

Operating Manual



- Main features
- main relay contact output (1-stage output)
 - an auxiliary relay output (2-stage or time output)
 - selection of humidity/dehumidity
 - humidity deviation, correction of humidity, lock function, delay time
- * Thanks for selecting our products.
Please read carefully this instruction to reduce any damages or operation mistakes.

1 Caution

※ Safety and Hazard Instructions

△ Safety Instruction and Hazard Warnings

- Please read the operating manual thoroughly before putting the device into 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 warnings
- For safety and licensing reasons, unauthorized conversion and/or modification of the device is not permitted.
- Do not exceed the maximum permissible current – 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 loads 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.

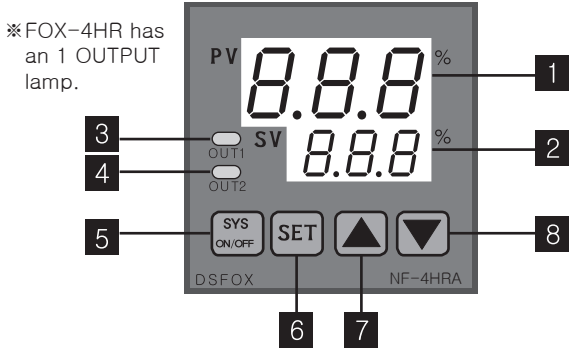
⚠ Danger

■ Attention! Never Work on electrical connections when the machine is switched on.

⚠ Safety

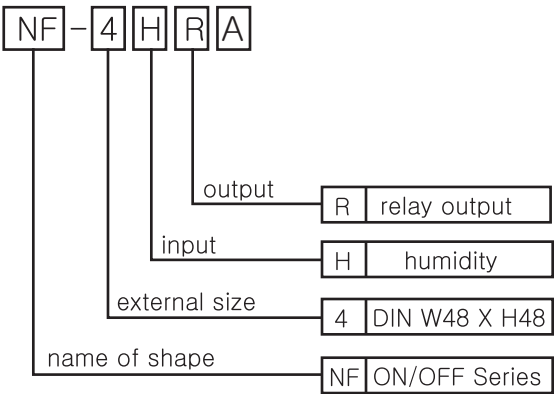
Pls use this item after installing the duplex safety device in which is applied at dangerous factors such as serious human injury or serious damages of property & important machine because this item is not designed as safety device

2 Part name



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

3 Composition



4 Specification of the sensor

Humidity sensor HCPV-220H for analog voltage output type

operating temperature range	-40 ~ 85°C
operating humidity range	10 ~ 95%RH
humidity accuracy	±3%RH(20to90%RH)

5 rated / specification

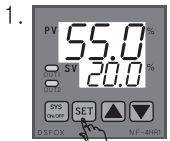
model	NF-4HR-1	NF-4HRA
power supply voltage	100 ~ 240VAC 50/60Hz	
allowable voltage the range of fluctuation	90~110% of the power supply voltage	
power consumption	less than 4VA	
display	7 Segment LED Display [Present Value,Set Value : Red Color]	
humidity accuracy	20~90%RH ~ +3%RH	
input sensor	humidity : HCPV-220H	
control method	ON / OFF Control	
output	relay SPDT max.250VAC,2A (resistive load)	relay SPST max.250VAC, 2A (resistive load)
ambient temp./humidity	0°C to +50°C (however,it should not be frozen condition)	

6 humidity range & set value when deliver

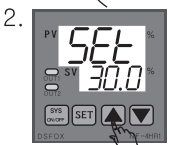
	NF-4HR-1		NF-4HRA	
display	range	set value	range	set value
Set	0 ~ 100%RH	30	0.0 ~ 99.9%RH	30.0
Typ	D / H	H	D / H	H
d1 S	no relevant	P	P / Pn	P
d1 F	1 ~ 19%	1	0.1 ~ 19.9%	1.0
d1 t	0minute00second ~ 9minute59second	0.00	0minute00second ~ 9minute59second	0.00
Cor	-10% ~ +10%	0	-9.9%~ +9.9%	0.0
LoC	no relevant	-	ON / OFF	oFF
St2	no relevant	-	0.0 ~ 99.9%RH	30.0
ty2	no relevant	-	D / H	H
ds2	no relevant	-	P / Pn	P
df2	no relevant	-	0.1 ~ 19.9%	1.0
dl2	no relevant	-	0minute00second ~ 9minute59second	0.00
nFS	no relevant	-	ON / OFF	oFF
onS	no relevant	-	SEC / MIN	SEC
ont	no relevant	-	0 ~ 999	0
oFS	no relevant	-	SEC / MIN	SEC
oft	no relevant	-	0 ~ 999	0

