



ISO 9001:2008

INSTRUCTION MANUAL FOX-2003SJ-1



1 Cautions for Safety

- Read carefully this instruction manual before use and use the product properly.
 ※The specifications, appearance and dimension may be changed for improvement of performance without a prior notice

WARNING

1. This product is not made as a safety device, so when it is used for a control of devices feared to cause casualties, damages to the peripheral devices or huge property loss, the double safety devices should be arranged before use.
2. Avoid connecting lines, checking and repairing the products while power is supplied.
3. Connect power after making sure the terminal number.
4. Never disassemble modify, improve or repair the product.

CAUTIONS

- Be well-informed of how to use, safety regulations, warnings, etc before installation of this device and apply it to the extent of the defined specifications and relevant capacity without fail.
- Avoid wiring or installation to a motor or solenoid with a large inductive load.
- Use a shielded cable for extension of the sensor and ensure not to make it longer than the necessity.
- Ensure not to use the parts generating arc when switching at the same power source or near to it.
- Keep the power cable away from a high-tention power line and ensure not to install it at a place with serious oil and dirt.
- Avoid strong magnetic field or serious noise, vibration or impact.
- Keep away from the place where strong alkaline or acid material is directly released and use an independent pipe line.
- When it is installed at kitchen, ensure not to pour water directly over the product for cleaning.
- Keep the sensor cable away from signal line, power source, power line or loaded line and use an independent pipe line.
- Note that the mark of ⚠ in terminal connection diagram is the safety expression for warnings or cautions.
- Avoid using the product close to the device generating noises(high frequency welder, high frequency sewing machine, high frequency radio, large capacity SCR Controller, etc).
- The use in any way other than what is instructed by the manufacturer may cause injury or property loss.
- It is not a toy and keep it out of reach of children's hand.
- The installation of the device should be performed by an expert or a qualified personnel without fail.
- We shall not take any responsibility for the damage caused by non-compliance with the above-mentioned warnings or cautions or by any consumer's mistake.

DANGER

Attention, Danger related to electric shock

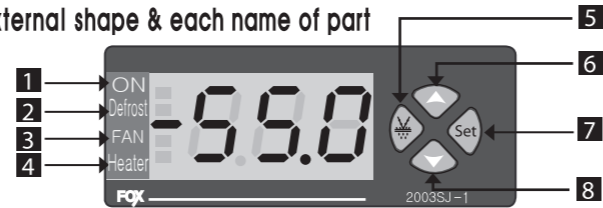
- Electric shock –Do not touch AC terminal during application of electric current. It may cause electric shock.
- Cut the power supply without fail during checking the input power.

2 Model

| Model | Sensor | Controlled output | Temp. Range | Functions |
|----------------------------|--------|-------------------|---------------------|--|
| FOX-2003SJ-1 (Cooler only) | NTC | Relay contact | ℃ : -55.0℃ ~ +99.9℃ | COMP control Defrost control FAN control |

3 Name of parts

External shape & each name of part

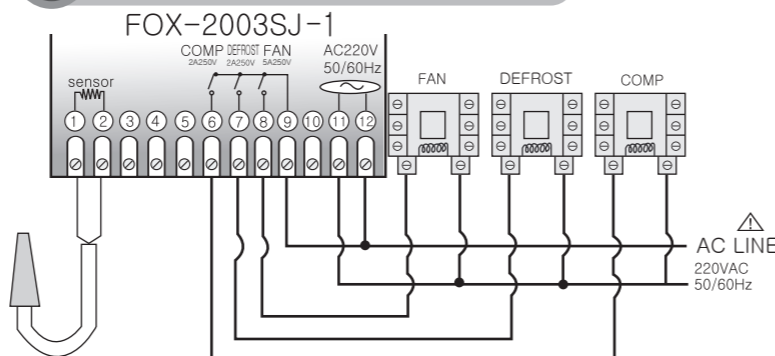


- | | |
|---------------------------------------|----------------------------|
| 1 COMP output display | 5 Defrost switch |
| 2 Defrost output display | 6 UP switch |
| 3 FAN output display | 7 Function changing switch |
| 4 Heater/LTS (low temp. stop) display | 8 Down switch |

