

# Autonics PULSE METER LR5N-B 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

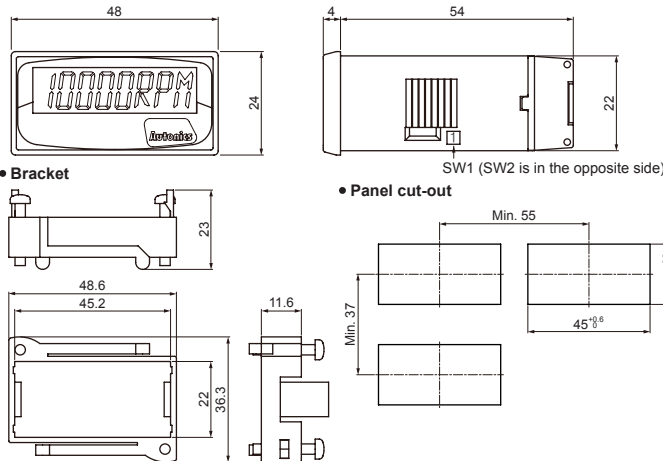
- Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss.** (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.) Failure 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 or explosion.

### ⚠ Caution

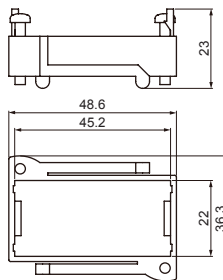
- When connecting the power/measurement input, use AWG 24(0.20mm<sup>2</sup>) to AWG 15(1.65mm<sup>2</sup>) cable and tighten the terminal screw with a tightening torque of 0.98 to 1.18N·m.** Failure to follow this instruction may result in fire or malfunction due to contact failure.
- Use the unit within 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.

## ■ Dimensions

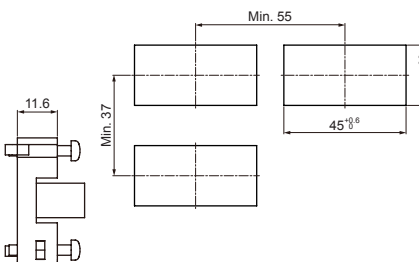
(unit: mm)



### • Bracket



### • Panel cut-out



※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	LR5N-B		
Input method	No-voltage input	Voltage input 1	Voltage input 2
Input signal level	Short-residual voltage : Max. 0.5V Max. short-circuit impedance : Max. 10kΩ Max. open-circuit impedance : Min. 500kΩ	DC	High input voltage range : 4.5-30VDC= Low input voltage range : 0-2VDC
		AC	Voltage: 3-30VAC~
Power	No-power [includes lithium battery (replaceable)]		
Battery life cycle	Over 3 years at 20°C (replaceable)		
Display method	LCD Zero blanking method (character height:8.7mm)		
Display digits	4½ digit		
Display range and Display accuracy	Display range		Display accuracy
	RPM	1 to 10000RPM	1 to 5000RPM: F.S.±0.05%±1digit 5001 to 10000RPM: F.S.±0.1%±1digit
	0.1RPM	0.1 to 1000.0RPM	F.S.±0.05%±1digit
	Hz	1 to 1000Hz	
	0.1Hz	0.1 to 100.0Hz	F.S.±0.1%±1digit
RPS	1 to 1000RPS		
HOLD function	Includes (external HOLD function)		
Insulation resistance	Over 100MΩ (at 500VDC megger)		
Dielectric strength	2,000VAC 50/60Hz for 1 min (cutoff current=10mA)		
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz (for 1min) in each X, Y, Z direction for 1 hours	
	Malfunction	0.3mm amplitude at frequency of 10 to 55Hz (for 1min) in each X, Y, Z direction for 10 min	
Shock	Mechanical	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	IP66 (when using waterproof rubber for front panel), Terminal cover (finger protector)		
Weight <sup>*1</sup>	Approx. 91.5g (approx. 59g)		

※1: The weight is with packaging and the weight in parenthesis is only unit weight.  
※Environment resistance is rated at no freezing or condensation.

