OMRON®

Self-Powered Counters | H7EC

Subminiature Count Totalizers Require No External Power Supply

- Subminiature 48 x 24 mm (1.89 x .94 in)
- Improved noise immunity
- Screw terminal and wire-wrap types available
- AC, DC, and no-voltage input
- Printed circuit board version (H7E□-P)
- Panel adapters for existing cutouts (order separately from accessories)
- Self-powered, 3 V lithium battery

Ordering Information

■ COUNT TOTALIZERS

Operating mode	UP type								
Display	LCD digital, 5.1 mm (0.2 in) high								
Reset system	External (electrical) reset					External/Manual reset			
Number of digits	7					6			
Count input	AC/DC voltage input	DC voltage input		No-voltage contact input		DC voltage input		No-voltage contact input	
Max. counting speed*	20 cps	1 kcps	30 cps	1 kcps	30 cps	1 kcps	30 cps	1 kcps	30 cps
Terminals Wire-wrap	—	H7EC-V	H7EC-VL	H7EC	H7EC-L	H7EC-VM	H7EC-VLM	H7EC-M	H7EC-LM
Terminals Screw	H7EC-FBV	H7EC-BV	H7EC-BVL	H7EC-B	H7EC-BL	H7EC-BVM	H7EC-BVLM	H7EC-BM	H7EC-BLM

* For details about matching the counting speed with the appropriate input device, see "Selecting the H7EC Totalizing Counter," located in Operation section.

■ ACCESSORIES

Description		Part number
Panel adapters	Fits 26 x 45 mm (1.02 x 1.77 in.) rectangular cutout	Y92F-75
	Fits 27.5 x 52.5 mm (1.1 x 2.07 in.) rectangular cutout	Y92F-76
	Fits 24.8 x 48.8 mm (0.98 x 1.92 in.) rectangular cutout	Y92F-77

Specifications

■ RATINGS

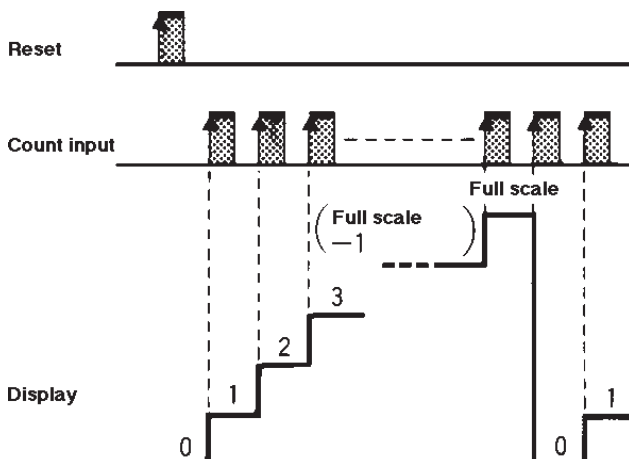| Supply voltage	Not required (powered by built-in battery)

Input	AC/DC voltage input:
	  24 to 240 VAC ± 10%, 50/60 Hz, or
	  6 to 240 VDC ± 10% at "High" (logic) level
	  0 to 1.5 VAC ± 10%, 50/60 Hz, or
	  0 to 2 VDC ± 10% at "Low" (logic) level
	DC voltage input: 4.5 to 30 VDC at "High" (logic) level
	                              0 to 2 VDC at "Low" (logic) level
	No-voltage input:
	  Maximum short-circuit impedance: 10 kΩ max.
	  Short-circuit residual voltage: 0.5 V max.
	  Minimum open impedance: 500 kΩ min.

Maximum counting speed*	1 kcps: Minimum signal width 0.5 ms 30 cps: Minimum signal width 16.7 ms 20 cps: Minimum signal width 25 ms
Reset time	External and manual reset types (6-digit models): 20 ms reset signal External reset types (7-digit models): 20 ms reset signal

* ON/OFF ratio 1:1

Approved by the following standards
UL
CSA
CE (EMC)

