LR5N-B   Compact LCD Pulse Meter

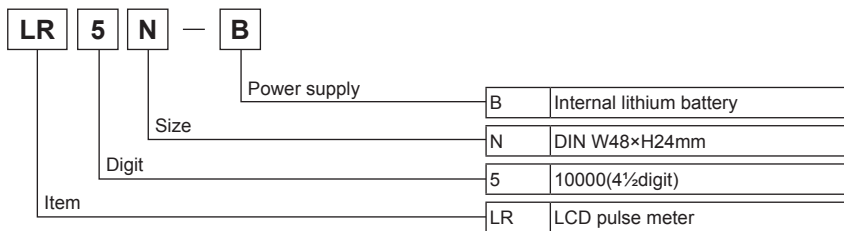## DIN W48×H24mm, Indication only, LCD pulse meter(RPM, RPS, Hz)

▣ Features

- **Upgraded version of LR7N series**
- Easy of 1 pulse input method per 1 revolution
- Display up to 10000RPM
- No need power supply by internal battery
- Protection structure IP66(Front panel only)
- Displays RPM, RPS of rotator
- Displays AC line frequency

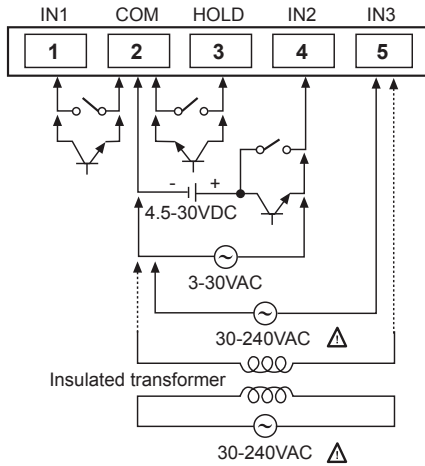⚠ **Please read "Caution for your safety" in operation manual before using.**

▣ Ordering information

LR	5	N	—	B

Power supply

B	Internal lithium battery

Size

N	DIN W48×H24mm

Digit

5	10000(4½digit)

Item

LR	LCD pulse meter

▣ 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	Voltage: 30-240VAC
		AC	Voltage:3-30VAC	
Power	No-power [includes lithium battery(replaceable)]			
Battery life cycle	Over 3 years at 20℃(replaceable)			
Dispaly 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	F.S±0.1%±1digit	
	0.1Hz	0.1 to 100.0Hz		
	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		
Envionment	Ambient temperature	-10 to 55℃, Storage: -25 to 65℃		
	Ambient humidity	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.

(A) Photo electric sensor
(B) Fiber optic sensor
(C) Door/Area sensor
(D) Proximity sensor
(E) Pressure sensor
(F) Rotary encoder
(G) Connector/ Socket
(H) Temp. controller
(I) SSR/ Power controller
(J) Counter
(K) Timer
(L) Panel meter
(M) Tacho/ Speed/ Pulse meter
(N) Display unit
(O) Sensor controller
(P) Switching mode power supply
(Q) Stepper motor& Driver&Controller
(R) Graphic/ Logic panel
(S) Field network device
(T) Software
(U) Other

LR5N-B

■ Connections

IN1   COM   HOLD   IN2   IN3

| 1 | 2 | 3 | 4 | 5 |

4.5-30VDC

3-30VAC

30-240VAC ⚠

Insulated transformer

30-240VAC ⚠

※Please use reliable contacts enough to flow 5μA of current when using input signal or reset signal as a contact.

