Total Counter/Time Counter (DIN 48 x 24)
H7GP

CSM_H7GP_DS_E_4_5

DIN 48 x 24-mm Total Counter/Time Counter with Easy-to-read Displays and Water and Oil Resistance Equivalent to IP66

- High-visibility, negative transmissive LCD display with 8.5-mm-high characters and built-in red LED backlight at low power consumption.
- IP66 with oil resistance and NEMA 4 protection achieved by unifying the front with the case and by using oil-resistant parts and materials.
- Compact (80 mm) body.
- Just change a switch setting for either an NPN or PNP input.
- Supports both external resetting and manual resetting.
- Finger-protection terminal block cover prevents electrical shock and conforms to VDE0106, Part 100.
- Certified for UL and CSA safety standards.
- Complies with EMC standards (EN 61326) and CE Marking.

For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Model Number Structure

■ Model Number Legend

H7GP-□□□
1 2 3

1. Classification
C: Total counter
T: Time counter

2. Supply Voltage
None: 100 to 240 VAC
D: 12 to 24 VDC

3. Case Color of Front Section
None: Light gray (Munsell 5Y7/1)
B: Black

Ordering Information

■ List of Models

Total counter

Supply voltage	6-digit total counter	
	Light gray	Black
100 to 240 VAC	H7GP-C	H7GP-CB
12 to 24 VDC	H7GP-CD	H7GP-CDB

Time counter

Supply voltage	6-digit time counter	
	Light gray	Black
100 to 240 VAC	H7GP-T	H7GP-TB
12 to 24 VDC	H7GP-TD	H7GP-TDB

Specifications

■ Ratings

Item		6-digit total counter		6-digit time counter	
		H7GP-C	H7GP-CD	H7GP-T	H7GP-TD
Rated supply voltage		100 to 240 VAC (50/60 Hz)	12 to 24 VDC (see note 1)	100 to 240 VAC (50/60 Hz)	12 to 24 VDC (see note 1)
External power supply		50 mA at 12 VDC	---	50 mA at 12 VDC	---
Operating voltage range		85% to 110% of rated supply voltage			
Power consumption		100 to 240 VAC: 6.5 VA max. 12 to 24 VDC: 0.6 W max.			
Dimensions		48 x 24 x 80 mm (W x H x D)			
Mounting method		Flush mounting			
External connections		Screw terminals			
Degree of protection		Panel surface: IP66 with oil resistance and NEMA Type 4 (indoors).			
Display		7-segment, negative transmissive LCD (with red backlight)			
Digits		6 digits (8.5-mm-high characters)			
Input mode		Up (increment)		Accumulative	
Max. counting speeds		30 Hz or 5 kHz (selected via DIP switch)		---	
Counting range		0 to 999999		---	
Time specification		---		0.1 to 99999.9 h/1 s to 99 h 59 min 59 s (selected via DIP switch)	
Timing accuracy		---		±100 ppm (–10°C to 55°C)	
Memory backup		EEP-ROM (overwrites: 200,000 times min.) that can store data for 20 years min.			
Input	Input signals	Count, reset, and key protection (see note 2)		Start, reset, and key protection (see note 2)	
	Input method	No-voltage input (NPN transistor input) or voltage input (PNP transistor input) (selected via DIP switch)			
	Count, reset, start	No-voltage input (NPN transistor input) Short-circuit (ON) impedance: 1 kΩ max. Short-circuit (ON) residual voltage: 2 VDC max. Open (OFF) impedance: 100 kΩ min. Voltage input (PNP transistor input) Short-circuit (ON) impedance: 1 kΩ max. ON voltage: 9 to 24 VDC OFF voltage: 5 VDC max. Open (OFF) impedance: 100 kΩ min.			
	Key protection	No-voltage input (NPN transistor input) Short-circuit (ON) impedance: 1 kΩ max. Short-circuit (ON) residual voltage: 0.5 VDC max. Open (OFF) impedance: 100 kΩ min.			
Input response speed	Reset	20 or 1 ms (automatically switched according to counting speed)		20 ms	
	Start	---		20 ms	
	Key protection	Approx. 1 s		Approx. 1 s	
Reset system		External and manual resets			

Note: 1. Contains 20% ripple (p-p) max.

