

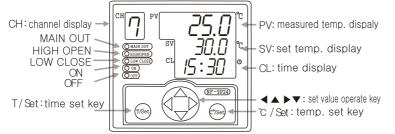


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NF-9N24 & NF-9P24 Manual Digital Control Panel Meter



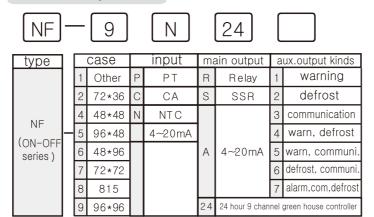
2. Names of Parts



Key functions

- The key for setting tempeature and program change
- The key for setting time and program change
- 3. ◀ ▶ ▲ ▼ : The key for changing temperature and time program

3. Code composition



1. Caution for safety

This product should be used after installing the double safe device in case of using control purpose such as a device with great concern to personal injury and damage significant peripheral damage, and property damage as it is not manufactured as safety device.

- Do not connect, check, repair when at the power supplying state.
- Make sure to check the socket number before connecting the power.
- Never disassemble process, improve or repair this equipment.

⚠ CAUTIONS

- Do not install outdoors.
- Must be used in rating / performance range.
- Do not use the parts that generate the arc at same power or near directly opening and closing.
- Power line should be kept away from high-voltage line and do not install in the watery, oily, and dusty place.
- Do not install this device in a place exposed to direct sunlight, flammable or explosive gas, direct sunlight, radiant heat, vibration, shock place
- Sensor line should be kept away signal, power, and load lines, and use an independent pipina.
- Do not use near where devices generate strong high-frequency noise (high-frequency welders, high-frequency sewing machine, high frequency radios, large SCR controller).
- If you use this device beyond the method specified by the manufacturer, it may cause injury or property damage. Please use shielding wire at the sensor extension and do not make it unnecessarily long.
- Caution, risk of electric shock.
- Electrical shock Do not touch at the AC terminal during the application of an electric current.
- Must shut off the input power during the input power check.
- Although our controller is designed as the complementary measures regarding these noise from outside, if noise(2KV) disordering become an inflow, the inner-part will be damaged.
- In case o-E (open error) 5-E (short error) Err (error) is displayed, the sensor has problem. Check the sensor.
- In case shown the character like r232 Err (communication error) it means the problem with the communication cable or cut off communication between the sensor unit and control unit.

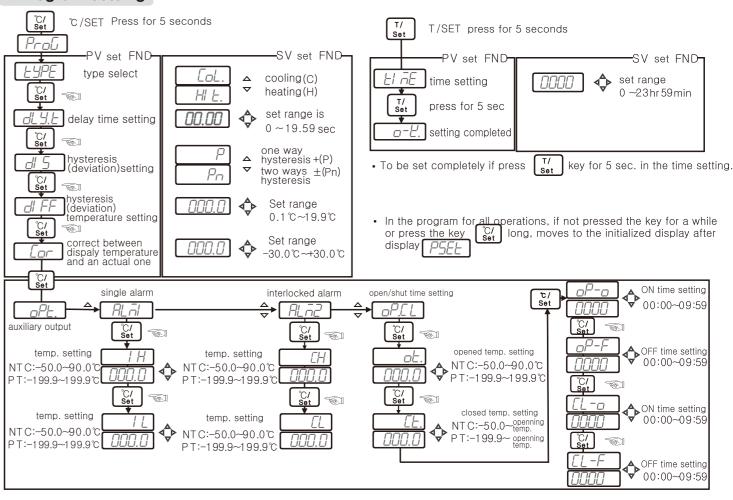
4. Rating/performances

| Power supply | AC 100~240V , 50~60Hz | | | |
|-----------------------------------|---|--|--|--|
| Change range of allowance voltage | 90%~110% of power supply | | | |
| Power consumption | Less than approx. 4VA | | | |
| Method of display | 7Segment LED Display [Measured value (PV),set value (SV):red, channel(CH): green] | | | |
| Display degree | F.S + 0.3% or 3℃ which side on the higher | | | |
| Input specifications | Thermocouple : $K(CA)$ < allow track resistance 100 Ω > below | | | |
| | Resistance temperature detector (RTD):DIN Pt100Ω | | | |
| | NTC, 4-20mA | | | |
| Control type | O N/OFF control | | | |
| | Main output: relay SPDT max.250VAC, 2A(resistive load) | | | |
| Control output | Aux. output : SPST max.250VAC,2A(resistive load) | | | |
| | Current output: $4-20mA$ DC , load resistance: less than 300Ω | | | |
| Ambient temperature | 0 ℃ to +50 ℃(but, not in the state of freezing) | | | |
| Ambient humdity | 35% to 85% RH(non-condensing) | | | |
| Reserved temperature | –20 ℃ to +65 ℃ | | | |

