Autonics

Isolated Converter
CN-6000 SERIES

INSTRUCTION MANUAL

Thank you for choosing our Autonics product.
Please read the following safety considerations before use.

▣ Safety Considerations

※Please observe all safety considerations for safe and proper product operation to avoid hazards.
※⚠ symbol represents caution due to special circumstances in which hazards may occur.

⚠Warning Failure to follow these instructions may result in serious injury or death.
⚠Caution Failure to follow these instructions may result in personal injury or product damage.

⚠Warning

1. **Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)**
   Failure to follow this instruction may result in personal injury, economic loss or fire.
2. **Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**
   Failure to follow this instruction may result in explosion or fire.
3. **Install on a device panel to use.**
   Failure to follow this instruction may result in fire or electric shock.
4. **Do not connect, repair, or inspect the unit while connected to a power source.**
   Failure to follow this instruction may result in electric shock.
5. **Do not disassemble or modify the unit.**
   Failure to follow this instruction may result in fire or electric shock.
6. **Check 'Connections' before wiring.**
   Failure to follow this instruction may result in fire.

⚠Caution

1. **Use the unit within the rated specifications.**
   Failure to follow this instruction may result in fire or product damage.
2. **Use a dry cloth to clean the unit, and do not use water or organic solvent.**
   Failure to follow this instruction may result in fire or electric shock.
3. **Keep the product away from metal chip, dust, and wire residue which flow into the unit.**
   Failure to follow this instruction may result in fire or product damage.

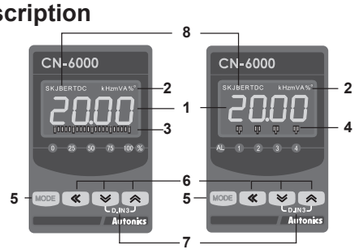
※**The above specifications are subject to change and some models may be discontinued without notice.**
※**Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).**

▣ Ordering Information

CN — 6 10 0 — C1

Output	C1	Transmission output (0-20mA): 1
	C2	Transmission output (0-20mA): 2
	V1	Transmission output (0-10VDC): 1
	V2	Transmission output (0-10VDC): 2
	R1	Alarm output: 1
	R2	Alarm output: 2
	R4	Alarm output: 4
Power supply	0	100-240VAC 50/60Hz
	1	24VDC
Input	10	Universal input
	40	Pulse input (※option)
Item	CN-6	Isolated Converter

▣ Unit Description



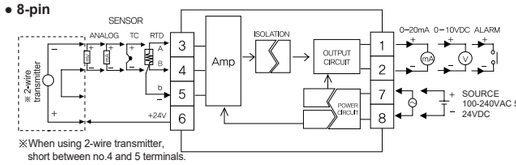
[Transmission output model] [Alarm output model]

1. Display part (selectable red, green, yellow)
   - Run mode: Displays current measured value.
   - Set mode: Displays parameters.
2. Unit display part (red)
3. Output scale bar: For transmission output mode, displays output as % by scale bars.
4. Alarm output indicator: Turns ON when the alarm output is on.
5. MODE key
   : Used to enter parameter set mode, move to parameters, save SV and return to RUN mode.
6. ≪, ≫, ∧ key: Used to change parameter SV.
7. 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 -K].
8. Input type (only for CN-610□-□)
   : Turns ON the selected temperature sensor type at [I N-P] parameter.
   (In case of thermocouple type, L, N, U, P types are not displayed. In case of RTD type, RTD is displayed.)

▣ Connections

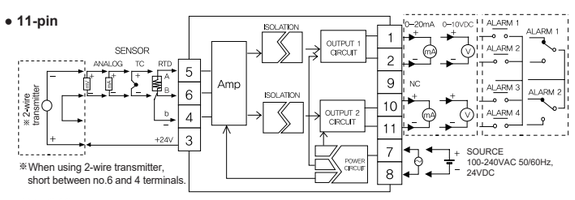
■ **CN-610□-□**

● **8-pin**



※When using 2-wire transmitter, short between no.4 and 5 terminals.

