

INSTRUCTION MANUAL

Thank you for purchasing Hanyoung Nux products. Please read the instruction manual carefully before using this product, and use the product correctly. Also, please keep this instruction manual where you can view it any time.

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Safety information

Please read the safety information carefully before the use, and use the product correctly. The alerts declared in the manual are classified into **Danger** and **Warning** according to their importance.

DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury
WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor injury or properties damage

DANGER

- The electric shock may occur in the input/output terminal so please never let your body and/or conductive substance be contacted by the input/output terminal.

WARNING

- If the user use the product with methods other than specified by the manufacturer, there may be bodily injuries or property damages.
- If there is a possibility of an accident caused by errors or malfunctions of this product, install external protection circuit to prevent the accident.
- To prevent deflection or malfunction of this product, apply a proper power voltage in accordance with the rating.
- Since this product is not designed with explosive-protective structure, do not use it at any place with flammable or explosive gas.
- Reassemble this product while the power is OFF; otherwise, it may be a cause of malfunction or electric shock.
- There is a possibility of occurring electric shock so please use this product after installing it to a panel while it is operating.

CAUTION

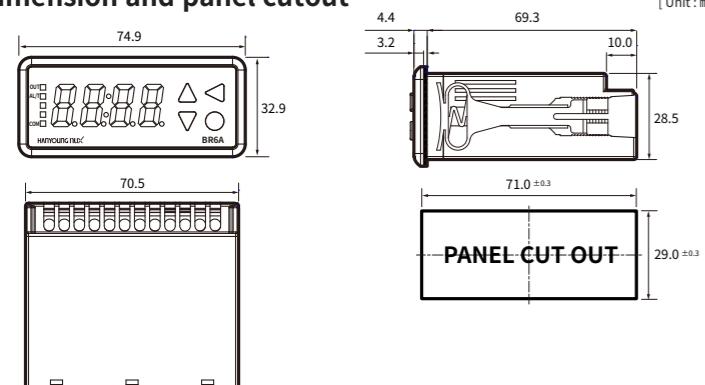
- The contents of the instruction manual are subjective to change without prior notice.

Suffix code

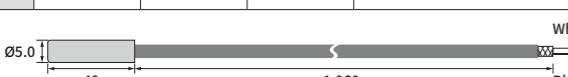
Model	Code	Description
BR6A-	□□□□□	Digital temperature controller (selective controller type in parameter (proportional or ON/OFF controller))
Input	N	Company exclusive sensor(TH-570N) *Thermistor
Control of output	M	Relay connect output
Option	S	Voltage pulse output (voltage pulse output for SSR driving)
Power supply voltage	P4	100~240 V a.c. 50/60 Hz
LED color	W	White LED display
	R	Red LED display

Specification

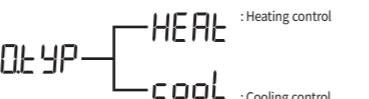
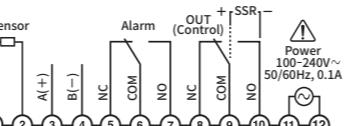
Power consumption	7 VA Max (220 V a.c. 60 Hz)	
Input sensor	Company exclusive sensor (TH-570N) *Thermistor	
Display accuracy	± 1% of FS ± 1 Digit	
Control output (Main output)	Relay output Contact composition : 1c, 250 V a.c., 5 A(Resistive load) SSR 10~15 V d.c. More than(resistive load 500 Ω min)	
Alarm/Defrost	Relay Contact composition : 1c, 250 V a.c., 5 A(Resistive load) Proportional control (P control), ON/OFF control	
Control action	Digital setting with operation buttons	
Setting method	Defrosting timer, alarm function, heating/cooling control RS-485	
Other function	Protocol MODBUS ASCII/RTU speed 4800, 9600, 19200 bps	
Ambient humidity	0~50°C	
Resistance between wires	Below 10 Ω for each wire	
Ambient humidity	35~85 % RH(with no condensation)	
Weight	120 g	

