

# Autonics COUNTER/TIMER LA8N/LE8N 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.

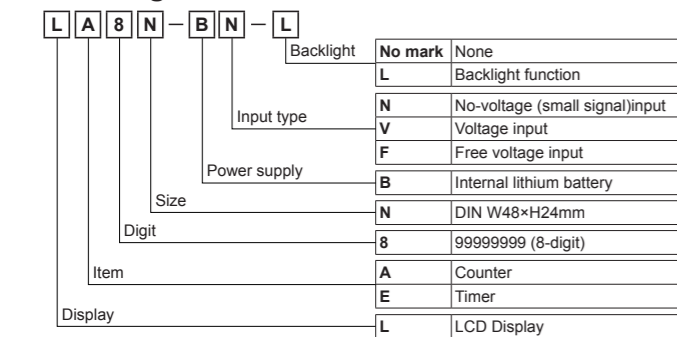
## Warning

- 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 fire.
- Do not connect, repair, or inspect the unit while connected to a power source.** Failure to follow this instruction may result in fire.
- Check 'Connections' before wiring.** Failure to follow this instruction may result in fire.
- Do not disassemble or modify the unit.** Failure to follow this instruction may result in fire.
- Since Lithium battery is embedded in the product, do not disassemble or burn the unit.** Failure to follow this instruction may result in fire.

## Caution

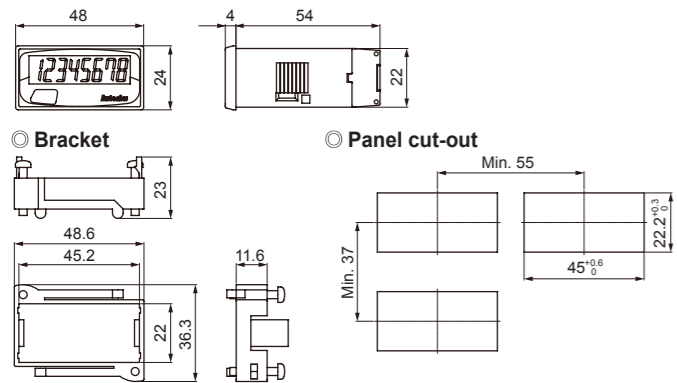
- When connecting the power/sensor input and relay output, use AWG 20 (0.50mm<sup>2</sup>) cable or over, and tighten the terminal screw with a tightening torque of 0.74 to 0.90N-m.** Failure to follow this instruction may result in fire or malfunction due to contact failure.
- Use the unit within the rated specifications.** Failure to follow this instruction may result in fire or product damage.
- Use dry cloth to clean the unit, and do not use water or organic solvent.** Failure to follow this instruction may result in fire.
- 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.** Failure to follow this instruction may result in fire or product damage.

## Ordering Information



## Dimensions

(unit: mm)