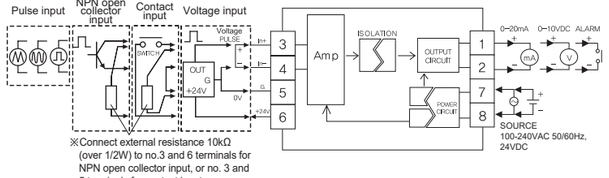
● **11-pin**



※When using 2-wire transmitter, short between no.6 and 4 terminals.

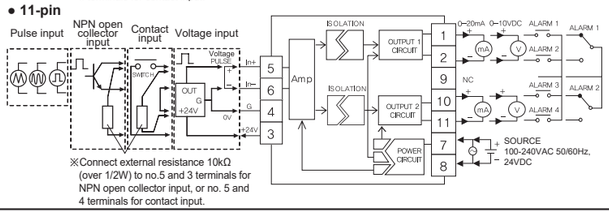
■ **CN-640□-□**

● **8-pin**



※Connect external resistance 10kΩ (over 1/2W) to no.3 and 6 terminals for NPN open collector input, or no. 3 and 5 terminals for contact input.

● **11-pin**



※Connect external resistance 10kΩ (over 1/2W) to no.5 and 3 terminals for NPN open collector input, or no. 5 and 4 terminals for contact input.

▣ Specifications

Model		CN-610□-□	CN-640□-□
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. 8VA	
	DC voltage	Max. 3W	
Display method		12-segment (selectable red, green, yellow), graphic bar and input type/unit display part (red) with LCD method	
Character size		Display part: 6.4×11.0mm (12-segment), Input type/unit display part: 1.4×2.75mm (unit)	
Input type	RTD	JPt100Ω, DPt100Ω, DPt50Ω, Cu50Ω, Cu100Ω	—
	TC	K, J, E, T, R, B, S, N, C, L, U, PLII	—
	Analog	• Voltage : -50.0-50.0mV, -199.9-200.0mV, -1.000-1.000V, -1.00-10.00V • Current: 0.00-20.00mA, 4.00-20.00mA	—
	Pulse input	—	0 to 50.00kHz (input impedance: 10kΩ)
Output type	Transmission output	0-20mA (adjustable output range), load resistance max. 600Ω (accuracy: ±0.3 F.S., resolutions: 8000)	
		0-10VDC⎓ (adjustable output range), load resistance max. 10kΩ (accuracy: ±0.3 F.S., resolutions: 8000)	
	Alarm output	1-point: relay contact capacity 250VAC 5A 1a 2-point: relay contact capacity 250VAC 3A 1c 4-point: relay contact capacity 250VAC 5A 1a	
Display accuracy		±0.2%F.S. ±1-digit (25±5℃), ±0.3%F.S. ±1-digit (-10 to 20℃, 30 to 50℃) ※CN-610□-□: For TC, the input below -100℃ is ±0.4%F.S. ±1-digit (TC-T, TC-U is max. ±2.0℃)	
Setting method		Set by front keys	
Sampling cycle		Analog input: 100ms Temperature sensor input: 250ms	—
Display cycle		—	Same with pulse input cycle When pulse input cycle is over 10 sec, it is updated by every 10 sec.
Dielectric voltage		2,000VAC 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 X, Y, Z direction for 2 hours	
Insulation resistance		Over 100MΩ (at 500VDC megger)	
Noise immunity		±2kV the square wave noise (pulse width 1μs) by noise simulator	
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	—
Weight※1		Approx. 301g (approx. 160g)	Approx. 340g (approx. 200g)

※1: The weight includes packaging. The weight in parenthesis is for unit only.
※Environment resistance is rated at no freezing or condensation.

