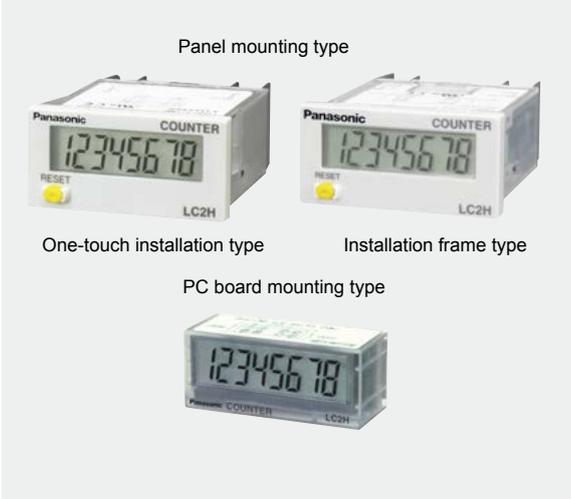


## Total Counter LC2H



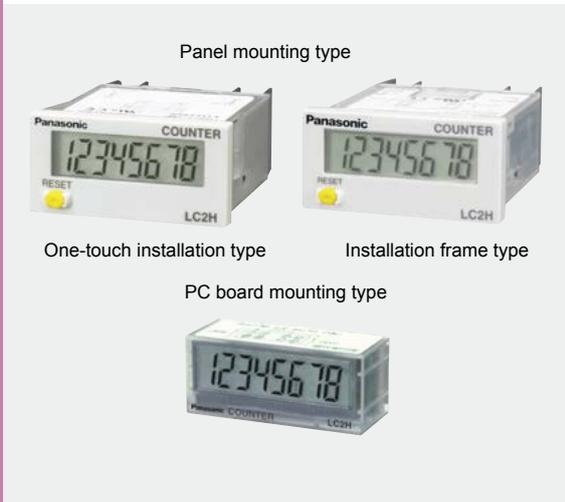
# Counter

# LC2H Total Counter

\* Refer to our website for details of product.



RoHS compliance



## Features

- **7-segment LCD with 8.7 mm 0.343 in character height (total digits: 8)**  
Backlight can be switched between green and red (for backlight type)
- **Counting Speed Switchable between 30 Hz and 2 kHz (for panel mounting type)**
- **Battery Replacement Easy on Environment**
- **IP66 compliant for resistance against negative environmental influences (only when panel surface uses rubber packing) (for installation frame type)**
- **Finger protection**  
Screw terminals are constructed to protect fingers to ensure safety (for screw terminal section)
- **Replaceable panel cover**  
Panel design can be changed from standard (ash gray) to black (sold separately)

**Large display in a small body** **IP66**

## PRODUCT TYPES

### Panel mounting type

Installation type	Input method	Counting speed	Backlight	Front reset button	Model No.
One-touch installation type	Non-voltage input type	30 Hz/2 kHz switchable	No	Yes	<b>LC2H-FE-2KK</b>
	Voltage input type (4.5 to 30 V DC)		No	Yes	<b>LC2H-FE-DL-2KK</b>
			Yes	Yes	<b>LC2H-FE-DL-2KK-B</b>
	Free voltage input type (24 to 240 V AC/DC)	30 Hz	No	Yes	<b>LC2H-FE-FV-30</b>
Installation frame type	Non-voltage input type	30 Hz/2 kHz switchable	No	Yes	<b>LC2H-F-2KK</b>
	Voltage input type (4.5 to 30 V DC)		No	Yes	<b>LC2H-F-DL-2KK</b>
			Yes	Yes	<b>LC2H-F-DL-2KK-B</b>
	Free voltage input type (24 to 240 V AC/DC)	30 Hz	No	Yes	<b>LC2H-F-FV-30</b>

Notes: 1) Please ask us about types without front reset button.

2) Products without backlight are listed as standard types under "Specifications".

### PC board mounting type

Input method	Counting speed	Backlight	Front reset button	Model No.
Non-voltage input type	2 kHz	No	Yes	<b>LC2H-C-2K-N</b>
	30 Hz	No	Yes	<b>LC2H-C-30-N</b>

Note: There is no front reset button on the PC board mounting type.

