Solid-state Timer
H3M

CSM_H3M_DS_E_2_1

Solid-state Timer with Variable Time Ranges

- Four time ranges are selectable per timer unit.
- Wide timing range of 0.05 second to 30 hours can be covered by a combination of five timer units.
- Standard surface mounting type is easily convertible to flush mounting type with the use of a special adapter (Y92F-40).
- Requires only 40 x 50 mm for mounting space.
- Equipped with power-ON & time-out indicators.
- All standard models approved by UL, CSA, and LR.

Ordering Information

Operation/resetting system	Time-limit contact	Instantaneous contact	Mounting	
			Surface mounting	Flush mounting
Time-limit operation/ self-resetting	DPDT	---	H3M	H3M with Y92F-40 adapter
	SPDT	SPDT	H3M-H	H3M-H with Y92F-40 adapter

Note: 1. Specify both the model number and supply voltage when ordering.

2. Sockets and adapters for surface/track mounting are available optionally and therefore, place the order for them as necessary. Timer hold-down clips (F-hook and L-hook) are supplied with the timer.

■ Accessories (Order Separately)

Adapter

Y92F-40

Specifications

■ Time Ranges

Four time ranges are available for each timer by changing the time range selector switch positions to different combinations.

Time range code	Time range selector switch			
	× 1 / × 10 s / min	× 1 / × 10 s / min	× 1 / × 10 s / min	× 1 / × 10 s / min
A	0.05 to 0.5 s	0.5 to 5 s	0.05 to 0.5 min	0.5 to 5 min
B	0.1 to 1 s	1 to 10 s	0.1 to 1 min	1 to 10 min
C	0.3 to 3 s	3 to 30 s	0.3 to 3 min	3 to 30 min

Time range code	Time multiplying key			
	× 1 / × 10 min / h	× 1 / × 10 min / h	× 1 / × 10 min / h	× 1 / × 10 min / h
D	0.1 to 1 min	1 to 10 min	0.1 to 1 hrs	1 to 10 hrs
E	0.3 to 3 min	3 to 30 min	0.3 to 3 hrs	3 to 30 hrs

■ Ratings

Rated supply voltage	100/110/120 VAC (50/60 Hz), 200/220/240 VAC (50/60 Hz), 12, 24, 48, 100, 110 VDC (see note 2)
Operating voltage range	AC: 85% to 110% of rated supply voltage DC: 80% to 110% of rated supply voltage (see note 3)
Power consumption	AC: Approx. 5 VA/2 W DC: Approx. 2 W
Control outputs	5 A at 250 VAC, resistive load ($\cos\phi = 1$)

Note: 1. Color indicators for the rated voltage are provided on the front of the Timer.
Blue: 100/110/120 VAC
Red: 200/220/240 VAC
None: Other voltages

2. With DC ratings, single-phase full-wave rectified power sources may be used.

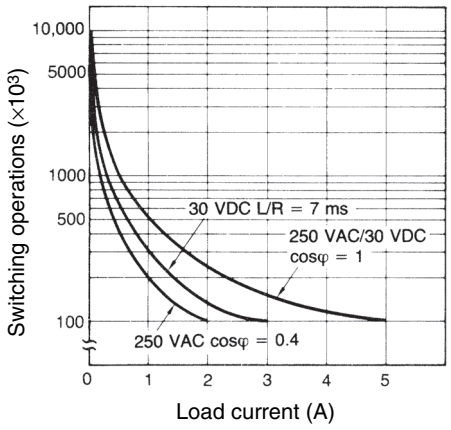
3. 90% to 110% for 12-VDC models.