■ CHARACTERISTICS

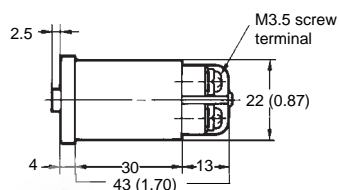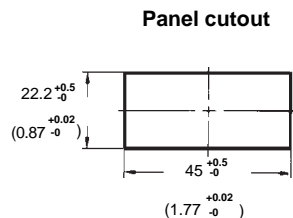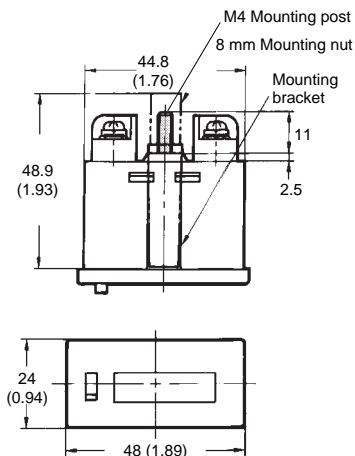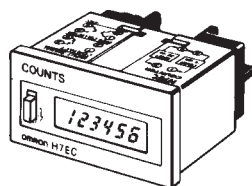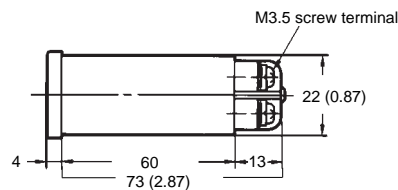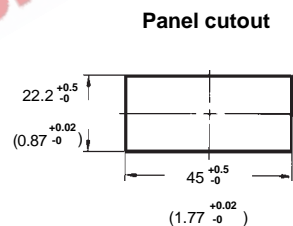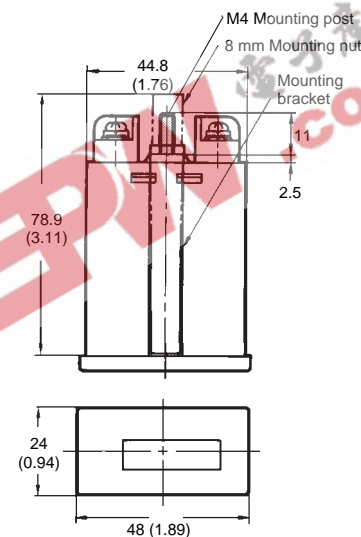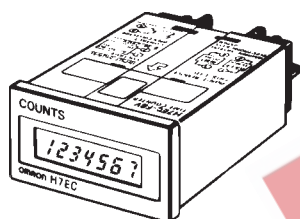| Insulation resistance	100 MΩ min. at 500 VDC
Dielectric strength	1,000 VAC 50/60 Hz for 1 minute between current-carrying terminals and exposed non-current-carrying metal parts
Vibration	Mechanical durability: 10 to 55 Hz; 0.75 mm (0.03 in) double amplitude Malfunction durability: 10 to 55 Hz; 0.3 mm (0.02 in) double amplitude
Shock	Mechanical durability: Approx. 30 G Malfunction durability: Approx. 10 G
Ambient temperature	Operating: -10° to 55°C (14° to 131°F) Storage: -25° to 65°C (-13° to 149°F)
Humidity	Operating: 35 to 85% RH
Battery life	30 cps type: 7 years min. of continuous input 1 kcps and 20 cps types: 6 years min. of continuous input
Weight	AC/DC voltage input type: Approx. 90 g (3.18 oz) DC voltage and No-voltage input types: Approx. 60 g (2.12 oz) (including mounting bracket)

Timing Chart

Dimensions

Unit: mm (inch)
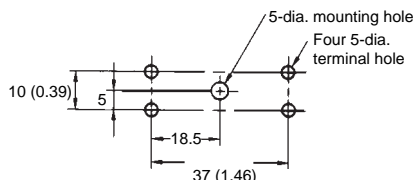
■ SCREW TERMINAL COUNTERS

No-voltage and DC Input Types

M4 Mounting post
8 mm Mounting nut
Mounting bracket

44.8 (1.76)
48.9 (1.93)
11
2.5

24 (0.94)
48 (1.89)

Panel cutout

22.2 $^{+0.5}_{-0}$ (0.87 $^{+0.02}_{-0}$)
45 $^{+0.5}_{-0}$ (1.77 $^{+0.02}_{-0}$)

M3.5 screw terminal
2.5
22 (0.87)
4
30
13
43 (1.70)

AC/DC Voltage Input Type

M4 Mounting post
8 mm Mounting nut
Mounting bracket

44.8 (1.76)
78.9 (3.11)
11
2.5

24 (0.94)
48 (1.89)