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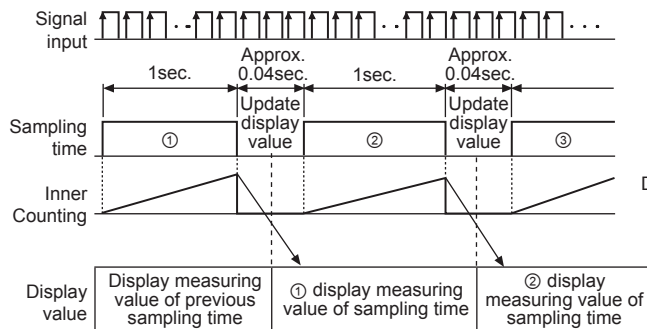 IN3 - AC voltage input : Display AC frequency.

※**Choose one among IN1, IN2 and IN3 to use.**
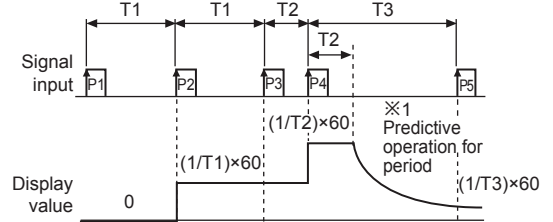
⚠**Caution for IN3 input**
  : If apply high voltage over 50VAC, it may cause an electric shock. Insulated transformer whose turn ratio is 1:1 must be installed, or countermeasures must be provided.

■ Operation charts

● **Setting RPS, Hz**

Signal input

1sec. Approx. 0.04sec. 1sec. Approx. 0.04sec.

Sampling time ① Update display value ② Update display value ③

Inner Counting

| Display value | Display measuring value of previous sampling time | ① display measuring value of sampling time | ② display measuring value of sampling time |

● **Setting RPM 0.1, RPM 0.1Hz**

T1   T1   T2   T3

Signal input P1 P2 P3 P4 T2 P5

$(1/T2)×60$ ※1 Predictive operation for period
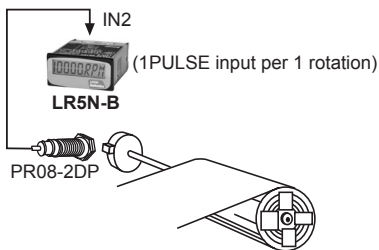
$(1/T1)×60$ $(1/T3)×60$

Display value 0

※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.
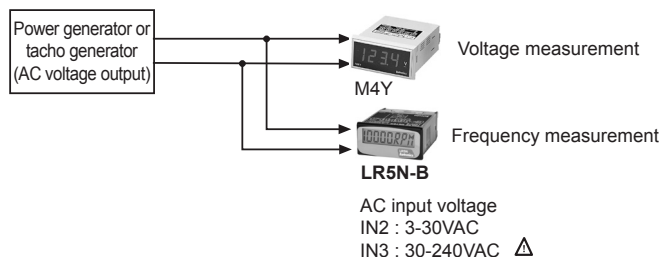
■ Operation mode (frequency/revolution)

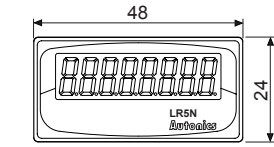◎ **Frequency (Hz, 0.1Hz) = f, Revolution(RPM, 0.1RPM)= f × 60, Revolution (RPS)= f**

● **Revolution**

→ IN2

(1PULSE input per 1 rotation)

LR5N-B

PR08-2DP

● **AC frequency**

Power generator or tacho generator (AC voltage output)

M4Y Voltage measurement

LR5N-B Frequency measurement

AC input voltage
IN2 : 3-30VAC
IN3 : 30-240VAC ⚠

● **Display value and unit**

Display	Frequency		Revolution		
Unit	Hz	0.1Hz	RPM	0.1RPM	RPS(factory default)

Compact LCD Pulse Meter

■ Dimensions

(unit: mm)

48

24

LR5N
Autonics

58

4

22
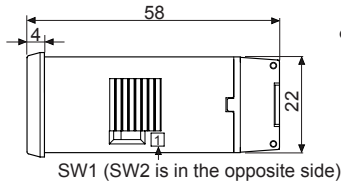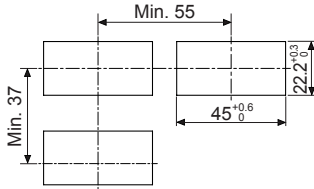
SW1 (SW2 is in the opposite side)

