

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

- ※ ease observe a safe y co s de a o s fo safe a d p ope p oduc ope a o o avo d aza ds.
- ※ symbol e p ese scau o due o spec a c cum s a ces w c aza ds may occur.

Warning a ue o fo ow ese s uc o s may esu se ous u yo dea .
Caution a ue o fo ow ese s uc o s may esu pe so a u yo p oduc damage.

Warning

- 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.
- 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.
- Install on a device panel to use.** Failure to follow this instruction may result in fire or electric shock.
- Do not connect, repair, or inspect the unit while connected to a power source.** Failure to follow this instruction may result in electric shock.
- Do not disassemble or modify the unit.** Failure to follow this instruction may result in fire or electric shock.
- Check 'Connections' before wiring.** Failure to follow this instruction may result in fire.

Caution

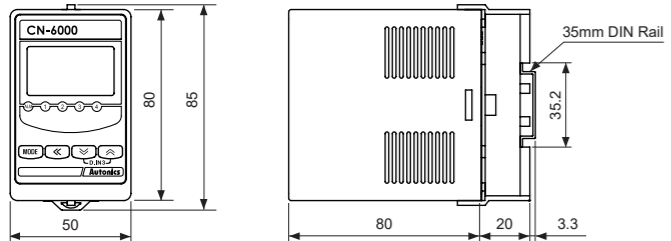
- Use the unit within the rated specifications.** Failure to follow this instruction may result in fire or product damage.
- Use a dry cloth to clean the unit, and do not use water or organic solvent.** Failure to follow this instruction may result in fire or electric shock.
- Keep the product away from 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).

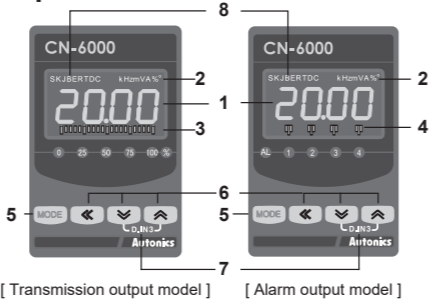
■ Ordering Information

Model	CN-6000
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
Alarm	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)
term	CN-6 Isolated Converter

■ Dimensions



■ Unit Description

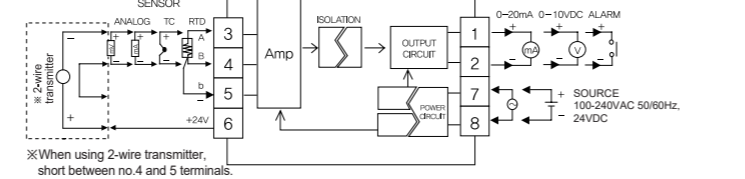


- Display part (selectable red, green, yellow)
 - Run mode: Displays current measured value.
 - Set mode: Displays parameters.
- Unit display part (red)
- Output scale bar: For transmission output mode, displays output as % by scale bars.
- Alarm output indicator: Turns ON when the alarm output is on.
- MODE key
 - : Used to enter parameter set mode, move to parameters, save SV and return to RUN mode.
- Key: Used to change parameter SV.
- D.IN3
 - : Press the \boxtimes and \boxdot keys for 3 sec at the same time, it operates the set function (alarm clear, display hold, zero-point adjustment) at [d] - [K].
- Input type (only for CN-610□□)
 - : Turns ON the selected temperature sensor type at [I] - [P] parameter. (In case of thermocouple type, L, N, U, P types are not displayed. In case of RTD type, RTD is displayed.)