Panel cutout

22.2 $^{+0.5}_{-0}$ (0.87 $^{+0.02}_{-0}$)
45 $^{+0.5}_{-0}$ (1.77 $^{+0.02}_{-0}$)

M3.5 screw terminal
22 (0.87)
4
60
13
73 (2.87)

■ WIRE-WRAP TERMINAL COUNTERS

M4 Mounting post
8 mm Mounting nut
Mounting bracket

44.8 (1.76)
11
2.5

Panel cutout

22.2 $^{+0.5}_{-0}$ (0.87 $^{+0.02}_{-0}$)
45 $^{+0.5}_{-0}$ (1.77 $^{+0.02}_{-0}$)

M4 Mounting post
Wire-wrap terminal (1 x 1 mm)
2.5
22 (0.87)
4
30
26
56 (2.20)

24 (0.94)
48 (1.89)
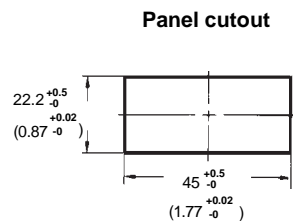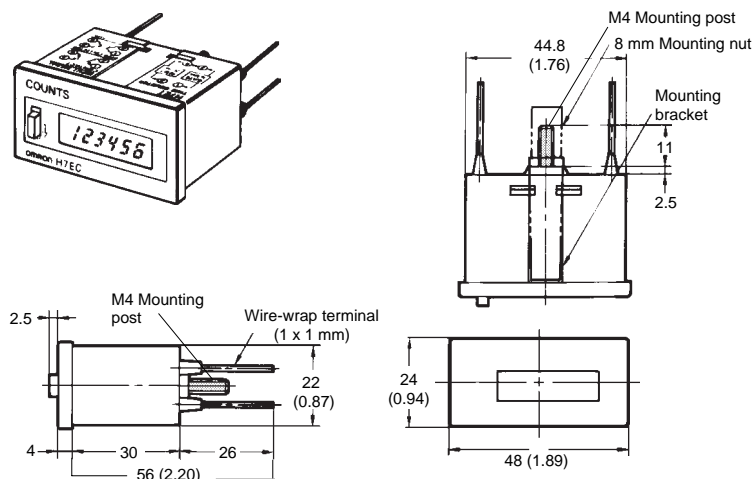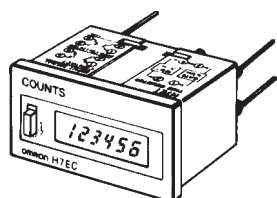
Mounting holes and footprint

5-dia. mounting hole
Four 5-dia. terminal hole
10 (0.39)
5
18.5
37 (1.46)

3

■ PANEL MOUNTING ADAPTERS

Y92F-75

Two 3.5 mm dia. mounting holes

Panel cutout

2-M3

31 (1.22) 24.2 22.2

26

26 (1.02)

45.2
48.2
63
72 (2.83)

4

45
63 (2.48)

Y92F-76

Panel cutout

4.5 mm dia. mounting hole

2-M4

50 (1.97) 38 24.2 22.2

38 (1.50) 27.5

45.2
48.2
60 (2.36)

4

52.5 (2.07)

Y92F-77

Panel cutout

28.8 (1.13) 24.2 22.2

24.8 (0.98)

45.2
48.2
53.8 (2.12)