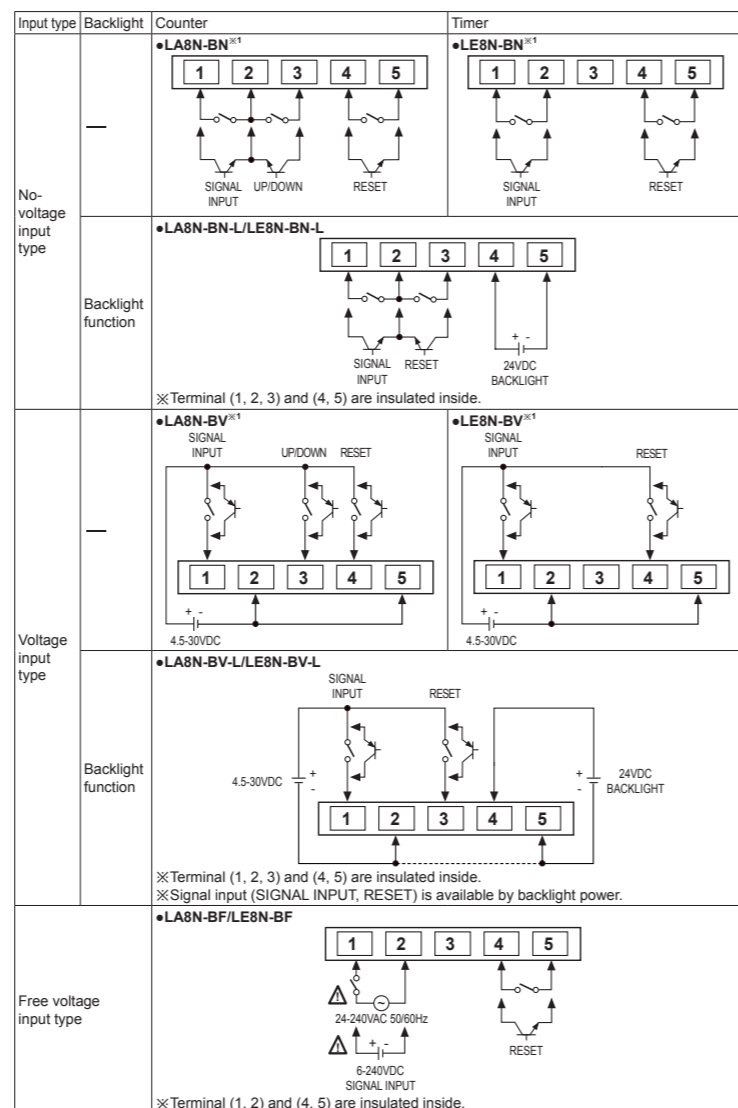


⚠ The above specifications are subject to change and some models may be discontinued without notice.  
⚠ Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

## Specifications

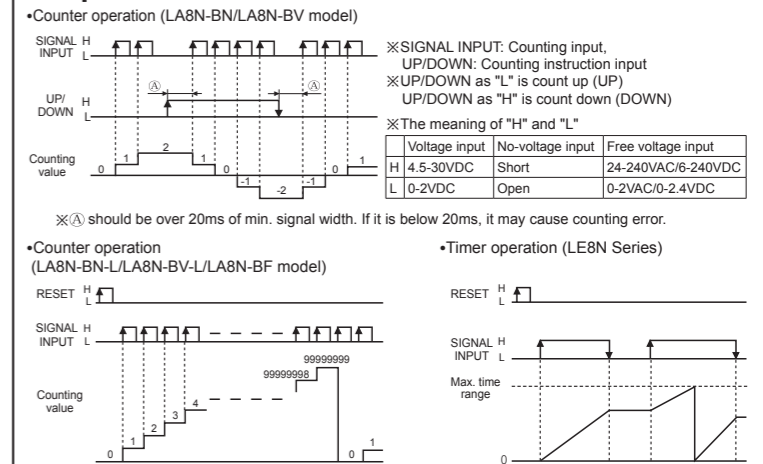
Model	LA8N Series (Counter)				LE8N Series (Timer)					
	LA8N-BN	LA8N-BN-L	LA8N-BV	LA8N-BV-L	LA8N-BF	LE8N-BN	LE8N-BN-L	LE8N-BV	LE8N-BV-L	LE8N-BF
Digit	8-digit (count up, count down, count up/down: 9999999 to 9999999 / count up: 0 to 9999999)					8-digit (0 to 9999999)				
Digit size	W3.4×H8.7mm									
Display method	LCD Zero Blanking type (character height size: 8.7mm)									
Operation method	count up, count down, count up/down	Count up	count up, count down, count up/down	Count up	Count up	Count up	Count up	Count up	Count up	Count up
Power supply	Built-in battery									
Battery life cycle	Approx. over 7 years at 20°C					Approx. over 10 years at 20°C				
Backlight power supply	—		24VDC±10%	—		24VDC±10%	—		24VDC±10%	—
Input method	No-voltage input		Voltage input		Free voltage input	No-voltage input		Voltage input		Free voltage input
Count input (Counter)	Residual voltage: max. 0.5VDC Short-circuit impedance: max. 10kΩ Open-circuit impedance: min. 750kΩ		[H]: 4.5-30VDC [L]: 0.2VDC	[H]: 24-240VAC~/~ 6-240VDC~/~ [L]: 0-2VAC/ 0-2.4VDC		[H]: 24-240VAC~/~ 6-240VDC~/~ [L]: 0-2VAC/ 0-2.4VDC	Residual voltage: max. 0.5VDC Short-circuit impedance: max. 10kΩ Open-circuit impedance: min. 750kΩ		[H]: 4.5-30VDC [L]: 0.2VDC	Free voltage input
Start input (Timer)	No-voltage input		Voltage input		No-voltage input	Voltage input		Voltage input		No-voltage input
RESET input	No-voltage input		Voltage input		No-voltage input	Voltage input		Voltage input		No-voltage input
Min. input signal width	UP/DOWN, RESET input : approx. 20ms		RESET input : approx. 20ms		UP/DOWN, RESET input : approx. 20ms	RESET input : approx. 20ms		RESET input : approx. 20ms		SIGNAL INPUT, RESET input: approx. 20ms
Max. counting speed	1cps / 30cps / 1kcps		—		—	—		—		—
Time specification (TS1)	—		—		99999999 (h.m.s), 99999999 (h.m), 99999999 (h.m)	—		—		—
Time specification (TS2)	—		—		99999999 (d.h.m), 99999999 (d.h), 99999999 (s)	—		—		—
Time specification (TS3)	—		—		99999999 (h.m), 99999999 (h.m), 99999999 (h)	—		—		—
Time error	—		—		±0.01% (Time error, Temperature error)	—		—		—
External set switch	SW1 <sup>※1</sup> , SW2 <sup>※2</sup> , SW3 <sup>※3</sup>		—		SW1 <sup>※1</sup> , SW3 <sup>※3</sup>	—		—		—
Insulation resistance	Over 100MΩ (at 500VDC megger)									
Dielectric strength <sup>※8</sup>	2,000VAC 60Hz for 1 minute									
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour								
Malfunction	Mechanical	0.3mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 minutes								
Shock	Mechanical	300m/s <sup>2</sup> (approx. 30G) in each X, Y, Z direction for 3 times								
Malfunction	Mechanical	100m/s <sup>2</sup> (approx. 10G) in each X, Y, Z direction for 3 times								
Enviro- Ambient temp.	-10 to 55°C, storage: -25 to 65°C									
ment	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH								
Protection structure	IP66 (when using waterproof rubber for front panel, IEC standard)									
Accessory	Mounting bracket, rubber waterproof ring									
Approval	CE, RoHS									
Weight <sup>※7</sup>	Approx. 96g (approx. 50g)									