▣ Factory Defaults

■ **CN-610□-□ (universal input)**

◎ **Monitoring mode**

Parameter	Default	Parameter	Default	Parameter	Default	Parameter	Default
oUt1	----	AL1	100.0	AL3	100.0	HPEK	----
oUt2	----	AL2	000.0	AL4	000.0	LPEK	----

◎ **Program mode**

Parameter	Default	Parameter	Default	Parameter	Default	Parameter	Default
IN-P	AMA2	LoR1	0400 *1 0000 *2	ExJo	SP	SPAN	1000
UNIt	°C	HoR1	2000 *1 1000 *2	AL-1	AtIA	AVF	01
dUNt	°/o	LoR2	0400 *1 0000 *2	AL-2	At2A	MAVF	04
L-RG	0400	HoR2	2000 *1 1000 *2	AL-3	AtIA	dI-K	HoLd
H-RG	2000	bAR	oUt1	AL-4	At2A	CoLR	GRN
dP	0.0	LoU1	000.0	A-HY	001	bURN	oN
L-SC	000.0	HoU1	100.0	INSF	LIN	USER	StNd
H-SC	100.0	LoU2	000.0	0PS1	0800	LoCK	oFF
IN-b	000	HoU2	100.0				

※1: Displayed only for current transmission output, alarm output model (CN-610□-C1/C2/R1/R2/R4).
※2: Displayed only for voltage transmission output model (CN-610□-V1/V2).

■ **CN-640□-□ (pulse input)**

◎ **Monitoring mode**

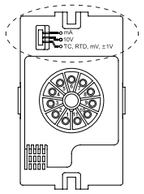
Parameter	Default	Parameter	Default	Parameter	Default	Parameter	Default
oUt1	----	AL1	000.0	AL3	100.0	HPEK	----
oUt2	----	AL2	000.0	AL4	100.0	LPEK	----

◎ **Program mode**

Parameter	Default	Parameter	Default	Parameter	Default	Parameter	Default
IN-P	50kH	LoR1	0400 *1 0000 *2	HoU2	5000	MAVF	04
dUNt	KHZ	HoR1	2000 *1 1000 *2	ExJo	SP	dI-K	HoLd
L-RG	0000	LoR2	0400 *1 0000 *2	AL-1	AtIA	CoLR	GRN
H-RG	5000	HoR2	2000 *1 1000 *2	AL-2	At2A	USER	StNd
dP	0.00	bAR	oUt1	AL-3	AtIA	LoCK	oFF
L-SC	000.0	LoU1	000.0	AL-4	At2A		
H-SC	5000	HoU1	5000	A-HY	001		
IN-b	000	LoU2	000.0	SPAN	1000		

※1: Displayed only for current transmission output, alarm output model (CN-640□-C1/C2/R1/R2/R4).
※2: Displayed only for voltage transmission output model (CN-640□-V1/V2).

▣ Input Type Selection Switch



- mA : Select it for 0(4)-20 mA input
- 10 V :Select it for -1 V-10 V input
- TC, RTD, mV, ±1V: Select it for TC, RTD or ±1mV, V input

※The pulse input model (CN-640□-□) does not have this input type selection switch.
※8-pin and 11-pin models have same position of the switch.

- This product is multi-input. Select the desired input type by the input type selection switch and select the input type at [I N-P].
- The selection of the input type selection switch and that of [I N-P] should be same to display correct value.
  Factory default is 4-20mA.

▣ Input Type and Range

■ **CN-610□-□ (universal input)**

Input type			Display	Input range (℃)	Input range (℉)
Thermo-couple	K(CA)		tCK1	-200 to 1350	-328 to 2462
			tCK2	-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	400 to 1800	752 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		CU50	-199.9 to 200.0	-199.9 to 392.0
	Cu100Ω		CU10	-199.9 to 200.0	-199.9 to 392.0
	JPt100Ω		JPt1	-199.9 to 600.0	-328 to 1112
	DPt50Ω		dPt5	-199.9 to 600.0	-328 to 1112
	DPt100Ω		dPt1	-199.9 to 850.0	-328 to 1530
Analog	Current	0.00 - 20.00mA	AmA1	-1999 to 9999 (Display range is variable according to decimal point position.)	
		4.00 - 20.00mA	AmA2		
	Voltage	-50.0 - 50.0mV	Amv1		
		-199.9 - 200.0mV	Amv2		
		-1.000 - 1.000V	A-v1		
		-1.00 - 10.00V	A-v2		

