

# 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.

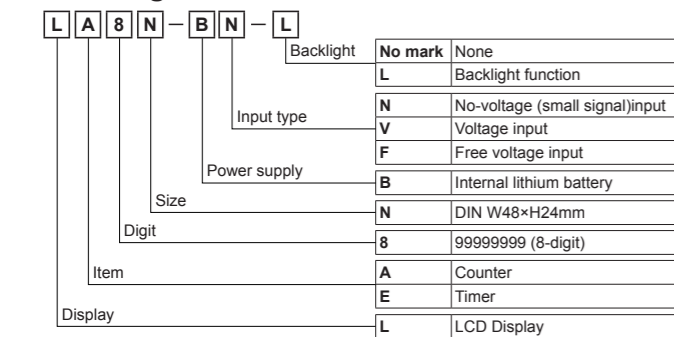
## Warning

- 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.

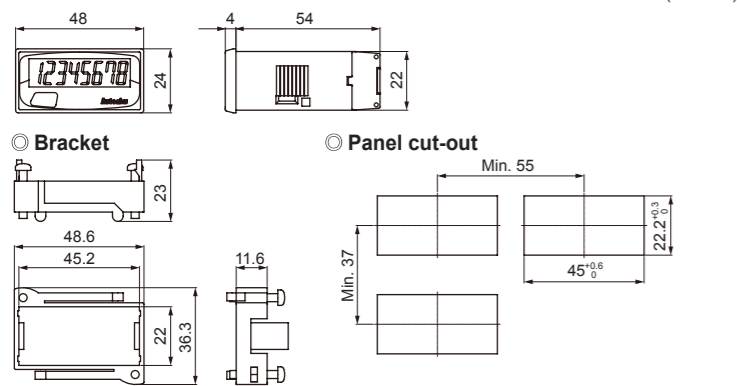
## Caution

- 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



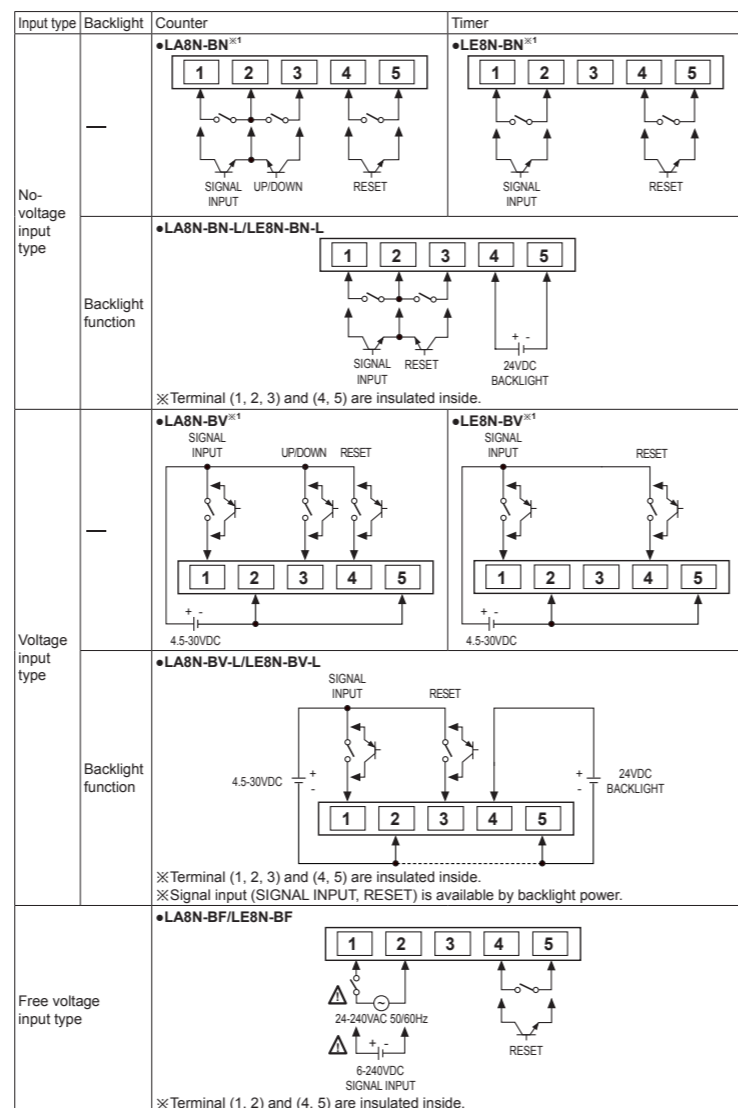
⚠ The above specifications are subject to change and some models may be discontinued without notice.  
⚠ Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

