KN-1000B Series

Features

- High accuracy with 16bit ADC (±0.2% F.S.)
- Multi-input
  : Thermometer 12 types, RTD 5 types,
  analog (mV, V, mA) 6 types
- Bar graph with 101 LEDs (green), 4digit display (red)
- Various output options
  : 4EA or 2EA alarm output, 4-20mA transmission output (isolated), RS485 communication output
- Various functions
  : High/Low peak monitoring, sensor break alarm output (burn-out), input correction, digital input (DI), user input range, display scale, transmission output scale, bar graph alarm display, etc.
- Built-in power supply for sensor (24VDC)
- Compact size (rear length: 70mm)

Please read "Caution for your safety" in operation manual before using this unit.

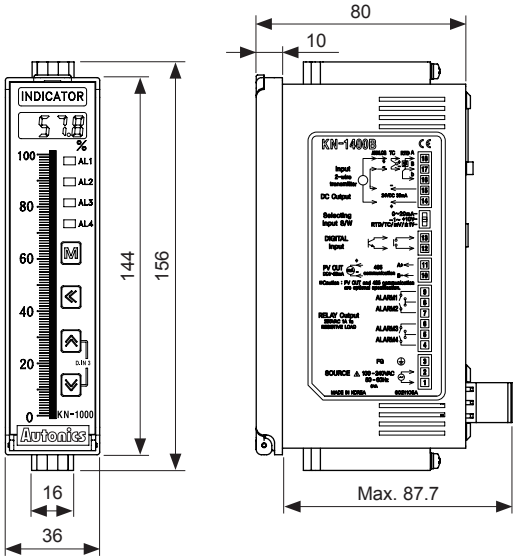
Ordering information

KN	—	1	0	0	0	B

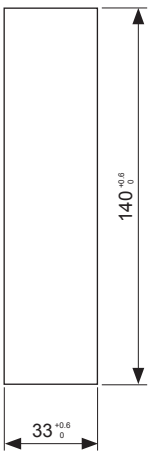
Size	B	DIN W36×H144mm
Power supply	0	100-240VAC 50/60Hz
	1	24VDC
Option output	0	No option
	1	Transmission output (4-20mA)
	4	RS485 communication output
Alarm output	0	No alarm output
	2	2EA alarm output
	4	4EA alarm output
Item	KN-1	Bar Graph Indicator

Dimensions

(unit:mm)

