Autonics LCD Display Counter/Timer CX SERIES

INSTRUCTION MANUAL





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

Safety Considerations

XPlease 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 fire, personal injury, or economic loss.
- Install on a device panel to use.
 Failure to follow this instruction may result in file, personal figury, or economic loss.
 Install on a device panel to use.
 Failure to follow this instruction may result in electric shock or fire.
 Do not connect, repair, or inspect the unit while connected to a power source.
 Failure to follow this instruction may result in electric shock or fire.

 4. Check 'Connections' before wiring.
- Failure to follow this instruction may result in fire.
- 5. Do not disassemble or modify the unit.
 Failure to follow this instruction may result in electric shock or fire

△ Caution

- 1. When connecting the power input and relay output, use AWG 20 (0.50mm²) cable or over, and tighten the terminal screw with a tightening torque of 0.74 to 0.90N·m.

 Failure to follow this instruction may result in fire or malfunction due to contact failure.

 2. Use the unit within the rated specifications.

 Failure to follow this instruction may result in fire or product damage.
- 3. Use the unit within the rated specifications.
- Failure to follow this instruction may result in shortening the life cycle of the unit, or fire. A. Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.
 Failure to follow this instruction may result in fire or explosion.

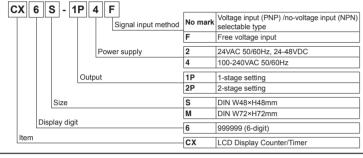
 Keep metal chip, dust, and wire residue from flowing into the unit.

 | College of the property of the fire or explosion.
- Failure to follow this instruction may result in fire or product damage

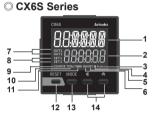
Manual

For the detail information and instructions, please refer to user manual and be sure to follow cautions Visit our homepage (www.autonics.com) to download manuals

Ordering Information



Unit Description



CX6M Series

1. Counting value display component (red)
RUN mode
Displays counting value for counter operation or time progress value for timer operation. Function setting mode: Displays parameter.

- RUN mode: Displays parameter.

 RUN mode: Displays setting value.

 Function setting mode: Displays parameter setting value.

 3. Time unit indicator (h:m:s): Turns ON for time unit for timer.

 4. Key lock indicator (n:m:s): Turns ON for key lock setting.

 5. Reset input indicator (RST): Turns ON for reset key input or reset signal input.

- 6. INH indicator (INH)

 : For the voltage input (PNP)/no-voltage input (NPN) selectable model (CX6□□), it turns ON for iNHIBIT signal input.

 (In case of CX6S Series and timer mode, it turns ON for INB/INH signal input.)

 For free voltage input model (CX6□□□), it turns ON for INB/INH signal input for timer.

 7. Output indicator (OUT1, OUT2): Turns ON for the dedicated control output ON.

 8. SV checking and changing indicator (SET, SET1, SET2) (green)

 : Turns ON when checking and changing SV.

 9. COUNTER indicator (COUNTER): Turns ON for counter operation.

 10. TOTAL indicator^{×1}(TOTAL)

 : In case of TOTAL counter display mode, it turns ON with the COLINTER indicator
- splay mode, it turns ON with the COUNTER indic
- 11. TIMER indicator (TIMER) Flashes (progressing time) or Turns ON (stopping time) for timer operation.
- 12. RESET key
 RUN mode, Function setting mode
 : Press the RESET key to reset the counting value and turn OFF the output.
 TOTAL counter display mode^{x1}: Press the RESET key to reset the counting value of TOTAL counter.
- 13. MODE key
 RUN mode: Hold the MoDE key over 3 sec to enter function setting mode.
 Press the MoDE key to select SV2 (SET2)/SV1 (SET1)/TOTAL counter^{№1} display for counter operation.
 Function setting mode: Hold the MoDE key over 3 sec to return RUN mode.
 Press the MoDE key to save the SV and enter the next setting.
 Function setting check mode: Hold the MODE key over 1 sec to return RUN mode.
 Changing SV mode: Press the MODE key to save SV and return RUN mode.

 14. ②, ➢ key
 1) ③ key
 RUN mode: Press the ③ key to change SV and move SV (SET, SET1, SET2) digits.
 Changing SV mode: Press the ⑥ key to change digits.
 2) 邎 key

- 2) A key Changing SV mode: Increases SV.
- Function setting mode: Changes the settings.

