Self-powered Totalizer New H7E

Compact Economical Totalizer with High Visibility **Available with Backlit LCD Display**

- Large display with 8.6-mm character height.
- Includes new models with backlight for improved visibility in dimly lit places. (Requires 24-VDC power supply.)
- Black and light-gray cases now available.
- PNP/NPN universal DC voltage input types now available.
- Battery is replaceable for Totalizer reuse and conservation of the environment.
- Key-protect switch to prevent faulty reset key operation.
- Dual operation mode.
- Front face compatible with NEMA4/IP66.
- Short body, all models have a depth of 48.5 mm.
- Finger protection terminal block conforms to VDE0106 Part100.
- · Conforms to UL, CSA, and CE marking. Conforms to EN61010-1 (pollution degree 2/overvoltage category III.)
- Conforms to EMC standards and EN61326, thus allowing use in residential, commercial and light- and heavy-industry environments.
- Six-language instruction manual provided.
- PCB-mounting models available. (Requires 3-V power supply.)

■ Broad Line-up of the New H7E Series

New H7E

New H7EC

Total Counter 8-digit

New H7ET





Time Counter

- 999999.9h/ 3999d23.9h
- 999h59min59s/ 9999h59.9min

New H7ER





New H7E□-N□P



PCB-mounting Counter

- Total Counter (8-digit)
- Time Counter (999999.9h)

Tachometer

- 1.000 s⁻¹ with 1 pulse/rev. encoder
- $1,000.0 \text{ s}^{-1} \text{ with}$ 10 pulse/rev. encoder
- 1,000 min⁻¹ with 60 pulse/rev. encoder
- 10.000 min⁻¹ with 60 pulse/rev. encoder
- 1,000.0 min⁻¹ with 600 pulse/rev. encoder

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Self-powered Total Counter New H7EC

- Eight-digits, counting range 0 to 99999999.
- Dual input speed: 30 Hz \longleftrightarrow 1 kHz (except for AC/DC multivoltage input models)







Model Number Structure

■ Model Number Legend

H7EC - N ___ - __ __ ___

1. Count Input

None: No-voltage input

V: PNP/NPN universal DC voltage input

FV: AC/DC multi-voltage input

2. Case Color
None: Light gra

None: Light gray B: Black

3. Display

None: 7-segment LCD without backlight H: 7-segment LCD with backlight

Ordering Information

■ Total Counters

Count input	Max. counting speed	Display	Model	
			Light-gray body	Black body
PNP/NPN universal DC voltage input	30 Hz \longleftrightarrow 1 kHz (switchable)	7-segment LCD with backlight	H7EC-NV-H	H7EC-NV-BH
		7-segment LCD	H7EC-NV	H7EC-NV-B
AC/DC multi-voltage input	20 Hz	7-segment LCD	H7EC-NFV	H7EC-NFV-B
No-voltage	30 Hz \longleftrightarrow 1 kHz (switchable)	7-segment LCD	H7EC-N	H7EC-N-B

■ Accessories (Order Separately)

Lithium Battery	Y92S-36	
Wire-wrap Terminal (set of two Terminals)	Y92S-37	
Compact Flush Mounting Bracket (See note.)	Y92F-35	
Flush Mounting Adapter	26 mm × 45.3 mm	Y92F-75
	27.5 mm × 52.5 mm	Y92F-76
	24.8 mm × 48.8 mm	Y92F-77B

Note: The New H7E models are supplied with a Y92F-34 Mounting Bracket.



Specifications

■ General

Item	H7EC-NV-□ H7EC-NV-□H	H7EC-NFV-□	H7EC-N-□	
Operating mode	Up type			
Mounting method	Flush mounting			
External connections	Screw terminals, optional Wire-wrap Terminals (see note 1)			
Reset	External/Manual reset			
Number of digits	8			
Count input	PNP/NPN universal DC voltage input	AC/DC multi-voltage input	No-voltage input	
Display	7-segment LCD with or without backlight, zero suppression (character height: 8.6 mm) (see note 2)			
Max. counting speed	30 Hz/1 kHz 20 Hz 30 Hz/1 kHz			
Case color	Light gray or black (-B models)			
Attachment	Waterproof packing, flush mounting bracket			
Approved standard	UL863, CSA C22.2 No.14, Lloyds Conforms to EN61010-1/IEC61010-1 (Pollution degree2/overvoltage category III) Conforms to VDE0106/P100			

Note: 1. Separately ordered Wire-wrap Terminals (Y92S-37) are required.

2. Only PNP/NPN universal DC voltage input models (-H models) have a backlight.

■ Ratings

Item	H7EC-NV-□ H7EC-NV-□H	H7EC-NFV-□	H7EC-N-□
Supply voltage	Backlight model: 24 VDC (0.3 W max.) (only for backlight) No-backlight model: Not required (powered by built-in battery)	Not required (powered by built-in battery	
Count input	High (logic) level: 4.5 to 30 VDC Low (logic) level: 0 to 2 VDC (Input impedance: Approx. 4.7 kΩ)	High (logic) level: 24 to 240 VAC/VDC, 50/60 Hz Low (logic) level: 0 to 2.4 VAC/VDC, 50/60 Hz	No voltage input Maximum short-circuit impedance: $10~\text{k}\Omega$ max. Short-circuit residual voltage: $0.5~\text{V}$ max. Minimum open impedance: $750~\text{k}\Omega$ min.
Reset input		No voltage input Maximum short-circuit impedance: $10~\text{k}\Omega$ max. Short-circuit residual voltage: $0.5~\text{V}$ max. Minimum open impedance: $750~\text{k}\Omega$ min.	
Max. counting speed (see note)	30 Hz or 1 KHz (Switchable with switch)	20 Hz	30 Hz or 1 KHz (Switchable with switch)
Minimum signal width	20 Hz: 25 ms 30 Hz: 16.7 ms 1 KHz: 0.5 ms		
Reset system	External reset and manual reset: Minimum signal width of 20 ms		
Terminal screw tightening torque	0.98 N⋅m max.		
Ambient tempera- ture	Operating: -10°C to 55°C (with no condensation or icing) Storage: -25°C to 65°C (with no condensation or icing)		
Ambient humidity	Operating 25% to 85%		