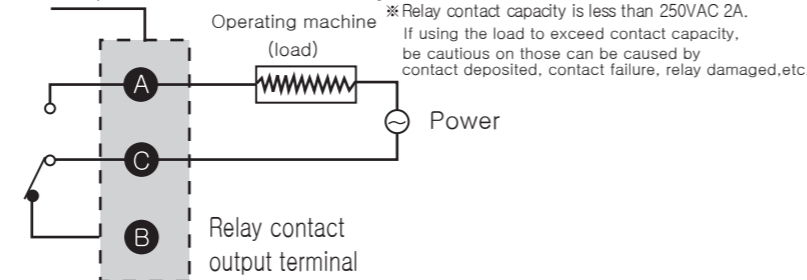
User's mode changing(Temperature setting)

- How to change the setting temp. for Main output
 - ◊ If press it once, the setting value is flickered and indicated.
 - ◄ or ► the value can be up & down with these keys.
- How to set mode function for installer
 - ◊ A key to enter to installer mode if press for more than 5 sec, ◊ ◄ ► change with these keys.

4 Terminal connection diagram

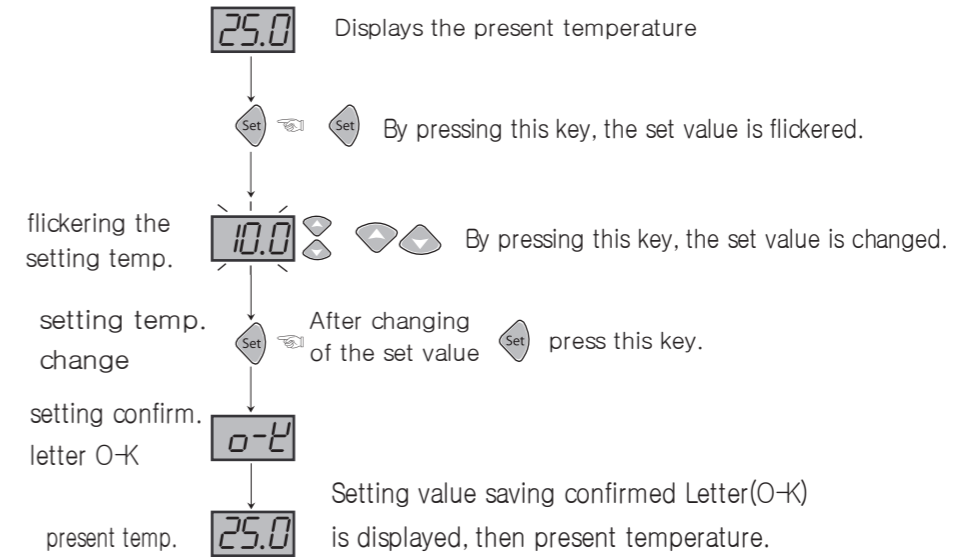


Example for connection of relay

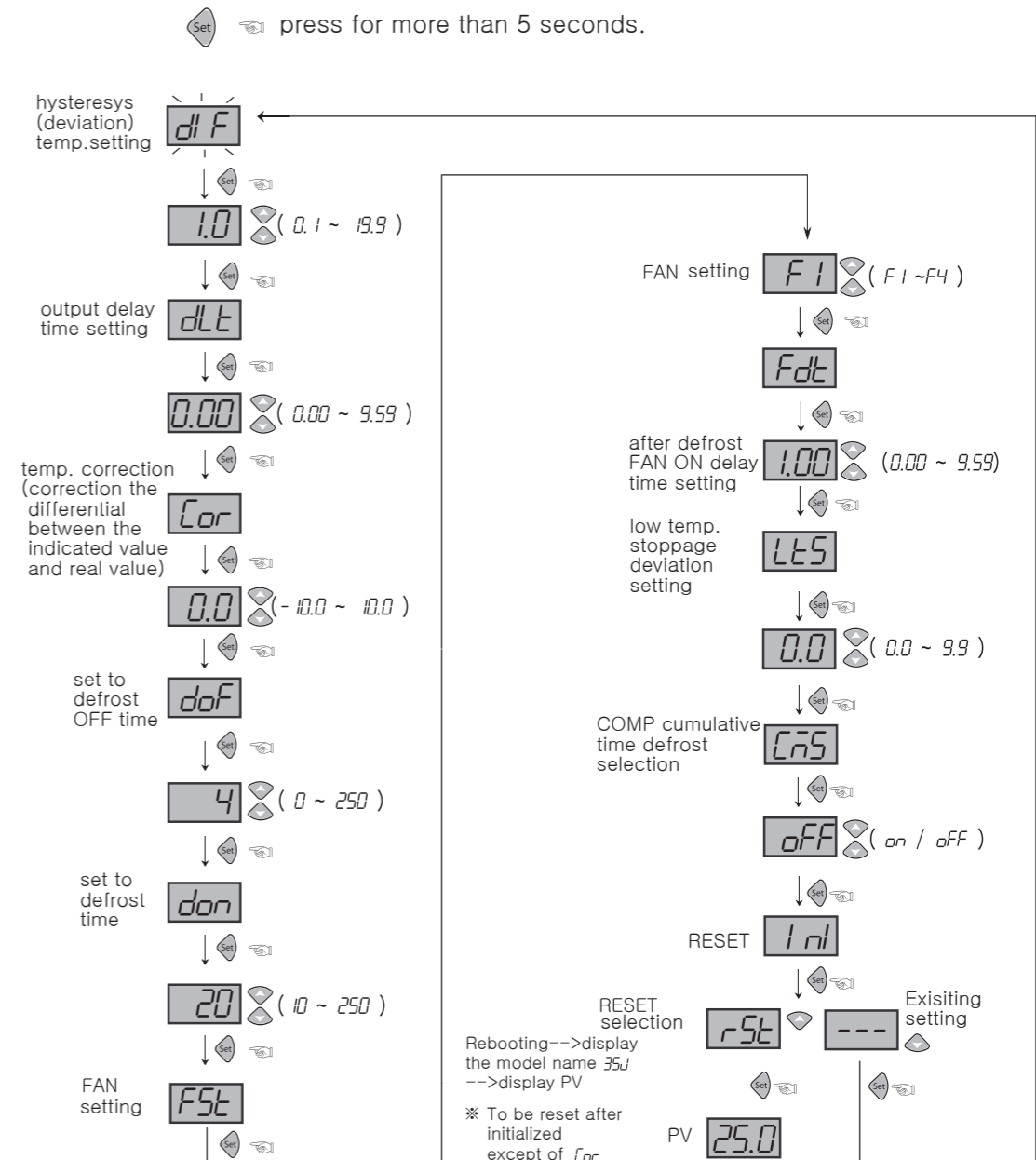


5 SEQ to change the setting value

Setting Temperature



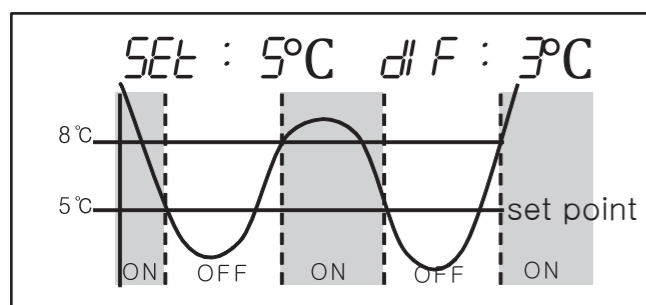
Program Setting



6 Detailed manual

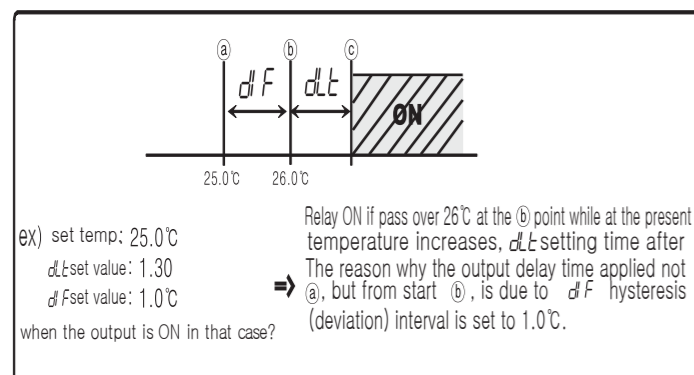
dF : Setting for temperature deviation

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 the ON/OFF control very often.(cooler, compressor,etc) 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.