 **1: This is for the voltage input (PNP)/no-voltage input (NPN) selectable model (CX6———).

Memory retention

Shock

Approva

S AC/DC

voltage

Mechanical

Relay life Mechanical Min. 5,000,000 operations

Malfunction Min. 100,000 operations

Model				CX6S-1P	CX6S-2P	CX6M-1P	CX6M-2P		
Display digits					6-digit				
Display method					7-segment (1st, 2nd digits of counting value display: white, setting value display: green) LCD method, 11-segment (the other digits of counting value display: white) LCD method Operation display part: yellow LCD method				
Character Counting value			ount	ing value	4.1×10.1mm		6.2×15.2mm		
size (W×H) S		Setting value		3.3×8.1mm 5×12.3mm					
		C voltage		100-240VAC~ 50/60Hz					
			C/D	C voltage	24VAC~ 50/60Hz, 24-48VDC==				
Pe	rmiss	sible	volta	age range	90 to 110% of rat	ed voltage			
	AC voltag			(6	Max. 6.4VA	Max. 6.7VA	Max. 7.1VA	Max. 7.5VA	
<u>ب</u>			CX	(6□-□ □F		Max. 4.9VA	Max. 4.7VA	Max. 5.4VA	
	voltage AC/DC voltage		\perp	(6□-□ □	AC: max. 5.5VA DC: max. 3.5W	AC: max. 5.6VA DC: max. 3.6W	AC: max. 6.2VA DC: max. 4W	AC: max. 6.3V/ DC: max. 4.1W	
	-		CX	(6□-□ □F	AC: max. 3.6VA DC: max. 2.5W	AC: max. 4.0VA DC: max. 2.8W	AC: max. 3.9VA DC: max. 2.9W	AC: max. 4.5V/ DC: max. 3.3W	
	Max. INA/INB counting		B CX	(6 -	Selectable amon	g 1cps/30cps/300	cps/1kcps/5kcps		
e	speed		CX	(6□-□ □F	20cps				
Counter	Cour	nting	rang	ge	-99999 to 999999				
S	Scal	е			Decimal point up to fifth digit				
_	Min. signal CX6□-□		(6□-□ □	RESET, TOTAL RESET signal: selectable among 1ms/20ms					
	width CX6F								
	Time range				999.999s, 9999.99s, 99999.9s, 999999s, 99m59.99s, 999m59.9s, 9999m59s, 99999.9m, 999999m, 99h59m59s, 9999h59m, 99999.9				
		ratior			Up, Down				
5				(6□-□ □	INA, INHIBIT, RESET, TOTAL RESET signal: selectable among 1ms/20n				
.=	width		_	(6□-□ □F	INA, INH, RESET signal: 25ms				
\vdash		eat e	rror		[CX6□ - □ □]-In case of power ON start: max. ±0.01% ±0.05s				
	Set 6				In case of signal ON start: max. ±0.01% ±0.03s				
		ige e			[CX6□ - □ □F]-In case of power ON start: max. ±0.01% ±0.08s				
	Tem	p. err	or		In case of signal ON start: max. ±0.01% ±0.06s				
	CX6□-□□			(60-00	Selectable among voltage input (PNP)/no-voltage input (NPN) [Voltage input (PNP)]-input impedance: 10.8kΩ, [H]: 5-30VDC=, [L]: 0-2VDC [No-voltage input (NPN)]-short-circuit impedance: max. 1kΩ, short-circuit residual voltage: max. 2VDC				
method		CX6□-□ □F		[Free voltage input]-INA (START), INB (INHIBIT) input					
On	One-shot outpu			time	0.01 to 99.99s setting				
		Con	tact	Туре	SPDT (1c): 1	SPST (1a): 2	SPDT (1c): 1	SPDT (1c): 2	
Co	ntrol			Capacity	Max. 250VAC \sim 3	3A, 30VDC== 3A		T	
	put Sol			Туре	_		NPN open collector: 1	NPN open collector: 2	
		state		Capacity			Max. 30VDC= 1	00mA	
Ex	terna	l pov	vers	supply ^{*1}	Max. 12VDC== ±10%, 100mA				
Memory retention					Approx. 10 years (non-volatile memory)				

Approx. 10 years (non-volatile memory)

Square-wave noise by noise simulator (pulse width 1μs) ±2kV

0.75mm amplitude at frequency 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour

0.5mm amplitude at frequency 10 to 55Hz (for 1 min) in each X, Y, Z

Over 100MΩ (at 500VDC megger)

immunity AC/DC voltage Square-wave noise by noise simulator (pulse width 1µs) ±500V

Mechanical 300m/s² (approx. 30G) in each X, Y, Z direction for 3 times

Approx. 157g | Approx. 162g | Approx. 235g | (approx. 112g) | (approx. 117g) | (approx. 170g)

 Approx. 156g (approx. 111g)
 Approx. 161g (approx. 116g)
 Approx. 234g (approx. 169g)

Malfunction 100m/s² (approx. 10G) in each X, Y, Z direction for 3 times

3,000VAC 50/60Hz for 1 min

direction for 10 minutes

Ambient temp. -10 to 55°C, storage: -25 to 65°C
Ambient humi. 35 to 85%RH, storage: 35 to 85%RH

Front part: IP50 (IEC standard)

CX6———F Approx. 155g (approx. 110g) Approx. 160g (approx. 110g) (approx. 115g) (approx. 168g)

CX6———F Approx. 1549 (approx. 109g) Approx. 1599 (approx. 167g) (approx. 114g) (approx. 167g)

*The above specifications are subject to change and some models may be discontinued

*Be sure to follow cautions written in the instruction manual, user manual and the technical

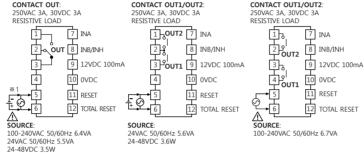
Dimensions O Panel cut-out **#8000000** 45^{+0.6} □72 OUT2 OUT2 SET1 SET2 68^{+0.7}

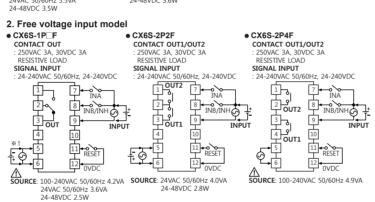
RESET MODE « Bracket CX6M Series 48.6³ 45+0.2 15 21 23.9

○ Terminal cover (sold separately) CX6M Series CX6S Series (RSA-COVER, 48×48mm) (RMA-COVER, 72×72mm)

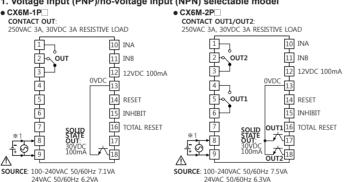
Connections OCX6S Series

1. Voltage input (PNP)/no-voltage input (NPN) selectable model CX6S-1P CX6S-2P2 CX6S-2P4 CONTACT OUT1/OUT2 CONTACT OUT





○ CX6M Series 1. Voltage input (PNP)/no-voltage input (NPN) selectable model



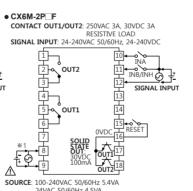
SOURCE: 100-240VAC 50/60Hz 7.1VA 24-48VDC 4W 2. Free voltage input model CONTACT OUT: 250VAC 3A, 30VDC 3A SIGNAL INPUT: 24-240VAC 50/60Hz, 24-240VDC

*1

SOURCE: 100-240VAC 50/60Hz 4 7VA

24-48VDC 2.9W

24VAC 50/60Hz 3.9VA



AC/DC voltage: 24VAC 50/60Hz, 24-48VDC Operations 1. Operation and setting (counter/timer) MODE SET 1 value MODE SET 2 value TOTAL RESET Reset TOTAL counter 12:30:25 **◆ Display PV** MODE MODE 12:34:56 Display PV
5:43:50 Display SET 1 1-1. Function setting mode

Hold the MODE key over 3 sec to enter function setting mode in RUN mode

Set the function by the MODE, ⋈ keys. Hold the MODE key over 3 sec to return RUN mode in function setting mode.

Hold the key over 1 sec to enter function setting check mode in RUN mode. When checking the saved parameters, press the MODE, A key to check next item..

Hold the MODE key over 1 sec at function setting check mode and it returns to RUN mode.