7 Programming mode

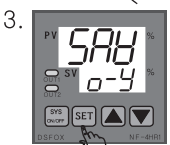
■ Setting humidity



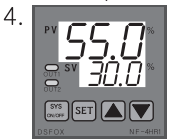
Press the **SET** key to change of the set value under running



If **[Set]** letter is displayed, please set up the set values which you want by adjusting the up/down key.



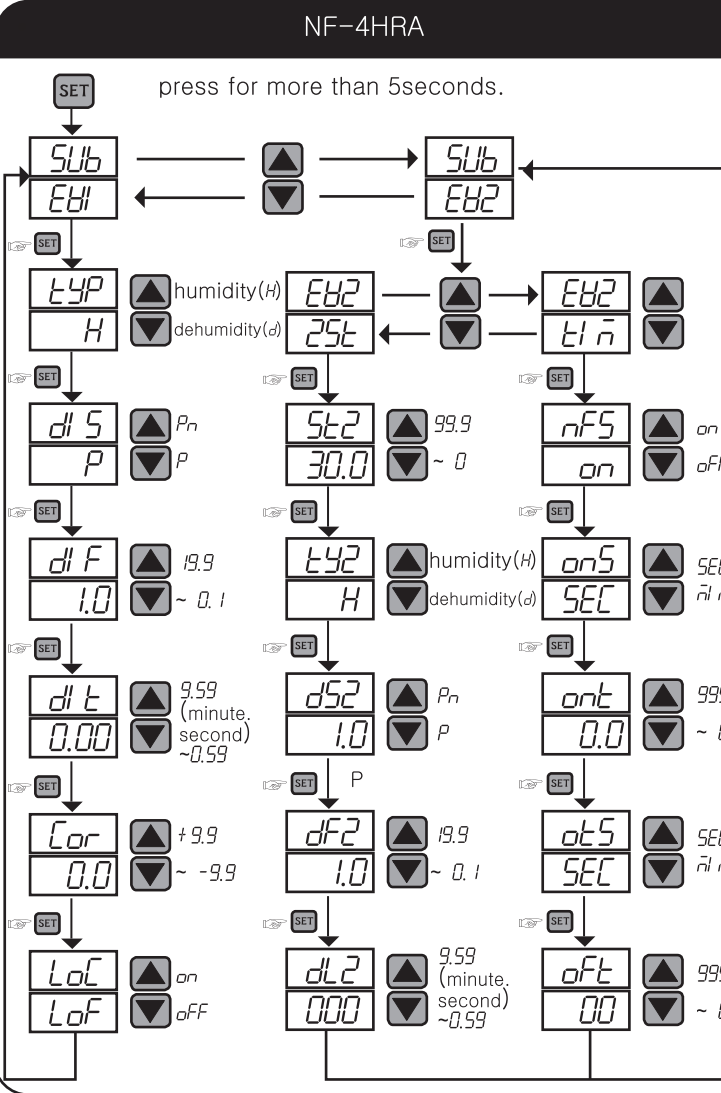
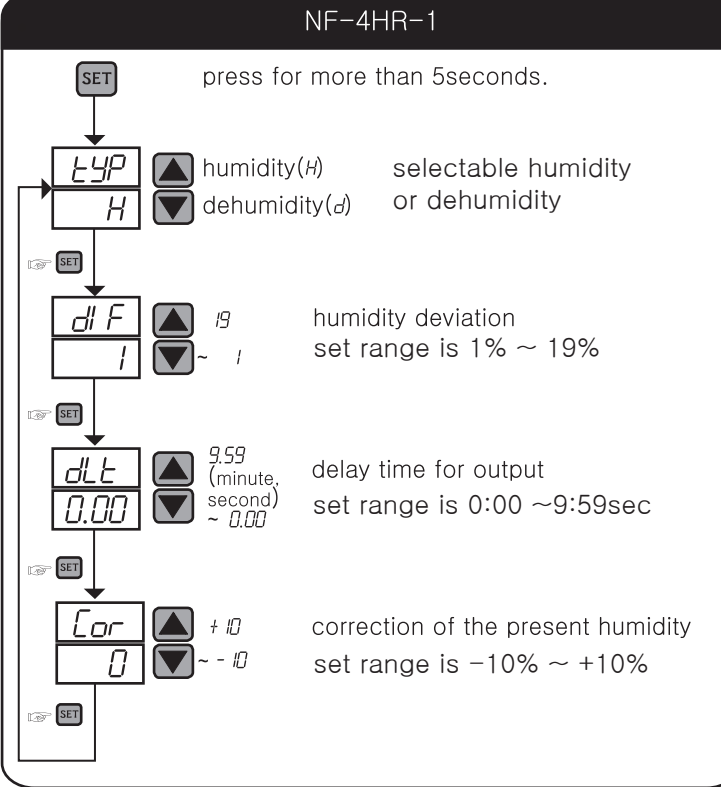
The set mode is terminated, if you press the **[Set]** key, the set values are saved after displaying 0-k letter and then return to the normal(running) condition. Then, it will be returned to normal condition after the display of the OK letter.



