

OPERATING MANUAL FOX-2003TX



1 Caution for Your Safety

Please read this instruction carefully before using this controller.
※ The Manual's information & specification can be changeable to improve its quality without any notification.

Safety

1. Please use this product after attaching two-tier safety system definitely when it is used to control the equipment which may cause deadly consequence or serious damage to peripheral device and serious property damage, because this product is not manufactured as safety equipment.
2. Do not connect, check or repair it while power is supplied.
3. When connecting power source, please check terminal number without fail.
4. Never dismantle, process, improve or repair this device.

Safety Instruction and Hazard Warnings

1. Please be well-acquainted with method of use, safety regulation and warning before installing this device, and use it definitely within the scope of defined specification and relevant capacity.
2. Do not wire line or install in a motor or solenoid where inductive load is large.
3. Use shielding wire when extending sensor and do not make it long more than needs.
4. Do not use component at same power source or close to it, which may generate arc when directly 'making and breaking' circuit.
5. Keep power line away from high voltage line and do not install where there is lots of water, oil and dust.
6. Do not install in the place of direct sun-light or exposed to rain.
7. Do not install where there is strong magnetism, noise, vibration or impact.
8. Please avoid place where strong alkaline or acid substance is directly generated, and use independent pipe.
9. Do not pour water directly to it for cleaning when it is installed in kitchen.
10. Do not install where temperature/humidity exceeds rating.
11. Use this device so as for sensor line not to be cut or scratched.
12. Please keep sensor line away from signal line, power source, power and load line, and use independent pipe.
13. Please be advised that A/S is not provided when this product is dismantled or revised arbitrarily.
14. ⚠Mark in terminal connection diagram is a safety words for warning or caution.
15. Do not use this product near the device which generates strong high-frequency noise (high frequency welding machine, high frequency sewing machine, high frequency radio set, high-capacity SCR controller)
16. If this product is used in other way than specified by manufacturer, it may cause injury or loss of property.
17. Keep out of reach of children because it is not a toy.
18. Installation work should be done by related specialist or qualified person only.
19. We are not responsible for any damage caused by non-compliance of above-mentioned warning or caution words, or fault of consumer.

Danger

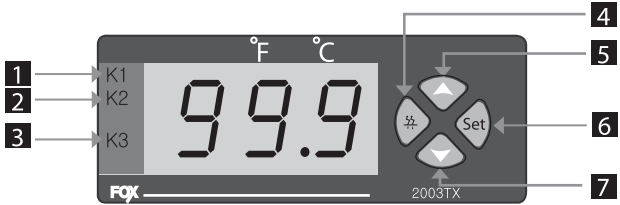
- Caution, Danger of electric shock
- Electric shock- Do not touch AC terminal while electric power flows. You may get electric shock.
- When checking input power source, please cut off input power source definitely.

2 Composition of model

Model	Sensor	Control output	Range	Function
FOX-2003TX	NTC	Relay contact	°C : -55.0℃ ~ 99.0℃ °F : -67°F ~ 212°F	Temp.
FOX-2003TX-RS	NTC	Relay contact SSR OPER.VDC (12V DC30mA MAX)		Defrost
FOX-2003TX-SR	NTC	Relay contact SSR (12V DC30mA MAX)		FAN

3 Front operation and name of display unit

External shape & each name of part

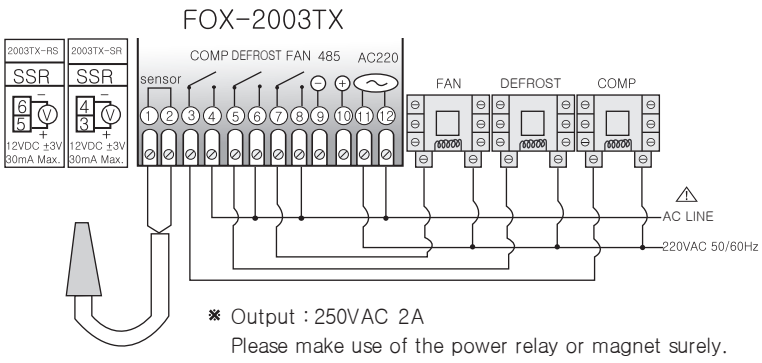


- 1 COMP. OUTPUT DISPLAY
- 2 DEFROSTING OUTPUT DISPLAY
- 3 FAN OUTPUT DISPLAY
- 4 DEFROSTING SWITCH
- 5 SETTING UP
- 6 FUNCTION CHANGING
- 7 SETTING DOWN