5. Input range and set value when shipment

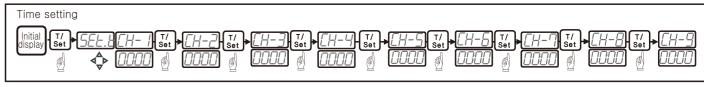
| ΡΤ100Ω | | -199.9 °C ~+199.9 °C | | | |
|---------------------|-----------|----------------------|-----------|---------|-----------|
| NTC | | -50 °C ∼+90.0 °C | | | |
| CA(K) | | -50 °C ~+1200 °C | | | |
| Mode | set point | OPTmode | set point | OPTmode | set point |
| <i>EYPE</i> | COL | ALT I | | oP[L | |
| dL Y.E | 00:00 | 1 H | +90.0 | oŁ. | +90.0 |
| dl 5 | Р | 1 L | -50.0 | [Ŀ. | -50.0 |
| dl F.F | 1.0 | AL-i-2 | | oP-o | 09:59 |
| Cor | 0.0 | LH | +90.0 | oP-F | 09:59 |
| oPŁ. | ALĀI | ĹL | -50.0 | [L-o | 09:59 |
| ❖ 9N24 (NTC sensor) | | | | [L-F | 09:59 |

6. Program setting



7. Time setting per channel and temp. setting

💥 Only temperature setting available at the relevant channel at first time setting

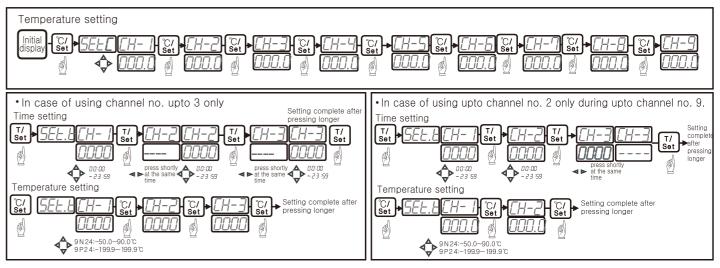


- Basic setup for time display is CH2~CH9 When the relevant channel to set the time, at the time displayed press the button ____ at the same time shortly, will be turned to be set available status.
- If no pressing for a certain period after time setting or long pressing,

 T/
 Set
- Time setting available range through whole channel is 0000 ~ 2359
- Time set value for channel no. 1 should be always closer to 00:00 than other channel.
- ex) In case of saving the channel no. 2 time set value is same with the channel no. 1 or less will be dispalved.

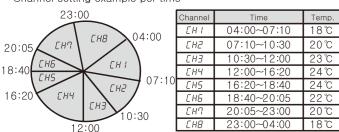
Moving to the initial display at the right time set value and the set value can be saved.

- Time set value per channel is for time to start at the relevant channel.
- ex) channel no. 1: $3:00 \rightarrow$ apply time from 3:00 as a set value for channel no. 1 to next channel start time.

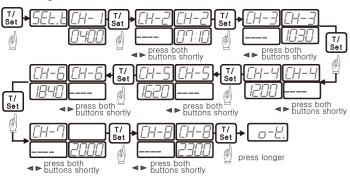


8. Program example

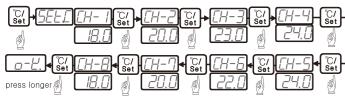
· Channel setting example per time



time setting



temperature setting



10. Detailed explanation

1. EYPE: Temperature operation setting
Cooling or Heating selection

2. If the selection is the selection is the selection in the selection in the selection is the selection in the selection in the selection is the selection in the selection in the selection is the selection in the selection in the selection is the selection in the selection in the selection in the selection is the selection in the selection in