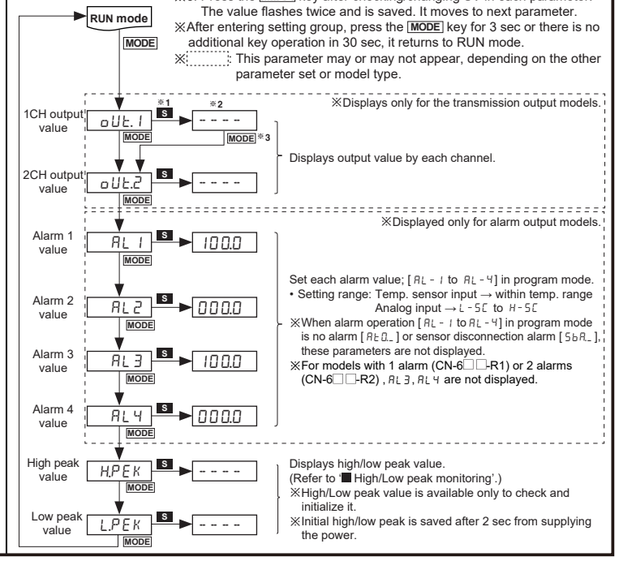
■ **CN-640□-□ (pulse input)**

Input type		Measuring cycle	Display	Input range
Pulse	0 to 9.999Hz	Max. 10 sec	10H	-1999 to 9999 (Display range is variable according to decimal point position.)
	0 to 99.99Hz	Max. 10 sec	100H	
	0 to 999.9Hz	Max. 10 sec	1KH	
	0 to 9.999kHz	Max. 1 sec	10KH	
	0 to 50.00kHz	Max. 0.1 sec	50KH	

※Pulse input: Non-contact 0 to 50kHz, Contact 0 to 45Hz (displays 0 for below 0.1Hz)
※Input Low Level: 0-1VDC / Input High Level : 5-24VDC
※Duty Ratio: 30 to 70%
※The principle of displaying frequency is converting the time difference between input pulses to the frequency. 1 sec is required to measure 1Hz, and 10 sec is required to measure 0.1Hz. Therefore, it is normal that the lower pulse, the slower response speed. In case of 0Hz, if there are no pulses for over 2 sec, it is programmed to display 0Hz to prevent slow response speed.

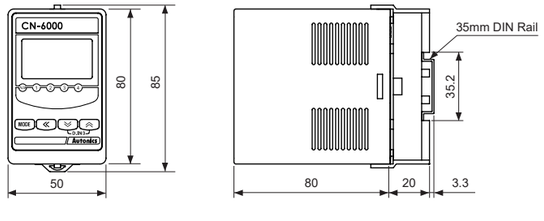
▣ Monitoring Mode

※1: S: Press any key among the ≪, ∧, ≫.
※2: ≪: Moves digits / ≫, ∧: Changes SV.
※3: Press the MODE 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 MODE 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 set or model type.

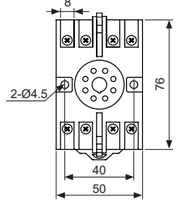


▣ Dimensions

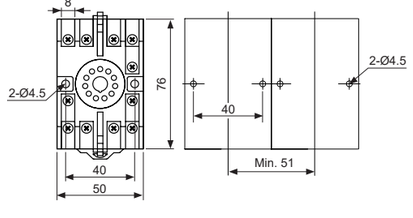
(unit: mm)



