

Bar Graphic Temperature Indicators



KN-1000B Series CATALOG

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.

The specifications, dimensions, etc are subject to change without notice for product improvement. Some models may be discontinued without notice.

Features

- High accuracy with 16 bit ADC ($\pm 0.2\%$ F.S.)
- Multi-input
 - Thermometer 12 types
 - RTD 5 types
 - Analog: current 2 types/voltage 4 types
- 101 LED bar graph (green)
- Various output options
 - Alarm output: 2 points/4 points
 - 4-20mA transmission output (isolated), RS485 Communication output
- Various functions
 - Bar graph alarm display
 - High/Low peak input monitoring
 - Alarm output (upper/lower, sensor break)
 - Transmission output/display scale
 - Digital input (DI), etc.
- Built-in power supply for sensor/transmitter (24 VDC $\equiv$)
- Small size (rear length: 70 mm)

Ordering Information

This is only for reference, the actual product does not support all combinations. For selecting the specified model, follow the Autonics website.

K	N	-	1	①	②	③	B
① Alarm output		② Option output		③ Power supply			
0: No mark		0: No mark		0: 100-240 VAC $\sim$ 50/60 Hz			
2: 2 alarm		1: PV Transmission		1: 24 VDC $\equiv$			
4: 4 alarm		4: Communication					

Product Components

- Product
- Instruction manual
- Bracket $\times 2$
- Unit sticker $\times 1$
- Connector (KN-10□□B: $\times 3$, KN-12□□B: $\times 4$, KN-140□B: $\times 4$, KN-141□B: $\times 5$, KN-144□B: $\times 5$)

Software

Download the installation file and the manuals from the Autonics website.

■ DAQMaster

DAQMaster is comprehensive device management program. It is available for parameter setting, monitoring.

Specifications

Series	KN-1000B Series	
	AC voltage	DC voltage
Power supply	100 - 240 VAC $\sim$ 50/60 Hz	24 VDC $\equiv$
Allowable voltage range	90 to 110% of rated voltage	
Power consumption	≤ 6 VA	≤ 4 W
Sampling period	• Thermocouple, RTD: 250 ms • Analog: 100 ms	
Input specification	Refer to 'Input Type and Using Range'.	
Digital input	Contact	• ON: ≤ 2 k Ω • OFF: ≥ 90 k Ω
	Non contact	• Residual voltage: ≤ 1.0 V • leakage current: ≤ 0.03 mA
	Outflow current	≈ 0.2 mA
Option output	Alarm	• 2 point relay: 250 VAC $\sim$ 3 A 1c • 4 point relay: 250 VAC $\sim$ 1 A 1a
	PV transmission	ISOLATED DC 4-20 mA (Load resistance: ≤ 600 Ω)
	RS485 comm.	Modbus RTU
Display type	7 Segment (red), Graph bar (green)	
Alarm output Hysteresis	1 to 999 digit	
Relay life cycle	Mechanical	• 2 point: $\geq 10,000,000$ operations • 4 point: $\geq 20,000,000$ operations
	Electrical	• 2 point: $\geq 100,000$ operations (load resistance: 250 VAC $\sim$ 3 A) • 4 point: $\geq 500,000$ operations (load resistance: 250 VAC $\sim$ 1 A)
Dielectric strength	Between input terminal and power terminal: 2,000 VAC $\sim$ 50/60 Hz for 1 min	
Vibration	0.75 mm amplitude at frequency of 5 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours	
Insulation resistance	≥ 100 M Ω (500 VDC $\equiv$ megger)	
Noise immunity	± 2 kV square shaped noise (pulse width 1 μ s) by noise simulator	
Memory retention	≈ 10 years (non-volatile semiconductor memory type)	
Ambient temperature	-10 to 50 $^{\circ}$ C, storage: -20 to 60 $^{\circ}$ C (no freezing or condensation)	
Ambient humidity	35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)	
Approval	CE EAC	
Unit weight (packaged)	≈ 182 g (≈ 304 g)	

Communication Interface

■ RS485

Comm. protocol	Modbus 1.1 RTU
Maximum connection	32 units
Synchronous method	Asynchronous
Comm. method	Two-wire half duplex
Comm. effective range	$\leq 1,200$ m (≤ 700 m recommended)
Comm. speed	9,600 (default) / 4,800 / 2,400 / 1,200 bps (parameter)
Data bit	8 bit (fixed)
Parity bit	None (fixed)
Stop bit	1 bit (fixed)