Apply deviation value to +- both directions (Set point is based)

4. 4. Output delay time

(dLYT)

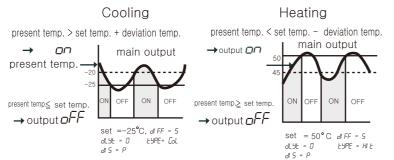
set value

re-supply of power

: Setting for temperature 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



When control object has a problem due to frequent ON/OFF

-It protects operating machine at momentary power failure or

It is the function to correct errors in the sensor put in

product, and when the base temperature (Ex: mercury

temperature controller) is different with the temperature.

→ Display: Displayed as 10.0°C (corrected present temperature)

from the outside even if there is no problem in the

: 12.0℃

ex) If the set value is 1:

from A until B time → the relay is ON

(For delay time OUT lamp flashing)

in the B point after as delay as

the <u>JUSP</u> setting time(1min.)

action(refrigerator compressor etc.,)

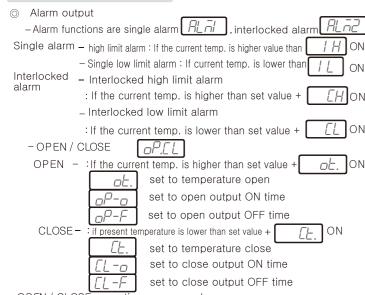
Correction of the present temp.

Ex) Actual temperature : 10.0℃

Display window

thermometer, or existing temperature,

9. Alarm & OPEN/CLOSE



OPEN / CLOSE operation use example

- Green house is set to be controlled temperature by openning and closing the door.
- If you wan to make it slow openning and fast closing, open it at 30°C, close at 15°C but set value should be 20°C? Set ______ at 10°C and ______ at -5°C.

Due to make openning slowly, should set short ON time, long OFF time.

ex) $\bigcirc P - \bigcirc = 1 \min \bigcirc P - F = 3 \min$

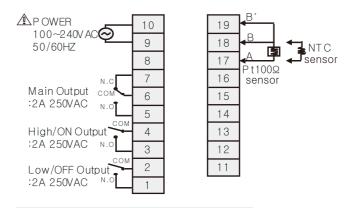
action: for 1 min. to move and 3 min. to stop repeatedly.

Due to make closing fast, should set long ON time, short OFF time.

ex) $\boxed{[L-c]} = 3 \min \boxed{[L-F]} = 1 \min$

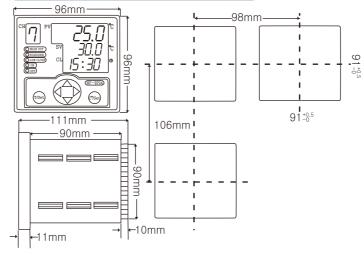
action: for 3 min. to move and 1 min. to stop repeatedly

11. Terminal Wiring Diagram



Memo

12. Dimension & Panel size(Unit:mm)



13. Product Handling Precautions

- Indicating ERROR on using items.
- Fr! : temperature setting value error
- F-7: channel time setting value error
- F_3: program setting value error
- Fr H: internal timer error
- 도 되: internal sensor data error
- When ____ (Open Error) or _____ (Short Error) is displayed, it indicates that sensor has problem. Please check the sensor.
- Regarding the English-language manual, please download it at our homepage.
- ** The product specifications are subject to change without notice to improve the performance of the product.
 Please be sure to keep familiar with the content specified in the handling
- H. Office: 56, Ballyongsandan 1-ro, Jangan-eup, Gijang, Busan, Republic of Korea
- Factory: 56, Ballyongsandan 1-ro, Jangan-eup, Gijang, Busan, Republic of Korea
- TEL:+82-51-819-0426 ■ FAX:+82-51-819-4562
- e-mail:conotec@conotec.co.kr ■ URL:www.conotec.co.kr
 - ** This device works proper operation with Ambient Temp: 0 ~ 60°C Ambient Humi.: below 80%RH Regular power: 220VAC ±10% 50/60Hz
 - Main product and development

 Digital temp./humi. controller

 Digital timer,Current/Voltage meter

 Development of other products.