1-3, RESET

MODE 3 sec MODE 3 se Counter/ ner [[- L] [MODE] Up/Down mode [U - d] | FLE2, I nt. | nt. 1, nt. 1, nt. 1, nt. 2, oFd, I nt. 6, oFd, I Input mode [I NM] Output mode [oUEM] Output mode [aULM] MODE (In case of FLE, Max. counting speed*1 [CP5] time range [bNRNG] [ERNG] OUT 2 output time [o U L 2] MODE Output OFF OUT 1 output time [oUL 1] time range [offRNG] (2-stage nt [4P] OUT 2 output time [aUE2] MODE OUT output time MODE Min. reset time*1 [rE5Eb] OUT 1 output time [oUE 1] [oUE.E] Input logic*1 Input logic*1 [51 [6] MODE MODE Memory protection*2 [dRER] Prescale decimal point Input signal time*1 [I N - L] MODE] Key lock [Lo[K] ← Prescale value [5 [L] 1: In case of free voltage input model MODE (CX6□-□□F), these parameters do not appear due to fixed setting. TOTAL counter*2 [LoERL] ×2:This parameter is for the voltage input (PNP)/no-voltage input (NPN) selectable model (CX6□-□□). Start point value [5ERRE]

: When changing the setting of shaded

When returning RUN mode, PV is reset

parameters, all output turn OFF.

MODE] Memory protection [dRER]

Counter Mode 1. Parameter setting (MODE key: Moves parameters,

key: Changes parameter setting value Parameter Parameter setting value Counter/Timer CoUnt ← ► EI ñE ፠ℂ₀⊍⋴Ł: Counter ヒノ ñΕ: Timer

Input mode [I NM]	UP→ UP-1→ UP-2→ UP-3→ dn→ dn-1 Ud-[*1← Ud-b*1← Ud-8← dn-3← dn-2				
Output mode [o UE.M]					
Max. counting speed ^{*2} [CP5]	 				
OUT 2 output time ^{*3} [oUt 2]	Set one-shot output time of OUT 2. Setting range: 00.01 to 99.99 sec When output mode is F, n, 5, E, d, this parameter does not appear. (fixed as HOLD)				
OUT 1 output time*3 [oUt 1]	Set one-shot output time of OUT 1. Setting range: 00.01 to 99.99 sec, Hold When number of tens digit is flashing, press the key once and HoLd appears. When output mode is 5, ₺, d, this parameter does not appear. (fixed as HOLD)				
OUT output time ^{*3} [aUE.E]					
Decimal point ^{**4} [dP]	*Decimal point is applied to PV and SV.				
Min. reset time ^{*2} [r E 5 E b]	me ^{≈2} / ← ► ∂ ∅ , unit: ms				
Input logic ^{*2} [51 [3]	กคล: No-voltage input, คลค: Voltage input				
Prescale decimal point ^{**4} [5 [L.d P]	Decimal point of prescale should not set smaller than decimal point [dP].				

L0C.3 ←L0C.2 LoC.2: Locks (€), (♠) keys, key lock indicator turns ON L o C.∃: Locks reset, (€), (♠) keys, key lock indicator turns ON

X[Lr: Resets the counting value when power OFF. rEC: Maintains the counting value when power OFF

%L.aFF: Unlock keys, key lock indicator turns OFF

L o [. I: Locks RESET key, key lock indicator turns ON

Setting range of start point value is linked with decimal point [dP] setting.

(memory protection)

When input mode is dn, dn- 1, dn- 2, this parameter does not appear When total count function is ON, this parameter does not appear. *1

The aut 2 output time is displayed as aut. *4: Decimal point and prescale decimal point -Decimal point: Set the decimal point for display value regardless of prescale value.

Setting range: 0.00001 to 99999.9

(0.00000 to 999999)

oFF → L o [. 1]

value [5[L]

TOTAL counter

Start point

[SERRE]

Memory

[dRtR]

Key lock

[dn]

Set the decimal point for prescale value of counting value regardless of display value.

Input mode	Counting chart	Operation	
Up [UP]	INA H No counting	*When INA is counting input, INB is no counting input. When INB is counting input, INA is no counting input.	
Up-1 [JP- 1]	INA H No counting 4 5		

When INA input signal is falling (), it counts. Up-2 [UP - 2] XINA: Counting input (INB: No counting input is rising (_F), it counts. ×INB: Counting input

666 66 6

No counting

*INA: Counting input

Counting Min. signal

300cps 1.67ms

width 500ms

16.7ms

24-48VDC 4.1W

24-48VDC 3.3W

[Ud-b] X1: This is for the voltage input (PNP)/no-voltage input (NPN) selectable model (CX6□-□). XA: over min. signal width, B: over than 1/2 of min. signal width.