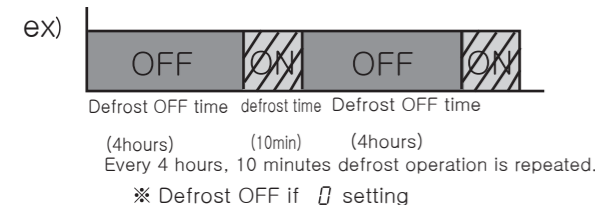
ex) real temp. : 25.0°C
display : 28.0°C
if 3°C differs from the real temp.
 Cor : 0.0 → -3.0 if changing like this screen shown in 25.0°C

doF : Defrost OFF time

Setting range 0 ~ 250 (hour)
When the defrost cycle, the defrost operation.
* Defrost OFF if 0 setting

don : Defrost ON time

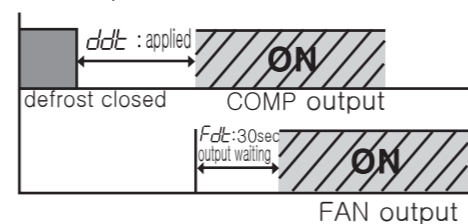
Setting range 0 ~ 250 (min)
When the defrost cycle, the defrost operation.



Fdt : After defrost, FAN ON delay time

Setting range: 0.00 ~ 9.59 (min,sec)

ex) Fdt : 0.30(30sec)



$Lt5$: Low temperature stoppage.

If $Lt5$ setting temperature is 0, the $Lt5$ is OFF
If the present temperature is less than the setting value $Lt5$ defrost & FAN ON.

$F5t$: Fan setting(F1 ~ F4) Refer to the program setting

* Chart

| | | COMP ON | COMP OFF | DEFROST |
|-----|----|---------|----------|---------|
| FAN | F1 | ON | OFF | OFF |
