

Digital Temperature Controller

# BR6

## INSTRUCTION MANUAL

We appreciate you for purchasing HanYoung NUX Co.,Ltd product. Before using the product you have purchased, check to make sure that it is exactly what you ordered. Then, please use it following the instructions below.

### MAIN PRODUCTS

- DIGITAL : Temperature Controller, Counter, Timer, Speedmeter, Tachometer, Panel Meter, Recorder
- SENSOR : Proximity Switch/Photo Electric Sensor, Rotary Encoder, Optical Fiber Sensor, Pressure Sensor
- ANALOG : Timer, Temperature Controller

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**HANYOUNG**



## ■ Safety information

Before you use, read safety precautions carefully, and use this product properly. The precautions described in this manual contain important contents related with safety; therefore, please follow the instructions accordingly. The precautions are composed of DANGER, WARNING and CAUTION.

### ⚠ DANGER

There is a danger of occurring electric shock in the input/output terminals so please never let your body or conductive substance is touched.

### ⚠ WARNING

1. To prevent deflection or malfunction of this product, apply a proper power voltage in accordance with the rating.
2. Since this product is not designed with explosion-protective structure, do not use it any place with flammable or explosive gas.
3. Reassemble this product while the power is OFF. Otherwise, it may be a cause of malfunction or electric shock.
4. There is a possibility of occurring electric shock so please use this product after installing it to a panel while it is operating.

### ⚠ CAUTION

1. The contents of this manual may be changed without prior notification.
2. Before using the product you purchased, make sure that it is exactly what you ordered.
3. Make sure that there is no damage or abnormality of the product during the delivery.
4. Do not use this product at any place with occurring corrosive (especially noxious gas or ammonia) or flammable gas.
5. Do not use this product at any place with direct vibration or impact.
6. Do not use this product at any place with liquid, oil, medical substances, dust, salt or iron contents. (Use at Pollution level 1 or 2)
7. Do not use this product at any place with a large inductive difficulty or occurring static electricity or magnetic noise.
8. Do not use this product at any place with possible thermal accumulation due to direct sunlight or heat radiation.
9. In case of inputting thermocouple, use a compensating cable. (If using a normal wire, there is a possibility of occurring temperature error.)
10. For R.T.D input, use a cable which is a lead wire has small resistance and resistances of three wires shall be the same. (If the three wires have different resistances then there will be a temperature error.)
11. To avoid an effect of inductive noise to input signal cables, use the product after separating the input signal cables from power, output and load cables.
12. Separate an input signal cable from an output signal cable. If separating is not possible, please use the input signal cable after shielding it.
13. Use non-earth sensor with thermocouple. (In case of using earth sensor, there is a possibility of occurring malfunction caused by a short circuit.)
14. If there is excessive noise from the power supply, using insulated transformer or noise filter is recommended. The noise filter must be attached to a panel which is already connected to a ground and the wire between the filter output side and power supply terminal must be short as possible.
15. If twisting the power cables closely together then it is effective against noise.
16. When this product is connected onto a panel, use a circuit breaker or switch approved with IEC947-1 or IEC947-3.
17. Write down on a label that if the circuit breaker or switch is operating then the power will be disconnected since the circuit breaker or switch is installed.
18. Some parts of this product have limited life span, and others are changed by their usage.

19. The warranty period for this product including parts is one year if this product is properly used.
20. When the power is on, the preparation period of contact output is required. In case of using signals of external interlock circuit or etc., use it with a delay relay.
21. In case of replacing this unit with a spare unit, make sure its compatibility because its operation can be different by different parameter settings even though the model name is the same.

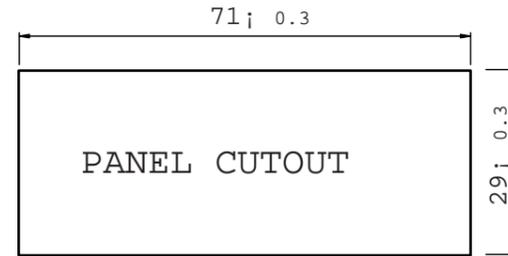
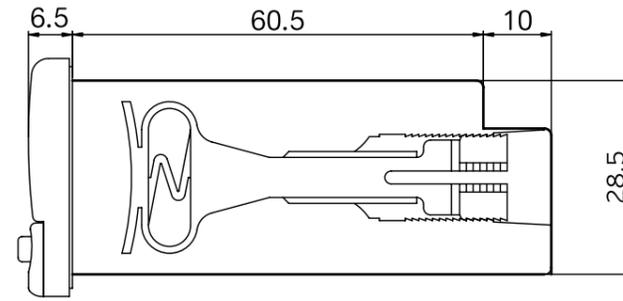
## ■ Model and Suffix code

