OMRON®

Count/Time Totalizers

H7HP

Compact Count and Time Totalizers with Easy-to-Read Display and NEMA 4 Protection

- Large, easy-to-read displays: 15 mm, 6-digit models; 12 mm, 8-digit models
- NEMA 4 protection when used in conjunction with Y92S-33 rubber gasket supplied with each unit
- High-visibility, negative transmissive LCD display with built-in red LED backlight
- Short (66 mm) body
- Six-digit models switch between total count and time counter operation, 8-digit models count totalizer only
- Switch between NPN and PNP operation
- Both external and manual resets provided

Ordering Information

Supply voltage	6-digit count/time counter		8-digit totalizing counter	
	Light gray	Black	Light gray	Black
100 to 240 VAC	**H7HP-A**	**H7HP-AB**	**H7HP-C8**	**H7HP-C8B**
12 to 24 VDC	**H7HP-AD**	**H7HP-ADB**	**H7HP-C8D**	**H7HP-C8D8**

Model Number Legend

H7HP-□□□□

1 2 3 4

1. Classification
A: Total counter/time counter
C: Total counter

2. Digits
None: 6 digits
8: 8 digits

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

4. Case Color
None: Light gray (Munsell 5Y7/1)
B: Black

■ REPLACEMENTS

Model	**Part number**
Rubber gasket (supplied)	**Y92S-33**
Panel mount adapter (see note)	**Y92F-33**

Note: Refer to the *Dimensions* section for notes on panel mounting.

Specifications

■ GENERAL CAPABILITIES

Model	H7HP-A	H7GP-AD	H7HP-C8	H7HP-C8D
Classification	6 digit total counter/timer counter		8 digit time counter	
Mounting	Panel mounting			
External connections	Screw terminals			
Enclosure ratings	Panel surface: IEC IP66 and NEMA Type 4 (indoors) when used with Y92S-33 rubber gasket.			
Input mode	Up/down (total counter) or accumulative (time counter)		Up/down	
Reset system	External and manual resets			
External power supply	50 mA at 12 VDC	---	50 mA at 12 VDC	---
Input signals	Count 1 (increment), count 2 (increment), reset, and key protection			
Input method	No-voltage input (NPN transistor input) or voltage input (PNP transistor input) selectable			
Display	7-segment, negative transmissive LCD (with red backlight)			
Digits	6 digits (15 mm characters)		8 digits (12 mm characters)	
Memory backup	EEPROM: 200,000 operations min.			

■ RATINGS

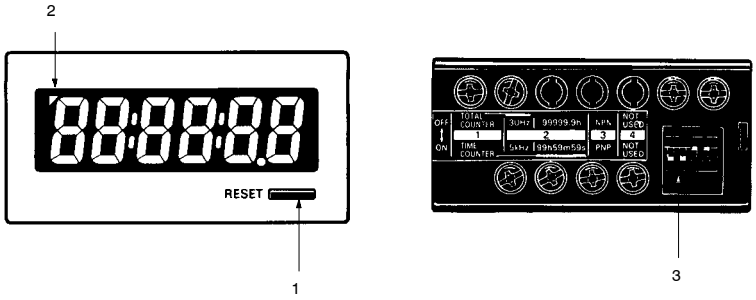
Supply voltage		100 to 240 VAC 50/60 Hz	12 to 24 VDC permissible ripple 20% (p-p) max.	100 to 240 VAC 50/60 Hz	12 to 24 VDC permissible ripple 20% (p-p) max.
Operating voltage range		85% to 110% of rated supply voltage			
Power consumption		100 to 240 VAC: 6.5 VA max.,12 to 24 VDC: 0.6 W max.			
Max. counting speeds		30 cps or 5 Kcps (selectable)		---	
Inputs	Reset	Time totalizer: 20 ms; count totalizer 20 or 1 ms (automatic corresponding to count speed)			
	Start	Time totalizer 20 ms			
	Key protection	Approx. 1 s (note 1)			
	CP1, CP2, start, gate, reset	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.			

Note: Only a non-voltage input (NPN transistor) is possible for the key protection input. Switching between NPN and PNP inputs does not affect key protection function. A PNP input cannot be used.