## CAUTIONS FOR USE

### Non-voltage input type

Common to both the panel mounting type, and the PC board mounting type

- Never apply voltage to the non-voltage input type. This will damage the internal elements. Also, since there is a possibility of erroneous operation, do not connect in parallel the inputs of a non-voltage input type and another counter from a single input signal.
- Since the current flow is very small from the count input and reset input terminals (① and ③ on the panel mounting type and terminals ⑮ to ⑰ and ⑳ to ㉓ on the PC board mounting type) please use relays and switches with high contact reliability.
- When inputting with an open collector of a transistor, use a transistor for small signals in which ICBO is 1  $\mu\text{A}$  or less and always input with no voltage.
- When wiring, try to keep all the input lines to the count and reset inputs as short as possible and avoid running them together with high voltage and power transmission lines or in a power conduit. Also, malfunctions might occur if the floating capacitance of these wires exceeds 500 pF (10 m 32.808 ft for parallel wires of 2 mm<sup>2</sup> 0.003 in<sup>2</sup>). When using 2 kHz mode, use with a wiring floating capacitance of 120 pF (3 m 9.843 ft for parallel wires of 2 mm<sup>2</sup> 0.003 in<sup>2</sup>). In particular, when using shielded wiring, be careful of the capacitance between wires.

### PC board mounting type

- For external power supply use manganese dioxide or lithium batteries (CR type: 3V).
- Always reset after external power is applied and confirm that the display reads "0".
- Make the wiring from the battery to the counter unit as short as absolutely possible. Also, be careful of polarity.
- Calculate battery life with the following formula.

$$t = A/I$$

t: battery life [h]

I: LC2H current consumption [mA]

A: battery capacity until minimum operation voltage is reached [mAh]

- Hand solder to the lead terminal. Do not dip solder. With the tip of the soldering iron at 300 °C 572 °F perform soldering within 3 seconds (for 30 to 60 W soldering iron).

### Voltage input type

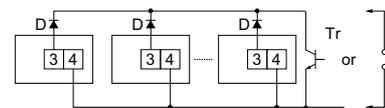
- Be aware that applying more than 30 V DC to count input terminals ① and ②, and reset input terminals ③ and ④ will cause damage to the internal elements.
- For external resetting use H level (application of 4.5 to 30 V DC) between reset terminals ③ and ④ of the rear terminals. In this case, connect (+) to terminal 3 and (-) to terminal ④. This is the valid polarity; therefore, the counter will not work if reversed.
- When wiring, try to keep all the input lines to the count and reset inputs as short as possible and avoid running them together with high voltage and power transmission lines or in a power conduit. Also, malfunctions might occur if the floating capacitance of these wires exceeds 500 pF (10 m 32.808 ft for parallel wires of 2 mm<sup>2</sup> 0.003 in<sup>2</sup>).

### Free voltage input type

- Use count input terminals ① and ② for free voltage input and reset terminals ③ and ④ for non-voltage input.
- Be aware that the application of voltage that exceeds the voltage range of the H level to the count input terminal, and the application of voltage to the reset input terminal, can cause damage to the internal elements.
- Since the current flow is very small from reset input terminal ③, please use relays and switches with high contact reliability.
- When inputting a reset with an open collector of a transistor, use a transistor for small signals in which ICBO is 1  $\mu\text{A}$  or less and always input with no voltage.
- To reset externally, short reset input terminals ③ and ④ on the rear.
- Input uses a high impedance circuit; therefore, erroneous operation may occur if the influence of induction voltage is present. If you plan to use wiring for the input signal that is 10 m 32.808 ft or longer (wire capacitance 120 pF/m at normal temperature), we recommend the use of a CR filter or the connection of a bleeder resistor.

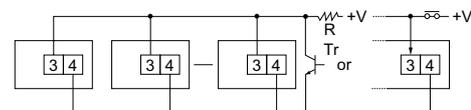
### How to reset multiple panel mounting type counters all at once (input is the same for count)

#### Non-voltage input type



- Notes: 1) Use the following as a guide for choosing transistors used for input (Tr).  
Leakage current < 1  $\mu\text{A}$
- 2) Use as small a diode (D) as possible in the forward voltage so that the voltage between terminals 3 and 4 during reset input meets the standard value (0.5 V).  
(At IF = 20  $\mu\text{A}$ , forward voltage: Max. 0.1 V)

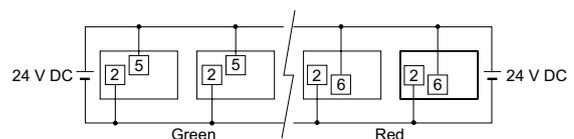
#### Voltage input type



Note: Make sure that H (reset ON) level is at least 4.5 V.

### Backlight luminance

To prevent varying luminance among backlights when using multiple backlight types, please use the same backlight power supply.



## Disclaimer

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