

Self-Powered Tachometer

H7EC

Subminiature Total Counters With Improved Appearance and Features

- Large display with 8.6 mm (0.338 in) height
- Available with backlit LCD
- PNP/NPN DC voltage input available
- Eight-digits, counting range 0 to 99999999
- Key-protect switch to prevent front resetting
- Selectable input speed: 30 Hz or 1 kHz (except for AC/DC multi-voltage input models)
- NEMA 4/IP66 front
- Replaceable battery
- New black case



Ordering Information

■ TOTAL COUNTERS

Count input	Max. counting speed	Display	Part number
PNP/NPN universal DC voltage input	30 Hz or 1 kHz (Selectable)	7-segment LCD with backlight	H7EC-NV-BH
		7-segment LCD	H7EC-NV-B
AC/DC multi-voltage input	20 Hz	7-segment LCD	H7EC-NFV-B
No-voltage	30 Hz or 1 kHz (Selectable)	7-segment LCD	H7EC-N-B

■ MODEL NUMBER LEGEND

1. Count Input

None: No-voltage input
 V: PNP/NPN universal DC voltage input
 FV: AC/DC multi-voltage input

2. Display

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

3. Case Color

B: Black

■ ACCESSORIES (ORDER SEPARATELY)

Item	Part number
Replacement Battery	Y92S-36
Wire-wrap Terminal (set of two Terminals)	Y92S-37
Flush Mounting Adapter	26 mm × 45 mm Y92F-75
	24.8 mm × 48.8 mm Y92F-77B

Specifications

■ GENERAL

Item	H7EC-NV-B H7EC-NV-BH	H7EC-NFV-B	H7EC-N-B
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 (character height: 8.6 mm) (See Note 2.)		
Max. counting speed	30 Hz/1 kHz	20 Hz	30 Hz/1 kHz
Case color	black		
Attachment	Waterproof packing, flush mounting bracket		
Approved standard	UL508, CSA C22.2 No.14, Lloyds Conforms to EN61010-1/IEC61010-1 (Pollution degree2/overvoltage category III) Conforms to VDE0106/P100		

Note: 1. Wire-wrap Terminals (Y92S-37) can be ordered separately.
2. Only PNP/NPN universal DC voltage input models (-H models) are available with a backlight.

■ RATINGS

Item	H7EC-NV-B H7EC-NV-BH	H7EC-NFV-B	H7EC-N-B
Supply voltage	Backlight model: 24 VDC (only for backlight) No-backlight model: Not required (powered by battery)	Not required (powered by 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 kΩ max. Short-circuit residual voltage: 0.5 V max.
Reset input		No voltage input Maximum short-circuit impedance: 10 kΩ max. Short-circuit residual voltage: 0.5 V max. Minimum open impedance: 750 kΩ min.	Minimum open impedance: 750 kΩ min.
Max. counting speed (see Note.)	30 Hz or 1 kHz (Selectable)	20 Hz	30 Hz or 1 kHz (Selectable)
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 Temperature	Operating: -10°C to 55°C (14°F to 131°F) with no condensation or icing Storage: -25°C to 65°C (-13°F to 149°F) with no condensation or icing		
Ambient humidity	Operating: 25% to 85%		

Note: ON/OFF ratio 1:1

■ CHARACTERISTICS

Item	H7EC-NV-B H7EC-NV-BH	H7EC-NFV-B	H7EC-N-B
Insulation resistance	100 MΩ 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 MΩ 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 terminal 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	Between input terminals: ±600 V in normal mode, ±1.5 kV in command mode For backlight power supply (backlight model): ±480 V in normal mode, ±1.5 kV in command mode	Between count input terminals: ±1.5 kV in normal mode, ±1.5 kV in command mode Between reset input terminals: ±500 V in normal mode, ±1.5 kV in command mode	±500 V in normal mode, ±1.5 kV in command mode
Static immunity	±8 kV (malfunction)		
Vibration resistance	Malfunction: 0.35-mm single amplitude at 10 to 55 Hz for 10 min each in 3 directions Destruction: 0.375-mm single amplitude at 10 to 55 Hz for 2 hrs each in 3 directions		
Shock resistance	Malfunction: 200 m/s ² 3 times each in 6 directions Destruction: 300 m/s ² 3 times each in 6 directions		
Battery life	7 years min. with continuous input at 25°C (lithium battery)		
EMC	(EMI) Emission Enclosure: (EMS) Immunity ESD: Immunity RF-interference from AM Radio Waves: Immunity RF-interference from Pulse-modulated Radio Waves: Immunity Conducted Disturbance: Immunity Burst: EN50081-1 EN55022 class B EN50082-2 EN61000-4-2: ENV50140: ENV50204: ENV50141: EN61000-4-4: 4-kV contact discharge (level 2) 8-kV air discharge (level 3) 10 V/m (80 MHz to 1 GHz) (level 3) 10 V/m (900 MHz ± 5 MHz) (level 3) 10 V (0.15 to 80 MHz) (level 3) 2-kV power line (level 3) 2-kV I/O signal line (level 4)		
Enclosure rating	Front panel: IP66, NEMA4 Terminal block: IP20		
Weight (See Note.)	Non-backlight model: Approx. 60 g Backlight model: Approx. 65 g	Approx. 60 g	Approx. 60 g

Note: Weight includes waterproof packing and panel mounting bracket.