● **8-pin socket**

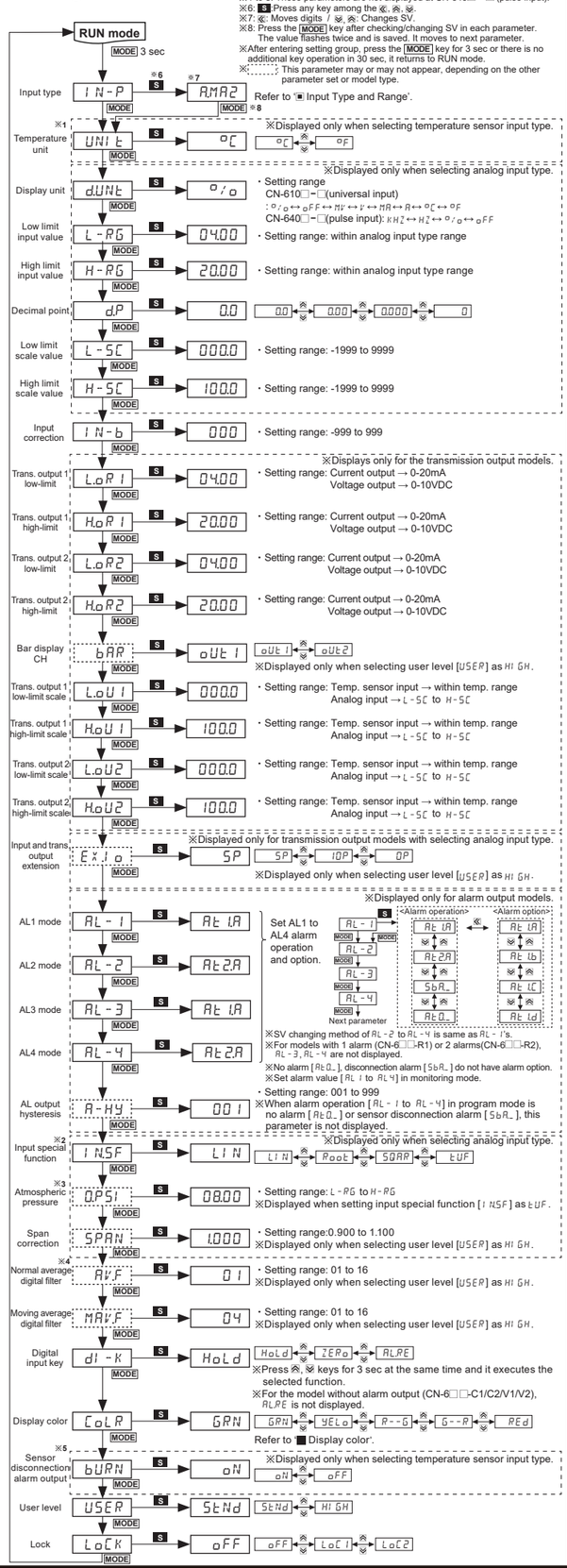


● **11-pin socket**



■ Program Mode

※These parameters are based on CN-610□-□ (universal input).
For parameter factory default of CN-640□-□, refer to the '■ Factory defaults'.
※1 to 5: These parameters are not displayed at CN-640□-□ (pulse input).
※6: S: Press any key among the ≪, ≫, ≫.
※7: ≪: Moves digits / ≫, ≫: Changes SV.
※8: Press the MODE 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 MODE 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 set or model type.



■ Functions

■ Alarm [AL-1, AL-2, AL-3, AL-4]

AL 1A
Alarm option
Alarm operation

This product has 1, 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 (setting as ALRE for dI-K) or turn the power OFF and ON.
※For the model without alarm output (CN-6□□-C1/C2/V1/V2), these parameters are not displayed.

◎ Alarm operation

Mode	Name	Alarm operation	Descriptions
AL0_	—	—	No alarm operation
AL□1	High limit alarm	OFF, H, ON, PV; High limt alarm value: 800℃	PV ≥ alarm temperature, alarm is ON
AL□2	Low limit alarm	ON, H, OFF, PV; Low limt alarm value:200℃	PV ≤ alarm temperature, alarm is ON
5bA_ ※1	Sensor break alarm	—	It will be ON when it detects sensor disconnection. Sensor break alarm does not have alarm option.

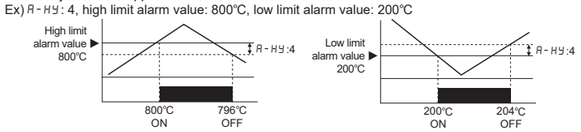
※1: Only for CN-610□-□.　　※H: Alarm output hysteresis

◎ 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.PEK, L.PEK]

This function is to save high/low peak to check the invisible abnormal condition of system at [H.PEK] or [L.PEK] 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.PEK] or [L.PEK]. In this case, peak value is the present input value.