Input Type and Using Range				
Input type	Display	Using range (°C)	Using range (°F)	
Thermo-couple	K (CA)	$\overline{E} \overline{C} . \overline{P} \overline{I}$	200 to 1350	-328 to 2,462
	K (CA)	$\overline{E} \overline{C} . \overline{P} \overline{2}$	-199.9 to 999.9	-328 to 1,832
	J (IC)	$\overline{E} \overline{C} - \overline{J}$	-199.9 to 800.0	-328 to 1,472
	E (CR)	$\overline{E} \overline{C} - \overline{E}$	-199.9 to 800.0	-328 to 1,472
	T (CC)	$\overline{E} \overline{C} - \overline{E}$	-199.9 to 400.0	-199.9 to 752.0
	B (PR)*	$\overline{E} \overline{C} - \overline{b}$	100 to 1,800	212 to 3,272
	R (PR)	$\overline{E} \overline{C} - \overline{r}$	0 to 1,750	32 to 3,182
	S (PR)*	$\overline{E} \overline{C} - \overline{s}$	0 to 1,750	32 to 3,182
	N (NN)*	$\overline{E} \overline{C} - \overline{n}$	-200 to 1,300	-328 to 2,372
	C (W5)*	$\overline{E} \overline{C} - \overline{C}$	0 to 2,300	32 to 4,172
	L (IC)*	$\overline{E} \overline{C} - \overline{L}$	-199.9 to 900.0	-328 to 1,652
	U (CC)*	$\overline{E} \overline{C} - \overline{U}$	-199.9 to 400.0	-199.9 to 752.0
	Platinel II*	$\overline{E} \overline{C} - \overline{P}$	0 to 1,390	32 to 2,534
RTD	Cu50Ω*	$\overline{C} \overline{U} \overline{5} \overline{0}$	-199.9 to 200.0	-199.9 to 392.0
	Cu100Ω*	$\overline{C} \overline{U} \overline{1} \overline{0}$	-199.9 to 200.0	-199.9 to 392.0
	JPt100Ω	$\overline{J} \overline{P} \overline{t} . \overline{I}$	-199.9 to 600.0	-328 to 1,112
	DPT50Ω	$\overline{d} \overline{P} \overline{t} . \overline{5}$	-199.9 to 600.0	-328 to 1,112
	DPT100Ω	$\overline{d} \overline{P} \overline{t} . \overline{I}$	-199.9 to 850.0	-328 to 1,530
Analog	Current	0.00 - 20.00 mA	$\overline{R} \overline{0} \overline{0} \overline{0} \overline{I}$	-1,999 to 9,999 (Display range is variable according to decimal point position.)
		4.00 - 20.00 mA	$\overline{R} \overline{0} \overline{0} \overline{2}$	
	Voltage	-50.0 - 50.0 mV	$\overline{R} \overline{0} \overline{0} \overline{I}$	
		-199.9 - 200.0 mV	$\overline{R} \overline{0} \overline{0} \overline{I}$	
		-1.000 - 1.000 V	$\overline{R} - \overline{0} \overline{I}$	
		-1.00 - 10.00 V	$\overline{R} - \overline{0} \overline{2}$	

• Above input types which have the * mark are displayed only in Input specification expansion. Refer to 'Mode Setting' to check how to enter the mode.

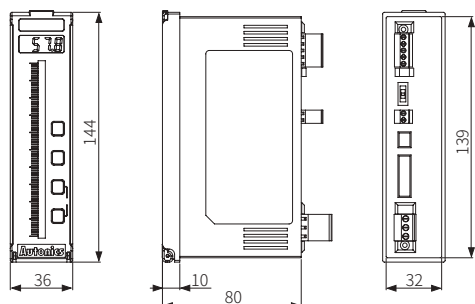
Display accuracy

Input type	Using temperature	Display accuracy
Thermocouple	At room temperature (25 °C ±5 °C)	PV ±0.2% F.S. ±1 digit
RTD	Out of room temperature range	• Thermocouple below -100 °C: (PV ±0.4% F.S.) ±1digit
Analog		PV ±0.3% F.S. ±1 digit

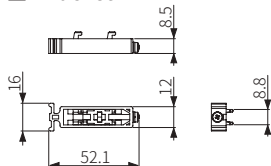
• In case of TC-T, TC-U, ±2.0 °C will be added to the degree standard.

Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.
- Below is based on KN-1000B series.



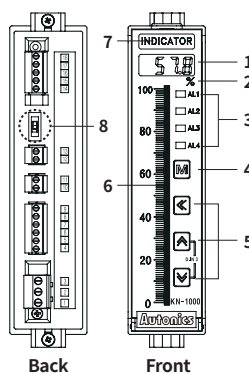
Bracket



Panel cut-out



Unit Descriptions



1. Display part(red)

Run mode: Displays PV (Present value).

Setting mode: Displays parameter and setting value.

2. Unit sticker part

3. Alarm output indicator

Turns ON when the alarm output is ON.

4. [M] key

Used to enter parameter set mode, move to parameters, save SV and return to RUN mode.

5. [◀], [▲], [▼] key

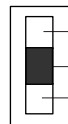
Used to enter and change parameter setting value.

6. Bar graph (green)

Refer to 'Bar Graph'.

7. Space for recognizing device by user

8. Selection switch for input specification



0 - 20 mA: Select it for DC 0 (4) - 20 mA input (default)

-1 - 10 V: Select it for -1 - 10 VDC= input

RTD / TC / mV / ±1 V: Select it for Thermocouple, RTD, ±1 V, mV input

- The setting of input type selection switch and the setting value of input type parameter should be same and it can display the proper measurement value.