## Connections

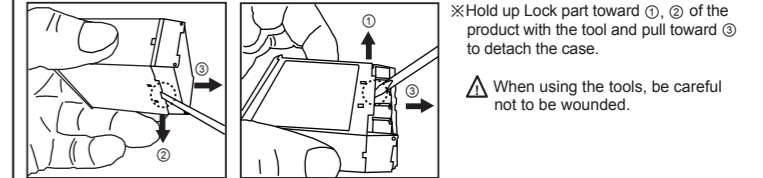


※1: Terminal 2 and 5 are connected inside. (non-isolated)  
※2: Use reliable contacts enough to flow 3VDC 50mA current.

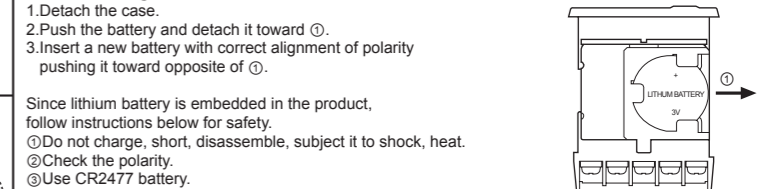
## Operation



## Case Detachment

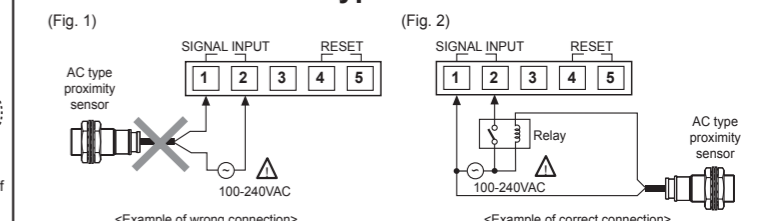


## Battery Replacement



Since lithium battery is embedded in the product, follow instructions below for safety.  
① Do not charge, short, disassemble, subject it to shock, heat.  
② Check the polarity.  
③ Use CR2477 battery.  
④ Do not solder on a battery directly.  
⑤ Insulate a battery with tape to dispose.  
⑥ Do not store this unit in the place with the direct sunlight, high temperature and humidity.

## Connection for AC Type



In case of free voltage input type, connect a relay as figure 2. In case connecting AC proximity sensors instead of a relay as figure 1, it may cause malfunction due to leakage current of the sensor.

## Caution during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- In case of contact input, set count speed to low speed mode (1cps, 20cps, 30cps) to operate. If set to high speed mode (1kcps), counting error occurs due to chattering.
- 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.
- This product may be used in the following environments.
  - ① Indoors (in the environment condition rated in 'Specifications')
  - ② Altitude max. 2,000m
  - ③ Pollution degree 2
  - ④ Installation category II

## Major Products

- Photoelectric Sensors
  - Fiber Optic Sensors
  - Door Sensors
  - Door Side Sensors
  - Area Sensors
  - Proximity Sensors
  - Pressure Sensors
  - Rotary Encoders
  - Connectors/Sockets
  - Switching Mode Power Supplies
  - Control Switches/Lamps/Buzzers
  - I/O Terminal Blocks & Cables
  - Stepper Motors/Drivers/Motion Controllers
  - Graphic/Logic Panels
  - Field Network Devices
  - Laser Marking System(Fiber, CO<sub>2</sub>, Nd: YAG)
  - Laser Welding/Cutting System
  - Temperature Controllers
  - Temperature/Humidity Transducers
  - SSRs/Power Controllers
  - Counters
  - Timers
  - Panel Meters
  - Tachometers/Pulse(Rate)/Meters
  - Display Units
  - Sensor Controllers
- Autonics Corporation  
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