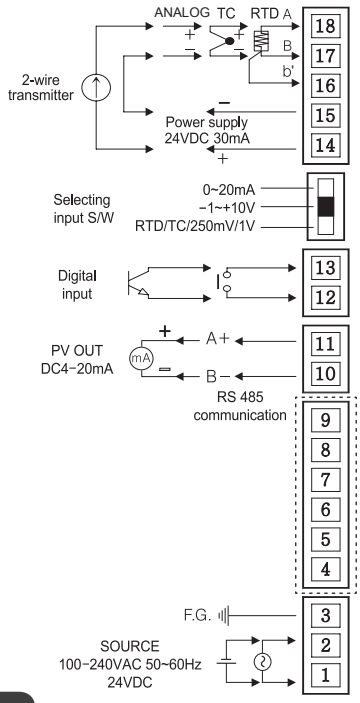


● **Panel cut-out**

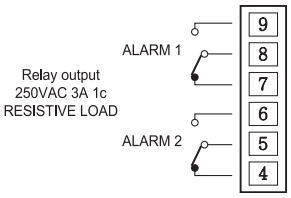


Connections

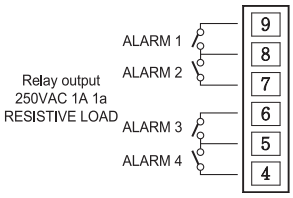
● **KN-10□□B**



● **KN-12□□B**



● **KN-14□□B**



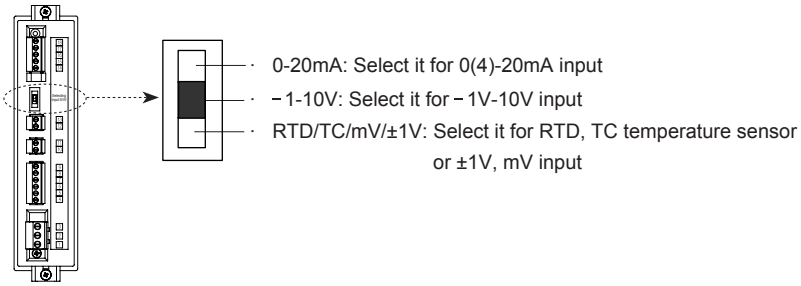
Specifications

Series		KN-1000B
Power supply	AC voltage	100-240VAC 50/60Hz
	DC voltage	24VDC
Allowable voltage range		90 to 110% of rated voltage
Power consumption	AC voltage	Max. 6VA
	DC voltage	Max. 4W
Display method		4digit: 7Segment LED Display (red), Bar LED: 101EA (green)
Input type	RTD	JPt100Ω, DPt100Ω, DPt50Ω, Cu50Ω, Cu100Ω (5 types)
	Thermocouple	K, J, E, T, R, B, S, N, C (W5), L, U, PLII (12 types)
	Analog	· Voltage: ±1.000V, ±50.00mV, -199.9-200.0mV, -1.00V-10.00V (4 types) · Current: 4.00-20.00mA, 0.00-20.00mA (2 types)
Digital input		· Contact input: Max. 2kΩ in ON,Max. 90kΩ in OFF · Non-contact input: Residual voltage max. 1.0V in ON, Leakage current max. 0.03mA in OFF · Outflow current: Approx. 0.2mA
Sub output	Alarm output	2-point: Relay contact capacity 250VAC 3A 1c, 4-point: Relay contact capacity 250VAC 1A 1a
	Transmission output	ISOLATED DC 4-20mA(PV transmission) load resistance max. 600Ω (accuracy: ±0.2%F.S., resolution: 8000)
	Communication output	RS485 (Modbus RTU)
Display accuracy		±0.2% F.S. ±1digit (25℃±5℃) ±0.3% F.S. ±1digit (− 10℃ to 20℃, 30℃ to 50℃) In case of thermocouple and below -100°C input, [±0.4%F.S.] ±1digit ※ TC-T, TC-U is min. ±2.0℃
Setting method		Set by front keys, or RS485 communication
Alarm output hysteresis		Set ON/OFF interval (1 to 999 digit)
Sampling cycle		Analog input: 100ms, Temperature sensor input: 250ms
Dielectric voltage		2000VAC 50/60Hz for 1 min. (between input terminal and power terminal)
Vibration		0.75mm amplitude at frequency of 5 to 55Hz (for 1 min.) in each of X, Y, Z directions for 2 hours
Relay life cycle	2-point	Mechanical: Min. 10,000,000, Electrical: Min. 100,000 (250VAC 3A resistance load)
	4-point	Mechanical: Min. 20,000,000, Electrical: Min. 500,000 (250VAC 1A resistance load)
Insulation resistance		Min. 100MΩ (at 500VDC megger)
Noise resistance		Square shaped noise by noise simulator (pulse width 1μs) ±2kV
Memory retention		Approx. 10 years (non-volatile semiconductor memory type)
Environment	Ambient temperature	− 10 to 50℃, storage: − 20 to 60℃
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH
Approval		CE
Unit weight		Approx. 200g

※ Environment resistance is rated at no freezing or condensation.

Input type and range

◎ **Input type selection switch**

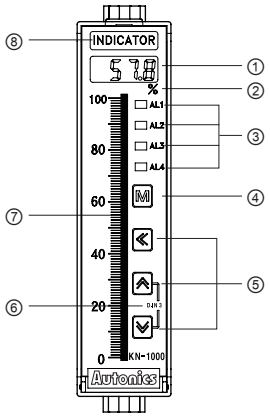


This unit is multi input product. Select the proper input with the input type selection switch and select this input type in In-P in program mode. The setting of input type selection switch and the input type In-P parameter should be same and it can display the proper measurement value. Factory default is 0-20mA.

Input type			Parameter	Input range(℃)	Input range(℉)
Thermocouple	K(CA)		tC.K1	-200 to 1350	-328 to 2462
	K(CA)		tC.K2	-199.9 to 999.9	-328 to 1832
	J(IC)		tC-J	-199.9 to 800.0	-328 to 1472
	E(CR)		tC-E	-199.9 to 800.0	-328 to 1472
	T(CC)		tC-t	-199.9 to 400.0	-199.9 to 752.0
	B(PR)*		tC-b	100 to 1800	212 to 3272
	R(PR)		tC-r	0 to 1750	32 to 3182
	S(PR)*		tC-S	0 to 1750	32 to 3182
	N(NN)*		tC-n	-200 to 1300	-328 to 2372
	C(W5)*		tC-C	0 to 2300	32 to 4172
	L(IC)*		tC-L	-199.9 to 900.0	-328 to 1652
	U(CC)*		tC-U	-199.9 to 400.0	-199.9 to 752.0
	Platinel II*		tC-P	0 to 1390	32 to 2534
RTD	Cu50Ω*		CU.50	-199.9 to 200.0	-199.9 to 392.0
	Cu100Ω*		CU.10	-199.9 to 200.0	-199.9 to 392.0
	JPt100Ω		JPt.1	-199.9 to 600.0	-328 to 1112
	DPt50Ω		dPt.5	-199.9 to 600.0	-328 to 1112
	DPt100Ω		dPt.1	-199.9 to 850.0	-328 to 1530
Analog	Current	0.00 - 20.00mA	A.nA1	-1999 to 9999 (display range depends on the decimal point position)	
		4.00 - 20.00mA	A.nA2		
	Voltage	-50.0 - 50.0mV	A.nu1		
		-199.9 - 200.0mV	A.nu2		
		-1.000 - 1.000V	A-u1		
		-1.00 - 10.00V	A-u2		

※ Above input types which have the * mark are not displayed.
To display the above input types, supply the power with pressing the [M] key.

Part descriptions



① Display part(red)
- Run mode: Displays current measurement value.
- Parameter set mode: Displays parameter and SV.

② Unit sticker part(unit sticker is an accessory.)

③ Alarm output indicator: Turns ON when the alarm 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 SV.

⑥ D.IN3: Press the ∧ and ∨ keys for 3 sec. at the same time, it operates the set function (alarm clear, display hold, zero-point adjustment) at di-U at program mode.

⑦ Bar Graph (with 101 bar LEDs, green): Displays measured value as bar graph.

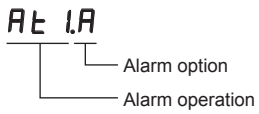
⑧ Space for recognition device by user

Functions

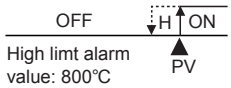
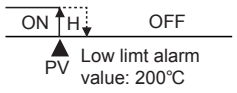
■ Alarm [AL-1, AL-2, AL-3, AL-4]

This product has 2 or 4 alarms to operate individually when the value is too high or low. Alarm function is set by the combination of alarm operation and alarm option. To clear alarm, use digital input function (setting di-t, di-U as AL.rE) or turn the power OFF and ON.

※ For the model (KN-10□□B) without alarm output, these parameters are not displayed.



◎ **Alarm operation**

Mode	Name	Alarm operation	Descriptions
AL0._	—	—	No alarm operation
AL 1.□	High limit alarm		PV ≥ alarm temperature, alarm is ON
AL2.□	Low limit alarm		PV ≤ alarm temperature, alarm is ON
SbA._	Sensor break alarm	—	It will be ON when it detects sensor disconnection. Sensor break alarm does not have alarm option.