1-2. Function setting check mode

In RUN mode, function setting mode, press the RESET key to reset the current value and the output At TOTAL counter display $\mathsf{mode}^{\otimes 1}$, press the RESET key to reset TOTAL counter counting value and

TOTAL counter display mode is only for counter operation.

RUN mode

occurs, prescale value is L/P E.g.) Positioning control by counter and encoder Motor conlrol system encoder=1,000]

ON OFF ON OFF

T.on T.off

Input Voltage No-voltage

5-30VDC Short

If the signal is smaller than these width, it may cause counting error (±1)

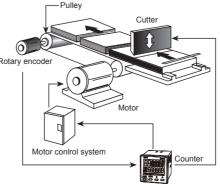
T.on, T.off: Min. signal width

This function is to set and display calculated unit for actual length, liquid, position, etc. It is called

"prescale value" for measured length, liquid, or position, etc per 1 pulse. For example, when moving L the desired length to be measured, and P, the number of pulses per 1 revolution of a rotary encode

CX6□-□ □

speed



[Diameter (D) of pulley connected with encoder=22mm, the number of pulses by 1 rotation of

*Prescale value

= $\frac{\pi \times \text{Diameter (D) of pulley}}{\pi \times \text{Diameter (D) of pulley}}$ = $\frac{3.1416 \times 22}{\pi \times 1000}$ = 0.069mm/pulse The number of pulses by 1 1000

Set decimal point [dP] as [-----], prescale decimal point [5[LdP] as [-----], and prescale value [5 [L] as [0.069] at function setting mode. It is available to control conveyor position by 0.1mm unit.

■ Timer Mode

1. Parameter setting (MODE key: Moves parameters, ⋈ key: Changes parameter setting value) Parameter setting value Parameter ※EaUnt: Counter CoUnt ← → tiñE Up/Down mode [ਪ - d] XUP: Time progresses from '0' to the setting time. dn: Time progresses from the setting time to '0'. nd → ond.1 → ond.2 → ond.3 → FLY → FLY.1 → FLY.2 → 1 nt — Output mode [oUE.M] ont.d ← totAl *1 ← I nt G ← nFd. I ← nFd ← oFd ← I nt.2 *2 ← I Time range
[E.RNG]*3 999.999 → 9999.99 → 99999.99 → 999.59.99 → 99:59.99 → 99:59.99 → 100ER m. output ON TIME range [aNRNG]*4, output OFF TIME range [off.RNG]* XSet one-shot output time of OUT 2. XSetting range: 00.01 to 99.99 sec, Hold OUT 2 output imesWhen number of tens digit is flashing, press the imes key once and imes appears. [oUt2] OUT 1 output XSet one-shot output time of OUT 1. XSetting range: 00.01 to 99.99 sec, Hold [oUt I] \times When number of tens digit is flashing, press the \bigcirc key once and $H \circ L \circ d$ appears. OUT output Setting range: 00.01 to 99.99 sec, Hold Input logic[®] Pn: No-voltage input, PnP: Voltage input [516] Input signal time^{**6}
[I N-E] Memory **ELr: Resets the counting value when power OFF.

rEC: Maintains the counting value when power OFF. (memory protection) protection [dRLR] Key lock LoC.1: Locks less key, key lock indicator turns ON LoC.3 ← LoC.3 ← LoC.8 keys, key lock indicator turns ON

X1: This is for the voltage input (PNP)/no-voltage input (NPN) selectable model (CX6□-□).

L o C.∃: Locks RESET, (﴿, (♠) keys, key lock indicator turns ON

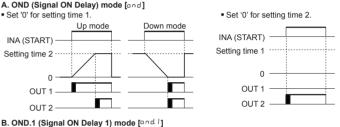
EbERL, onEd, set time range [ERNG].

**4: When output mode is FLE, oFd, oFd, I, set output ON TIME range [oNRNG] and output OFF TIME range [off.RNG].

※5: In case of 1-stage setting model (CX6□-1P□□), oUE I output time does not appear oUE2 output time is displayed as oUEE.

%6: In case of free voltage input model (CX6 \square + \square \square F), this parameter does not appear due to fixed One-shot output (0.01 to 99.99 sec)
One-shot output Retained output setting.

