥ 6 +	4 − Ⓥ 3 +
12VDC ±3V 30mA Max.	12VDC ±3V 30mA Max.

AC LINE
220VAC 50/60Hz

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

■ Dimension

⚠ Danger

Attention ! Never work on electrical connections when the machine is switched on

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
  ⇒ How to operate(setting for the temperature & programs)?

〈setting temp.〉(see the setting temperature)
setting : 30.0℃

〈setting program〉(see the setting for program)
`tYP` : `HEt`
`diS` : `P` (deviation → one side, set point → off)
`diF` : 5.0 (on/off interval ⇒ 5.0℃)

● ex)Cooler → turn off at 0.0, turn on at 2.0
  ⇒ How to operate(setting for the temperature & programs)?

〈setting temp.〉(see the setting temperature)
setting : 0.0℃

〈setting program〉(see the setting for program)
`tYP` : `CoL`
`diS` : `P` (deviation → one side, set point → off)
`diF` : 2.0 (on/off interval ⇒ 2.0℃)

● ex)Heater → turn off at 70.0, turn on at 60.0, alarm output ⇒ when more than 70.0℃
  : How to operate ?

〈setting temp.〉(see the setting temperature)
setting : 70.0℃

〈setting program〉(see the setting for program)
main setting
`tYP` : `HEt` (heating)
`diS` : `P` (deviation→one side, set point→off)
`diF` : 10.0℃(on/off interval ⇒ 10.0℃)

auxiliary setting
`HPr` : 70.0℃ (setting for the highest alarm temperature)
`ALS` : `H` (output on -when the present temperature is more than `HPr` set value)