※H: Alarm output hysteresis

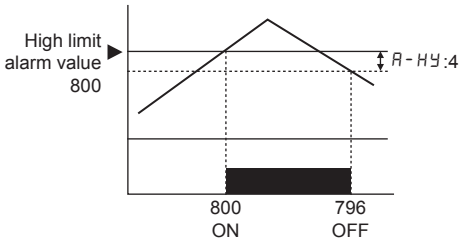
◎ **Alarm option**

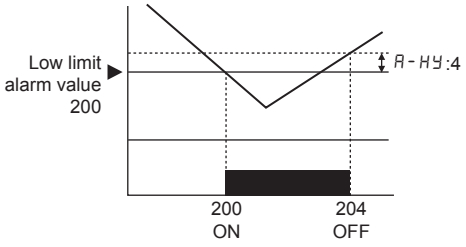
Mode	Name	Descriptions
AL□.A	Standard alarm	If it is an alarm condition, alarm output is ON. Unless an alarm condition, alarm output is OFF.
AL□.b	Alarm latch	If it is an alarm condition, alarm output is ON. Before clearing the alarm, an ON condition is latched. (Holding the alarm output)
AL□.C	Standby sequence	First alarm condition is ignored. From the second alarm condition, standard alarm operates. When power is ON and it is an alarm condition, it is ignored. From the second alarm condition, standard alarm operates.
AL□.d	Alarm latch and standby sequence	If it is an alarm condition, it operates both alarm latch and standby sequence. When power is ON and it is an alarm condition, it is ignored. From the second alarm condition, alarm latch operates.

■ Alarm output hysteresis [Program mode: A-HY]

Set the interval of ON/OFF alarm output.
The set hysteresis is applied to AL1 to AL4 and it is as below.

※Ex) A-HY: 4, high limit alarm value: 800, low limit alarm value: 200





■ High/Low peak monitoring [Monitoring mode: H.PEU, L.PEU]

This function is to save high/low peak to check the invisible abnormal condition of system at [H.PEU] or [L.PEU] in monitoring mode.

When the high/low peak is out of the temperature range, it displays HHHH or LLLL.

To initialize high/low peak, press the ▲, ▼keys at the same time for 3 sec. at [H.PEU] or [L.PEU].

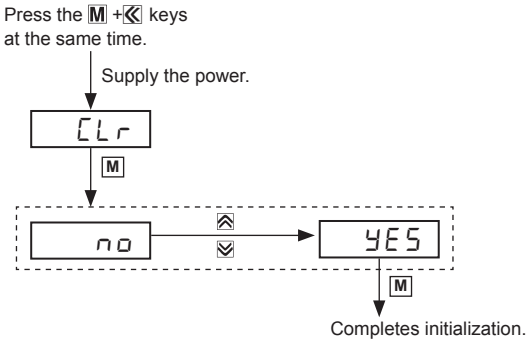
In this case, peak value is the present input value.

■ Error

Display	Descriptions	Troubleshooting
LLLL	Flashes when measured sensor input is lower than the temperature range.	When input is moved within the temperature range, it is cleared.
HHHH	Flashes when measured sensor input is higher than the temperature range	
bUrn	Flashes when the sensor is break or not connected.	Check temperature sensor connection.
Err	Flashes when there is error to SV	Check set conditions and re-set it.

■ Parameter initialization

To initialize all parameter as factory default, supply the power to the product with pressing the M and ≪ keys at the same time and it enters initialization parameter.



■ Temperature unit [Program mode: Unit]

Temperature unit (℃/℉) is selectable. When changing temperature unit, user input range, display scale, output scale, alarm SV are initialized. You should set the parameters again for your purpose.

※ When selecting analog input, temperature unit [Unit] parameter is not displayed.

■ User input range [Program mode: L-rG, H-rG]

When selecting analog input, you can set the input range for your purpose. Set low limit input value [L-rG] and high limit input value [H-rG] to limit the input range.

- Set conditions:

  Low limit input value [L-rG] +20%F.S.

  < High limit input value [H-rG]

■ Decimal point [Program mode: dP]

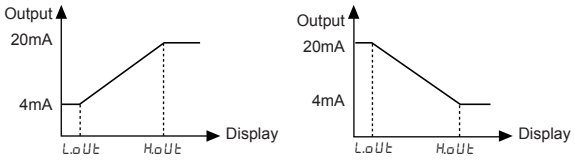
It is able to change decimal point position for high/low limit scale value. It changes decimal point position of display value.

■ Transmission output scale [Program mode: L.oUt, H.oUt]

For 4-20mA current output, this function is to set the display value for 4mA [L.oUt] and the display value for 20mA [H.oUt].

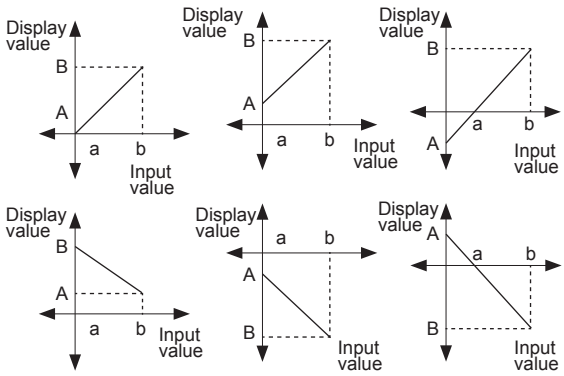
The interval between L.oUt and H.oUt is 10% F.S.

If it is below 10%, it is fixed as 10% of SV.



■ Display scale [Program mode: L-SC, H-SC]

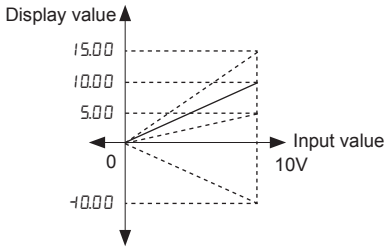
For analog input, this function is to set (-1999 to 9999) for particular high/low limit value in order to display high/low limit value of measurement input. If measurement inputs are 'a' and 'b' and particular values are 'A' and 'B', it will display a=A, b=B as below graphs.