2. Only a non-voltage input (NPN transistor) is possible for the key protection input. The key protection input will be a non-voltage input even if the NPN/PNP input mode is set to PNP. Key protection is used to prohibit operating the Reset Key. The reset input terminals will still be functional.

■ Characteristics

Insulation resistance	100 MΩ min. (at 500 VDC)
Dielectric strength	2,000 VAC, 50/60 Hz for 1 min between current-carrying terminal and exposed non-current-carrying metal parts (AC model) 1,000 VAC, 50/60 Hz for 1 min between current-carrying terminal and exposed non-current-carrying metal parts (DC model) 2,000 VAC, 50/60 Hz for 1 min between power terminals and control input terminals (AC model)
Impulse withstand voltage	3 kV (between power terminals) (1 kV for 12-to-24-VDC models) 4.5 kV (between current-carrying terminal and exposed non-current-carrying metal parts) (1.5 kV for 12-to-24-VDC models)
Noise immunity	±1.5 kV (between AC power terminals), ±480 V (between DC power terminals), ±480 V (between input terminals); square-wave noise by noise simulator (pulse width: 100 ns/1 μs, 1-ns rise)
Static immunity	Display: Malfunction:8 kV Destruction:15 kV DIP switch: Malfunction:4 kV Destruction:8 kV
Vibration resistance	Destruction: 10 to 55 Hz with 0.75-mm single amplitude, 2 hours each in three directions Malfunction: 10 to 55 Hz with 0.5-mm single amplitude, 10 minutes each in three directions
Shock resistance	Destruction: 294 m/s^2 each in three directions Malfunction: 196 m/s^2 each in three directions
Ambient temperature	Operating: –10°C to 55°C (with no icing) Storage: –25°C to 65°C (with no icing)
Ambient humidity	Operating: 35% to 85%
EMC	(EMI) EN61326-1 (note 1.) Emission Enclosure: EN55011 Group 1 class A Emission AC Mains: EN55011 Group 1 class A (EMS) EN61326-1 (note 1.) Immunity ESD: EN61000-4-2: 4 kV contact discharge (level 2) 8 kV air discharge (level 3) Immunity RF-interference: EN61000-4-3: 10 V/m (Amplitude-modulated, 80 MHz to 1 GHz) (level 3); 10 V/m (Pulse-modulated, 900 MHz ±5 MHz) (level 3) Immunity Conducted Disturbance: EN61000-4-6: 10 V (0.15 to 80 MHz) (according to EN61000-6-2) Immunity Burst: EN61000-4-4: 2 kV power-line (level 3); 2 kV I/O signal-line (level 4) Immunity Surge: EN61000-4-5: 1 kV line to lines (power and output lines) (level 2); 2 kV line to ground (power and output lines) (level 3) Immunity Voltage Dip/Interruption: EN61000-4-11: 0.5 cycle, 100% (rated voltage)
Approved standards	UL508 (note 2), CSA C22.2 No.14 (note 2), conforms to EN61010-1, VDE0106/P100
Case color	Rear section: Gray smoke; Front section: 5Y7/1 (light gray) or N1.5 (black)
Weight	Approx. 75 g

Note: 1. Industrial electromagnetic environment (EN/IEC 61326-1 Table 2)

2. UL508 and CAN/CSA-C22.2 No.14 certification conditions

- Power supply 100 to 240VAC types
  Ambient temperature 30°C Single mounting
- Power supply 12 to 24VDC types
  Ambient temperature 40°C Single mounting

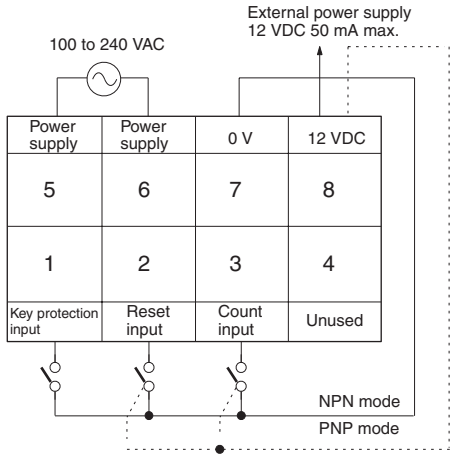
Connections

■ Terminal Arrangement

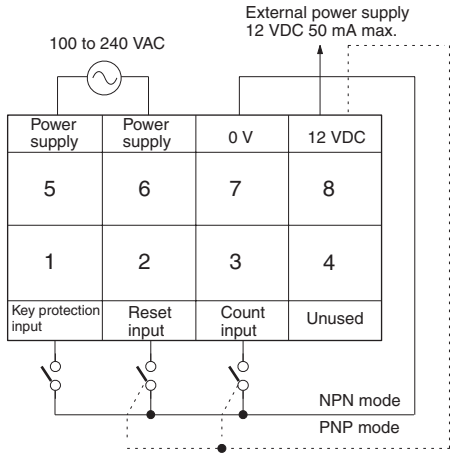
Note: Non-contact input is also available.