■ Characteristics

Accuracy of operating time	±1% max. (see note)
Setting error	±10% max.
Reset time	0.1 s max.
Influence of voltage	±1% max. (see note)
Influence of temperature	±2% max. (see note)
Insulation resistance	100 MΩ min. (at 500 VDC)
Dielectric strength	2,000 VAC, 50/60 Hz for 1 min (between current-carrying and non-current-carrying parts) 1,500 VAC, 50/60 Hz for 1 min (between contact and control circuit) 1,000 VAC, 50/60 Hz for 1 min (between non-continuous contacts)
Vibration resistance	Destruction: 10 to 55 Hz with 0.75-mm double amplitude Malfunction: 10 to 55 Hz with 0.5-mm double amplitude
Shock resistance	Destruction: 1,000 m/s^2 (approx. 100G) Malfunction: 100 m/s^2 (approx. 10G)
Ambient temperature	Operating: –10°C to 50°C Storage: –25°C to 65°C
Ambient humidity	Operating: 35% to 85%
Life expectancy	Mechanical: 20,000,000 operations min. (under no load at 1,800 operations/h) Electrical: 100,000 operations min. (5 A at 250 VAC, resistive load at 1,800 operations/h)
Approved standards	UL (File No. E41515), CSA (File No. LR22310)
Weight	Approx. 100 g

Note: For the timer with time range code A, add ±10 ms to the respective characteristics when the time range selector switches are in the x 1 s (0.05 to 0.5 s) position.

Engineering Data

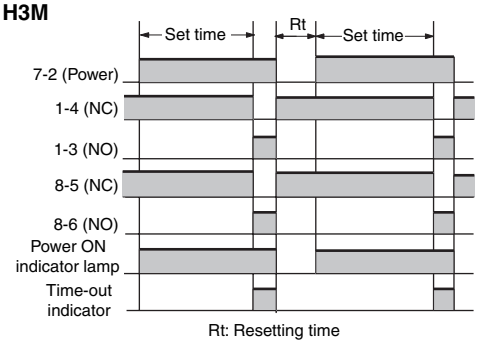


Reference: A maximum current of 0.15 A can be switched at 125 VDC (cosϕ = 1). Maximum current of 0.1 A can be switched if L/R is 7 ms. In both cases, a life of 100,000 operations can be expected.The minimum applicable load is 10 mA at 5 VDC (failure level: P).

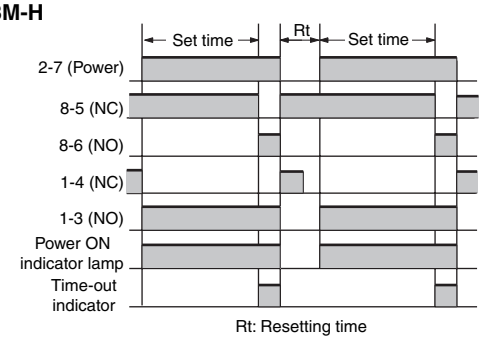
Operation

■ Timing Chart

H3M



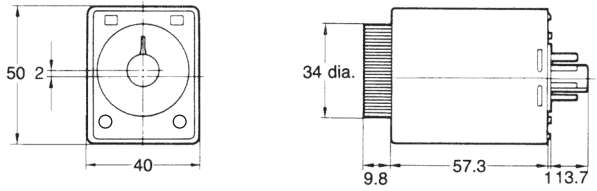
H3M-H



Dimensions

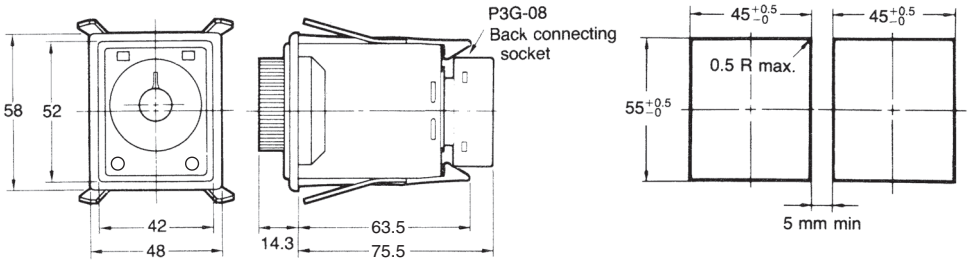
Note: All units are in millimeters unless otherwise indicated.