4

48.8 (1.92)
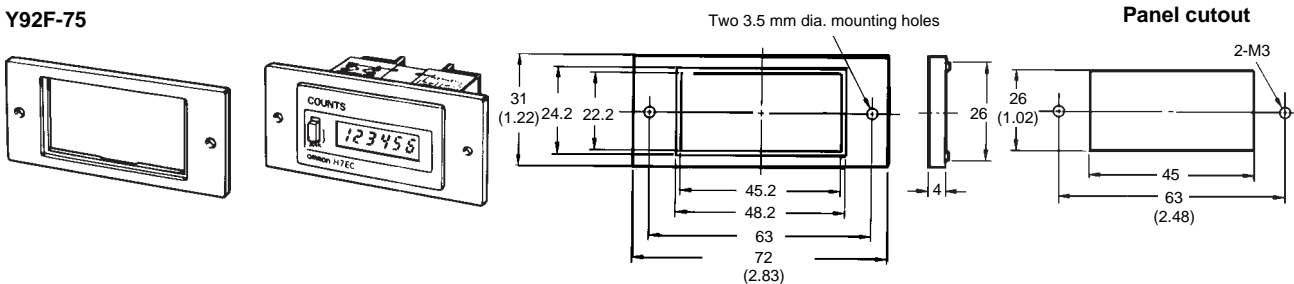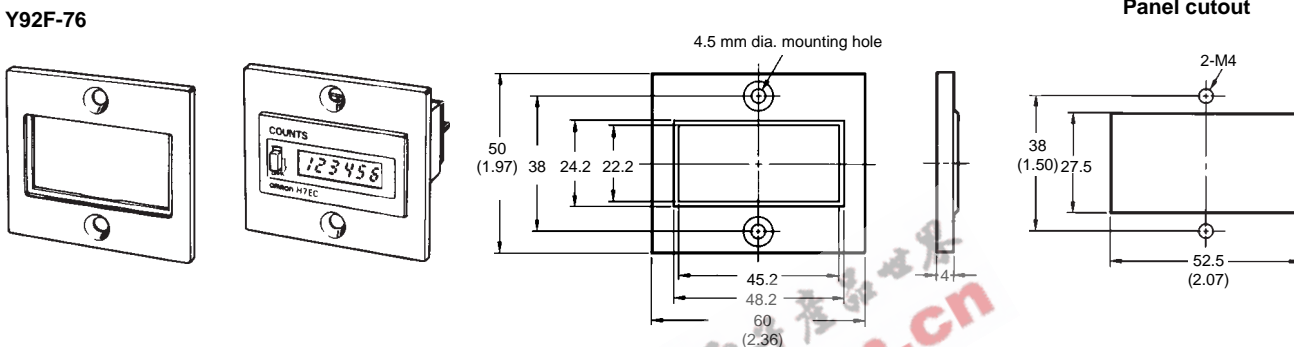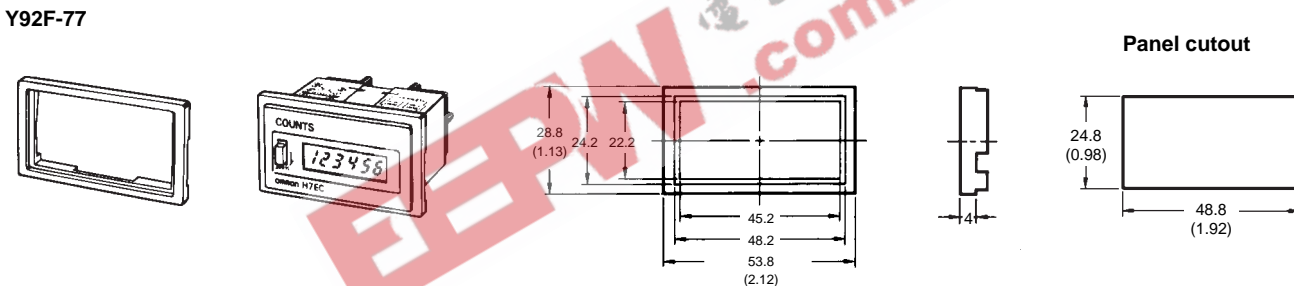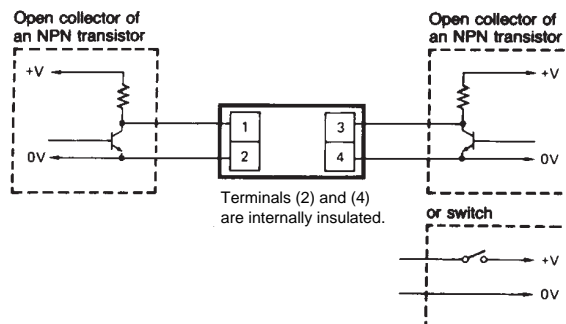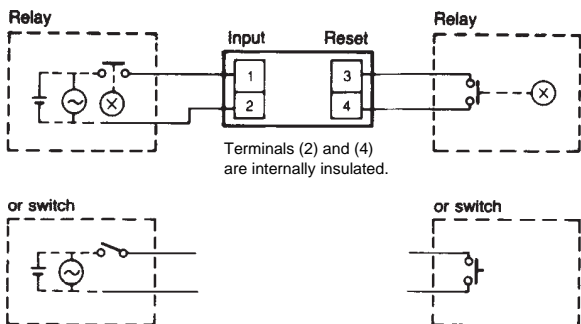
Connections

