

# Autonics COUNTER/TIMER LA8N/LE8N SERIES INSTRUCTION MANUAL



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

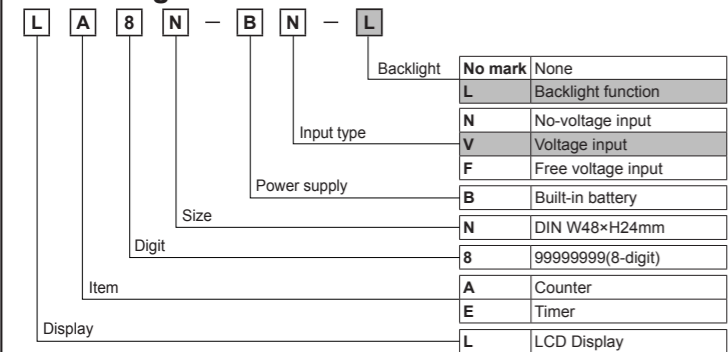
## Safety Considerations

- ※Please observe all safety considerations for safe and proper product operation to avoid hazards.
- ※Safety considerations are categorized as follows.
  - ⚠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.
- ※The symbols used on the product and instruction manual represent the following
  - ⚠ symbol represents caution due to special circumstances in which hazards may occur.
- ⚠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

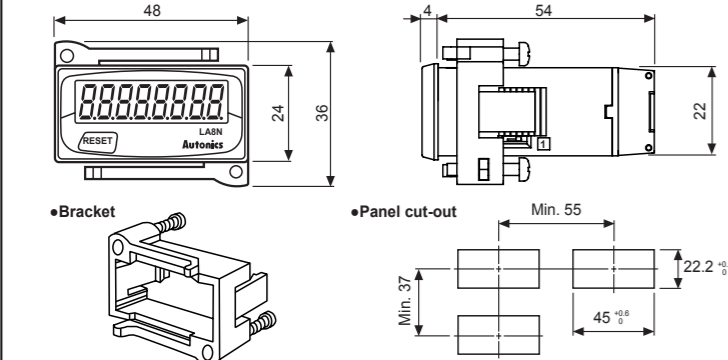
- When connecting the power/sensor input and relay output, use AWG 20(0.50mm<sup>2</sup>) cable or over, and tighten the terminal screw with a tightening torque of 0.74 to 0.90N·m. Failure to follow this instruction may result in fire or malfunction due to contact failure.
- Use the unit within the rated 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



※Upgraded or added functions are seen in the shaded part of ordering information.

## Dimensions



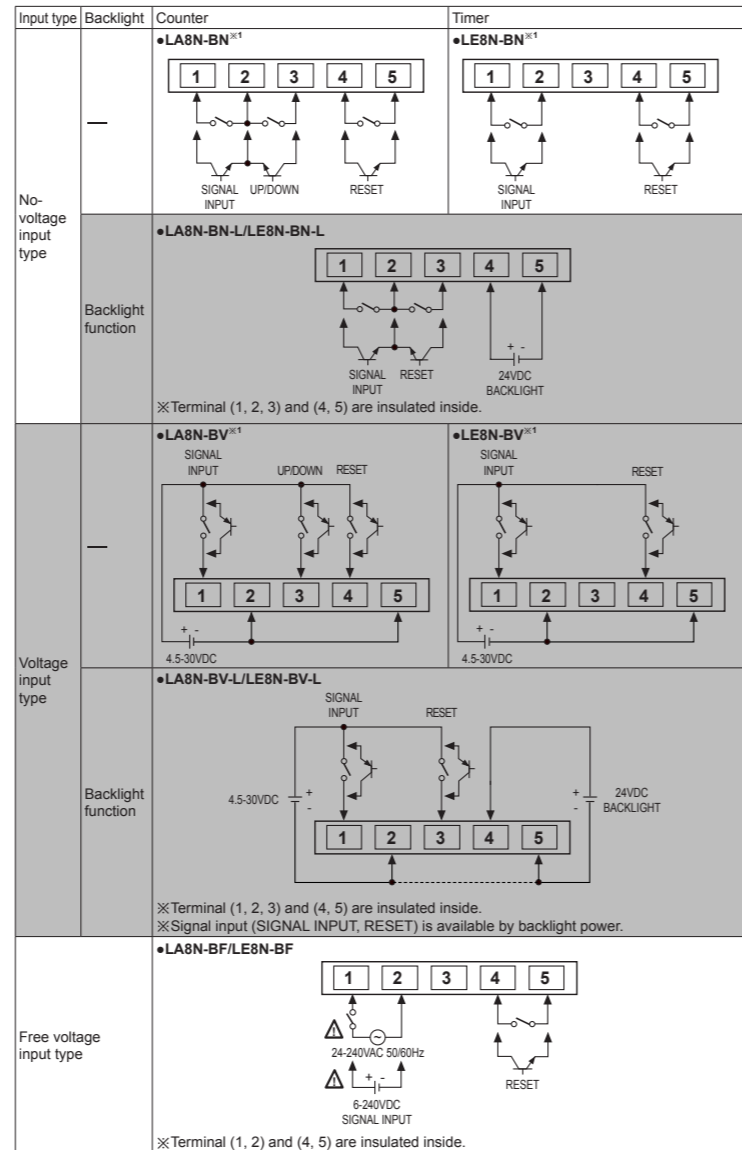
※The above specifications are subject to change and some models may be discontinued without notice.  
※Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

