

Digital Temperature Indicator

BK6-M

INSTRUCTION MANUAL

Thank you for purchasing HANYOUNG NUX CO.,Ltd. Product. Please check whether the product you purchased is the exactly same as you ordered. Before using product, please read instruction manual carefully.



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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. This product does not contain an electric switch or fuse, so the user needs to install a separate electric switch or fuse externally. (Fuse rating: 250V 0.5A)
2. To prevent deflection or malfunction of this product, supply proper power voltage in accordance with the rating.
3. To prevent electric shock or malfunction of product, do not supply the power until the wiring is completed.
4. Since this product is not designed with explosion-protective structure, do not use it any place with flammable or explosive gas.
5. Do not decompose, modify, revise or repair this product. This may be a cause of malfunction, electric shock or fire.
6. Reassemble this product while the power is OFF. Otherwise, it may be a cause of malfunction or electric shock.
7. If you use the product with methods other than specified by the manufacturer, there may be bodily injuries or property damages.
8. Due to the danger of electric shock, use this product installed onto a panel while an electric current is applied.

⚠ 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 delivery.
4. Do not use this product at any place with 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 polish this product with substances such as alcohol or benzene.
8. Do not use this product at any place with a large inductive difficulty or occurring static electricity or magnetic noise.
9. Do not use this product at any place with possible thermal accumulation due to direct sunlight or heat radiation.
10. Install this product at place under 2,000m in altitude.
11. When the product gets wet, the inspection is essential because there is a danger of electric leakage or fire.
12. If there is excessive noise from the power supply, using insulating 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 and power supply terminal must be as short as possible.
13. If putting power cables closely together then it is effective against noise.
14. Do not connect anything to the unused terminals.
15. After checking the polarity of terminal, connect wires at the correct position.
16. When this product is connected to a panel, use a circuit breaker or switch approved with IEC947-1 or IEC947-3.
17. Install the circuit breaker or switch at near place for convenient use.
18. 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.
19. For the continuous and safe use of this product, the periodical maintenance is recommended.
20. Some parts of this product have limited life span, and others are changed by their usage.
21. The warranty period for this product including parts is one year if this product is properly used.

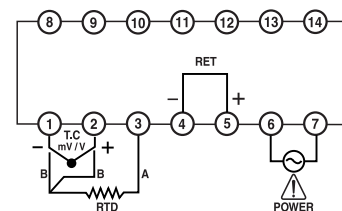
Suffix code

Model	Model number	Information
BK6-M	<input type="checkbox"/> <input type="checkbox"/>	DIN 72 × 36 mm
Optional	0	None
	1	RET