● **Bracket**

42

28.8

22

36.3

45.2

48.6

32.4

26.4

3.5

11.6

7.9

10

● Panel cut-out

Min. 55

Min. 37

$22.2^{+0.3}_{0}$

$45^{+0.6}_{0}$
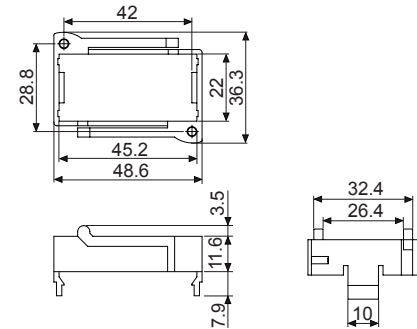
■ Input connections

● Standard input sensor
: NPN open collector output type

Sensor

LR5N-B

Brown

+V

560kΩ

Black

5-24
VDC

1.2kΩ   1.2kΩ

Main circuit

SIG.
INPUT

❶

Blue

❷
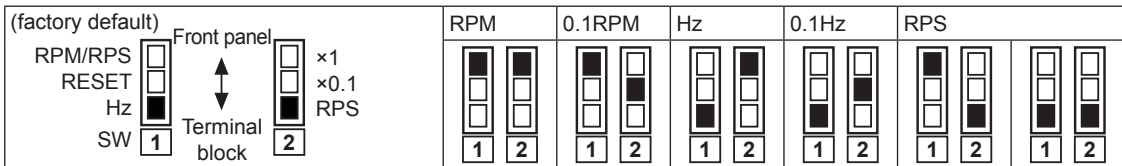
0V
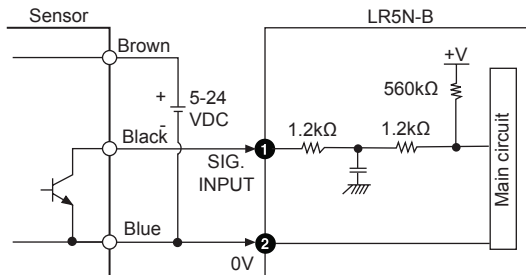
■ Function description

● RESET
It initializes an unit and front LCD display. There are not indicated when set switch1 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.

■ Display range selection

(factory default)

Front panel

RPM/RPS
RESET
Hz
SW   **1**

Terminal
block

×1
×0.1
RPS
2

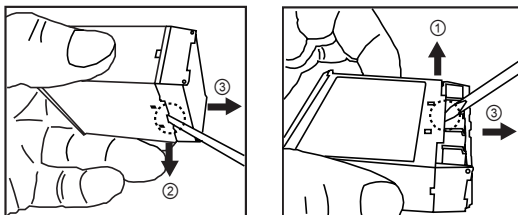| RPM		0.1RPM		Hz		0.1Hz		RPS	
1	**2**	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**2**

① Select one among ×1, ×0.1 and RPS by SW2.
② Shift SW1 to RESET.
③ Select one again between RPM/RPS and Hz by SW1.
※If set display range and front display LCD unit are not same, shift SW1 to RESET and select RPM/RPS or Hz.

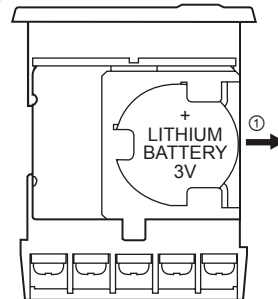## ■ Case detachment and Battery replacement

● Case detachment

③
②
③
①

※Hold up 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

+
LITHIUM
BATTERY
3V

①

1) Detach the case.
2) Push the battery and detach toward ①.
3) 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.

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