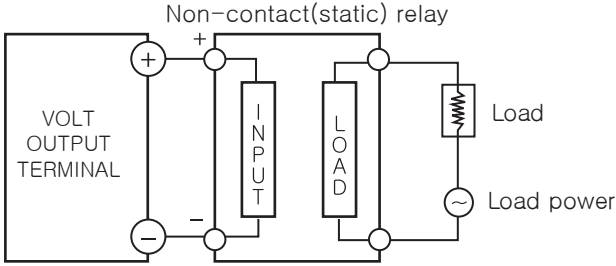
Change of user mode (Temperature setting)

- How to change the setting temp. for Main output
 - ◀ If press it once, the setting value is flickered.
 - ◀ or ▶ the value can be up & down with these keys.
 - ▶ Defrosting key by manual
 - Manual defrosting function can be ON or OFF by pressing for more than 3 seconds.
- Setting of installer mode function
 - ▶ A key to enter to installer mode if press for more than 5 sec, change with these keys. ▶ ▶ ▶

4 Terminal connection diagram

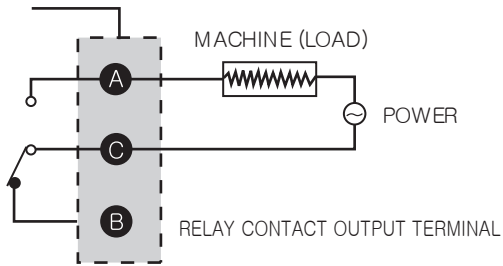


SSR JUNCTION



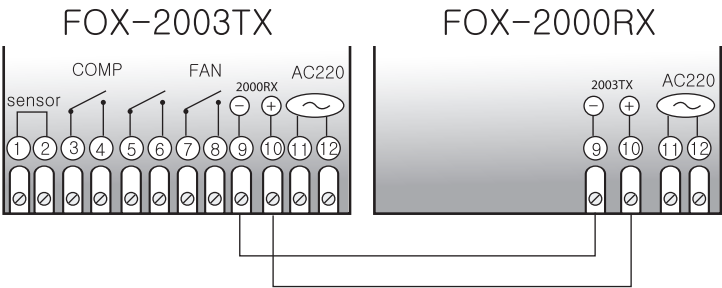
※ Please make sure that the SSR's capacity should be used more than load capacity.

RELAY JUNCTION

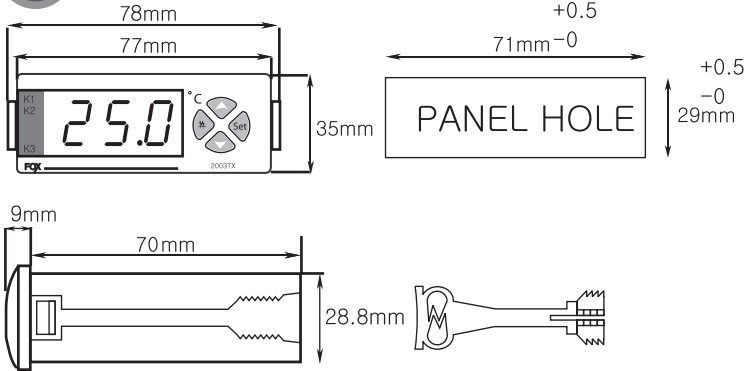


※ Relay contact capacity is less than 250VAC 2A. If using the load to exceed contact capacity, be cautious on those can be caused by contact deposited, contact failure, relay damaged, etc.