■ 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		Malfunction	10 to 55 Hz with 0.5-mm single amplitude each in three directions
		Destruction	10 to 55 Hz with 0.75-mm single amplitude each in three directions
Shock resistance		Malfunction	196 m/s^2 (20G) each in three directions
		Destruction	294 m/s^2 (30G) each in three directions
Ambient temperature			Operating: -10 to 55°C (14 to 131°F) no icing Storage: -25 to 65°C (-13 to 149°F) no icing
Ambient humidity			Operating: 35% to 85%
Approved standards			UL508, CSA22.2 No.14
Case color			Rear section: Gray smoke; Front section: 5Y7/1 (light gray) or N1.5 (black)
Weight			Approx. 106 g (3.74 oz)

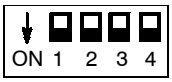
Nomenclature



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.
3. **DIP Switch**
   When setting is changed, cycle power to continue. Display reads “0” when power is applied. Refer to DIP switch settings for details.

Operation

■ DIP SWITCH SETTINGS



H7HP-A

Pin no.	Item	OFF	ON
1	Function	Total counter	Time counter
2	Counting speed	30 Hz	5 kHz
	Time range	99999.9 h	99 h 59 m 59 s
3	Input mode (note 1)	NPN	PNP
4	Unused	---	---

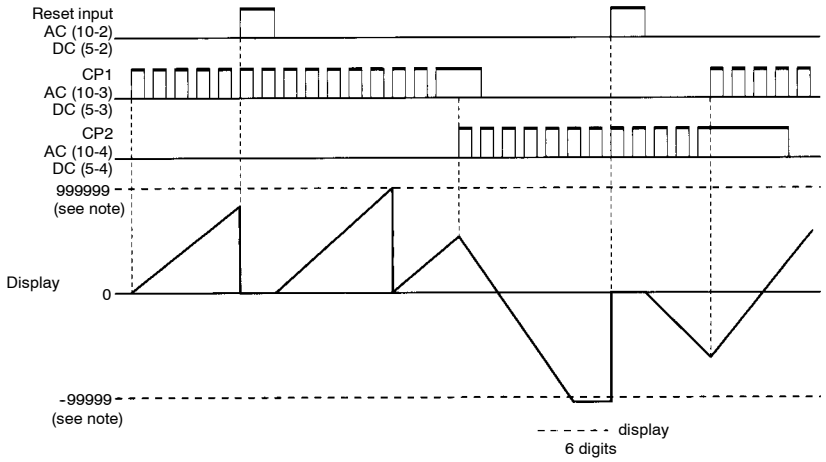
H7HP-C8

Pin no.	Item	OFF	ON
1	Unused	---	---
2	Counting speed	30 Hz	5 kHz
3	Input mode (note 1)	NPN	PNP
4	Unused	---	---

Note: 1. When setting is changed cycle power to continue. Display reads “0” when power is applied.
2. Switches 1 to 4 are factory set to OFF before shipping.

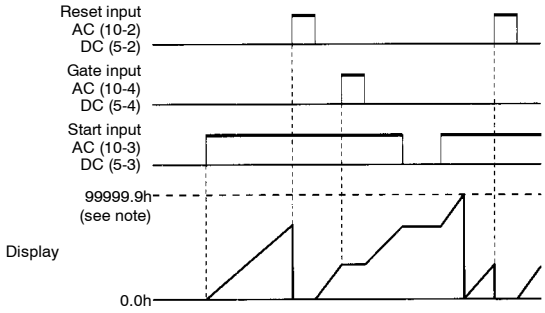
■ OPERATING MODES

Total Counters



Note: Display values are shown for a 6-digit model.

Time Counters

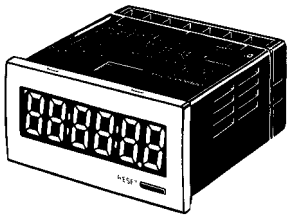


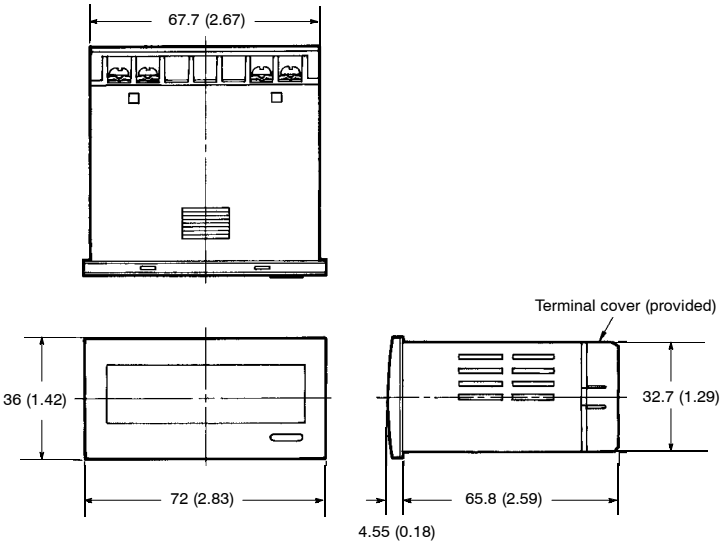
Note: 1. Display values are shown for full scale set to 99999.9 h.
2. Gate input is available only when H7HP-A settings are made.