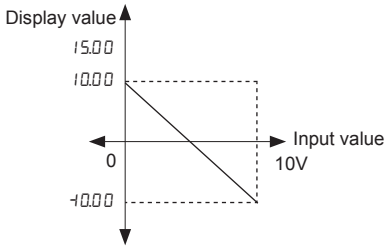
Display scale function is able to change display value for max./min. measured input by setting high limit scale [H-SC] and low limit scale [L-SC] in program mode.

※Ex) Set high/low scale value (input range is 0 to 10V)

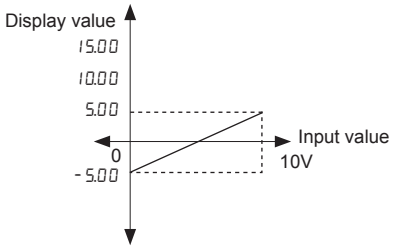
- L-SC = 0.00
- H-SC = 5.00, 10.00, 15.00, -10.00



- L-SC = 10.00, H-SC = -10.00



- L-SC = -5.00, H-SC = 5.00



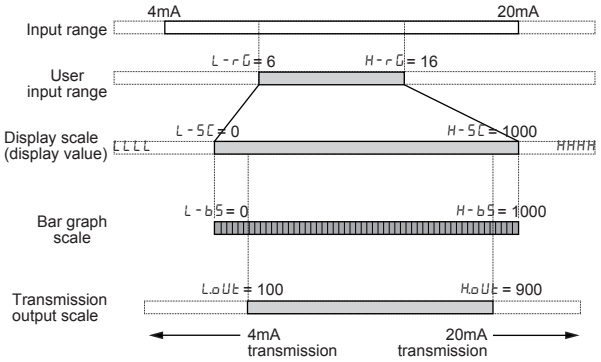
※When changing input type, high/low scale is changed as factory default.

■ Bar graph scale [Program mode: L-bS, H-bS]

This is to set display range for bar graph. Display range is as below.

Parameter	Input	Display range
L-bS	Temp. sensor input	Input range (low limit) ≤ L-bS ≤ (H-bS-1)
	Analog input	L-SC ≤ L-bS ≤ (H-SC-1)
H-bS	Temp. sensor input	(L-bS+1) ≤ H-bS ≤ Input range (high limit)
	Analog input	(L-SC+1) ≤ H-bS ≤ H-SC

※ Relation among input range, user input range, display scale, bar graph scale, and transmission scale
The below figure is the example for 4 to 20mA.



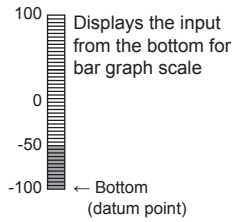
■ Bar graph display method [Program mode: bAr]

There are two methods for bar graph display; full bar and center bar.

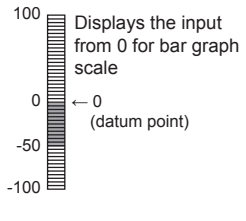
Full bar [F.bAr] displays input from the bottom, and center bar method [C.bAr] displays input from "0" as below figures.

※ Ex)When L-bS = –100, H-bS = 100, PV = –50,

◎ **Full Bar:** F.bAr



◎ **Center Bar:** C.bAr



■ Alarm display in bar graph

When setting or occurring the alarm, it displays the status by the bar graph.

You can check the alarm status. When setting alarm value, the bar LED for this alarm value turns ON. When alarm occurs, the bar LED for this alarm value flashes.

① When setting alarm value,

The bar LED for alarm SV flashes. When alarm set is complete, the bar LED for this alarm value turns ON.

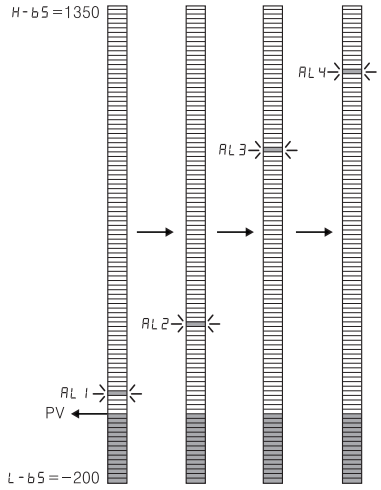
② RUN mode

- All set alarm values are displays in RUN mode.
- When it is alarm value, the bar LED for this alarm value flashes.

※If alarm set value is out of bar graph scale when setting the value or in RUN mode, this value does not display in bar graph.

◎ **When setting alarm value in monitoring mode,**

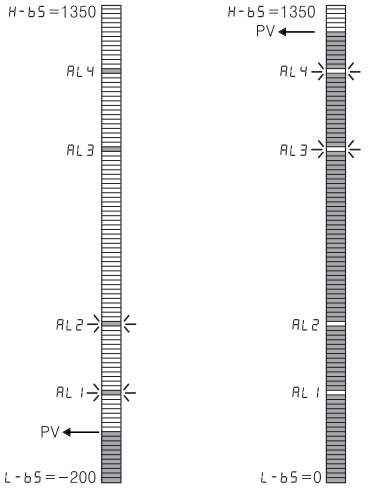
When all alarms are OFF,



※The bar LED for the alarm value flashes.

◎ **Alarm display in RUN mode**

When AL 1 and AL 2 are low limit alarm, and AL 3 and AL 4 are high limit alarm.



■ Input and transmission output extension [Program mode: EXt o]

This function is to extend analog input and 4 to 20mA transmission output to 5% or 10% range.

