Digital Indicator

BK3

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 see it any time.

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Safety information

Please read the safety information carefully before use, and use the product correctly. The alerts declared in the manual are classified into **Danger, Warning** and **Caution** 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 property damage

⚠ DANGER

The input/output terminals are subject to electric shock risk. Never let the input/output terminals come in contact with your body or conductive substances.

⚠ WARNING

- If there is a possibility of the product's malfunction or accident, please install the protection circuit outside
- 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 : 250 V 0.5A)
- To prevent defection or malfunction of this product, supply proper power voltage in accordance with the rating.
- To prevent electric shock or malfunction of product, do not supply the power until the wiring is completed.
- Since this product is not designed with explosion-protective structure, do not use it any place with flammable or explosive gas.
- Do not decompose, modify, revise or repair this product. This may be a cause of malfunction, electric shock or fire.
- Reassemble this product while the power is OFF. Otherwise, it may be a cause of malfunction or electric shock.
- If you use the product with methods other than specified by the manufacturer, there may be bodily injuries or property damages.
- Due to the danger of electric shock, use this product installed onto a panel while an electric current is applied.

⚠ CAUTION

- The contents of this manual may be changed without prior notification.
- Before using the product you purchased, make sure that it is exactly what you ordered.
- Do not use this product at any place with corrosive (especially noxious gas or ammonia) or flammable gas.
- Do not use this product at any place with direct vibration or impact.
- 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)
- Do not polish this product with substances such as alcohol or benzene.
- Do not use this product at any place with a large inductive difficulty or occurring static electricity or magnetic noise.
- Do not use this product at any place with possible thermal accumulation due to direct sunlight or heat radiation.
- Install this product at place under 2,000m in altitude.
- When the product gets wet, the inspection is essential because there is a danger of electric leakage or fire.
- When inputting thermocouple, use the prescribed extension wire. (using normal wire causes temperature errors)
- When inputting termoresistance, use low lead resistance and null 3-wire resistance difference (when the 3-wire lead resistance is different it can cause differences in temperature).
- For input signal lines, please avoid power line, power supply line and load line in order to avoid the influence of induction noise.
- Separate the input signal line and output signal line, and if it cannot separate from each other, please use shield line for input signal line.
- Please use non-grounded sensor for thermocouple (When using grounded sensor, it can cause the device's malfunction due to short circuit)
- 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.
- When you exchange the sensor, please turn off the power
- After checking the polarity of terminal, connect wires at the correct position.
- When this product is connected to a panel, use a circuit breaker or switch approved with IEC947-1 or IEC947-3.
- Write down on a panell that if the circuit breaker or switch is operating then the power will be disconnected since the circuit breaker or switch is installed.
- The warranty period for this product including parts is one year.

Suffix code

Model	Code	Information
BK3-	□	Digital Temperature Indicator 96(W) X 48(H) mm
Input type	K	K thermocouple (refer to the range and input code chart)
	K1	
	J	J thermocouple (refer to the range and input code chart)
	P1	Resistance Temperature Detector(RTD) Pt100 Ω (refer to the range and input code chart)
	P2	

Specification

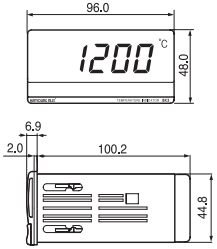
Input sensor	Thermocouple	K, J (ITS-90)
	RTD	Pt100 Ω (IEC)
Input sampling time		100 ms
Input display resolution		Usually less than indication value 1 °C (0.1 °C)
Input impedance		1 MΩ (thermocouple)
Allowable signal source resistance		Thermocouple (100 Ω max)
Allowable wiring resistance		Within 10 Ω of each 3 wires (but resistances among 3 wires should be same)
Allowable input voltage		Within ±2.5 V d.c. (thermocouple, RTD)
Display accuracy		±0.5 % of FS ±1 Digit
Insulation resistance		20 MΩ min (500 V d.c.)
Dielectric strength		3,000 V a.c. 50/60 Hz for 1 minute (Between the primary terminal and the secondary terminal)
Power Supply Voltage		100 - 240 V a.c. 50/60 Hz
Voltage fluctuation		±10 % of power supply voltage
Power consumption		3 VA max
Ambient temperature		0 ~ 50 °C
Storage temperature		-25 ~ 65 °C
Vibration resistance		10 - 50 Hz, Peak amplitude for 2 hrs each in X, Y and Z direction
Shock resistance		300 m/s² each in X, Y and Z direction for 3 times
Weight		180 g

Range and input code chart

Classification	Code	Input	Range (°C)
Thermocouple	K	K Thermocouple	0 ~ 1,300 °C
	K1		0.0 ~ 199.9 °C
	J	J Thermocouple	0 ~ 400 °C
RTD	P1	Pt100 Ω	-199 ~ 600 °C
	P2		-199.9 ~ 199.9 °C

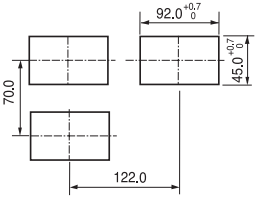
Dimensions and panel cutout

Dimensions



Panel cutout

[Unit : mm]



Connection diagrams