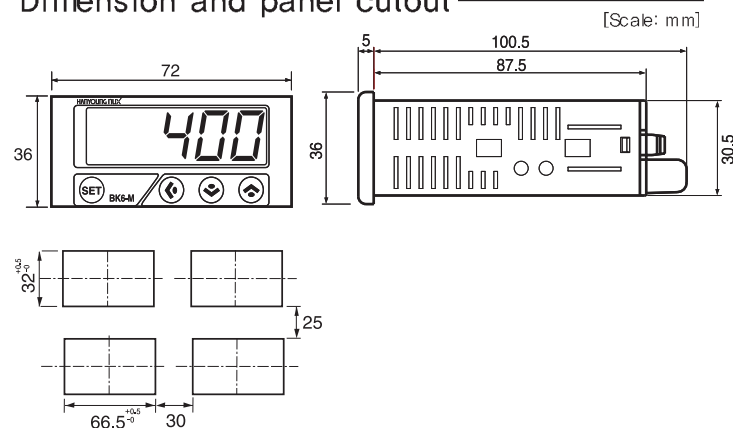
Specification

Model	Information
Power voltage	100 - 240 V a.c 50 / 60 Hz
Allowable voltage fluctuation range	±10% of proper voltage
Power consumption	Max. 4 VA
Input sensor	Thermocouple, RTD (please refer to the suffix code and range)
Indication type	7 segment red LED, height 14.2 mm
Indication accuracy	±0.5 % of F.S ±1 digit
Vibration Malfunction	10 - 50 Hz, Peak amplitude, X,Y,Z each direction for 10minutes.
Vibration Durability	10 - 50 Hz, Peak amplitude, X,Y,Z each direction for 2 hours.
Shock Malfunction	100 % (approx 10G), X,Y,Z each direction each 3 times
Shock Durability	300 % (approx 10G), X,Y,Z each direction each 3 times
Burnout circuit	Indicate the max temperature when input circuit is disconnected (break)
External input resistance	Thermocouple: max: \approx 300 Ω , RTD: max: 10 Ω per 1 wire (but resistance value of each wire must be same)
Dielectric strength	2000 V a.c 50/60 Hz for 1 minute.
Insulation resistance	Min 100 M Ω (based on 500 V d.c mega)
Ambient temperature/humidity	0 ~ 50 °C, 35 ~ 85 % R.H. (Without dew condensation)
Storage temperature	-20 ~ 70 °C (Without dew condensation)
Weight	120 g

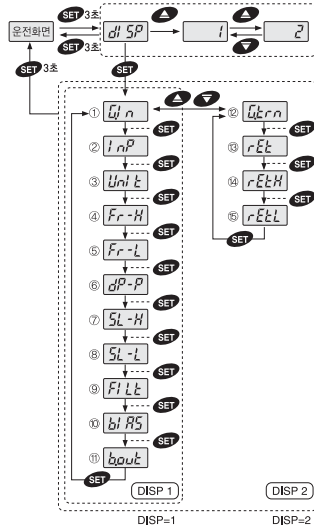
Connection diagram



Dimension and panel cutout



Menu formation



Input setting group

Meaning	Setting information	Display condition	Default value
① Input group display	Select the input type and set the input related mode	—	—
② Input type selection	Select the input signal and measurement range number (reference)	Display at all times	(Sensor number)
③ Input range unit	°C / °F	Thermocouple and RTD	°C
④ High range setting	Within the range (please refer to the input type and range)	Display at all times	1370
⑤ Low range setting			-200
⑥ Select the position of the decimal point (When power input)	Thermocouple or RTD : Can not change DC Voltage : Select the position with 0-3 setting	With voltage input (mV, V)	1
⑦ Set the high scaling (When voltage input)	-1999 ~ 9999 SL-H) SL-L	With voltage input (mV, V)	100.0
⑧ Set the low scaling (When voltage input)	Position of decimal point selected by DP-P		0.0
⑨ Select the measurement value filter	Select the measurement value filter	Display at all times	OFF
⑩ Set the measurement value compensation	Set the measurement value compensation		EUS(0.0%)
⑪ Burn-out	Burn-out		ON

1) Display mode selection

Turn ON the power and press **SET** key for more than 3 seconds when current temperature is displayed on the display unit. Once "DSP" is displayed on the display unit after pressing **SET** key for more than 3 seconds, selecting "1" by using **▲** and **▼** key will display input group and selecting "2" will display input group and RET group. After selecting either "1" or "2", press the **SET** key to save the current setting.

※ Common reference menu formation -

Select the parameter (1~11) by using **SET** key, select the each of detailed set value by using **▲** and **▼** key and save the current setting by using **SET** key. Once saving is completed, select the parameter (①~⑪) by using key, pressing the **SET** key for more than 3 seconds will move to the operation screen and menu screen.

2) Input type selection

Within the "INP" ② screen, select by using **▲** and **▼** key and saving done by using **SET** key. (Please refer to the input signal and measurement range)

3) Input range unit

Within the "UNIT" ③ screen, select by using **▲** and **▼** key and saving done by using **SET** key. (C/F selection)

4) High and low range setting

Within the "Fr-H/L" ④, ⑤ screen, select by using **▲** and **▼** key and saving done by using **SET** key. (Select the set value depending on the input types and display "over" when input signal other than the set value range entered in.)