Mode	Operation
0P	Outputs 4 to 20mA within analog input range.
5P	Outputs 3.2 to 20.8mA for 5% out of the analog input range.
10P	Outputs 2.4 to 21.6mA for 10% out of the analog input range.

※This parameter is displayed only for transmission output (4-20mA) model. But it is not displayed when selecting temperature sensor input.

※The below of 0mA, 0V cannot be extended.

※±1V, 10V inputs are only available for 5% extension.

■ Input special function [Program mode: I n.SF]

When selecting analog input, this function is to display the calculated actual value by square, root (√), or two unit function (TUF) as display value.

Parameter	Functions	Graph	Applications
LIn	Outputs as input value	Display, Y = AX + B, Input	Standard characteristics. Input for linearity.
root	Outputs the rooted (√) input value	Display, Y = A(√X) + B (X ≥ 0), Y=0(X < 0), Input	Used for measuring flows by pressure signal.
SQAr	Outputs the squared input value	Display, Y = A(X)² + B (X > 0), Input, Y = -A(X)² + B (X < 0)	Used for outputting differential pressure by flow signal.
tUF	Refer to 'Two unit function'		

※ Display value and mA output value for SQAr :

$$\text{Display value (output value)} = \{\left(\frac{\text{Input value} - L\text{-}rG}{H\text{-}rG - L\text{-}rG}\right)^2 \times (H\text{-}SC - L\text{-}SC)\} + L\text{-}SC$$

※ Display value and mA output value for root :

$$\text{Display value (output value)} = \{\left(\sqrt{\frac{\text{Input value} - L\text{-}rG}{H\text{-}rG - L\text{-}rG}}\right) \times (H\text{-}SC - L\text{-}SC)\} + L\text{-}SC$$

■ Two Unit Function [Program mode: tUF]

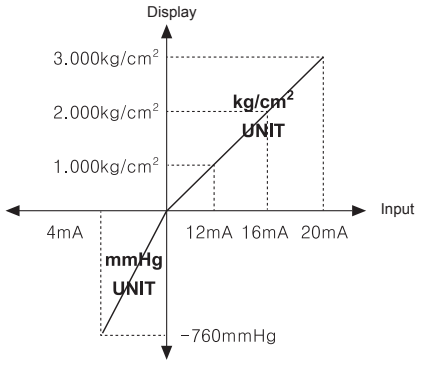
When connecting a pressure sensor, compound pressure which is below atmospheric pressure (0) is for vacuum as mmHg and which is atmospheric pressure or over it is for positive pressure as kg/cm^2.

Atmospheric pressure is 0kg/cm^2 . When this unit does not display 0kg/cm^2 , you can correct zero-point adjustment function.

When using two unit function, L-SC is fixed as -760.

L-SC parameter is displayed but you cannot set this. You can set H-SC within 0 to 9999 range.

Ex)When pressure range is −760.0mmHg to 3.000kg/cm^2, and pressure transmitter outputs 4-20mA, set the scale as H-SC : 3000, dP : 0.000. This unit displays for 4mA input as - 760, and for 20mA input as 3.000.



■ Input correction [Program mode: In-b]

This function is to correct the error occurring from a thermocouple, a RTD or analog input out of allowable error range of this unit.

This is also available to correct error when a sensor cannot contact the subject position by calculating the error temperature.

Variable temperature sensors have accuracy level. Because high accuracy type is expansive, standard thermocouples are generally used.

In this case, temperature sensor may occur error. By executing this function, you can get more accurate temperature.

When executing input correction function, you should measure the error from a sensor accurately. If the measured error is not correct, error may be greater. (If In.SF = tUF , In-b as atmospheric pressure input value not as input correction function. Refer to Two unit function.)

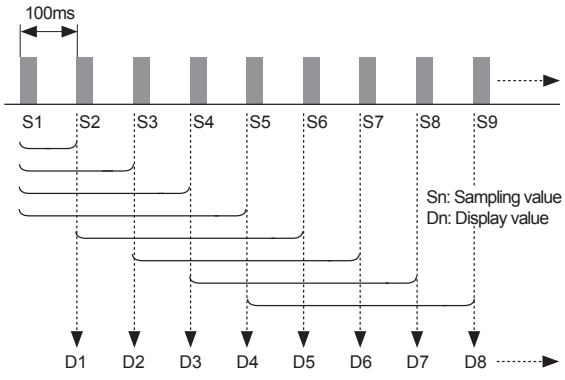
Ex)When measured temperature is 4℃ and actual temperature is 0℃. Set In-b as -4, and display value is 0℃.

■ Digital filter [Program mode: AnAv.F]

Moving average digital filter is able to stably display and output the noise from input line and irregular signals as software.

- Filter set range: 01 to 16
  (When setting as 01, digital filter function does not run.)

※Display cycle is same when executing moving average digital filter.



D1=S1, D2=S2, D3=S3
: Initial operation before averaging 4

$$D4 = \frac{S1+S2+S3+S4}{4} \qquad D5 = \frac{S2+S3+S4+S5}{4}$$

$$D6 = \frac{S3+S4+S5+S6}{4} \qquad D7 = \frac{S4+S5+S6+S7}{4}$$

$$D8 = \frac{S5+S6+S7+S8}{4}$$

■ Burn Out [Program mode: bUrn]

When disconnecting input sensor, you can set the status of transmission output.

- When setting bUrn as on, 4-20mA transmission output is fixed as 20mA.
- When setting bUrn as oFF, 4-20mA transmission output is fixed as 4mA.

※It is available only for temperature sensor input and 4-20mA transmission output.

■ Digital input [Program mode: dI -t, dI -U]

By digital input terminal [dI -t] (terminal 12, 13) or digital input key [dI -U] (D.IN3: ▽ + △ for 3 sec.), one of three functions executes as the below table.