## 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                                                                                          |                                                                                                 |                                     |           |                                                           |                                                                                                           |           |                                     |           |                                                           |
| Battery life cycle                | Approx. over 7 years at 20°C                                                                              |                                                                                                 |                                     |           |                                                           | Approx. over 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<br>Short-circuit impedance: max. 10kΩ<br>Open-circuit impedance: min. 750kΩ |                                                                                                 | [H]: 4.5-30VDC<br>[L]: 0.2VDC       |           | [H]: 24-240VAC~/<br>6-240VDC~<br>[L]: 0-2VAC/<br>0-2.4VDC | Residual voltage: max. 0.5VDC<br>Short-circuit impedance: max. 10kΩ<br>Open-circuit impedance: min. 750kΩ |           | [H]: 4.5-30VDC<br>[L]: 0.2VDC       |           | [H]: 24-240VAC~/<br>6-240VDC~<br>[L]: 0-2VAC/<br>0-2.4VDC |
| Start input (Timer)               | No-voltage input                                                                                          |                                                                                                 | Voltage input                       |           | No-voltage input                                          | No-voltage input                                                                                          |           | Voltage input                       |           | No-voltage input                                          |
| 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                                                                       |                                                                                                 | UP/DOWN, RESET input : approx. 20ms |           | RESET input : approx. 20ms                                | SIGNAL INPUT, RESET input: approx. 20ms                                                                   |           | UP/DOWN, RESET input : approx. 20ms |           | 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                         |                                     |           |                                                           |                                                                                                           |           |                                     |           |                                                           |
| 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                                                                                                  |                                                                                                 |                                     |           |                                                           |                                                                                                           |           |                                     |           |                                                           |
| Weight <sup>※7</sup>              | Approx. 96g (approx. 50g)                                                                                 |                                                                                                 |                                     |           |                                                           |                                                                                                           |           |                                     |           |                                                           |

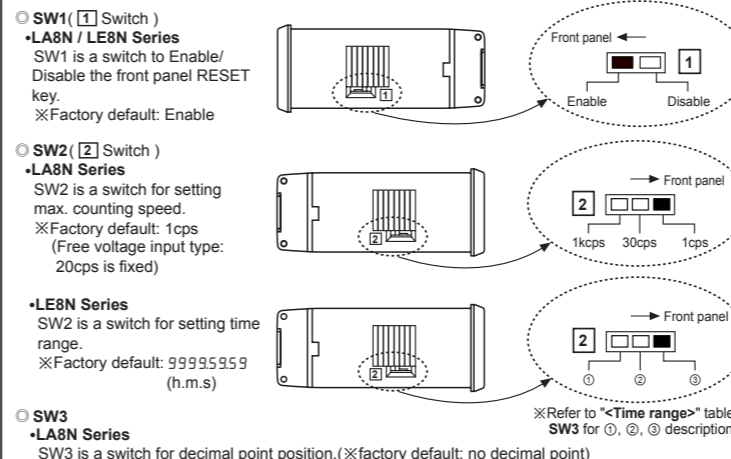
※1: SW1 is the front panel RESET key enable/disable set switch. ※2: SW2 is the max. counting speed set switch. ※3: SW3 is the decimal point set switch.  
 ※4: SW2 is the time range set switch. ※5: SW3 is available to select time specification TS1, TS2, or TS3.  
 ※6: No-voltage input, voltage input: 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.  
 ※8: Environment resistance is rated at no freezing or condensation.

## Connections



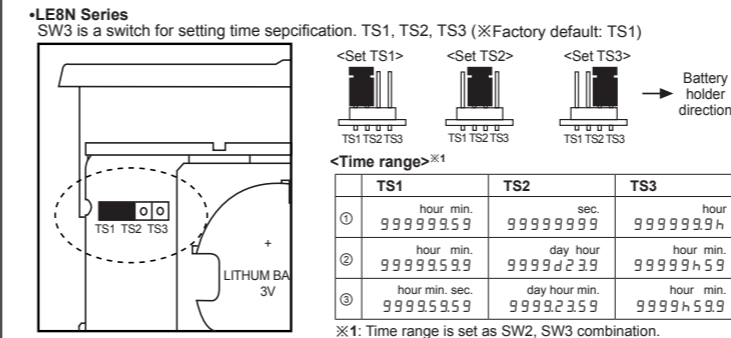
※1: Terminal 2 and 5 are connected inside. (non-isolated)  
 ※2: Use reliable contacts enough to flow 3VDC 50μA current.

