DIN W48×H24mm, Indication Only, LCD Timer (Hour Meter)

■ Features

- No additional power due to internal battery
- Signal input method: No-voltage input, voltage input, free voltage input
- Screw terminal type (attaching terminal cover)
- LCD display, backlight model
- Protection structure: IP66

⚠ **Please read "Safety Considerations" in the instruction manual before using.**

■ Ordering Information

LE	8	N	–	B	N	–	L

Backlight	No mark	None
	L	Backlight function
Input type	N	No-voltage (small signal) input
	V	Voltage input
	F	Free voltage input
Power supply	B	Internal lithium battery
Size	N	DIN W48×H24mm
Digit	8	99999999 (8-digit)
Item	LE	Compact LCD Timer

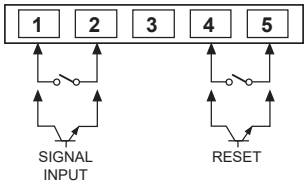
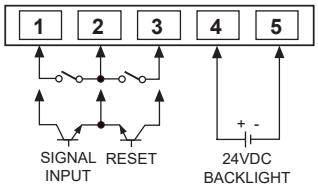
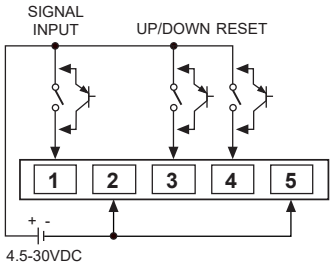
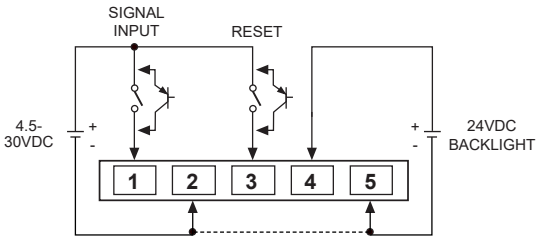
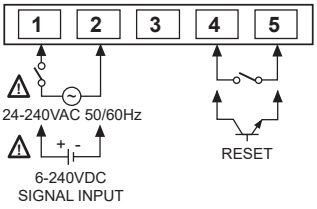
■ Specifications

Model		LE8N-BN	LE8N-BN-L	LE8N-BV	LE8N-BV-L	LE8N-BF
Digit		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				
Power supply		Built-in battery				
Battery life cycle		Approx. over 10 years at 20℃				
Backlight power supply		—	24VDC⎓ ±10%	—	24VDC⎓ ±10%	—
Input method		No-voltage input		Voltage input		Free voltage input
START input		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
RESET input		No-voltage input		Voltage input		No-voltage input
Min. input signal width		SIGNAL, RESET input: approx. 20ms				
Time specification (TS1)		9999.59.59 (h.m.s), 99999.59.9 (h.m), 99999.59 (h.m)				
Time specification (TS2)		9999.23.59 (d.h.m), 9999d23.9 (d.h), 99999999 (s)				
Time specification (TS3)		9999h59.9 (h.m), 99999h59 (h.m), 999999.9h (h)				
Time error, Temperature error		±0.01%				
External set switch		SW1※1, SW2※2, SW3※3				
Insulation resistance		Over 100MΩ (at 500VDC megger)				
Dielectric strength※4		2,000VAC 60Hz for 1 min				
Vibration	Mechanical	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 min				
Shock	Mechanical	300m/s^2 (approx. 30G) in each X, Y, Z direction for 3 times				
	Malfunction	100m/s^2 (approx. 10G) in each X, Y, Z direction for 3 times				
Environment	Ambient temp.	-10 to 55℃, storage: -25 to 65℃				
	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 cULus				
Weight※5		Approx. 96g (approx. 50g)				

※1: SW1 is the front panel RESET key enable/disable set switch.
※2: SW2 is the time range set switch.
※3: SW3 is available to select time specification TS1, TS2, or TS3.
※4: No-voltage input, voltage input: between terminals and the case/Free voltage input: between the free voltage input terminal and the RESET input terminal, between terminals and the case
※5: The weight includes packaging. The weight in parenthesis is for unit only.

※Environment resistance is rated at no freezing or condensation.

▣ Connections

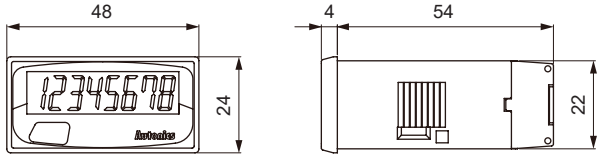
Input type	No-backlight	Backlight function
No-voltage input type	●LE8N-BN※1 	●LE8N-BN-L※2 
Voltage input type	●LE8N-BV※1 	●LE8N-BV-L※2  ※Backlight power is available as signal input and reset.
Free voltage input type	●LE8N-BF  ※Terminal (1, 2) and (4, 5) are insulated inside.	—

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

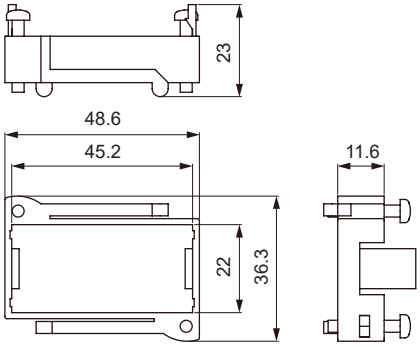
※2: Terminal (1, 2, 3) and (4, 5) are insulated inside.

