



Operating Manual



<NF-4CR>



<NF-4PR>

< Main features >

- ☐ main relay contact output (1-stage output)
 - ☐ selection of heating/cooling
 - ☐ temperature deviation, correction of temperature, delay time of ouput
- ※ Thanks for seleting our products.
Please read carefully this instruction to reduce any damages or operation mistakes.

1 Caution

⚠ Safety instruction and Hazard Warnings

- Please read the operating manual thoughly before putting the device operation.
- We will not assume any responsibility for damage to assets or persons caused by improper handling or failure to observe the safety instructions or hazard warning.
- For safety and licensing reasons, unauthorized conversion and/or modification of the device is not permitted.
- Do not exceed the maximum permissible currunt-in case of higher loads, use a contactor of adequate power. Make sure that the supplied voltage matches the values specified for the instrument.
- The device must be adequately protected from water and dust as per the application and must be accessible via the use of appropriate tools.
- The device must not be exposed to extreme temperature, sunlight, strong vibrations or high levels of humidity.
- Operation or installation is not permitted under unfavorable ambient conditions such as wetness or excessive induction load or solenoid and dust, combustible gases, vapors or solvents, especially high-frequency noise.
- Avoid operation or installation close to high-frequency fields such as welding devices, sewing machines, wireless transmitter, radio systems, SCR controller, etc.
- Do not install the sensor cable nearby signal cable, power cable, load cable.
- Please use the shield cable when the sensor cable's lengthen, however do not make it too much longer.
- Please use the sensor cable without any cutting or flaw, blemish.
- The device is not a toy and should be kept away from children.
- installation work must only be carried out by suitably qualified personnel who are familiar with the hazards involved and with the relevant regulations.
- You shouldn't tinker with anything or the product may not be opened or disassembled unless you know what you're doing.
- Please ask us about this questioning.

⚠ Danger

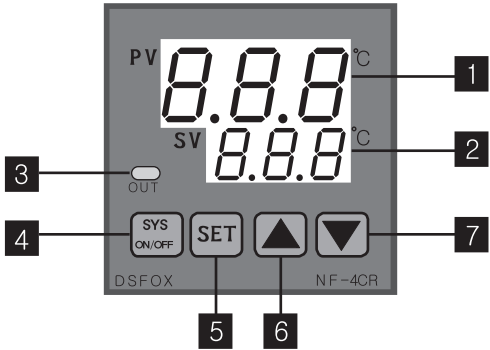
■ Attention!

Never work on electrical connections when the machine is switched on.

⚠ Safety

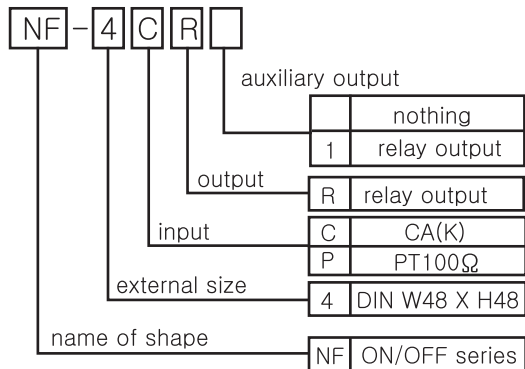
Please use this item after installing the duplex safety device in which is applied at dangerous factors such as serious human injury or serious damages of property & important machine because this item is not designed as safety device.

2 Part name



- 1 Display of the present temperature.
- 2 Display of the setting value.
- 3 Output.
- 4 ON/OFF switch.
- 5 SET(switch for the function's change).
- 6 up
- 7 down

3 Composition



4 rated/specification

Model	NF-4CR	NF-4PR
power supply voltage	100 ~ 240VAC 50/60Hz	
allowable voltage the range of fluctuation	90% ~ 110% of the power supply voltage	
power consumption	less than 4VA	
display	7Segment LED Display [present value(PV), set value(SV) : red]	
temperature accuracy	±1℃ rdg ±1digit	±1℃ rdg ±1digit
temperature sensor	CA(K)	PT100Ω
control method	ON/OFF control	
output	relay SPDT max.250VAC, 2A(resistive load)	
ambient temp.	0℃ to +60℃ (however, it should not be frozen condition)	

5 temperature range & set value when deliver

	NF-4CR		NF-4PR	
display	range	set value	range	set value
SEt	-50 ~ 800℃	30	-50 ~ 400℃	30
LYP	C / H	C	C / H	C
dIF	1 ~ 50℃	1	1 ~ 50℃	1
dLt	0 ~ 29(min)	0	0 ~ 29(min)	0
Cor	-50℃ ~ +50℃	0	-30℃ ~ +30℃	0

6 temperature setting

- Press the **SET** key to change of the set value under running.