Dimensions

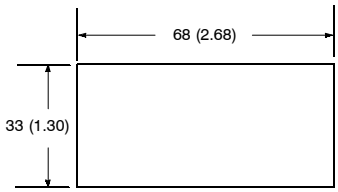
Unit: mm (inch)

■ **H7HP-A**
H7HP-C8



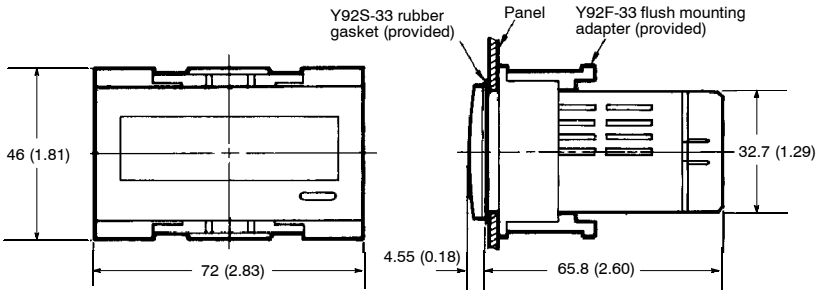


Panel Cutouts



Note: 1. Recommended panel thickness should be 1 to 6 mm (0.4 to 0.24 inch). Panel cutout conforms to DIN 43700.
2. NEMA 4 protection lost if mounted side by side.

With Panel-Mounting Adapter

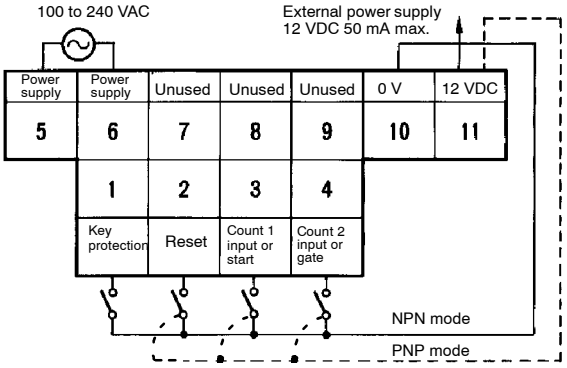


Installation

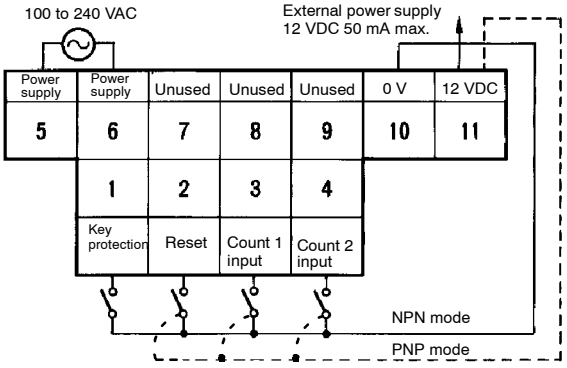
■ TERMINAL ARRANGEMENT

AC Models

H7HP-A



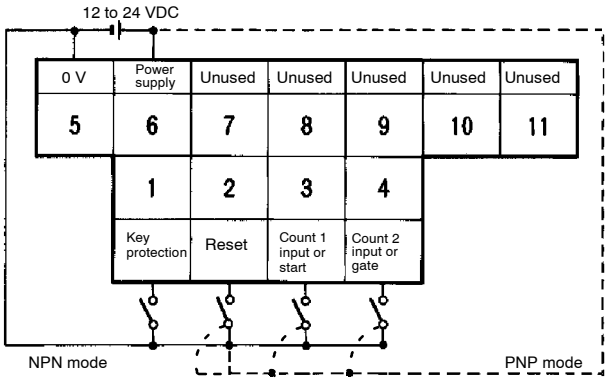
H7HP-C8



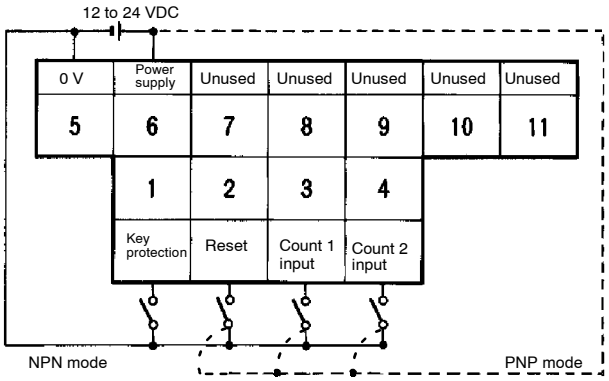
Note: Count input 1 increments, count input 2 decrements.