5 HOW TO CONNECT TO 2000RX



6 EXTERNAL & PANEL SIZES



7 SETTING RANGE & SET VALUE WHEN DELIVER

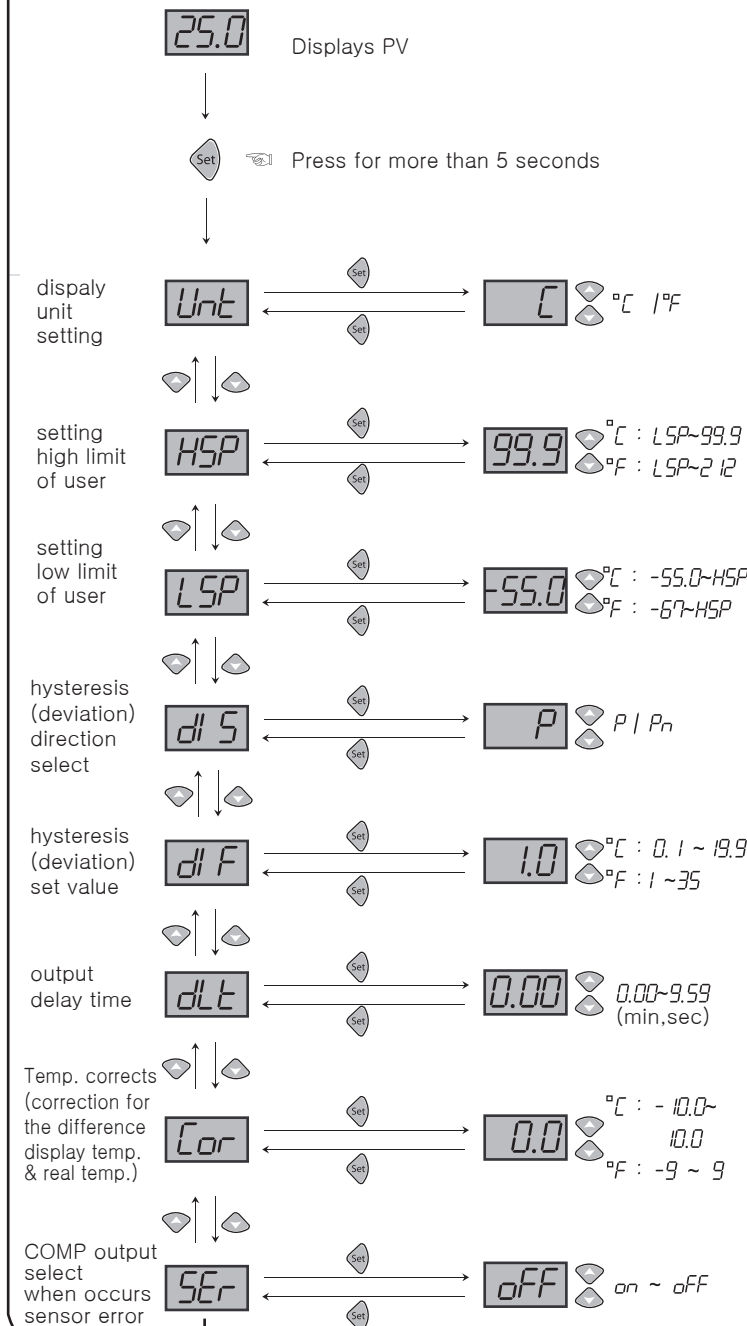
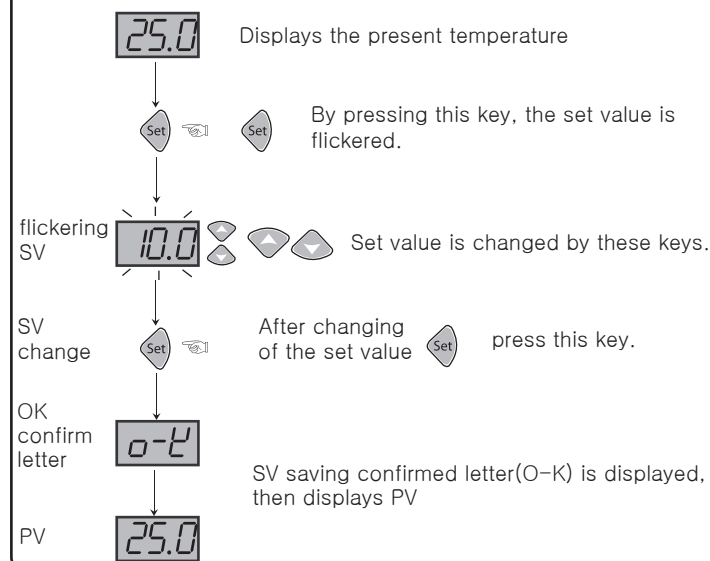
DISPLAY	FUNCTIONS	°C	°F	SET VALUE	REMARKS
	Temp. setting	-55.0 ~ 99.9	-67 ~ 212	10.0	
Unt	Temp. display unit	°C / °F		°C	°C : Celsius °F : Fahrenheit
HSP	Setting highest limit of user	LSP ~ 99.9	LSP ~ 212	99.9	Irrelevant to the relay output
LSP	Setting lowest limit of user	-55.0 ~ HSP	-67 ~ HSP	-55.0	Irrelevant to the relay output
dI S	Select for deviation type	P / Pn		P	Pn : deviation ± P : deviation +
dI F	Setting deviation	0.1 ~ 19.9	1 ~ 35	1.0	
dLt	Setting output delay time	0.00 ~ 9.99		0.00	min, sec
Cor	Correction of temperature	-10.0 ~ 10.0	-18 ~ 18	0.0	Correct. difference between displayed & actual value.
SEr	Sensor error	on / off		off	on : COMP output ON off : COMP output OFF
dtP	COMP select when defrost	on / off		off	on : COMP ON when defrost off : COMP OFF when defrost
doF	Defrost stop time	0 ~ 99		4	Setting hour unit
don	Defrosting time	0 ~ 99		10	Setting minute unit
ddt	COMP delay time after defrost	0.00 ~ 9.99		0.00	minute, second
FSt	FAN setting	1 ~ 4		1	Refer to the chart
Fdt	FAN delay time after defrost	0.00 ~ 9.99		0.00	
LoC	Lock function	on / off		off	on : Setting lock ON off : Setting lock OFF but, except the set value