Function		Operaiton
AL.rE	Alarm clear	When alarm is ON in RUN mode, it clears alarm forcibly. (It applies only for alarm latch, alarm latch and standby sequence options.) Alarm clear operates only when the value is out of the alarm value range. After clearing alarm, alarm operates its option normally. ※For the model without alarm output (KN-10□□B), this parameter is not displayed.
HoLd	Display HOLD	Temporarily indicated value is stopped in order to check indicated value in unstable input.
ZEro	Zero-point adjustment	Set preset display value as 0. This function is related with input correction [In-b]. When executing zero adjustment function in display value as 4, input correction value [In-b] is set as -4 automatically.

■ Lock [Program mode: LoCU]

It limits to check parameter set value and to change it.

	oFF	LoC1	LoC2
Program mode	●	◐	○
Monitoring mode	●	●	◐

● : Enable to check/set,
◐ : Enable to check, disable to set,
○ : Disable to check

※In LoC2, only LoCU parameter displays in program mode.

Communications

■ Communication set [Program mode: Addr, bAUd]

You can set communication address [Addr] and communication speed [bAUd] for RS485 communication.

■ Communication specifications

Item	Specifications
Communication method	RS485 2-wire half duplex
Communication speed (BPS)	9600, 4800, 2400, 1200
Converter	Converter built in RS232
Max. connections	32 units
Communication distance	Max. 1200m (within 700 m recommended)
Protocol	MODBUS 1.1 RTU
Parity	None
Stop Bit	1Bit
Data length	8Bit

■ Communication manual

Refer to communication manual for RS485 communication.

Visit our web site (www.autonics.com) to download communication manual and software [Integrated device management program: DAQMaster].

■ Integrated device management program (DAQMaster)

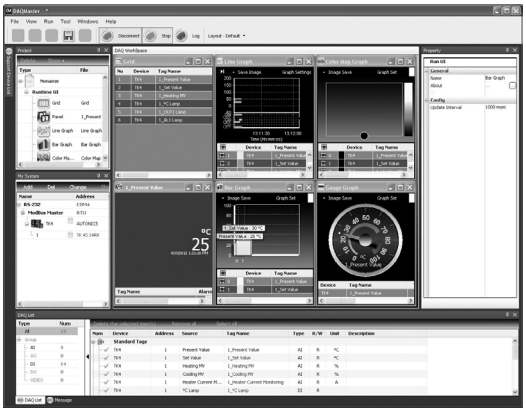
DAQMaster is the integrated device management program to set parameters and manage monitoring data.

Visit our website (www.autonics.com) to download user manual and integrated device management program.

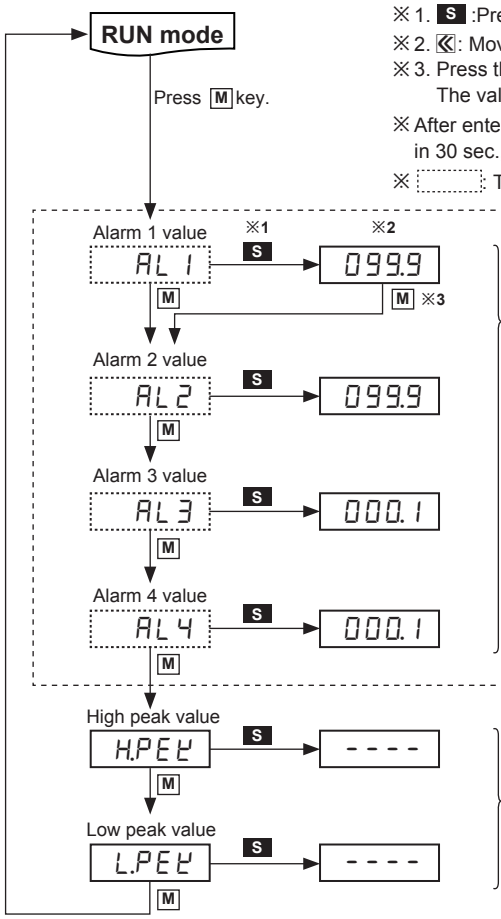
< Computer specification for using software >

Item	Minimum requirements
System	IBM PC compatible computer with Intel Pentium III or above
Operating system	Microsoft Windows 98/NT/XP/Vista/7
Memory	256MB or more
Hard disk	More than 1GB of free hard disk space
VGA	1024×768 or higher resolution display
Others	RS-232 serial port(9-pin), USB port

< DAQMaster screen >



Monitoring mode



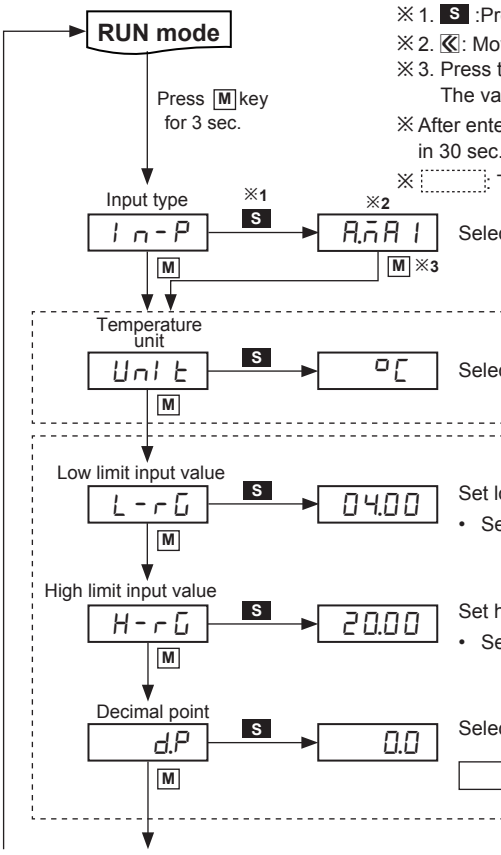
※1. S :Press any key among the ≪, ▲, ▼.
※2. ≪: Moves digits / ▲, ▼: Changes SV.
※3. Press the M key after checking/changing SV in each parameter.
The value flashes twice and is saved. It moves to next parameter.
※After entering setting group, press the M key for 3 sec. or there is no additional key operation in 30 sec., it returns to RUN mode.
※ ⋯⋯: This parameter may or may not appear, depending on the other parameter settings.

