

**PULSE METER  
LR5N-B**



Thank you very much for selecting Autonics products.  
For your safety, please read the following before using.

**Caution for your safety**

- ⊗ Please keep these instructions and review them before using this unit.
- ⊗ Please observe the cautions that follow;
- ⚠ **Warning** Serious injury may result if instructions are not followed.
- ⚠ **Caution** Product may be damaged, or injury may result if instructions are not followed.
- ⊗ The following is an explanation of the symbols used in the operation manual.
- ⚠ **Caution** : Injury or danger may occur under special conditions.

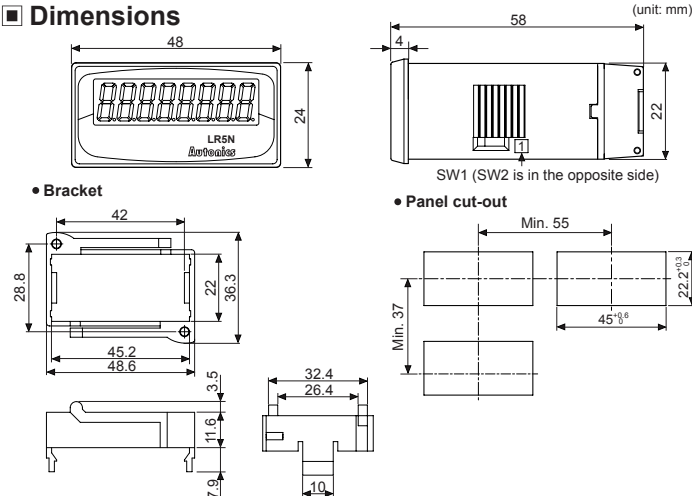
**Warning**

- In case of using this unit with machinery (Ex: nuclear power control, medical equipment, ship, vehicle, train, airplane, combustion apparatus, safety device, crime/disaster prevention equipment, etc) which may cause damages to human life or property, it is required to install fail-safe device. It may cause a fire, human injury or damage to property.
- Do not disassemble or modify this unit. Please contact us if it is required. It may cause a fire and electric shock.
- Do not disassemble or burn up because lithium battery is used for memory protection. It may cause an explosion.
- Set up the counter-plan to supply high voltage into IN3 and COM.

**Caution**

- This unit shall not be used outdoors. It might shorten the life cycle of the product or cause electric shock.
- Please observe the rated specifications. It might shorten the life cycle of the product and cause a fire.
- In cleaning the unit, do not use water or an organic solvents. It might cause a fire.
- Do not use this unit in place where there are flammable or explosive gas, humidity, direct ray of the sun, radiant heat, vibration and impact etc. It may cause a fire or explosion.
- Do not inflow dust or wire dregs into the unit. It may cause a fire or malfunction.

**Dimensions**



⊗ The above specifications are subject to change without notice.

**Specifications**

Model	LR5N-B		
Input method	No-voltage input	Voltage input 1	Voltage input 2
Input signal level	Short-residual voltage : Max. 0.5V	DC High input voltage range : 4.5-30VDC Low input voltage range : 0-2VDC	Voltage: 30-240VAC
	Max. short-circuit impedance : Max. 10kΩ		
	Max. open-circuit impedance : Min. 500kΩ	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	5 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	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/s²(approx. 30G) in X, Y, Z directions for 3 times	
	Malfunction	100m/s²(approx. 10G) in X, Y, Z directions 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*1	Approx. 91.5g (approx. 59g)		

\*1: The weight is with packaging and the weight in parentheses is only unit weight.  
⊗ Environment resistance is rated at no freezing or condensation.

**Display range selection and Operation charts**

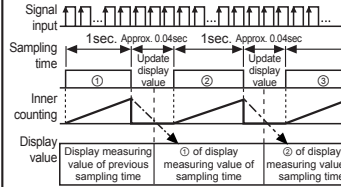
⊙ Display range selection



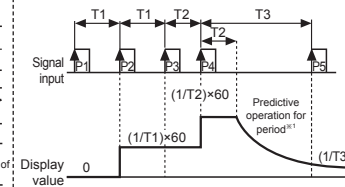
- ⊙ Select one among ×1, ×0.1, RPS by SW2.
- ⊙ Shift SW 1 to RESET.
- ⊙ Select one again between RPM/RPS and Hz by SW1.
- ⊗ When display range and unit in front display panel do not conform, move SW 1 to RESET and select RPM/RPS or Hz again.