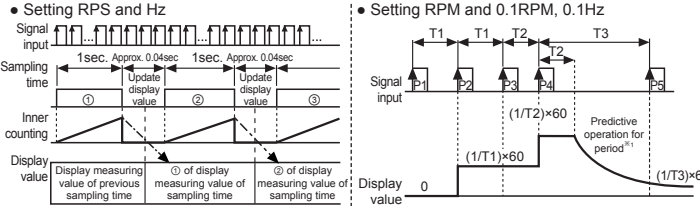
## ■ Display Range Selection and Operation Charts

### ○ Display range selection



- ① Select one among ×1, ×0.1, RPS by SW2.
  - ② Shift SW 1 to RESET.
  - ③ Select one again between RPM/RPS and Hz by SW1.
- ※When display range and unit in front display panel do not conform, move SW 1 to RESET and select RPM/RPS or Hz again.

### ○ Operation charts

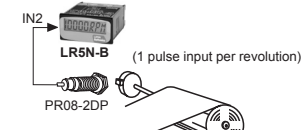


※1: It implements predictive operation for period without auto zero time setting function (if there is no pulse input within setting time, it displays the value as zero forcibly). If there is any input signal within certain time (T2), CPU considers input to be supplied, display value is decreased continuously.

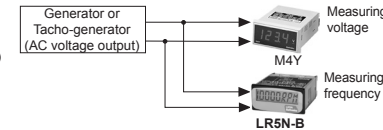
## ■ Operation Mode (Frequency/Revolution)

○ Frequency (Hz, 0.1Hz) = f, Revolution (RPM, 0.1RPM) = f × 60, Revolution (RPS) = f

### • Revolution measurement



### • AC frequency measurement



### • Display value and unit

Display value	Frequency	Revolution
Display unit	Hz 0.1Hz	RPM 0.1RPM RPS (factory default)

## ■ Connections

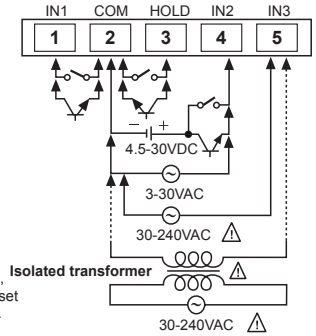
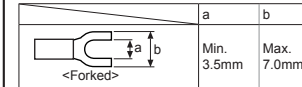
※Please use reliable contact enough to flow 5μA of current when using contacts.

- ※IN1 - No-voltage input
  - IN2 - Voltage input
    - DC Voltage input
    - AC Voltage input: Display AC frequency
  - IN3 - •AC Voltage input: Display AC frequency
- ※Select one input among IN1, IN2, IN3.

### ⚠ Caution for IN3 input

When supplying high voltage over 50VAC into IN3, use the isolation transformer with 1:1 turn ratio or set up the counterplan, or it may cause electric shock.

※Use terminals of size specified below.



## ■ Functions

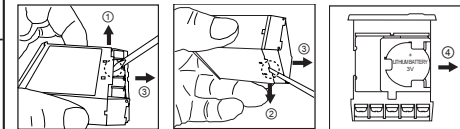
### • RESET

It initializes a unit and front LCD display. There are not indicated when set SW1 as RESET.

### • HOLD

It stops display value by short circuit HOLD terminal when it is hard to read the value because of frequent input changes.

## ■ Battery Replacement



Pulling terminal towards ③ direction, raise Lock part towards ① and ② direction with the tool to remove case.

⚠ Please be careful of the injury from the tool.

After removing case, gently press the battery towards ④ direction to remove the battery. Check the polarity of the battery and insert it in reverse order.

- ※Battery is sold at retailers, and replacement is on user. (sold separately)
- ※Do not burn or disassemble the lithium battery.
- ※Do not solder, charge, or modify the battery.
- ※Do not heat the battery.
- ※Before discarding the battery, insulate the positive pole and negative pole with the insulating tape.

## ■ Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- Keep away from high voltage lines or power lines to prevent inductive noise. Do not use near the equipment which generates strong magnetic force or high frequency noise.
- This unit 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
- Connector/Socket
- 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, Co2, Nd: YAG)
- Laser Welding/Cutting System
- Temperature Controllers
- Temperature/Humidity Transducers
- SSRs/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometer/Pulse (Rate) Meters
- Display Units
- Sensor Controllers

**Autonics Corporation**  
http://www.autonics.com

■ HEADQUARTERS:  
18, Bongsong-ro 513Bong-gil, Haeundae-gu, Busan, South Korea, 48002  
TEL: 82-51-519-3232  
■ E-mail: sales@autonics.com