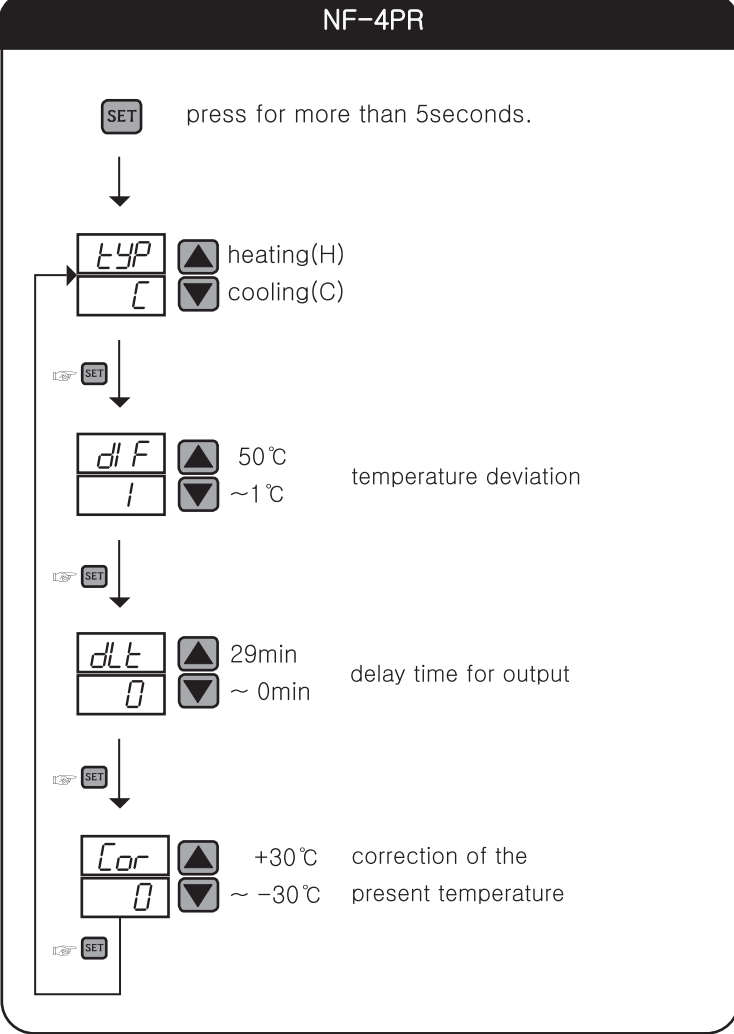
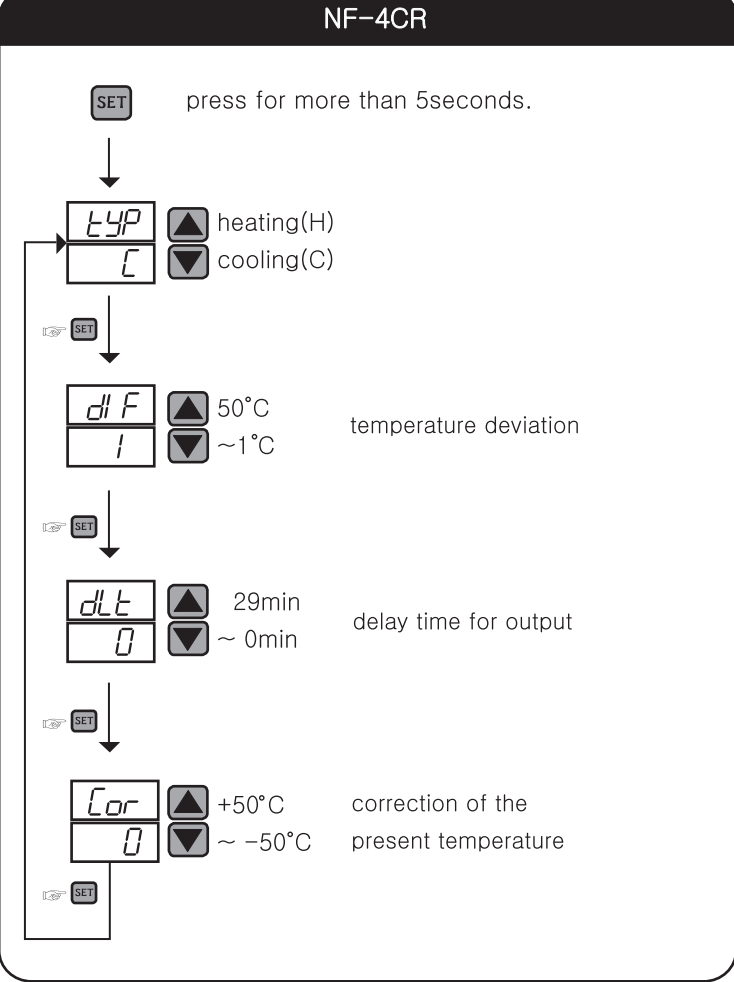
- If **SEt** letter is displayed. Please set up the set values which you want by adjusting **▲▼** key.