The display was changed : 20→30%

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

■ programming mode in details



8 Detailed manual

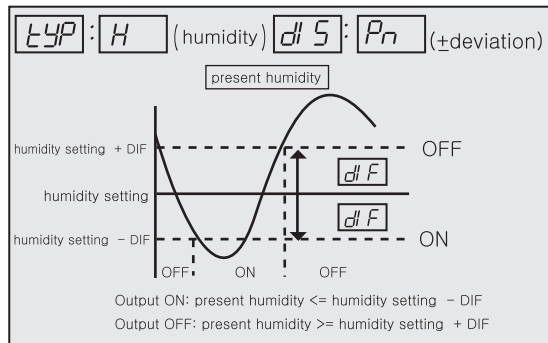
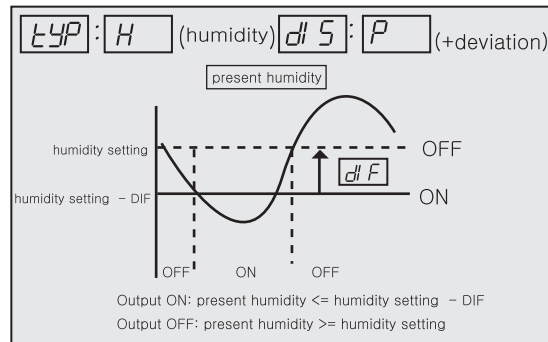
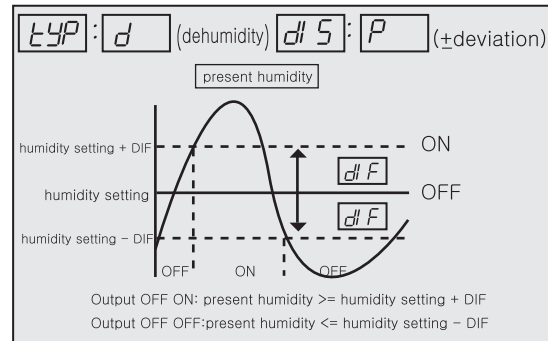
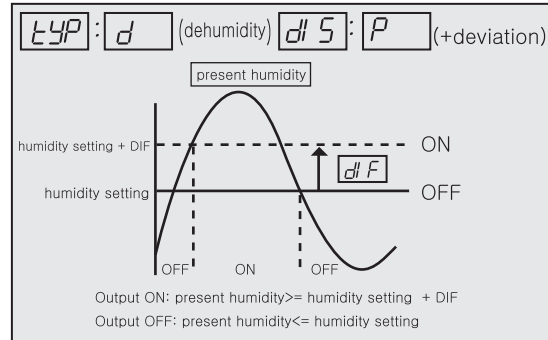
1. **EH1** : change of the set value for main output
2. **SEt** : setting for main output
3. **LYP** : selection of the "d" or "H" for main output
d = dehumidity
H = humidity

Please do not change for d or H under running.