Dimension and panel cutout**Sensor(Thermistor/NTC)**

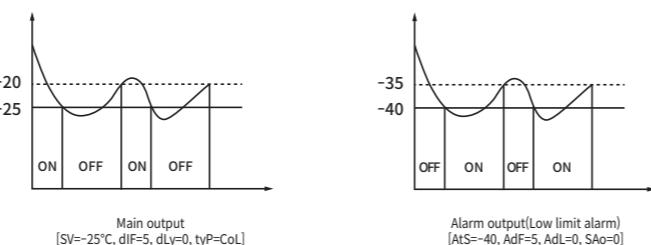
Name	Sensory type	Range(°C)	Accuracy	Remark
TH570N	Thermistor	-50.0~150.0	±1.5°C	Max ± 3.5°C temperature deviation may be happen (± 1.5°C sensor deviation & ± 2°C controller deviation)



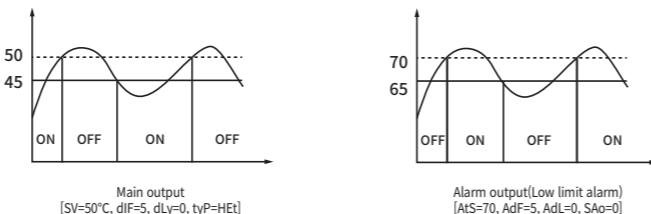
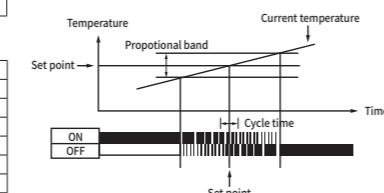
* Extension of sensor length or modification of sensor will be cause of malfunction.

Control method for temperature**Heating/cooling control selection****Connection diagram****Cooling control(ON/OFF)**

- PV > SV → Main output relay "ON" / PV < SV → Main output relay "OFF"

**Heating control(ON/OFF)**

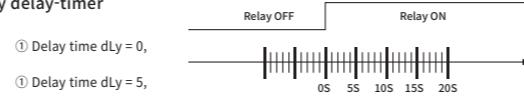
- PV > SV → Main output relay "OFF" / PV < SV → Main output relay "ON"

**Proportional control**

Manipulated variable (output size) of set value operates by proportioning to deviation and this is known as proportional control. Also variation range of manipulated variable from 0 ~ 100 % is known as the proportional band. Therefore, when proportional band is less than the current temperature, the manipulated variable becomes 100 % and when PB is more than the current temperature, the manipulated variable becomes 0 % and when set value and current temperature becomes same, the manipulated variable becomes 50 %.

Delay timer set

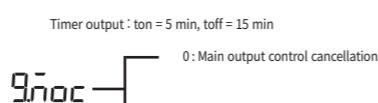
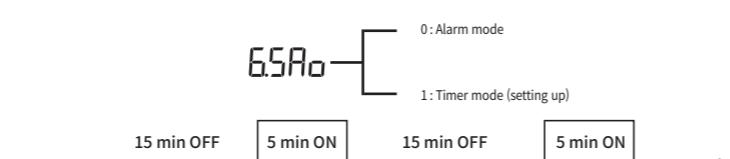
- Press **key** continuously for 3 sec, and then, press **key** until getting "2dLY". change a set point by **key**, and preservation it by **key**.
- [**YP**] → [**IF**] → [2dLY] (0 ~ 240 sec)

Operating description by delay-timer

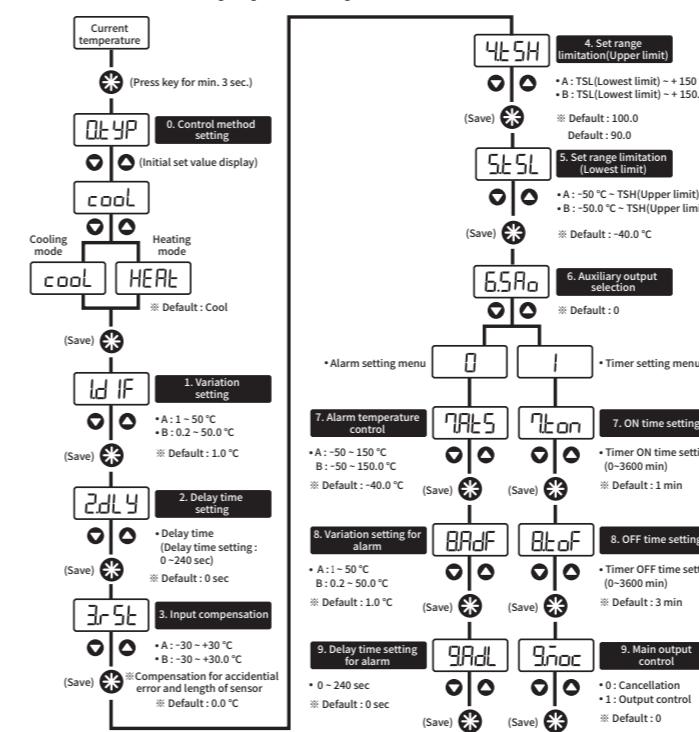
* In case of Delay Time=0, Relay is immediately ON when output signal is generating. In case of delay time=5, Relay is ON after 5 sec, when output signal is generating. In the interval of 5 sec, the output indicator is flickering during delay timer operation. After the delay time, the output indicator lights as the relay is on.