5) Position of the decimal point selection (with voltage input)

Within the "dp-p" ⑥ screen, select by using **▲** and **▼** key and saving done by using **SET** key. (Parameter does not get displayed with the input T.C and RTD. Only displayed with the voltage input, input selection = 30, 32, 33)

6) Scale high/low setting (with voltage input)

Within the "SL-H/L" ⑦/⑧ screen, select by using **▲** and **▼** key and saving done by using **SET** key. (Display the max and min value when voltage input)

7) Measurement value filter selection

Within the "FLT" ⑨ screen, select by using **▲** and **▼** key and saving done by using **SET** key. (Variation of indication value due to the input signal noise is prevented by displaying calculated value during setting time)

8) Measurement value compensation setting (bias)

Within the "bias" ⑩ screen, select by using **▲** and **▼** key and saving done by using **SET** key. (When users cannot install the sensor where users want to install at, it compensates the indication value when measurement error of sensor occurs)

9) Burn-out

Within the "b.out" ⑪ screen, select by using **▲** and **▼** key and saving done by using **SET** key. (On=Display when sensor is opened, Off= Display high range value)

Retransmission setup group

Meaning	Setting information	Display condition	Default value
⑫ Retransmission group display	Set the retransmission related mode	—	—
⑬ Retransmission output and selection of sensor power	present value (PV) / power for sensor (SPS)	Option	PV
⑭ Retransmission output high value setting	thermocouple/RTD : FR - L ~ FR - H DC voltage : SH-L ~ SH-H	PV	FR - H or SH - H
⑮ Retransmission output low value setting	but RET,H) REF,L		FR - L or SH - L

1) Retransmission output mode

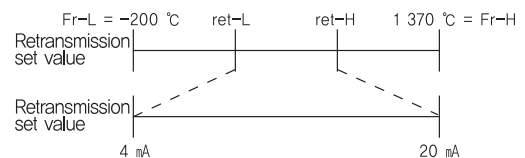
Within the "G.in" screen, select "G.trn" by using **▲** and **▼** key and press **SET** key. Once selection is completed, select the parameters from ⑫ to ⑮ by using **SET** key.

2) Retransmission output selection

Within the "ret" screen, select by using **▲** and **▼** key and save it by using the key (PV = output of present value, SPS = 13 V output)

3) High/low setting

Within "ret H/L" screen, select by using **▲** and **▼** key and save it by using the key (set the high/low value of retransmission output but ret-L < ret-H)



Input signal and measurement range

Input signal	Selection	Input type	Range (°C)	Accuracy
Thermocouple	1	K *1	-200 ~ 1370	±0.5 % of F.S ±1 digit
	2	K *1	-199.9 ~ 999.9	
	3	J *1	-199.9 ~ 999.9	
	4	E *1	-199.9 ~ 999.9	
	5	T *1	-199.9 ~ 400.0	
	6	R *1	0 ~ 1700	
	7	B	400 ~ 1800	±1.0 % of F.S ±1 digit
	8	S	0 ~ 1700	
	9	L *1	-199.9 ~ 900.0	
	10	N	-200 ~ 1300	
	11	U *1	-199.9 ~ 400.0	
RTD	20	KSPt100 Ω *3	-199.9 ~ 500.0	±0.5 % of F.S ±1 digit
	21	Pt100 Ω *3	-199.9 ~ 640.0	
DC voltage (V d.c / mV d.c)	30	1 - 5 V d.c	1 - 5 V d.c	±0.5 % of F.S ±1 digit
	32	10 - 20 mV d.c	-10 - 20 mV d.c	
	33	0 - 100 mV d.c	0 - 100 mV d.c	
DC current	30※	4 - 20 mA d.c	In case of using the current input, please use 1 after attaching 25Ωhm 0.1%resistance to the signal terminal.	
Reference	*1 → max. 0 °C	±1.0 % of F.S ±1 digit		