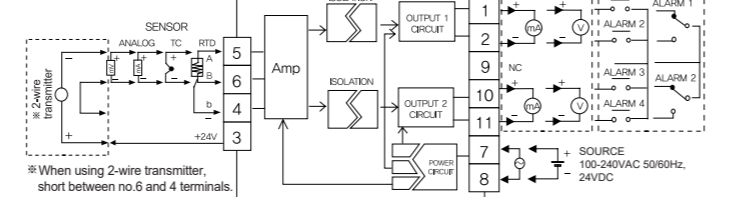
■ Connections

■ CN-610□□

• 8-pin

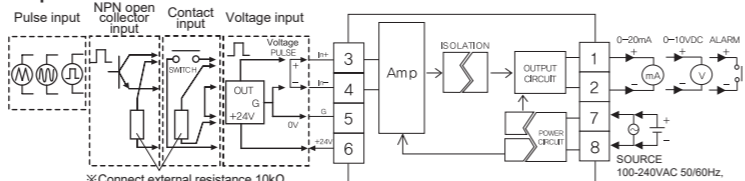


• 11-pin

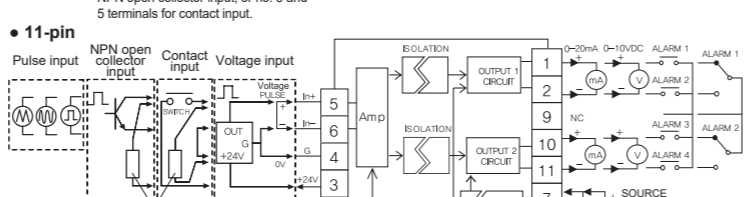


■ CN-640□□

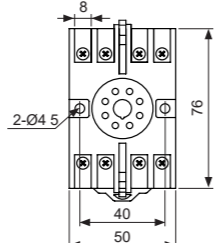
• 8-pin



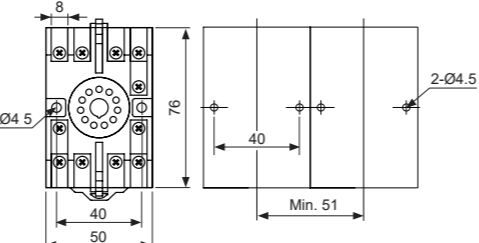
• 11-pin



• 8-pin socket



• 11-pin socket



■ 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: 6.4x11.0mm (12-segment), Input type/unit display part: 1.4x2.75mm (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°C), ±0.3%F.S. ±1-digit (-10 to 20°C, 30 to 50°C) ※CN-610□□: For TC, the input below -100°C is ±0.4%F.S. ±1-digit (TC-T, TC-U is max. ±2.0°C)	
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°C, storage: -20 to 60°C Ambient humidity 35 to 85%RH, storage: 35 to 85%RH	
Approval	CE	
Weight	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	1000	AL3	1000	HPEK	----
oUt2	----	AL2	0000	AL4	0000	LPEK	----

Program mode

Parameter	Default	Parameter	Default	Parameter	Default	Parameter	Default	
I N - P	RMR2	L o R 1	0400*1	0000*2	E x j o	5P	SPRN	1000
UNI t	°C	H o R 1	2000*1	1000*2	AL - 1	AL t RA	AV F	01
dUNI t	o o	L o R 2	0400*1	0000*2	AL - 2	AL t RA	MAR F	04
L - R G	0400	H o R 2	2000*1	1000*2	AL - 3	AL t RA	d i - K	HoL d
H - R G	2000	b AR	oUt 1		AL - 4	AL t RA	C o L R	GRN
dP	00	L o U 1	0000		R - HY	001	bURN	oN
L - S C	0000	H o U 1	1000		I NS F	L I N	USER	StNd
H - S C	1000	L o U 2	0000		QPS1	0800	L o C K	oFF
I N - b	000	H o U 2	1000					

※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

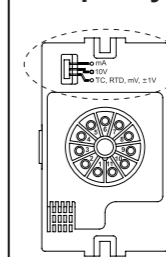
Parameter	Default	Parameter	Default	Parameter	Default	Parameter	Default
oUt1	----	AL1	0000	AL3	1000	HPEK	----
oUt2	----	AL2	0000	AL4	1000	LPEK	----

Program mode

Parameter	Default	Parameter	Default	Parameter	Default	Parameter	Default	
I N - P	50KH	L o R 1	0400*1	0000*2	H o U 2	5000	MAR F	04
dUNI t	KHZ	H o R 1	2000*1	1000*2	E x j o	5P	d i - K	HoL d
L - R G	0000	L o R 2	0400*1	0000*2	AL - 1	AL t RA	C o L R	GRN
H - R G	5000	H o R 2	2000*1	1000*2	AL - 2	AL t RA	USER	StNd
dP	000	b AR	oUt 1		AL - 3	AL t RA	L o C K	oFF
L - S C	0000	L o U 1	0000		AL - 4	AL t RA		
H - S C	5000	H o U 1	5000		R - HY	001		
I N - b	000	L o U 2	0000		SPRN	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] - [P].
- The selection of the input type selection switch and hat of [I] - [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 (°C)	Input range (°F)
Thermo-couple	K(CA)	E C K 1	-200 to 1350 -328 to 2462
	J(IC)	E C J 2	-199.9 to 999.9 -328 to 1832
	E(CR)	E C E	-199.9 to 800.0 -328 to 1472
	T(CC)	E C E	-199.9 to 400.0 -199.9 to 752.0
	B(PR)	E C b	400 to 1800 752 to 3272
	R(PR)	E C R	0 to 1750 32 to 3182
	S(PR)	E C S	0 to 1750 32 to 3182
	N(NN)	E C N	-200 to 1300 -328 to 2372
	C(W5)	E C C	0 to 2300 32 to 4172
	L(IC)	E C L	-199.9 to 900.0 -328 to 1652
	U(CC)	E C U	-199.9 to 400.0 -199.9 to 752.0
RTD	Platinel II	E C P	0 to 1390 32 to 2534
	Cu50Ω	E C U 50	-199.9 to 200.0 -199.9 to 392.0
	Cu100Ω	E C U 10	-199.9 to 200.0 -199.9 to 392.0
	JPt100Ω	J P t . 1	-199.9 to 600.0 -328 to 1112
	DPt50Ω	d P t . 5	-199.9 to 600.0 -328 to 1112
Analog	Current	0.00 - 20.00mA 4.00 - 20.00mA -50.0 - 50.0mV -199.9 - 200.0mV	RMR1 RMR2 RMV1 RMV2 -1999 to 9999 (Display range is variable according to decimal point position.)
	Voltage	-1.000 - 1.000V -1.00 - 10.00V	RV1 RV2

■ CN-640□□ (pulse input)

Input type	Measuring cycle	Display	Input range
Pulse	0 to 9.999Hz	Max. 10 sec	10H
	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