## 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 99999999 / count up: 0 to 99999999)					8-digit (0 to 99999999)				
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					Approx. 10 years at 20°C				
Battery life cycle	Approx. over 7 years at 20°C					Approx. 10 years at 20°C				
Backlight power supply	—		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	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
Start input (Timer)	—		—		—	—		—		—
RESET input	No-voltage input		Voltage input		No-voltage input	No-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		—		20cps	—		—		—
Time specification (TS1)	—		—		—	99995959 (h.m.s), 99999599 (h.m), 9999959 (h.m)		—		—
Time specification (TS2)	—		—		—	99992359 (d.h.m), 9999d239 (d.h), 9999999 (s)		—		—
Time specification (TS3)	—		—		—	9999h599 (h.m), 99999h59 (h.m), 999999h (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>	SW1 <sup>※1</sup> , SW2 <sup>※2</sup> , SW3 <sup>※3</sup>		—		—
Insulation resistance	Over 100MΩ (at 500VDC megger)									
Dielectric strength <sup>※4</sup>	2,000VAC 60Hz for 1 minute									
Vibration	0.75mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour									
Malfunction	0.3mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 minutes									
Shock	300m/s <sup>2</sup> (approx. 30G) in each X, Y, Z direction for 3 times									
Malfunction	100m/s <sup>2</sup> (approx. 10G) in each X, Y, Z direction for 3 times									
Environment	Ambient temp. -10 to 55°C, Storage: -25 to 65°C									
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, US									
Weight <sup>※7</sup>	Approx. 96g (approx. 50g)									

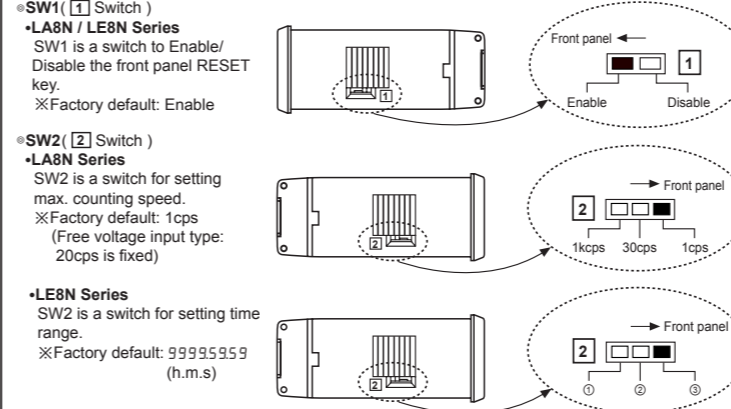
※1: SW1 is the front panel RESET key enable/disable set switch.      ※2: SW2 is the max. counting speed set switch.      ※3: SW3 is the decimal point set switch.  
 ※4: SW2 is the time range set switch.      ※5: SW3 is available to select time specification TS1, TS2, or TS3.  
 ※6: No-voltage input, voltage input: between all terminals and the case / Free voltage input: between the free voltage input terminal and the RESET input terminal, between all terminals and the case  
 ※7: The weight includes packaging. The weight in parenthesis is for unit only.  
 ※Environment resistance is rated at no freezing or condensation.

## Connections



※Terminal (1, 2, 3) and (4, 5) are insulated inside.  
 ※Signal input (SIGNAL INPUT, RESET) is available by backlight power.  
 ※Terminal (1, 2) and (4, 5) are insulated inside.