H3M(-H)



■ Accessories (Order Separately)

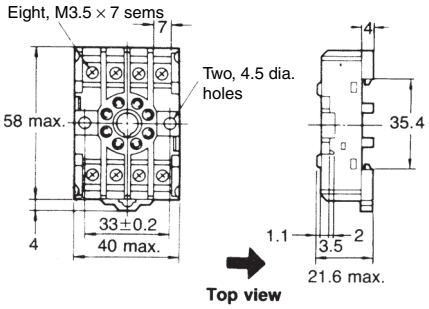
Y92F-40 Adapter with Flush Mounting



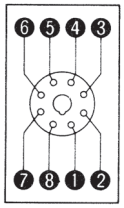
Note: When two or more timers mounted in line are to be continuously energized at the same time after the lapse of the set time, be sure to limit the carry current to less than 1 A. When using the timers at an ambient temperature of more than 40°C, be sure to reset the timers immediately after the set time has elapsed.

Track Mounted/Front Connecting Socket

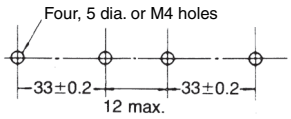
PF085A



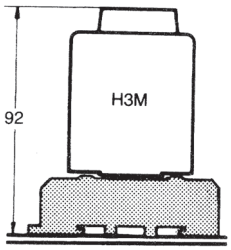
Terminal Arrangement (Top View)



Mounting Holes



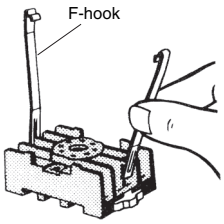
Mounting Height of Timer with Socket



Note: PF085A can be used as a front connecting socket.

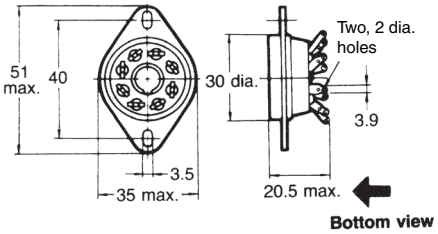
Hold-down Clips (Attached)

PHC-1 For PF085A



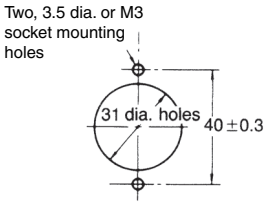
Back Connecting Socket

PL08

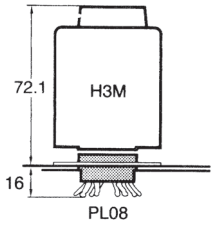


Terminal Arrangement (Bottom View)

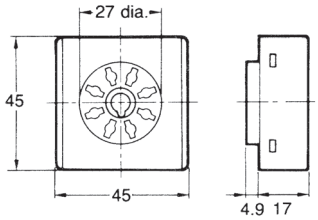
Mounting Holes



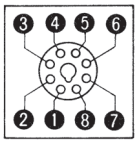
Mounting Height of Timer with Socket



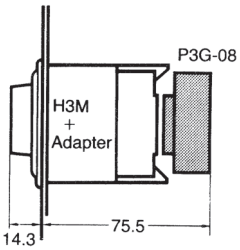
P3G-08



Terminal Arrangement (Bottom View)

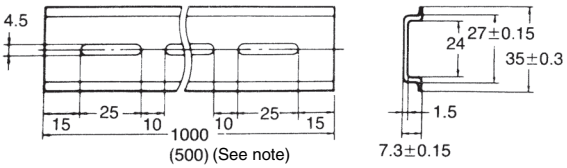


Mounting Height of Timer with Socket



Mounting Track

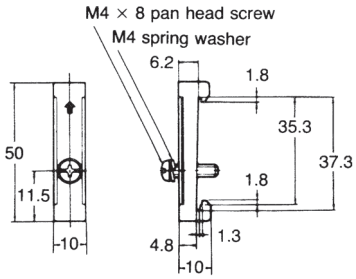
PFP-100N/PFP-50N



Note: This dimension applies to PFP-50N.