It does not run both synchronous output,

it should be selected d or H only.

4. **dI S** : selection of deviation style for main output(*P* or *Pn*)
5. **dI F** : setting for the humidity deviation for main output

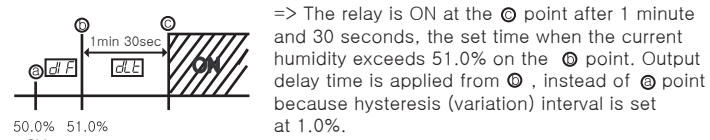


- In the ON/OFF control, it needs at regular interval between ON and OFF.
- By operating the ON/OFF control frequently, the relay or its output contact can be damaged quickly and it also occurs the hunting(oscillating, chattering) by virtue of external noise, You can make use of the humidity deviation in order to protect its relay or contact and so on.

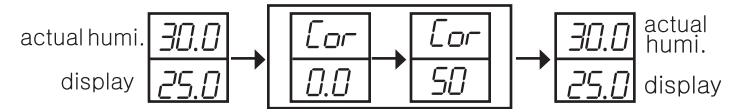
6. **dLE** : Delay time of the output

- If a problem occurs frequently repeating ON/OFF operation
- Functions to protect the device from momentary power failure or power resumption

ex) SV : 51.0%RH, Type : Dehumidity(D)
 Deviation value : 1.0%RH, delay time : 1 min 30 sec



7. **LoR** : Correction of the present value.
 It is used for the correction of a discrepancy between the display value and an actual value.

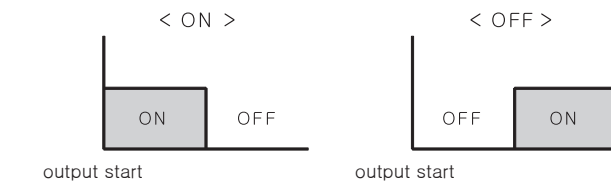


8. **LoL** : Lock function

LoR : lock function on

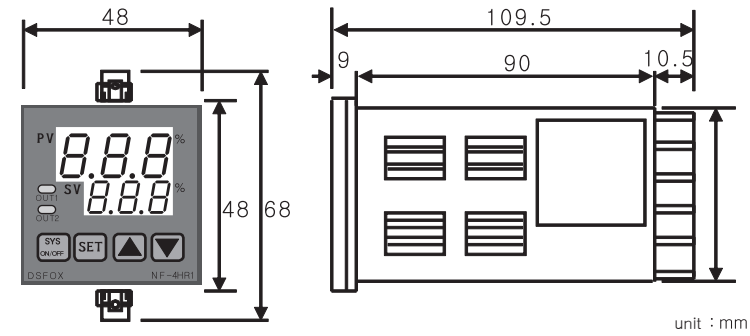
LoF : lock function off

9. **EH2** : change of the set value for an auxiliary output
10. **2SE** : auxiliary output will be changed into humidity output
11. **SEt2** : setting for auxiliary output
12. **LY2** : auxiliary output function
 <- Refer to the left side no.3
13. **dS2** : deviation style for the auxiliary output
 <- Refer to the left side no.4
- dF2** : humidity deviation for the auxiliary output
 <- Refer to the left side no.5
- dL2** : delay time for the auxiliary output
 <- Refer to the left side no.6
16. **ELn** : change an auxiliary output to time output
17. **nFS** : selection of the output start between on and off
 On : on time for output
 off : off time for output