▣ Dimensions

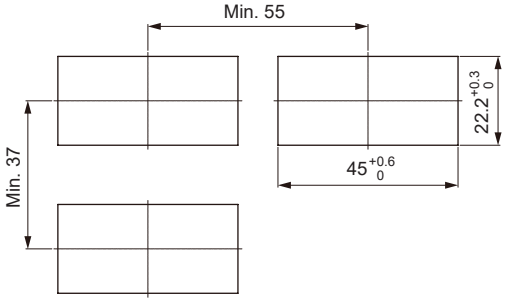
(unit: mm)



◎ Bracket



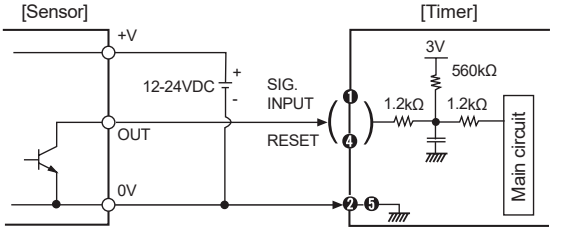
◎ Panel cut-out



▣ Input Connections

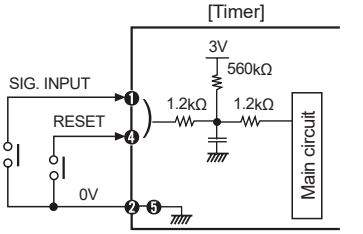
◎ No-voltage input (standard sensor: NPN open collector output type)

● Solid-state input



※When power is applied to terminal No ❶ and ❹, input terminal circuit can be broken and a malfunction can occur. (NPN output, PNP output, PNP open collector output type sensor cannot be used.)

● Contact input



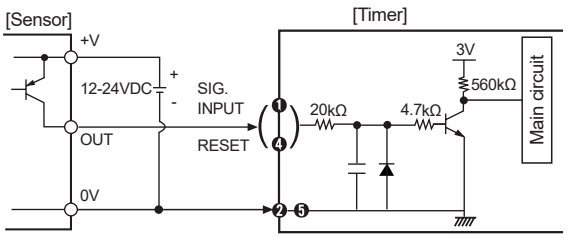
※Please use reliable contacts enough to flow 3VDC 5μA of current.

※❷ and ❺ are connected inside.

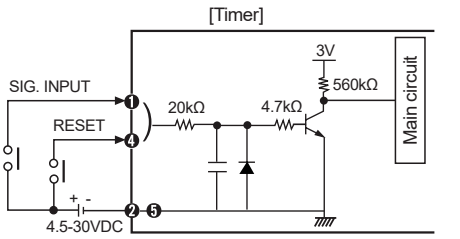
※For backlight function model, the input terminals are ❶, ❸ and the GND terminal is ❷.

◎ Voltage input (standard sensor: PNP open collector output type)

● Solid-state input



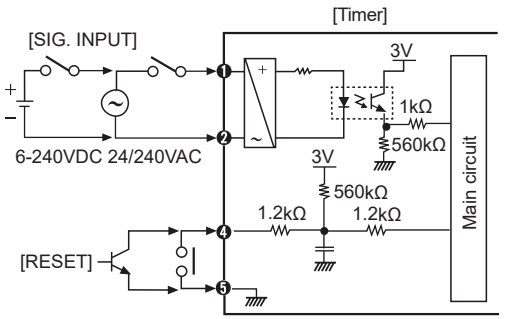
● Contact input



※Use reliable contacts enough to flow 3VDC 5μA of current.

※For backlight function model, the input terminals are ❶, ❸ and the GND terminal is ❷.

◎ Free voltage input



※AC type proximity sensor cannot be used as the source of input signals.

※Input terminal (❶, ❷) and reset terminal (❹, ❺) are insulated inside.

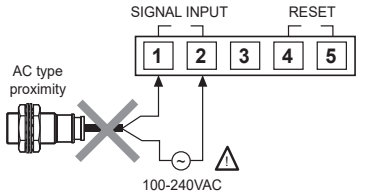
※It is not possible to reset with AC power or DC power.

※When relay contact is used as the source of RESET signal, please use reliable contacts enough to flow 3VDC 5μA of current.

◎ Input from AC type proximity sensor

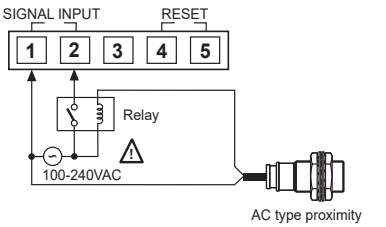
In case of free voltage input type, do not connect AC proximity sensors instead of a switch as shown in the figure 1.
It may cause malfunction due to sensor's leakage current. Connect a relay as shown in the figure 2.