※Displayed only for alarm output models.

Set each alarm value; [AL - 1 to AL - 4] in program mode.
• Set range: Temperature sensor input → within temperature range
Analog input → L - SC to H - SC
※When alarm operation [AL - 1 to AL - 4] in program mode is no alarm [AtO_] or sensor break alarm [SbA_], these parameters are not displayed.
※For 2EA alarm output model (KN-12□□B), AL 3, AL 4 are not displayed.

Displays high/low peak value.
※High/Low peak value is available only to check and initialize it. (Refer to 'High/Low peak monitoring' for initialization.)
※Initial high/low peak is saved after 2 sec. from supplying the power.

Program mode



※1. S :Press any key among the ≪, ▲, ▼.
※2. ≪: Moves digits / ▲, ▼: Changes SV.
※3. Press the M key after checking/changing SV in each parameter.
The value flashes twice and is saved. It moves to next parameter.
※After entering setting group, press the M key for 3 sec. or there is no additional key operation in 30 sec., it returns to RUN mode.
※ ⋯⋯: This parameter may or may not appear, depending on the other parameter settings.

Select input type. (Refer to 「Input type and range」.)

※ Displayed only when selecting temperature sensor input type.

Select temperature unit. °C ↔ °F

※ Displayed only when selecting analog input type.

Set low limit of input range.
• Set range: within analog input type range

Set high limit of input range.
• Set range: within analog input type range

Select decimal point position of display scale value.
0.0 ↔ 0.00 ↔ 0.000 ↔ 0

※ Displayed only when selecting analog input type.

Low limit scale value — L-SC — S → 000.0 — M

Set low limit scale value.
- Set range: -1999 to 9999

High limit scale value — H-SC — S → 100.0 — M

Set high limit scale value.
- Set range: -1999 to 9999

Input correction — In-b — S → 0000 — M

Set input correction value.
- Set range: -999 to 999

Bar graph low limit scale value — L-bS — S → 000.0 — M

Set low limit scale value for bar graph display.
- Set range: Temperature sensor input
  → within temperature range (low limit) ≤ L-bS ≤ (H-bS-1)
  Analog input → L-SC ≤ L-bS ≤ (H-SC-1)

Bar graph high limit scale value — H-bS — S → 000.0 — M

Set high limit scale value for bar graph display.
- Set range: Temperature sensor input
  → (L-bS+1) ≤ H-bS ≤ within temperature range (high limit)
  Analog input → (L-SC+1) ≤ H-bS ≤ H-SC

Bar graph display method — bAr — S → F.bAr — M

Set display method for bar graph. F.bAr ⇕ C.bAr

※ Displayed only for transmission output model.

4 mA output scale value — L.oUt — S → 000.0 — M

Set output scale value for 4mA.
- Set range: Temperature sensor input → within temperature range,
  Analog input → L-SC to H-SC

20 mA output scale value — H.oUt — S → 100.0 — M

Set output scale value for 20mA.
- Set range: Temperature sensor input → within temperature range,
  Analog input → L-SC to H-SC

Input and transmission output extension — Es.1 0 — S → SP — M

※ Displayed only when selecting analog input type.

Select extension range of 4-20mA input and transmission output.

SP ⇕ 10P ⇕ 0P

※ Displayed only for alarm output models.

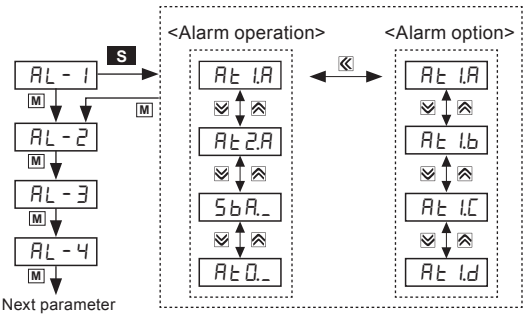
AL1 mode — AL-1 — S → At 1.A — M

AL2 mode — AL-2 — S → At 1.A — M

AL3 mode — AL-3 — S → At 2.A — M

AL4 mode — AL-4 — S → At 2.A — M

Set AL1 to AL4 alarm operation and option.