## Set Switch

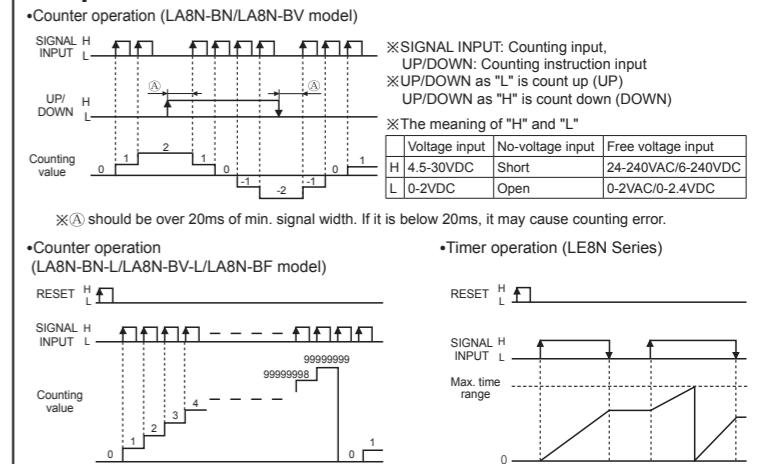


| SW3 | Decimal point         |
|-----|-----------------------|
| ☐   | Not use decimal point |
| ☐   | 0.0                   |
| ☐   | 0.00                  |
| ☐   | 0.000                 |

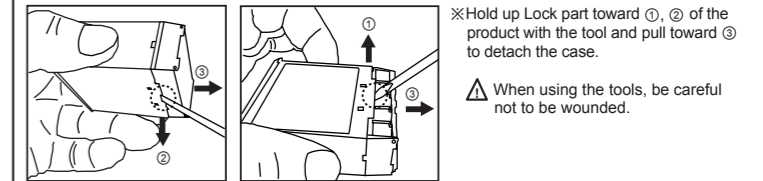
※ Change SW3 setting after removing the case.  
 ※ Supply RESET signal (front panel or terminal RESET), after setting SW2, SW3 during operation.  
 ※ How to change settings  
 Power OFF → change settings → power ON → press RESET key or input signal (min. 20ms)



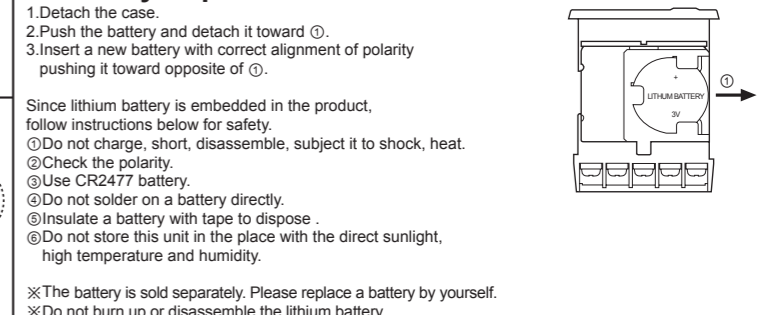
## Operation



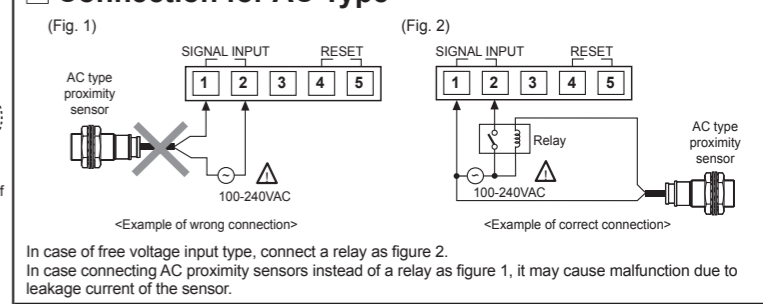
## Case Detachment



## 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.
  - 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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