AC Models

H7GP-C

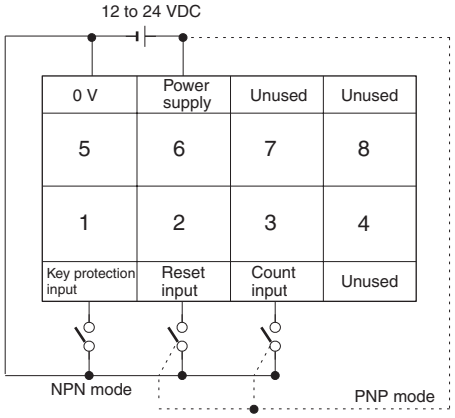


H7GP-T

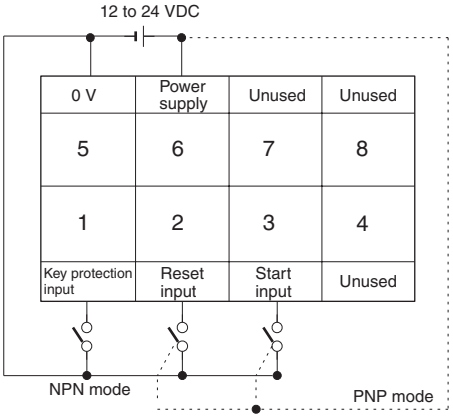


DC Models

H7GP-CD



H7GP-TD



Operation

■ DIP Switch Settings

Set all DIP switches before mounting the Counter to a control panel. All switches are set toward the display panel before shipping.

H7GP-C/-CD

Switch	Item	Function	
3 (On right side from front)	Input mode (note 1)	Display side	NPN
		Terminal side	PNP
4 (On left side from front)	Counting speed (note 1)	Display side	30 Hz
		Terminal side	5 kHz

H7GP-T/-TD

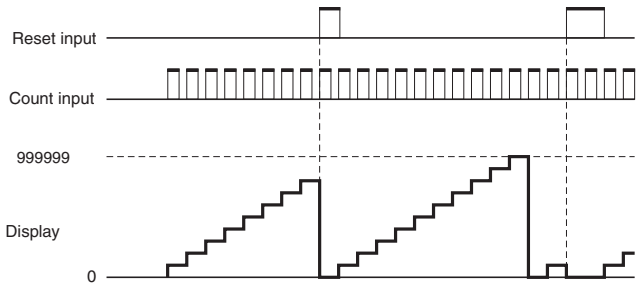
Switch	Item	Function	
3 (On right side from front)	Input mode (note 1)	Display side	NPN
		Terminal side	PNP
4 (On left side from front)	Time range (note 1)	Display side	99999.9h (note 2)
		Terminal side	99 h 59 min 59 s

Note: 1. When the setting has been changed, turned power off and on to continue. The display will show “0” when the power is turned back on.