Note: ON/OFF ratio 1:1



■ Characteristics

Item	H7EC-NV-□ H7EC-NV-□H	H7EC-NFV-□	H7EC-N-□
Insulation resistance	$100~M\Omega$ min. (at 500 VDC) between current-carrying metal parts and exposed non-current-carrying metal parts, and between the backlight power supply terminal and count input terminals/reset terminals for backlight models	$100~M\Omega$ min. (at 500 VDC) between current-carrying metal parts and exposed non-current-carrying metal parts and between count input terminals and reset terminals	100 MΩ min. (at 500 VDC) between current-carrying metal parts and exposed non-current-carrying metal parts
Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between current-carrying metal parts and exposed non-current-carrying metal parts and between the backlight power supply terminal and count input terminals/reset terminals for backlight models	3,700 VAC, 50/60 Hz for 1 min between current-carrying metal parts and exposed non-current-carrying metal parts 2,200 VAC, 50/60 Hz for 1 min between reset terminals and exposed non-current-carrying metal parts and between count input terminals and reset terminals	1,000 VAC, 50/60 Hz for 1 min between current-carrying metal parts and exposed non-current-carrying metal parts
Impulse withstand voltage	4.5 kV between current-carrying termi- nal and exposed non-current-carrying metal parts	4.5 kV between current-carrying terminal and exposed non-current-carrying metal parts 3 kV between input terminals and reset terminals	4.5 kV between current-carrying terminal and exposed non-current-carrying metal parts
Noise immunity	Square-wave noise generated by noise	simulator (pulse width: 100 ns/1 μs, 1-ns	s rise)
	±600 V (Between count input terminals/ Between reset terminals) ±480 V (Between the backlight power	±1.5 kV (Between count input terminals) ±500 V (Between reset terminals)	±500 V (Between count input terminals/ Between reset terminals)
	supply terminals for backlight models)		
Static immunity	±8 kV (malfunction)		
Vibration resistance	Malfunction: 0.15-mm single amplitude Destruction: 0.375-mm single amplitude	at 10 to 55 Hz for 10 min each in 3 direct e at 10 to 55 Hz for 2 hrs each in 3 direct	
Shock resistance	Malfunction: 200 m/s ² 3 times each in 6 Destruction: 300 m/s ² 3 times each in 6		
EMC Degree of protection	Emission Enclosure: EN: (EMS) ENI Immunity ESD: ENI Immunity RF-interference from AM Rad ENI Immunity RF-interference from Pulse-m ENI Immunity Conducted Disturbance: ENI Immunity Burst: ENI Front panel: IP66, NEMA4	61000-4-3: 10 V/m (80 MHz to 1 GHz)	(level 3) (level 3) I 3)
1	Terminal block: IP20		
Weight (see note)	No-backlight model: Approx. 60 g Backlight model: Approx. 65 g	Approx. 60 g	Approx. 60 g

Note: Weight includes waterproof packing and flush mounting bracket.

■ Reference Value

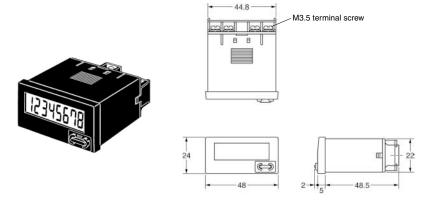
Item	Value	Note
Battery life	(lithium battery)	The battery life is calculated according to the conditions in the left column and therefore is not a guaranteed value. Use these value as reference for maintenance or replacement.



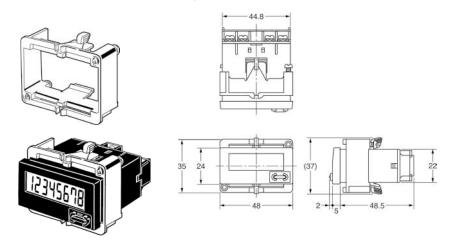
Dimensions

Note: All units are in millimeters unless otherwise indicated.

H7EC-N

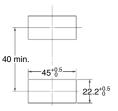


Dimensions with Flush Mounting Bracket

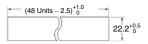


Panel Cutout

Separate mounting



Dense mounting



Waterproofing is not possible for dense mounting

- When mounting, insert the Counter into the cutout, insert the adapter from the back and push in the Counter while making the gap between the front panel and the cutout panel as small as possible. Use screws to secure the Counter. If waterproofing is desired, insert the waterproof packing.
- When several Counters are installed, ensure that the ambient temperature will not exceed specifications.
- The appropriate thickness of the panel is 1 to 5 mm.

Note: A Compact Flush Mounting Bracket (Y92F-35) can also be used. Refer to Accessories for details.