| | F2 | ON | ON | ON |
| | F3 | ON | OFF | ON |
| | F4 | ON | ON | OFF |

How to set the defrost by manual

- Manual defrost ON : if press the key for more than 3 sec., K2LED lights on, and starts to defrost manually, then displays on the screen this. don and defrost resting time alternately.
- Manual defrost OFF : if press for 3 sec. in ON state, press this key again, it turns OFF. Or, after don turns off automatically.

$Cr5$: COMP cumulative time defrost selection

on : COMP defrost by cumulation

off : defrost by cycling

* Defrost starts if COMP cumulative time is doF more than (defrost OFF time) setting, to start defrosting.

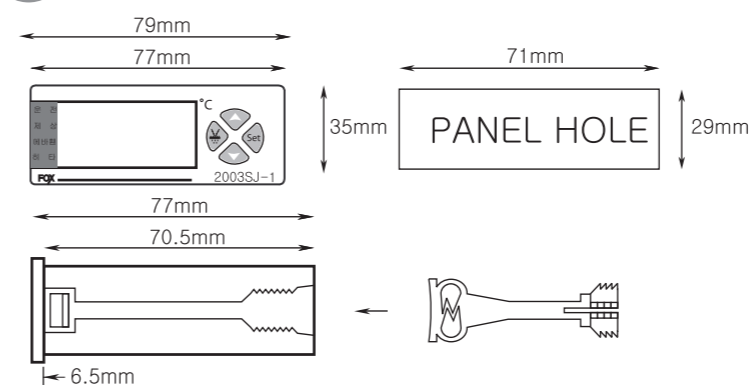
ini : Present value will be shown if pressing with selection $r5t$ and the key in the ini reset setting mode after key pressing

Cautious : Use after double checking it due to the all set values initialize except of Cor .