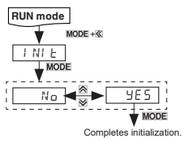
■ Error

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 ※1	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.
ERR2 ※1	Flashes when [INP] setting and input type selection switch setting are not same.	Check input type.

※1: Only for CN-610□-□.

■ Parameter initialization

To initialize all parameter as factory default, supply the power to the product with pressing the MODE and ≪ keys at the same time and it enters initialization parameter.
※Parameter initialization is available only when lock [LOCK] is set as oFF.



■ 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, this parameter [UNIT] is not displayed.

■ Front display unit [Program mode : dUNT]

When selecting analog input, select the unit (%, mV, V, mA, A, ℃, ℉)of display value. (CN-610□-□)
When selecting pulse input, select the unit (kHz, Hz, %)of display value. (CN-640□-□)
When not displaying unit, set oFF and it turns OFF all indicators.

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

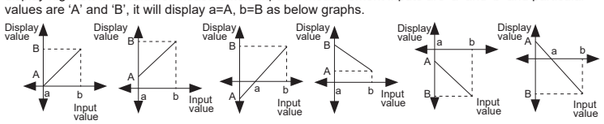
When selecting analog input, you can set the input range for your purpose.
Set low limit input value [L-RG] and high limit input value [H-RG] to limit the input range.
• Setting range: Low limit input value [L-RG] +20% F.S. < High limit input value [H-RG]

■ Decimal point [Program mode: dP]

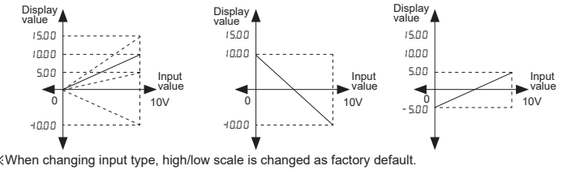
It is able to change decimal point position for high/low limit scale value. It changes decimal point position of display value.

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

For analog input, this function is to set (-1999 to 1999) 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)



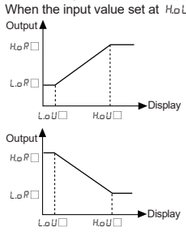
※When changing input type, high/low scale is changed as factory default.

■ Input correction [Program mode: INPb]

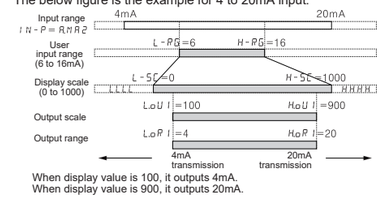
This function is to correct the error occurring from a thermocouple, a RTD or analog input out of allowable error range of this unit.
This is also available to correct error when a sensor cannot contact the subject position by calculating the error temperature.
Variable temperature sensors have accuracy 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.
Ex) When measured temperature is 4℃ and actual temperature is 0℃. Set InPb as -4, and and display value is 0℃.

■ Transmission output range [Program mode: LoR□, HoR□]
Transmission output scale [Program mode: LoU□, HoU□]

This function is to set output scale and range for display value for transmission output.
When the input value set at LoU1/LoU2 is displayed, the output value set at LoR1/LoR2 is transmitted.
When the input value set at HoU1/HoU2 is displayed, the output value set at HoR1/HoR2 is transnitted.



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



When display value is 100, it outputs 4mA.
When display value is 900, it outputs 20mA.

■ Bar display channel [Program mode: bAR, User level: HI GH]

This function is to select OUT1 or OUT2 for Bar display of transmission output scale.
※Only for the model which has two transmission outputs (CN-6□□-C2/V2), this parameter is displayed.

■ Input and transmission output extension [Program mode : EXTo]

This function is to extend analog input and 4 to 20 mA, 0-10VDC transmission output to 5% or 10% range.
The below table is the case of 4 to 20 mA transmission output range setting.