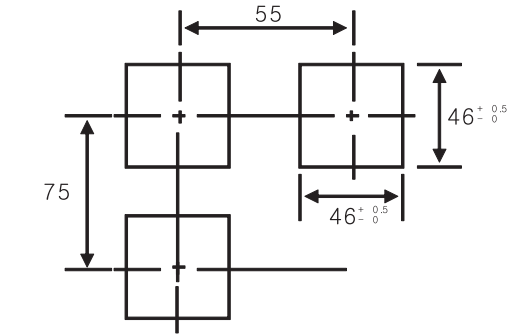


18. **onS** : on time unit setting for the auxiliary output
 second or minute
19. **onE** : on time setting for the auxiliary output
 possible to set up from 0 by 999
20. **oFS** : off time unit setting for the auxiliary output
 second or minute
21. **oFE** : off time setting for the auxiliary output
 possible to set up from 0 by 999

9 Size & dimension

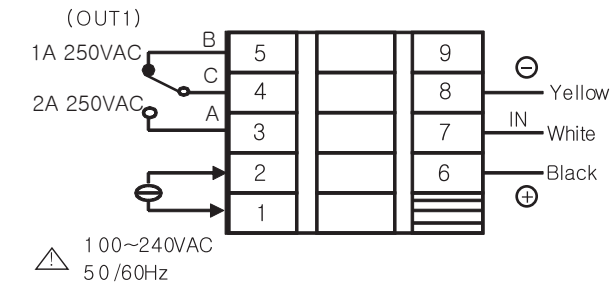


Panel hole size

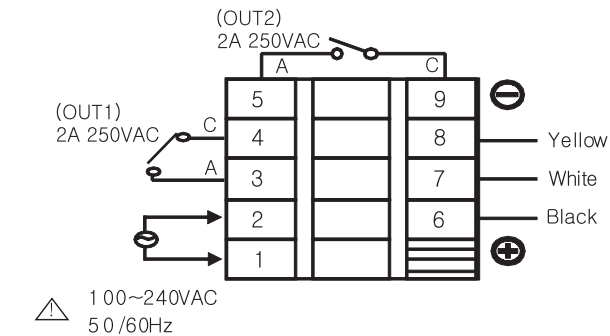


10 Connection diagram

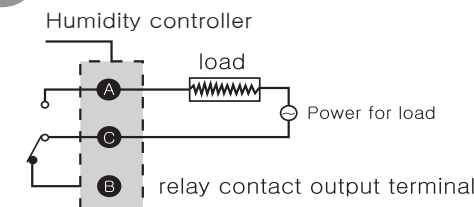
NF-4HR-1



NF-4HRA



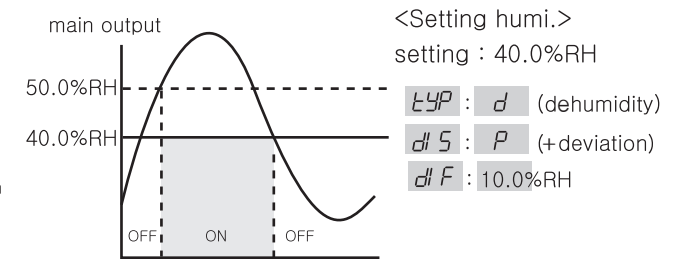
11 Relay junction



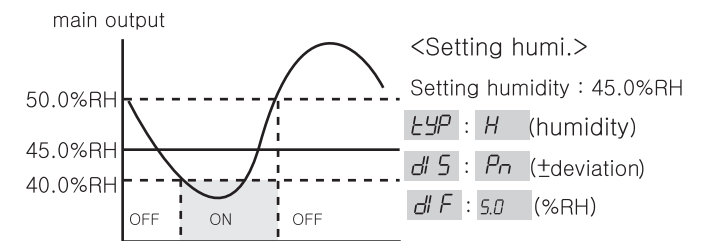
- * The relay connection capacity is less than 250VAC 2A. In case of using the load exceeding the capacity of the contact, it causes fused contact, connection error or relay damage and etc. Pay attention to it.

12 Application

ex) Dehumidifier $\rightarrow$ turn off at 40%RH, turn on at 50%RH
 How to operate(setting for the humidity & programs)?



ex) Humidifier $\rightarrow$ turn off at 50%RH, turn on at 40%RH
 How to operate(setting for the humidity & programs)?



13 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
- a-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.

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*This device works proper operation with :
 Ambient Temp : 0 ~ 60°C
 Ambient Humi. : below 80%RH
 Regular power : 220VAC $\pm$ 10% 50/60Hz