2. Timer '0' time setting 2-1. Timer output mode for '0' time setting [and, and I, and 2, and 3, aFd, aFd, I] 2-2. Operations by output mode ('0' time setting) A. OND (Signal ON Delay) mode [ond]



B. OND.1 (Signal ON Delay 1) mode [ond.1]

When INA is counting input

When INB is counting input

INB is no counting input.

rising (), it counts.

»INB: No counting input

When INA input signal is

falling (), it counts.

×INB: No counting input

is rising (F) . it counts.

INB: Counting command input

INB: Down counting input When INA and INB input signals are rising (🖵) at

When connecting encoder output A, B phase with counter input, INA, INB, se

input mode [NM] as phase

counter operation.

• CX6□-□ □**F**

speed

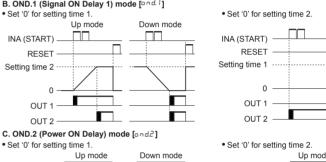
Counting Min. signal

the same time, it ma

※INB: Counting input

counting command is up.

When INB is "H".



• Set '0' for setting time 1. POWER POWER RESET RESET Setting time 2 -Setting time 1 OUT 1 OUT 1 OUT 2 — D. OND.3 (Power ON Delay) mode [ond.3] Set '0' for setting time 1. Up mode Up mode

POWER RESET — RESET Setting time 1 OUT1 OUT2 E. NFD (ON-OFF Delay) mode [NFD] Set '0' for Off_Delay setting time • Set '0' for On_Delay setting time INA (START) INA (START) RESET -

DISPLAY On_Delay DOWN Off_Delay F. NFD.1 (ON-OFF Delay1) mode [nFd.1] Set '0' for Off_Delay setting time. • Set '0' for On_Delay setting time. INA (START) RESET : RESET -UP UP 1/1/1/DISPLAY 0 -DISPLAY On Delay -

DISPLAY

(OUT) (OUT) ■ Factory Default Factory default

	Danamatan	. actory actually		
	Parameter	CX6	CX6□-□□F	
	I N.M	Ud-C	Ud-R	
	o U Ł.M	F	F	
	CP5	30	_	
	oUt2 (oUt.t *1)	HoLd (fixed)	HoLd (fixed)	
	oUt I ^{*1}	00.10	00.10	
	dР			
Counter	rE5Et	20 ms	_	
	S1 G	nPn	_	
	SCL.dP		-,	
	SCL	1.00000	1.00000	
	totAL ^{×2}	oFF	_	
	SEARE	000000	000000	
	d R F R	[Lr	[Lr	
	U-d	UP	UP	
	oUt.M	ond	ond	
	oUt2 (oUt.t *1)	HoLd	HoLd	
Timer	oUt I ^{*1}	00.10	00.10	
	Ł.RNG	999.999s	999.999s	
	51 G *2	nPn	_	
	1 N-F	20 ms	_	
LoEK		L.oFF	L.oFF	
SET1		1000	1000	
SET2	·	5000	5000	

The output time of out 2 is displayed as out. \times 2: This is for the voltage input (PNP)/no-voltage input (NPN) selectable model (CX6 \square - \square).

Error Display and Output Operation

Error Display Error description Troubleshooting Setting value is 0. Change the setting value anything but 0. *When error occurs, the output turns OFF. When 1st setting value is set as 0 (zero), OUT1 maintains OFF.

When 2nd setting value is smaller than 1st setting value, 1st setting value is ignored and only *Indicator model does not have error display function.

Cautions during Use

1. Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents. In case of 24-48VDC, 24VAC model, power supply should be insulated and limited voltage/ current or Class 2, SELV power supply device.

Use the product, 0.1 sec after supplying power.
 When supplying or turning off the power, use a switch or etc. to avoid chattering.

5. Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.

6. Keep away from high voltage lines or power lines to prevent inductive noise

In case installing power line and input signal line closely, use line filter or varistor at power line and shielded wire at input signal line. Do not use near the equipment which generates strong magnetic force or high frequency noise.

7. This unit may be used in the following environments.

①Indoors (in the environment condition rated in 'Specifications') ②Altitude max. 2,000m

4 Installation category II

Major Products

Autonics Corporation ■ HEADQUARTERS:

Korea, 48002 TEL: 82-51-519-3232

raphic/Logic Panels eld Network Devices user Marking System (Fiber, Co₂, Nd: YAG) user Welding/Cutting System