7 Setting range & setting value when shipment

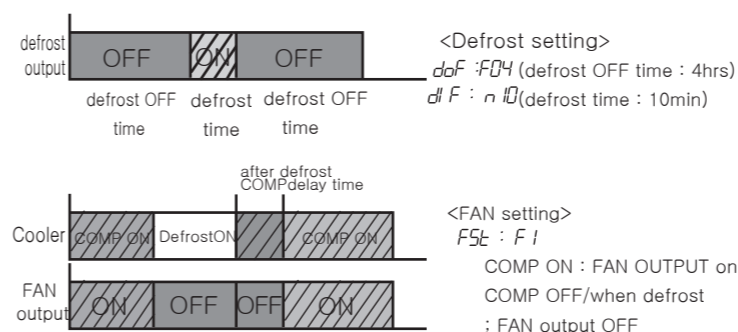
| Display | Functions | Range | Set value at ship | REMARKS |
|---------|--|---------------|-------------------|---|
| | Temp. setting | -55.0 ~ 99.9 | 10.0 | |
| dF | Deviation temp. setting | 0.1 ~ 19.9 | 1.0 | Hysteresis(devi) temp. setting |
| dLt | Output delay time setting | 0.00 ~ 9.59 | 0.00 | min,sec |
| Cor | Temp. Correction | - 10.0 ~ 10.0 | 0.0 | Correction discrepancy between display temp. and real temp. |
| doF | Defrost OFF time | 0 ~ 250 | 4 | hour |
| don | Defrosting time | 0 ~ 250 | 20 | minute |
| $F5t$ | FAN setting | F1 ~ F4 | F1 | refer to the chart |
| Fdt | After defrost FAN ON delay time setting | 0.00 ~ 9.59 | 1.00 | min,sec |
| $Lt5$ | LTS temp. deviation setting | 0.0 ~ 9.9 | 0.0 | |
| $Cr5$ | COMP operation saving defrost start setting time | on / off | off | |
| $r5t$ | RESET | --- / $r5t$ | --- | Preserve Settings/ Reset after setting initialized |

8 External size & panel size



Example of using the temperature controller

- * Cooler → turn off at 0.0°C, turn on at 5.0°C, defrost output for 10 minutes every 4 hour
 - * FAN → turn on while COMP output, turn off while COMP OFF and defrosting
- How to operate (setting for the temperature & programs) ?



9 How to diagnose a breakdown

- Indicating ERROR on using items
- This $Er1$ is the damage of memory data for various of inner-DATA due to be got nosied 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 become an inflow, the inner-part will be damaged.
- When shows these letter $o-E$ (open error), $s-E$ (short error) error in sensor. Please check sensor.

* Above product's information can be changed to improve its quality without any notification.
When using this product, please observe the information of caution & warning due to give rise to disordering.

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

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Factory : CONOTEC B/D B1 floor, 26, Yunsan-ro, Geumjeong-gu, Busan, 46269 Rep. of KOREA

A/S TEL : 051-819-0425~7
In case of A/S, send the malfunctions to Head office.

E-mail : conotec@conotec.co.kr Homepage : www.conotec.co.kr

* This device is suitable for following environment.
Surrounding temp. : 0°C ~ 60°C
Surrounding humi. : Less than 80%Rh
Rated volt. : 220VAC ± 10% 50/60Hz

Main products & developments
- Digital temp./humi. controller.
- Digital timer, Current/Volt meter
- Development of other product