Mode	Operation
OP	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 not displayed for not transmission output (4-20mA, 0-10VDC) model, or for selecting temperature sensor input.
※Below 0 mA, 0VDC cannot extend.
※±1VDC, 10VDC input are available to extend only 5%.

■ Input special function [Program mode: INSF]

When selecting analog input, this function is to display the calculated actual value by square, root (√), or two unit function [bUF] 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.
bUF	Refer to ■ Atmospheric pressure (0) setting for Two Unit Function '		

※Display value and mA output value for SQAR :

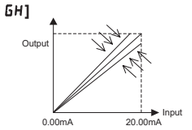
$$\text{Display value (output value)} = \{\left(\frac{\text{Input value} - L\text{-}RG}{H\text{-}RG - L\text{-}RG}\right)^2 \times (H\text{-}SC - L\text{-}SC)\} + L\text{-}SC$$

※Display value and mA output value for Root :

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

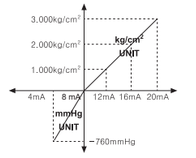
■ Span correction[Program mode: SPAN, User level: HI GH]

It corrects the error of display value for 100% input.
• Setting range: 0.900 to 1.100



■ Atmospheric pressure (0) setting for Two Unit Function [Program mode: OPSI , INSF : bUF]

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/cm². Atmospheric pressure is 0kg/cm² . When this unit does not display 0kg/cm² , 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/cm², and pressure transmitter outputs 4-20mA and it outputs 8.00mA for atmospheric pressure (0), set input special function as bUF, H-SC: 3000, dP: 0.000, OPSI : 0800. This unit displays for 4mA input as -760, for 8mA input as 0.000 and 20mA input as 3000.



※This function is only for CN-610□-□.

■ Digital filter [Program mode: AVF / MAVF, User level: HI GH]

Digital filter is able to stably display and output the noise from input line and irregular signals.
Normal average filter AVF displays the averaged N times of input values periodically. Moving average filter MAVF displays the moving averaged N times of input values in real time.
• Filter Setting range: 01 to 16
※When setting as 01, digital filter function does not run.

■ Digital input [Program mode: dI-K]

By front digital input keys (D.IN3: ≫+≪ for 3 sec), one of three functions executes as the below table.

Function		Operaiton
ALRE	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 (CN-6□□-C1/C2/V1/V2), 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 adjust-ment	Set preset display value as 0. This function is related with input correction [INPb]. When executing zero adjustment function in display value as 4, input correction value INPb is set -4 automatically.

■ Display color [Program mode: CLoR]

◎ EVENT: When operating alarm and displaying HHHH, LLLL, bURN, ERR

Parameter	Display color	
SV	RUN	EVENT
RED	Red	Red
GRN	Green	Green
YELo	Yellow	Yellow
R--G	Red	Green
G--R	Green	Red

This function is to change display color for occurring error, operating alarm automatically.
User can check the status of this unit directly.
※Color of monitoring mode, program mode is red.

■ Alarm output for disconnecting input sensor [Program mode: bURN]

When disconnecting input sensor, you can set the status of transmission output.
It flashes bURN and it outputs the set value of HHHH or LLLL.
For transmission output, it outputs the set max./min. value of I/O expansion function.

Parameter	SV	Transmission output (4-20mA)	Alarm output	
bURN	oN	20mA	High limit alarm ON	Low limit alarm OFF
	oFF	4mA	High limit alarm OFF	Low limit alarm ON

■ Lock [Program mode: LoCK]

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/set
※In LoC2, only LoCK parameter displays in program mode.

■ Cautions during Use

1. Follow instructhions in 'Cautions during Use'.
   Otherwise, it may cause unexpected accidents.
2. 24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
3. Keep away from high voltage lines or power lines to prevent inductive noise.
   Do not use near the equipment which generates strong magnetic force or high frequency noise.
4. Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
5. This unit may be used in the following environments.
   ①Indoors (in the environment condition rated in 'Specifications')
   ②Altitude max. 2,000m
   ③Pollution degree 2
   ④ installation Category II

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