2. The decimal point will flash every second when “99999.9 h” is set.

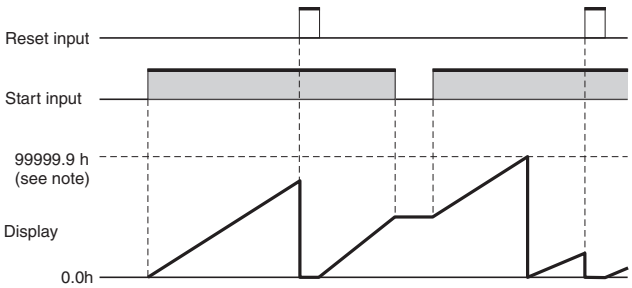
■ Operating Modes

Total Counters



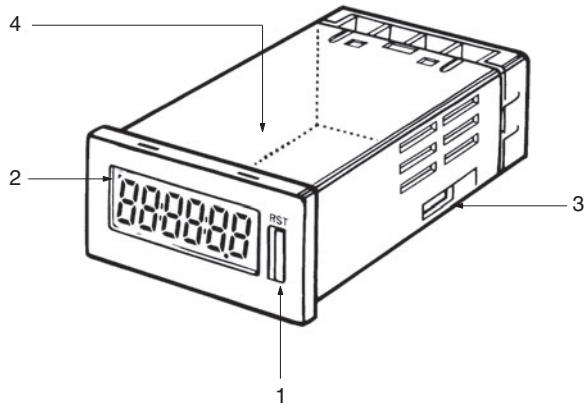
Note: The count value will return to "0" when "999999" is exceeded.
The display and output are turned OFF when the power supply turns OFF, but the count value is stored internally.

Time Counters



Note: Display values are shown for full scale set to 99999.9 h.
The count value will return to "0" when "99999.9" is exceeded.
The display and output are turned OFF when the power supply turns OFF, but the count value is stored internally.

Nomenclature

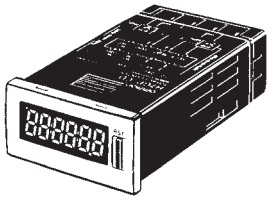


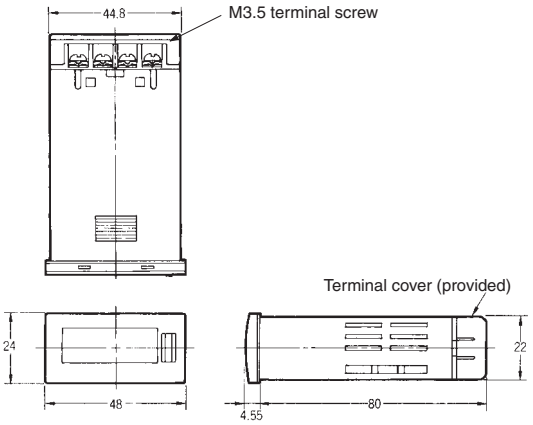
1. **Reset Key**
Resets the count value, but will not operate while the keys are protected.
2. **Key Protection Indicator**
Lit while the keys are protected. (Reset Key is disabled.).
3. **NPN/PNP DIP Switch**
(Count or start with reset)
When the setting has been changed, turned power off and on to continue. The display will show "0" when the power is turned back on. See below for details.
4. **Counting Speed DIP Switch (H7GP-C)**
Time Range DIP Switch (H7GP-T)
When the setting has been changed, turned power off and on to continue. The display will show "0" when the power is turned back on. Refer to *DIP Switch Setting* for details.

Dimensions

Note: All units are in millimeters unless otherwise indicated.

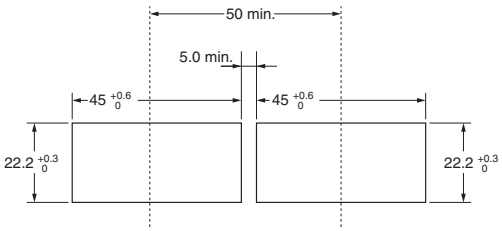
H7GP-C
H7GP-T





Panel Cutouts

Panel cutouts are as shown below (according to DIN43700).



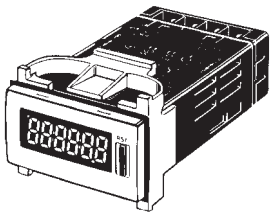
Note: 1. The mounting panel thickness should be 1 to 6 mm.

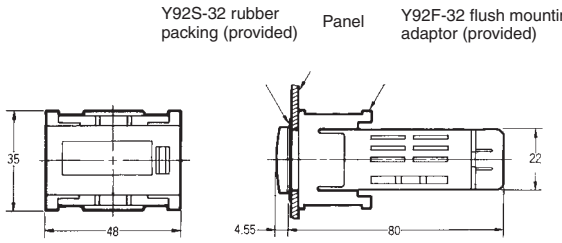
2. Water resistance will be lost if Counters are mounted side-by-side.

3. The terminal screws are M3.5. (Theeffective thread length is 6 mm.)

4. When horizontally mounting Counters side-by-side, leave at least 50 mm between any two Counters.

With Flush Mounting Bracket





ALL DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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