	COMP ON	COMP OFF	Defrost
F1	ON	OFF	OFF
F2	ON	ON	ON
F3	ON	OFF	ON
F4	ON	ON	OFF

How to set manual defrost

1. Manual defrost ON : if press ▶ key for more than 3 sec., K2LED turns ON and starts to defrost manually, then displays **nan**.
2. Manual defrost OFF : if press ▶ key again for 3 sec., in the state of manual defrost ON, it turns OFF. Or after **don** time, completes automatically.

Setting Temperature



Unit : Display unit changing

°C : displays in Celsius

°F : displays in Fahrenheit

Cautious : Re-set all setting values due to all setting values except for are returned to the value for ex-factory if you change the unit in operating.

In case of changing: $HSP=99.9$ $LSP=-55.0$ $LYP=C$ $dI\ S=P$ $dI\ F=1.0$ to Celsius

$dLt=0.00$ $Cor=0.0$ $SEr=OFF$ $dLP=OFF$ $don=4$ $doF=10$
 $ddt=0.00$ $FSt=1$ $Fdt=0.00$ $LoC=OFF$

In case of changing: $HSP=212$ $LSP=-67$ $LYP=C$ $dI\ S=P$ $dI\ F=1$ to Fahrenheit

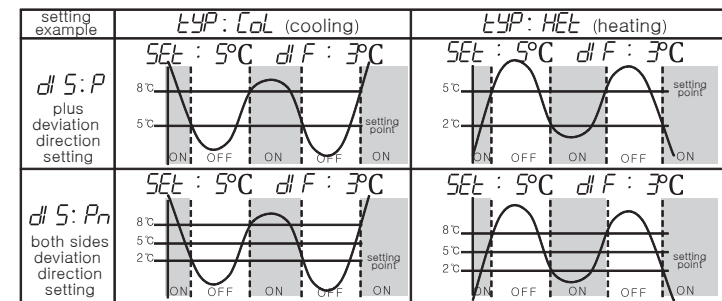
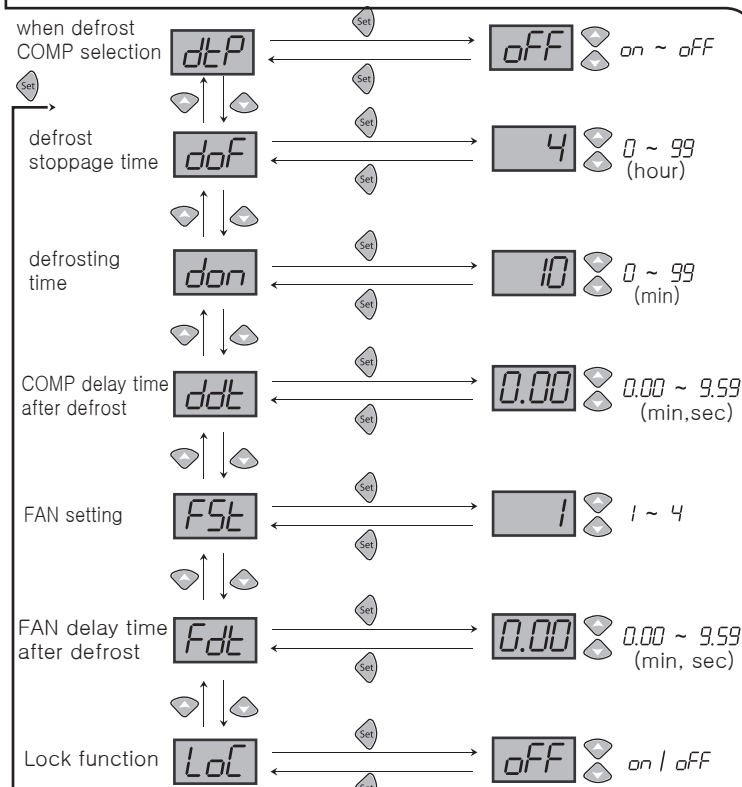
$dLt=0$ $Cor=0$ $SEr=OFF$ $dLP=OFF$ $don=4$ $doF=10$
 $ddt=0$ $FSt=1$ $Fdt=0$ $LoC=OFF$

HSP : Setting for the highest limit of user's setting temperature. (Maximum set point allowed to the end user)
 Impossible to set up the set value more than HSP set value.
 ex) HSP = when setting to 25.0°C
 → Impossible to set higher than 25.0°C

LSP : Setting for the lowest limit of user's setting temperature. (Minimum set point allowed to the end user)