Auxiliary output(Timer-mode) set and operating description

- It is possible to use timer-mode as defrosting function in case of freezer.



- When using MOC '1', main output will be OFF automatically as timer is ON.
- If using MOC function, you can effectively use timer output as a defrosting function.
- When auxiliary output is timer mode, time unit is selective between "sec" or "min".

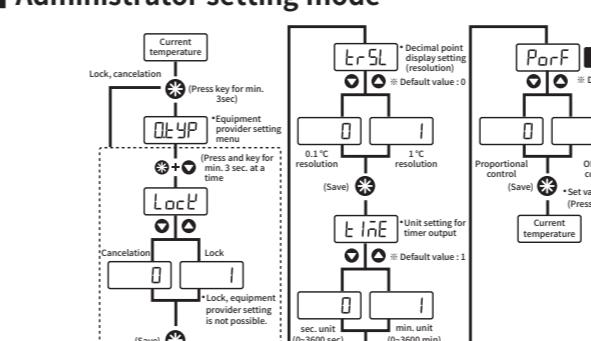
Set mode for equipment provider

* Error message : When input is more than +5%, **obr** when input is less than -5%, **obr**.

* A : 1 °C display mode (trSL = 1), B : 0.1 °C display mode (trSL = 0)

Item	Description	Setting range	Default	Unit
0.typ	Control method setting	Cool/Heat	Cool	-
1.dLF	Deviation setting	A: 1 ~ 50, B: 0.2 ~ 50.0	1.0	°C
2.dLY	Delay time setting	0 ~ 240	0	Sec
3.rST	Input compensation	A: -30 ~ 30, B: -30.0 ~ 30.0	0.0	°C
4.tSH	Higher limit of setting range	A: TSL(min) ~ 150 B: TSL(min) ~ 150.0	150.0	°C
5.tSL	Lower limit of setting range	A: -50 ~ TSH(max) B: -50.0 ~ TSH(max)	-50.0	°C
6.SAO	Selection of auxiliary output function	0: Alarm setting 1: Timer setting	0	-
7.ATS	Setting alarm temperature	A: -50 ~ 150, B: -50.0 ~ 150.0	-40.0	°C
8.adF	Deviation settings for the alarm	A: 1 ~ 50, B: 0.2 ~ 50.0	1.0	°C
9.adL	Delay time setting for the alarm	0 ~ 240	0	Sec

*1 : when time=0 in administrator setting mode, it is Sec. when time=1 in administrator setting mode, it is Min.

Administrator setting mode

* When changing value, **key** shift key moves digit.

Set Value lock function and decimal point function

Function	SV	Setting range	Description	Default	Unit
Lock	0	0 ~ 1	Cancellation of lock function	0	-
	1		Operation of lock function		
trSL	0	0 ~ 1	Decimal point display setting (resolution)	0	-
Time	0	0 ~ 1	No decimal point (1°C)		-
	1		"sec." setting in Timer (0 ~ 3,600 sec)		-
ProF	0	0 ~ 1	"min." setting in Timer (0 ~ 3,600 min)		-
	1		P.I.D control (P.B.value/M.R.value setting is available)		-
G.COM	Communication setting	Click the Shift Key to enter the communication setting			

*1: when time(0x0202) = 0, it is Sec. when time(0x0202) = 1, it is Min.

*2: Communicated data is displayed as actual value x 10. (Ex, when 100.0 °C or 100,000 = "1000" displays.)

Communication setting
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