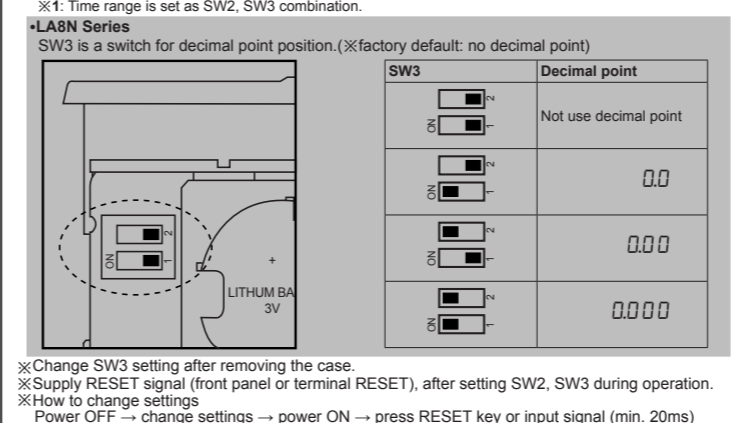
## Set Switch



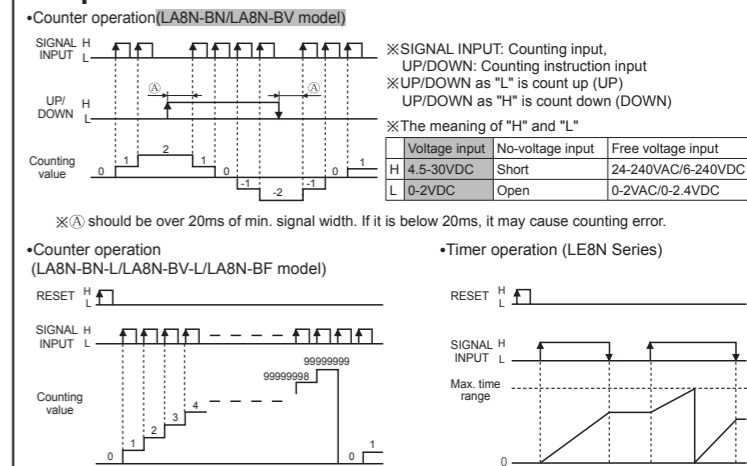
Time range table for SW3 (Factory default: TS1)

	TS1	TS2	TS3
①	hour min. 99999599	sec. 99999999	hour 9999999h
②	hour min. 99995959	day hour 999d239	hour min. 9999h59
③	hour min. sec. 99995959	day hour min. 9999d2359	hour min. 9999h59

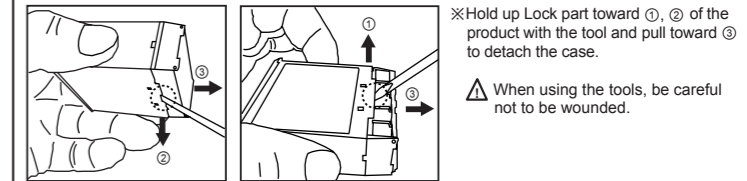
※1: Time range is set as SW2, SW3 combination.



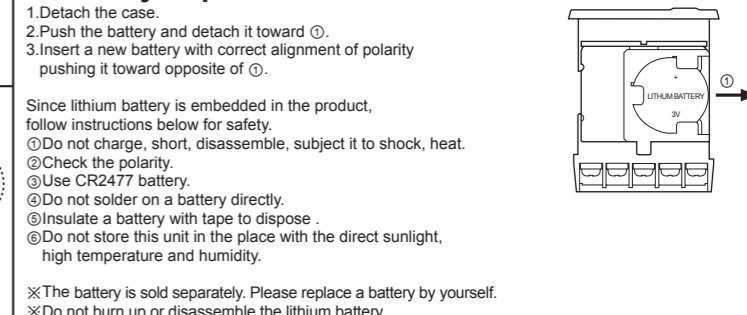
## Operation



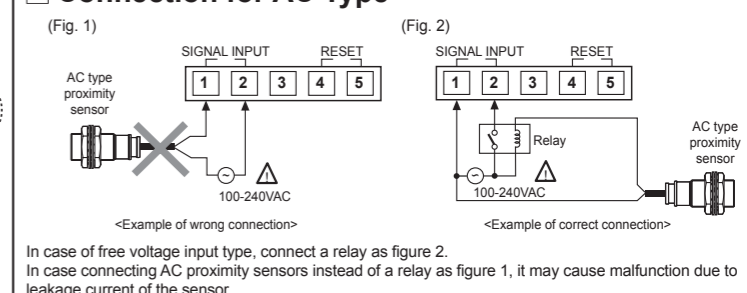
## Case Detachment



## Battery Replacement



## Connection for AC Type



## 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.
  - ①Indoors (in the environment condition rated in 'Specifications')
  - ②Altitude max. 2,000m
  - ③Pollution degree 2
  - ④Installation 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  
<http://www.autonics.com>  
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