⊙ Operation charts

• Setting RPS and Hz



• Setting RPM and 0.1RPM, 0.1Hz

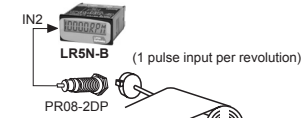


⊗ 1. It implements predictive operation for period without auto zero time setting function(if there is no pulse input within setting time, it displays the value as zero forcibly). If there is any input signal within certain time(T2), CPU considers input to be supplied, display value is decreased continuously.

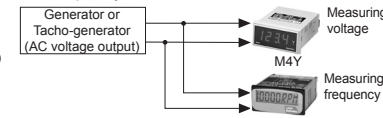
**Operation mode(frequency/revolution)**

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

• Revolution measurement



• AC frequency measurement



• Display value and unit

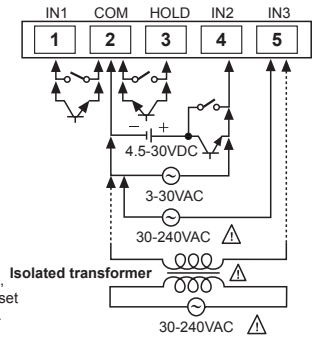
Display value	Frequency	Revolution
Display unit	Hz 0.1Hz	RPM 0.1RPM RPS(factory default)

**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.



**Functions**

• RESET

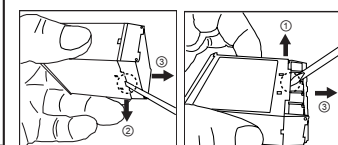
It initializes a unit and front LCD display. There are not indicated when set SW1 as RESET.

• HOLD

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

**Case detachment and Battery replacement**

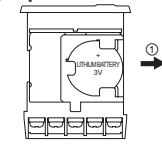
⊙ Case detachment



⊗ Hold up the lock part toward ①, ② of the product with the tool and pull toward ③, the case is detached.

⚠ Please be careful of the injury caused by tools.

⊙ Battery replacement



- Detach the case.
  - Push the battery and detach toward ①.
  - Insert new battery with correct alignment of polarity pushing toward opposite of ①.
- ⊗ Battery is sold separately.  
⊗ Do not burn up or disassemble the lithium battery.

**Caution for using**

- Do not dispose in a place with danger of flammables or explosion because primary lithium battery is built in the product.
  - Input into IN3 by an isolation transformer with 1:1 turn ratio of 1st and 2nd terminals. Do not use this unit in the following places
    - ⊙ A place where ambient temperature is less than -10°C or over 55°C.
    - ⊙ A place where ambient humidity is less than 35%RH or over 85%RH.
    - ⊙ A place where there is flammable or corrosive gas, dust, oil, vibration and impact.
    - ⊙ A place where there are organic solvents including methyl alcohol, benzene, thinner or strong alkalis including ammonia, caustic soda.
    - ⊙ It shall be used indoor.
  - Safe using for battery
    - This battery has combustibles including lithium organic solvent, it may cause a fire, exothermicity, leakage and explosion, please keep the following.
    - ⊙ Do not charge, short, disassemble, transform, heating and throw in a fire.
    - ⊙ Do not put a battery as reverse.
    - ⊙ Do not use new or used battery and other type of battery together.
    - ⊙ Do not solder on a battery directly.
    - ⊙ Insulate a battery to dispose with tape.
    - ⊙ Do not store where there is direct ray of sun, high temperature and humidity.
  - Installation environment
    - ⊙ It shall be used indoor
    - ⊙ Altitude Max. 2000m
    - ⊙ Pollution Degree 2
    - ⊙ Installation Category II
- ⊗ It may cause malfunction if above instructions are not followed.

**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, CO<sub>2</sub>, Nd:YAG)
- Laser welding/soldering system
- Temperature controllers
- Temperature/Humidity transducers
- SSR/Power controllers
- Counters
- Timers
- Panel meters
- Tachometer/Pulse(Rate)meters
- Display units
- Sensor controllers

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■ E-mail: sales@autonics.com

**The proposal of a product improvement and development: product@autonics.com**

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