- The set mode is terminated. If you press the **SEt** key, the set value are saved after displaying **0-4** letter and then return to the nomal(running) codition. Then, it will be return to nomal condition after the display of the **0-4** letter

- The display was changed :
20℃ -> 30℃

- If there is no any input for more than 60seconds, it will automatically be return to the nomal(running) mode.
- * When the change of the set values will be pressed consecutive.
- * On the condition of the set value's display, if the **SET** key is pressed for over 5seconds, will be return to the nomal(running) mode.

■ programming mode in details



7 Detailed manual

1. **SEL** : setting for main output.
2. **LYP** : selection of the main output function.

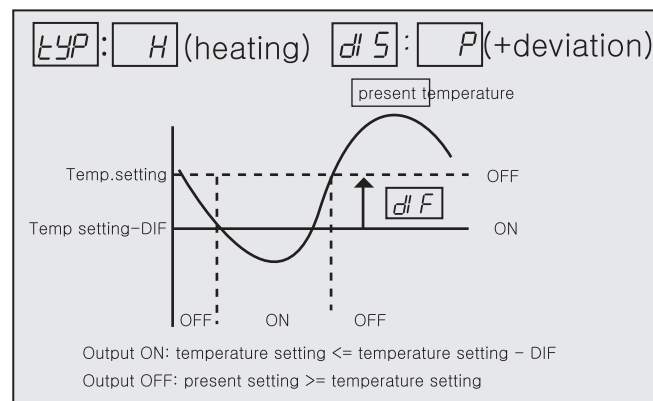
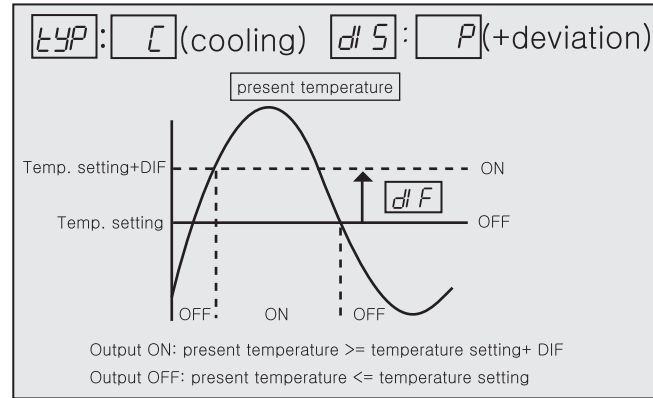
L = cooling

H = heating

Please do not change for **L** or **H** under running.

It does not running both synchronous output, it could only be selected which **L** or **H**.

3. **dIF** : setting for the temperature deviation for main output.



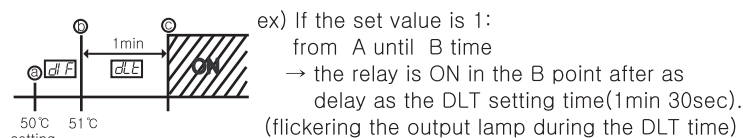
: Setting for twmperature deviation

- In the ON/OFF control, it need 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.

6. **dLE** : Delay time of the output.

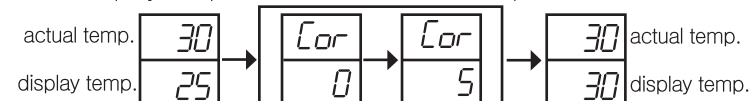
It is widely used as the followings

- in case of operation machinery when re-input of the power supply or momentary stoppage of power supply.