 Impossible to set up the set value less than LSP set value.
 ex) LSP = when setting to 10.0°C
 → Impossible to set less than 10.0°C

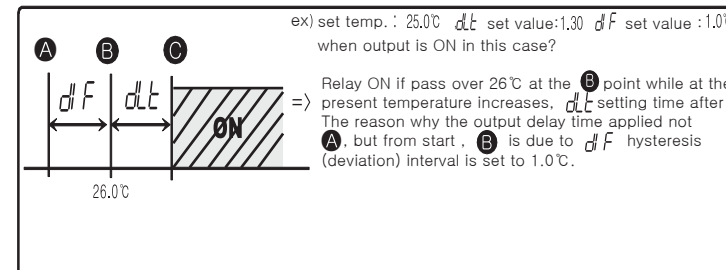
dI S : Selection for the hysteresis application direction(deviation)
 P : deviation value(DIF) applied (+) direction only(OFF in the setting point)
 Pn : deviation value(DIF) applied (±) direction(setting point basis)

dI F : Setting for temperature deviation
 In the ON/OFF control, it needs at regular intervals between ON and OFF. If ON/OFF operation is activated frequently, the relay or output contact can be damaging quickly and it occurs the hunting(oscillating, chattering) by virtue of external noise, and so on.
 To prevent these happenings, you can set up the temperature deviation in order to protect its relay or contact and so on.



dLt : Delay time of the output

In case of operating ON/OFF control very often, to protect the operation machinery when re-input of the power supply or momentary stoppage of power supply.



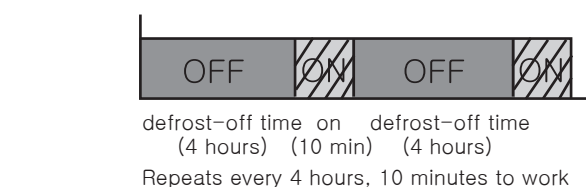
Cor : Correction of the present temp.
 The product itself has no problem, but the correction functioned for that if temp. differs between an error occurs in the input sensor from outside and basic temp.

ex) real temp. : 25.0°C display : 28.0°C
 if 3.0°C differs from the real temp. Cor : 0.0 → -3.0 if changing like this screen shown in 25.0°C