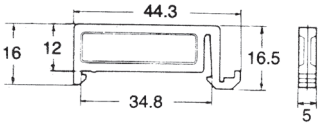
End Plate

PFP-M



Spacer

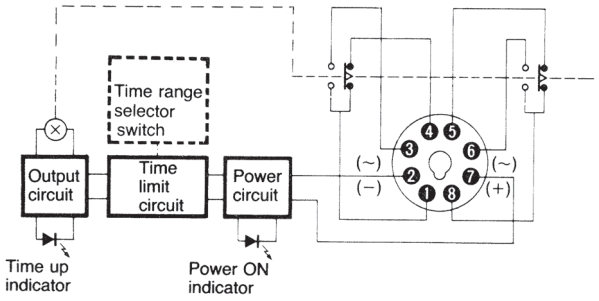
PFP-S



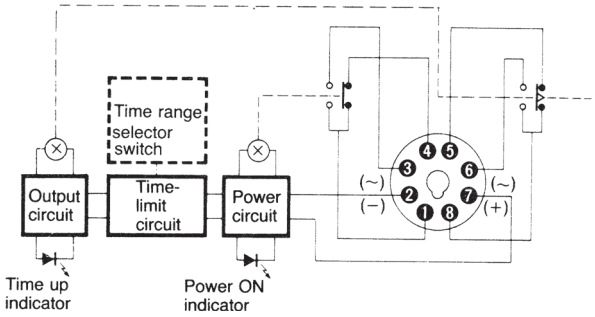
Installation

■ Connection

H3M



H3M-H



Safety Precautions

Refer to *Safety Precautions for All Timers*.

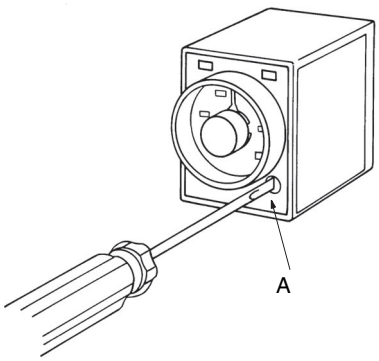
Power Source Connection

Because the AC-operated version is a capacitive load, the solid-state relay to be used must be rated at a dielectric strength two times as that of the timer to switch the power source of the timer.

The H3M contains a capacitor-drop power circuit. Use a sinusoidal power supply with a commercial frequency. Do not use power supplies with a high frequency component (such as inverter power supplies) for Timers with 100 to 240-VAC specifications. Using these power supplies can damage internal circuits.

How to Change the Time Range

The H3M is provided with two time range selector switches. One is on the lower right side A of the front panel and the other on the lower left side. Change the positional combination of the time range selector switches with a flat-blade screwdriver as desired.



⚠ CAUTION

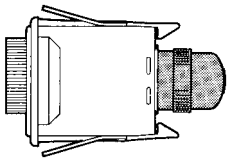
Be sure to turn the power off before changing the time specification. Changing the time range while the timer is in operation may result in a malfunction.

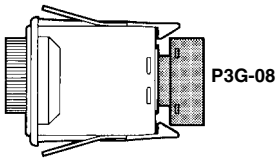
Connections

Connecting the Operating Power Supply
If using an AC power supply, connect it between terminals 2 and 7. If using a DC power supply, connect the positive line to terminal 7 and the negative line to terminal 2. An AC power supply can be connected without considering polarity, but the DC power supply lines must be connected as specified.

Other Precautions

- A DC power supply must have 50% or less ripple and the average voltage must be within the rated supply voltage specification.
- A P3G-08 Socket can be used instead of a US-08 Socket to reduce the depth. Also, the P3G-08 has screw terminals, making maintenance easier.





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

In the interest of product improvement, specifications are subject to change without notice.

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- Systems, machines, and equipment that could present a risk to life or property.

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Disclaimers

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It is our practice to change model numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the products may be changed without any notice. When in doubt, special model numbers may be assigned to fix or establish key specifications for your application on your request. Please consult with your OMRON representative at any time to confirm actual specifications of purchased products.

DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

PERFORMANCE DATA

Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

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2008.11

In the interest of product improvement, specifications are subject to change without notice.

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