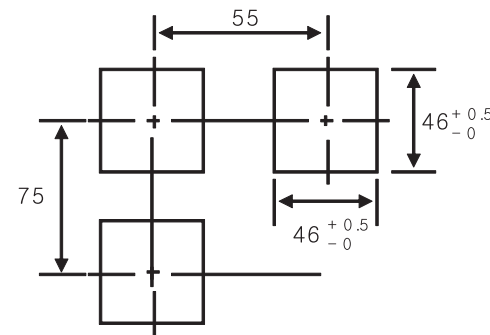
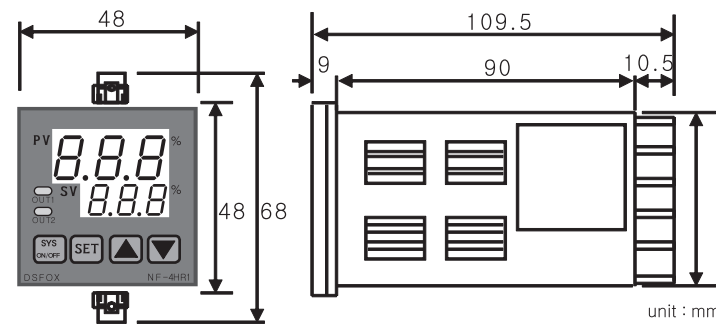


7. **Cor** : Correction of the present temperature.

- It is used for the correction of an discrepancy between the display temperature and an actual temperature.

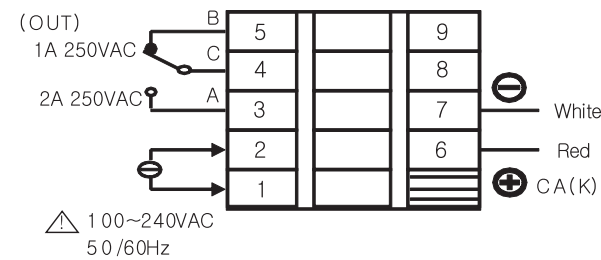


8 Size & dimention

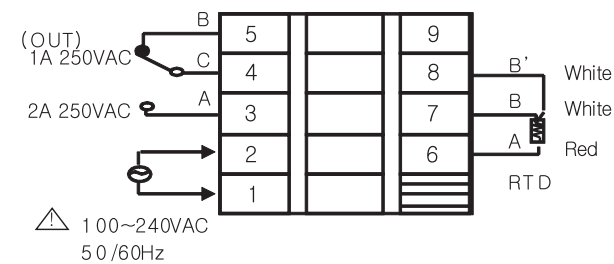


9 Connection diagram

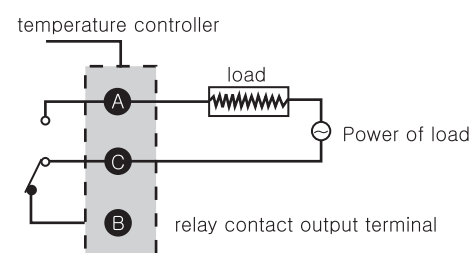
NF-4CR



NF-4PR

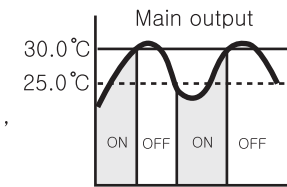


10 Relay junction



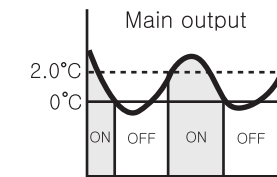
11 Application

ex1)
Heater →
turn off at 30.0°C,
turn on at 25.0°C



<setting Temp.> (see the setting temperature)
setting : 30.0°C
<setting program> (see the setting for program)
LYP : **HE**
dIF : **P** (deviation→on side, set point→OFF)
dF : 5.0 (on/off interval→5.0°C)

ex2)
Cooler →
turn off at 0.0°C,
turn on at 2.0°C



< setting Temp. > (see the setting temperature)
setting : 0.0°C
< setting program> (see the setting program)
LYP : **L**
dIF : **P** (deviation→on side, set point→OFF)
dF : 2.0(on/off interval→2.0°C)

12 Error message

- Er-1 : 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 product' s specification can be changed without any notification to improve its quality.

■ H. Office : B-B107, Techno plaza 681-11 Junpo 1 dong, Busanjin-ku, Busan,Korea
■ Lab : B-411, Techno plaza 681-11 Junpo 1 dong, Busanjin-ku, Busan, Korea
■ Showroom : B-112, Techno plaza 681-11 Junpo 1 dong, Busanjin-ku, Busan,Korea
■ Factory : B-409/410/411, Techno plaza 681-11 Junpo 1 dong, Busanjin-ku, Busan,Korea
■ A/S TEL : +82-51-819-0426
■ FAX : 82-51-819-4562
■ Homepage : <http://www.foxeng.co.kr> ■ E-mail : foxeng@foxeng.co.kr

MEMO