SEr : in case of a sensor error ($o-E$, $S-E$)
 COMP output setting : ON : continue ON
 OFF : continue OFF

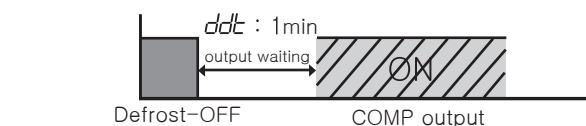
dLP : COMP select Cor : when defrost COMP ON
 CoF : when defrost COMP OFF

don : defrost time
 setting range hour 0 ~ 99 (min)
 defrosting at the defrost cycle time
 ex) doF : 4 (4hours), don : 10 (10min) when setting



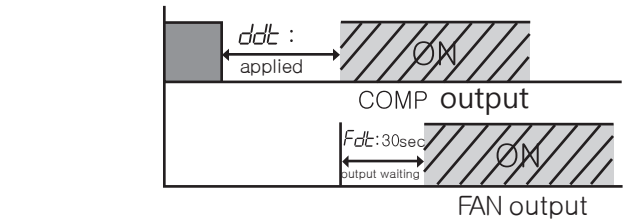
doF : Defrost stoppage time
 setting range 0 ~ 99(hour)
 defrosting at the defrost cycle time

ddt : COMP delay time after defrost
 setting range 0.00 ~ 9.99 (min, sec)
 COMP output is ON : after as delay as the setting time after closing of the defrost
 ex) ddt : in case of 1.00(1 min)



FSt : Fan setting ($F1 \sim F4$)
 refer to the chart for program setting

Fdt : FAN ON delay time after defrost
 setting range 0.00 ~ 9.50(min,sec)
 ex) Fdt : 0.30(30sec)



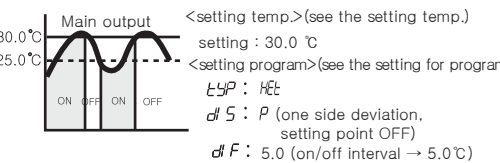
LoC : Program Lock func. setting

on : Program Lock

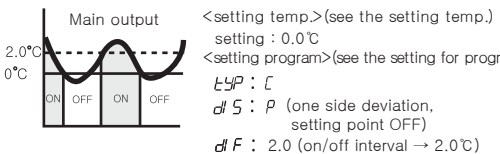
oFF : Program Unlock

ex) Application

ex)Heater → turn off at 30.0°C, turn on at 25.0°C
 How to operate (setting for the temperature&programs)?



ex)Cooler → turn off at 0°C, turn on at 2.0°C
 How to operate (setting for the temperature&programs)?



Related Items

Output	2001CC	2002CC	2003CC	2001TX	2000TX	2003TX	2000RX
Temp.	○	○	○	○	○	○	—
Alarm	—	○	—	—	○	—	—
Defrost	—	—	○	—	—	○	—
FAN	—	—	○	—	—	○	—
485 com.	○	○	○	○	○	○	○

10 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 get noised 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 becomes an inflow, the inner-part will be damaged.
- When shows these letter $o-E$ (open error), $S-E$ (short error) error in the sensor. Pls check the sensor.

※ The product specifications are subject to change without notice to improve the performance of the product.

Please read carefully the NOTICE before handling the product and abide by it.

★ Regarding the manual in English, please download it at our website.

■ H.Office : CONOTEC B/D 2nd floor, 26, Yunsan-ro, Geumjeong-gu, Busan, 46269 Rep. of KOREA
 Lab : CONOTEC B/D 3rd floor, 26, Yunsan-ro, Geumjeong-gu, Busan, 46269 Rep. of KOREA
 Factory : CONOTEC B/D B1, 26, Yunsan-ro, Geumjeong-gu, Busan, 46269 Rep. of KOREA

A/S TEL : 051 - 819 - 0425 ~ 7

e-mail : conotec@conotec.co.kr

URL : www.conotec.co.kr

■ This device works proper operation with;
 surrounding Temp. : 0°C ~ 60°C
 surrounding Humi. : below 80%Rh
 Regular : 220Vac ±10% 50/60Hz

■ Main products & Development
 - Digital temperature/humidity controller
 - Digital timer, Current/voltage meter
 - The other development products