■ AC/DC VOLTAGE INPUT TYPE
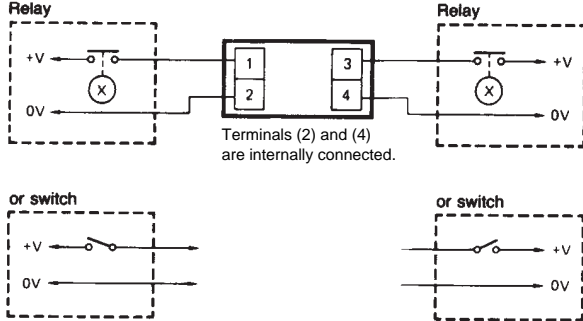
1. Contact input (input by relay or switch contact)

2. Solid-state input (open collector input of an NPN transistor)

Relay

Input   Reset

Relay

1 | 3
2 | 4

Terminals (2) and (4) are internally insulated.

or switch

or switch

Open collector of an NPN transistor

+V

0V

Open collector of an NPN transistor

1 | 3
2 | 4

+V

0V

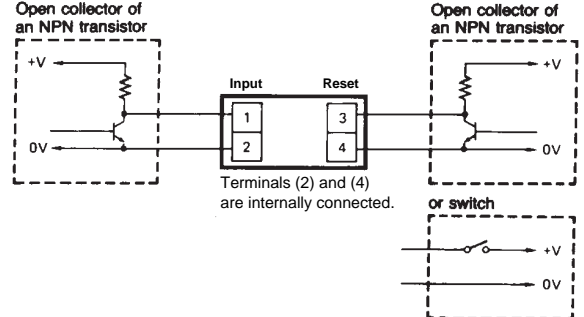Terminals (2) and (4) are internally insulated.

or switch

+V

0V

■ DC VOLTAGE INPUT TYPE

1. Contact input (input by a relay or switch contact)

2. Solid-state input (open collector input of an NPN transistor)

Terminals (2) and (4) are internally connected.

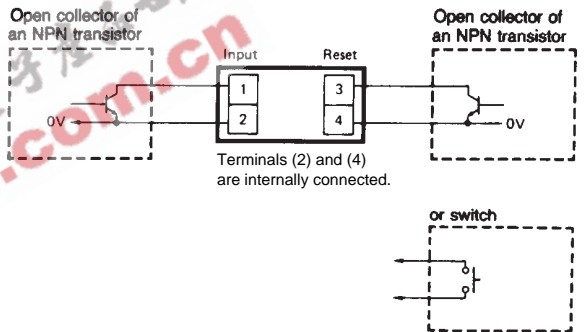## ■ NO-VOLTAGE INPUT TYPE

1. Contact input (input by a relay or switch contact)

2. Solid-state input (open collector input of an NPN transistor)

Terminals (2) and (4) are internally connected.

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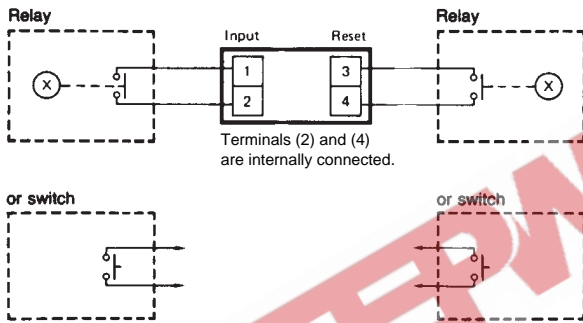
Operations

■ SELECTING THE H7EC TOTALIZING COUNTER

Determine the maximum counting speed of the counter by evaluating the input conditions listed in the table at right.

Counting speed	20 or 30 cps	1 kcps
Contact signal input	Relay or switch contact input with some chattering	Do not input contact signal inputs. Chattering is counted as signal input.
Solid-state signal input	Low-speed transistor inputs	High-speed transistor inputs

■ MANUALLY RESETTING COUNTERS (-M SUFFIX MODELS)

Counters with "-M" suffixes offer the option of manual or external resetting. To manually reset the counter, press the reset button located to the left of the display window. To prevent an accidental reset, lock the reset button by sliding the button downward, without depressing it. A small "click" sound may be heard, both when locking and unlocking the reset button. Slide the button up to unlock.

COUNTS

123456

omron H7EC