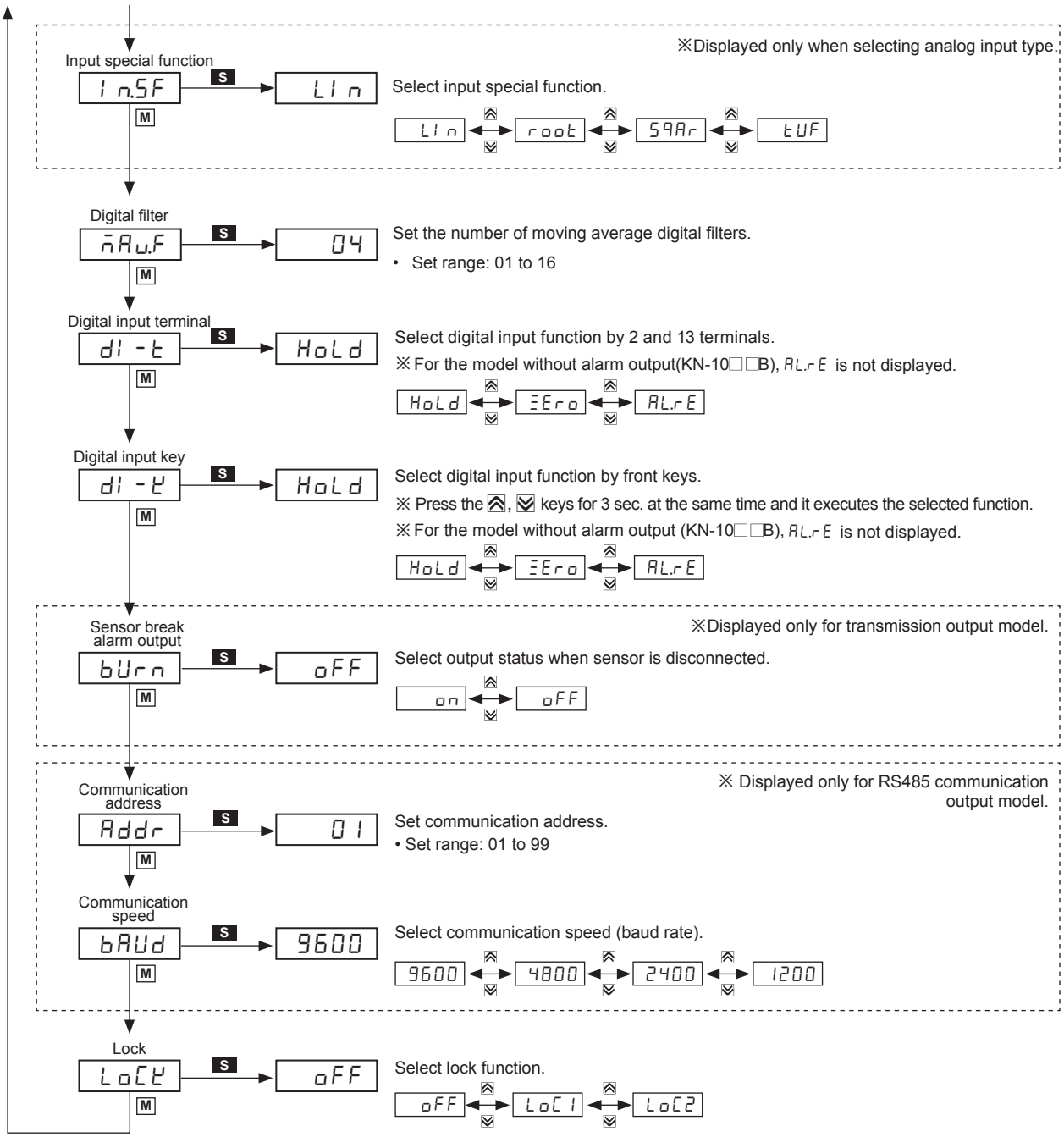


※ SV changing method of AL-2 to AL-4 is same as AL-1's.
※ For 2EA alarm output model (KN-12□□B), AL3, AL4 are not displayed.
※ No alarm [At 0._], sensor break alarm [SbA._] do not have alarm option.
※ Set alarm value [AL 1 to AL4] in monitoring mode.

AL output hysteresis — A-HY — S → 001 — M

Set alarm output hysteresis.
- Set range: 001 to 999

※ When alarm operation [AL-1 to AL-4] in program mode is no alarm [At 0._] or sensor break alarm [SbA._], this parameter is not displayed.


※Displayed only when selecting analog input type.
Input special function
In.SF
S
M
LIn
Select input special function.
LIn
root
SgAr
tUF
Digital filter
nAu.F
04
Set the number of moving average digital filters.
• Set range: 01 to 16
Digital input terminal
dI-t
HoLd
Select digital input function by 2 and 13 terminals.
※For the model without alarm output(KN-10□□B), AL.rE is not displayed.
HoLd
ZEro
AL.rE
Digital input key
dI-t
HoLd
Select digital input function by front keys.
※ Press the ▲, ▼ keys for 3 sec. at the same time and it executes the selected function.
※For the model without alarm output (KN-10□□B), AL.rE is not displayed.
HoLd
ZEro
AL.rE
Sensor break alarm output
※Displayed only for transmission output model.
bUrn
oFF
Select output status when sensor is disconnected.
on
oFF
※ Displayed only for RS485 communication output model.
Communication address
Addr
01
Set communication address.
• Set range: 01 to 99
Communication speed
bAUd
9600
Select communication speed (baud rate).
9600
4800
2400
1200
Lock
LoCt
oFF
Select lock function.
oFF
LoC1
LoC2

Factory default

■ Monitoring mode

Parameter	Default	Parameter	Default	Parameter	Default
AL 1	099.9	AL 3	000.1	H.PEU	----
AL2	099.9	AL 4	000.1	L.PEU	----

■ Program mode

Parameter	Default	Parameter	Default	Parameter	Default	Parameter	Default
In-P	AñA.1	In-b	0000	AL-1	At 1.A	dI-t	HoLd
Unit	°C	L-bS	000.0	AL-2	At 1.A	dI-U	HoLd
L-rG	00.00	H-bS	100.0	AL-3	At2.A	bUrn	oFF
H-rG	20.00	bAr	F.bAr	AL-4	At2.A	Addr	01
d.P	0.0	L.oUt	000.0	A-HY	001	bAUd	9600
L-SC	000.0	H.oUt	100.0	In.SF	Lin	LoCU	oFF
H-SC	100.0	Ev.10	SP	ñAU.F	04		

Proper usage

■ Caution for using

- For connecting the power, use a crimp terminal (M3.5, min. 7.2 mm).
- The connection of this unit should be separated from the power line and high voltage line in order to prevent inductive noise.
- Install a power switch or a circuit breaker to supply or cut off the power.
- Switch or circuit breaker should be installed nearby users for convenient control.
- Do not use this unit near the high frequency instruments (high frequency welding machine & sewing machine, large capacity SCR controller).
- When supplying input, if HHHH or LLLL is displayed, measured input may have problem. Turn off the power and check the line.
- Installation environment.
  ① It shall be used indoor.
  ② Pollution Degree 2
  ③ Altitude max. 2,000m
  ④ Installation category II
- It may cause malfunction if above instructions are not followed.