MODEL	Suffix code	Description
<b>BR6</b>	□□□□	External dimension (77 × 35 mm)
Control	F	ON / OFF
Operation	P	Proportional Operation (P control)
Input	D	Diode (-40.0 ~ 100.0 °C)
Output	M	Relay contact
	S	SSR driving (12 V DC)
Power voltage	P3	10 ~ 24 V DC, AC
	P4	85 ~ 265 V AC (50-60 Hz)

## ■ Specification

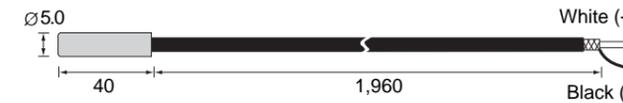
Power Supply	Refer to Model & Suffix code	
Power Consumption	4 - 5 VA	
Input Sensor	Refer to Model & Suffix code	
Display accuracy	Max. range ±1 % + 1 Digit	
Control output (Main Output)	Relay Output	250 V AC, 5 A (Resistive load)
	SSR Output	5 V AC, 50 mA (Max.)
Alarm / Defrost	Relay Output	250 V AC, 5 A (Resistive load)
Control mode	ON / OFF, P control	
Setting method	Digital method by up and Down key	
Other function	Deforsting Timer, Alarm function, Heating/cooling control	
Resistance between wires	Below 10 Ω for each wire	
Ambient temperature	0 ~ 50 °C	
Ambient humidity	Max. 85 % RH	

## ■ Dimension & Panel cutout

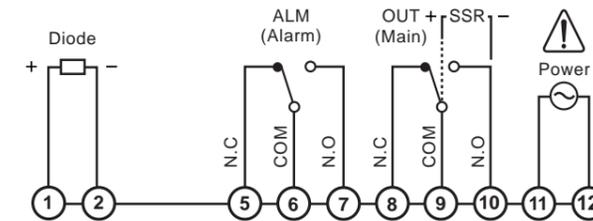


### ● SENSOR (Diode)

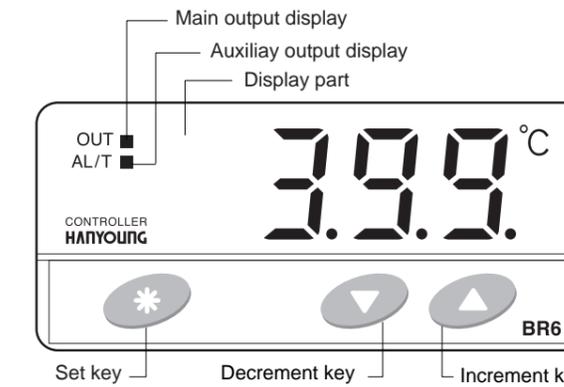
- This sensor is only for the BR6
- Temperature range : -40 ~ 100 °C
- TH-540D (Diode)



## ■ Connection



## ■ Functional Description



Display part	SV / PV Display
Main output display	Main output ON/OFF display (Control Output)
Auxiliary output display	Auxiliary output ON/OFF display (Alarm/Timer output)
Set key	Function selecton & preservation
Increment key	Set-Value (SV) increment
Decrement key	Set-Value (SV) decrement

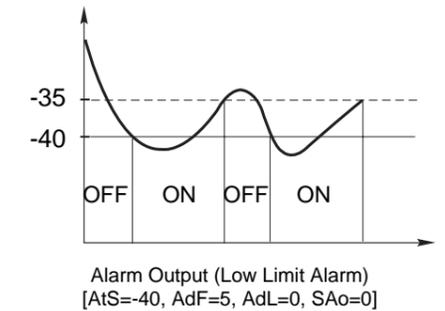
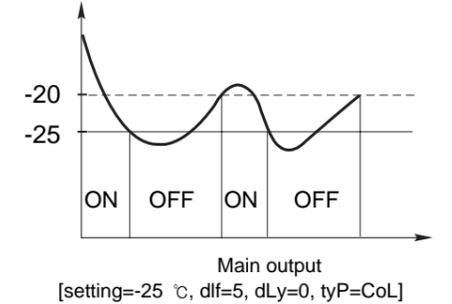
## ■ Control method for temperature