DC Models

H7HP-AD



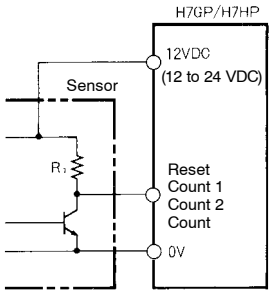
H7HP-C8D



■ INPUT CONNECTIONS

No-voltage Input (NPN Input Mode)

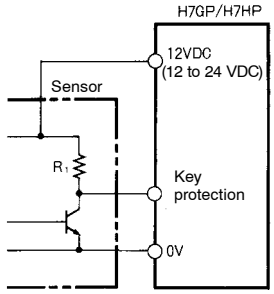
Reset, Count 1, Count 2, and Count Inputs



Reset, Count 1, Count 2, and Count Inputs Specification

Short-circuit (ON) impedance:	1 kΩ max.
Short-circuit (ON) residual voltage:	2 VDC max.
Current flow for 0-Ω short-circuit:	Approx. 2 mA
Open (OFF) impedance:	100 kΩ min.

Key Protection Input

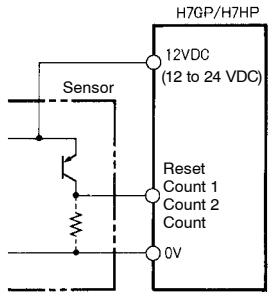


Key Protection Inputs Specification

Short-circuit (ON) impedance:	1 kΩ max.
Short-circuit (ON) residual voltage:	0.5 VDC max.
Current flow for 0-Ω short-circuit:	Approx. 0.5 mA
Open (OFF) impedance:	100 kΩ min.

Voltage Input (PNP Input Mode)

Reset, Count 1, Count 2, and Count Inputs



Reset, Count 1, Count 2, and Count Inputs Specification

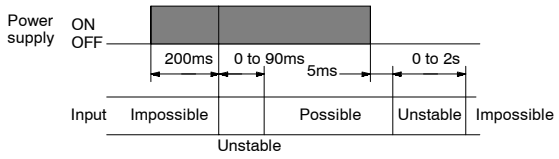
Short-circuit (ON) impedance:	1 kΩ max.
ON voltage:	9 to 24 VDC
OFF voltage:	5 VDC max.
Open (OFF) impedance:	100 kΩ min.

Precautions

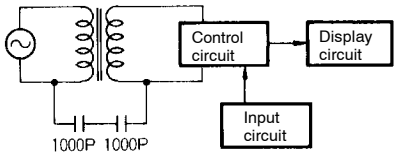
■ POWER SUPPLIES

When turning the power ON and OFF, input signal reception is possible, unstable, or impossible as shown in the diagram below.

Apply the power supply voltage through a relay or switch in such a way that the voltage reaches a fixed value immediately.



Although the H7HP power supply (primary side) is isolated from control circuits (secondary side) by a transformer, the primary and secondary sides of the transformer are linked by a capacitor, making it possible for high-frequency components to leak to the secondary side. Take adequate precautions against electrical shock. Do not connect input circuits to exposed parts (such as machine body) and be sure that the power supply is turned off before wiring.



■ SELF-DIAGNOSTIC FUNCTION

The following displays will appear if an error occurs.

Display	Error	Correction
----	-99999 max. (6-digit model)	Press RST Key or reset input
	-9999999 max. (8-digit model)	
e1	CPU	Press RST Key or turn power OFF and then ON
e2	Memory	

■ PANEL MOUNTING

The panel surface is water-resistant (conforming to NEMA 4 (indoors) and IP66). In order to prevent the internal circuit from water penetration through the space between the counter and operating panel, secure the Y92S-33 rubber gasket between the counter and operating panel with the Y92F-33 panel-mounting adapter.

Note: Be sure the rubber packing is installed in the correct direction. The wider portion must be facing the panel when installed. Press the mounting adapter flush, into the panel, until it can't be pressed any further.

■ CHECK THE SEAL

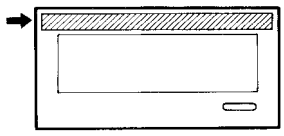
Water resistance may deteriorate depending on the environment. Periodically check water resistance.

Oil resistance is not applicable to all types of oil. Be sure to test any specific oils before actual application.

■ LABELS

There are labels included with the Counter for your convenience. These can be attached and used as necessary. Both unit labels and DIP switch labels are included.

H7HP



NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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