(Figure 1)



<example of wrong connection>

(Figure 2)

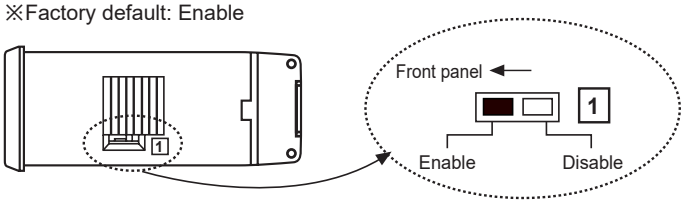


<example of correct connection>

▣ Set Switch

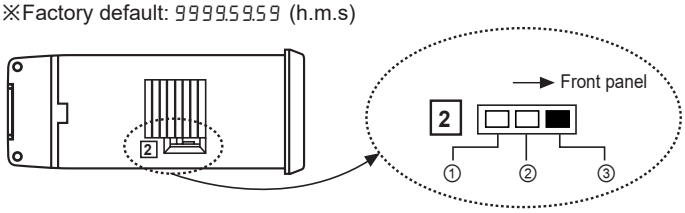
◎ SW1 setting (1 switch)

SW1 is a switch to Enable/Disable the front panel RESET key.
※Factory default: Enable



◎ SW2 setting (2 switch)

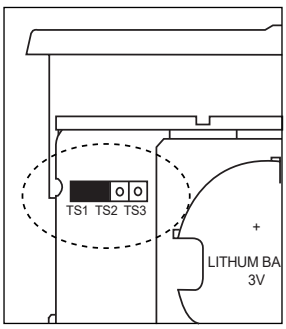
SW2 is a switch for setting time range.
※Factory default: 9999.59.59 (h.m.s)

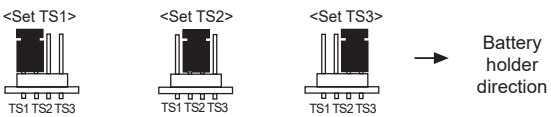


※Refer to "**<Time range>**" table of **SW3** for ①, ②, ③ descriptions.

◎ SW3 setting

SW3 is a switch for setting time specification. TS1, TS2, TS3 (※Factory default: TS1)



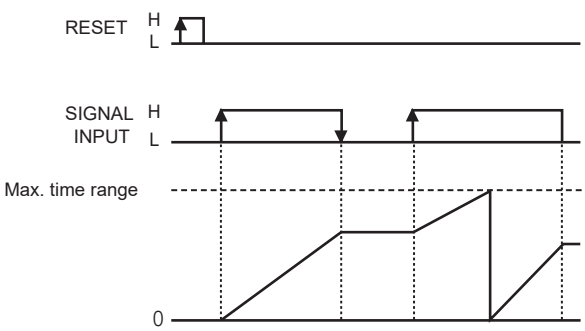


<Time range>※1

	TS1	TS2	TS3
①	hour. min. 9999.59	sec. 99999999	hour. 999999.9h
②	hour. min. 9999.59.99	day. hour 9999d23.9	hour. min. 99999h59
③	hour. min. sec. 999.59.59	day. hour. min. 999.23.59	hour. min. 9999h59.9

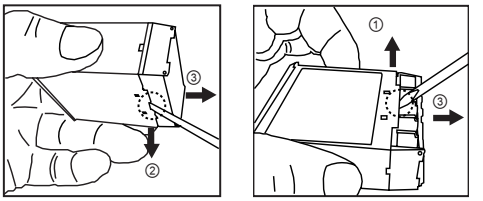
※1: Time range is set as SW2, SW3 combination.

▣ Time Operation



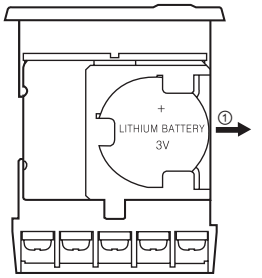
▣ Case Detachment and Battery Replacement

◎ Case detachment



※Hold up Lock part toward ①, ② of the product with the tool and pull toward ③ to detach the case.
⚠When using the tools, be careful not to be wounded.

◎ Battery replacement



1. Detach the case.
2. Push the battery and detach it toward ①.
3. Insert a new battery with correct alignment of polarity pushing it toward opposite of ①.

※Since lithium battery is embedded in the product, follow instructions below for safety.
①Do not charge, short, disassemble, subject it to shock, heat.
②Check the polarity.
③Use CR2477 battery.
④Do not solder on a battery directly.
⑤Insulate a battery with tape to dispose .
⑥Do not store this unit in the place with the direct sunlight, high temperature and humidity.
※The battery is sold separately.
Please replace a battery by yourself. (sold separately)
※Do not burn up or disassemble the lithium battery.