### ■ Heating / Cooling Control Selection

[SEt] → [dL yP] — HEtL : Heating control  
CoL : Cooling control

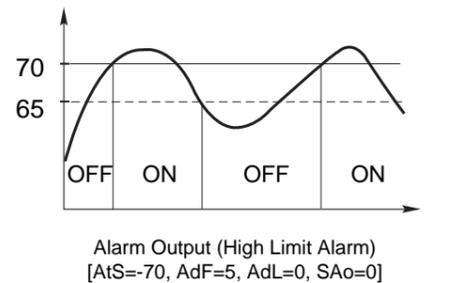
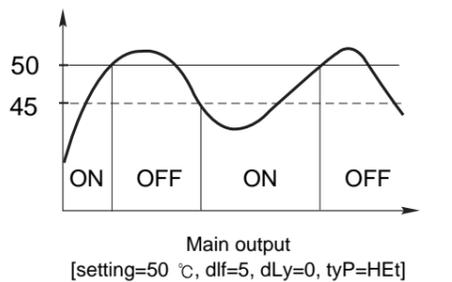
### ● Cooling Control (ON/OFF)

- P.V > S.V. → Main output relay "ON"
- P.V < S.V. → Main output relay "OFF"



### ● Heating Control (ON/OFF)

- P.V > S.V. → Main output relay "OFF"
- P.V < S.V. → Main output relay "ON"



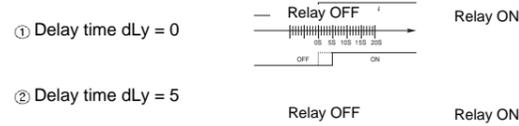
### ■ Delay timer set

Press \* Key continuously for 3sec. And then, press \* Key until getting " dL yP ".

Change a set point by ▲ / ▼ Key, and preservation it by \* Key

[dL yP] → [dL F] → [dL yP] (0 ~ 240 sec.)

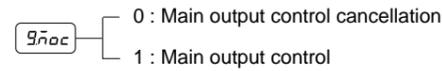
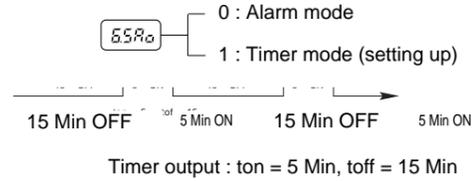
● Operating description by Delay-Timer



※ 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.

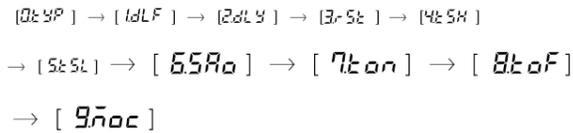
■ Auxiliary output(Timer-mode) set and operating description

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



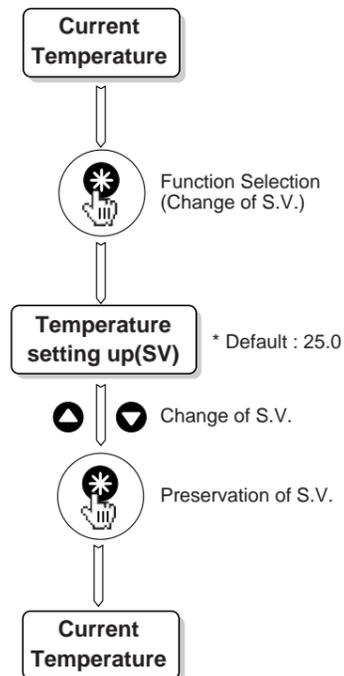
When using MOC '1', main output will be OFF automatically as timer is ON. If using MOC function, you can effectively use timer output as a defrosting function.

※ Set menu position

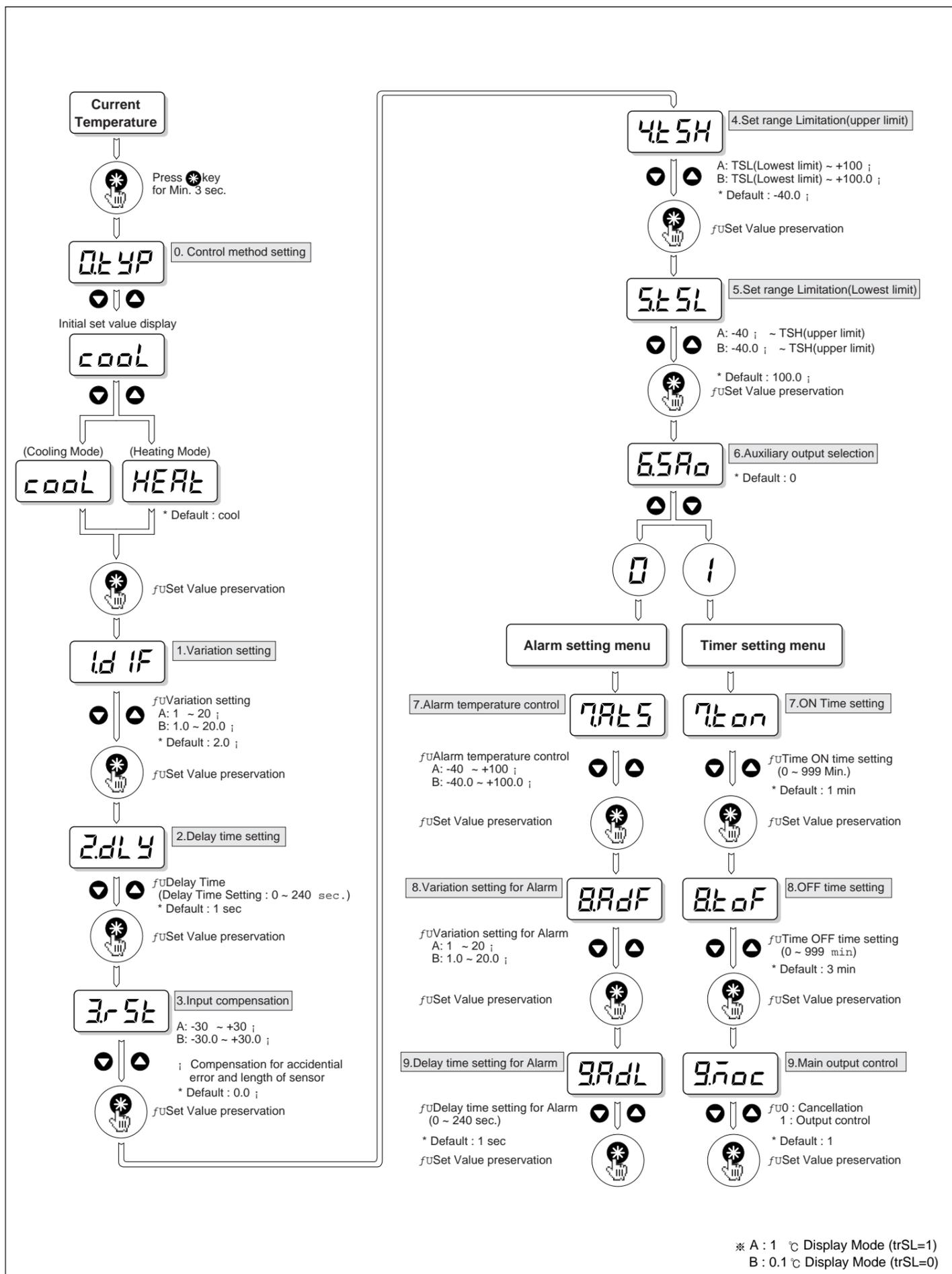


■ Setting up menu

■ Set mode for normal users



■ Set mode for equipment provider



※ A : 1 °C Display Mode (trSL=1)  
B : 0.1 °C Display Mode (trSL=0)

■ Set Value lock function and decimal point function

It is possible to prevent a change of equipment provider setting caused by mistake of normal users.

Function	S.V.	Description
Lock	0	Cancellation of lock function
	1	Operation of lock function
trSL	0	Decimal point 0.1 °C
	1	No Decimal point 1 °C
Time	0	"sec." setting in Timer (0 ~3600 sec)
	1	"min." setting in Timer (0 ~3600 min)

