

# Solid-state Timer H3M

CSM\_H3M\_DS\_E\_2\_3

## 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.



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

## 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. When you order, specify the power supply voltage and time range.  
 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  s × 10  min	× 1  s × 10  min	× 1  min × 10  min	× 1  s × 10  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  min × 10  h	× 1  min × 10  h	× 1  min × 10  h	× 1  min × 10  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

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

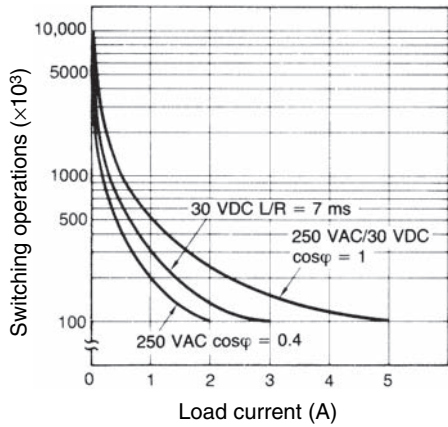
- Note:** 1. Color indicators for the rated voltage are provided on the front of the Timer.  
Blue: 100/110/120 VAC  
Red: 200/220/240 VAC  
None: Other voltages
2. With DC ratings, single-phase full-wave rectified power sources may be used.
3. 90% to 110% for 12-VDC models.

## ■ Characteristics

<b>Accuracy of operating time</b>	$\pm 1\%$ max. (see note)
<b>Setting error</b>	$\pm 10\%$ max.
<b>Reset time</b>	0.1 s max.
<b>Influence of voltage</b>	$\pm 1\%$ max. (see note)
<b>Influence of temperature</b>	$\pm 2\%$ max. (see note)
<b>Insulation resistance</b>	100 M $\Omega$ min. (at 500 VDC)
<b>Dielectric strength</b>	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)
<b>Vibration resistance</b>	Destruction: 10 to 55 Hz with 0.75-mm double amplitude Malfunction: 10 to 55 Hz with 0.5-mm double amplitude
<b>Shock resistance</b>	Destruction: 1,000 m/s <sup>2</sup> (approx. 10G) Malfunction: 100 m/s <sup>2</sup> (approx. 10G)
<b>Ambient temperature</b>	Operating: $-10^{\circ}\text{C}$ to $50^{\circ}\text{C}$ Storage: $-25^{\circ}\text{C}$ to $65^{\circ}\text{C}$
<b>Ambient humidity</b>	Operating: 35% to 85%
<b>Life expectancy</b>	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)
<b>Approved standards</b>	UL (File No. E41515), CSA (File No. LR22310)
<b>Weight</b>	Approx. 100 g

- Note:** For the timer with time range code A, add  $\pm 10$  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

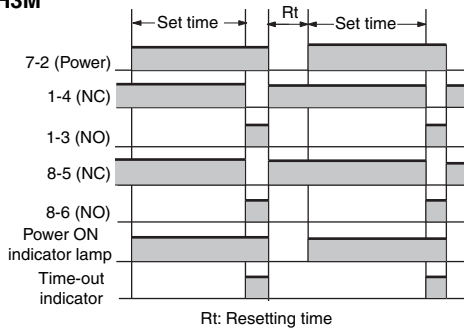


Reference: A maximum current of 0.15 A can be switched at 125 VDC (cosφ = 1). Maximum current of 0.1 A can be switched if L/R is 7 ms. In both cases, a life of 100,000 operations can be expected. The minimum applicable load is 10 mA at 5 VDC (failure level: P).

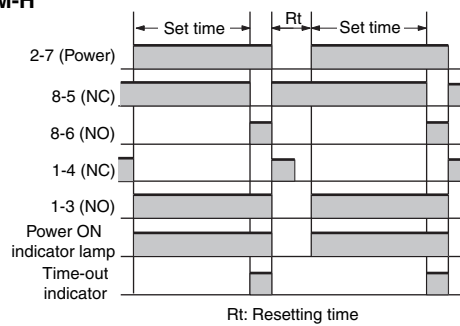
# Operation

## ■ Timing Chart

H3M



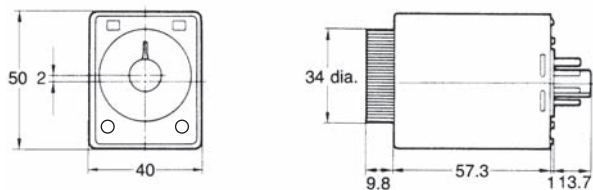
H3M-H



# Dimensions

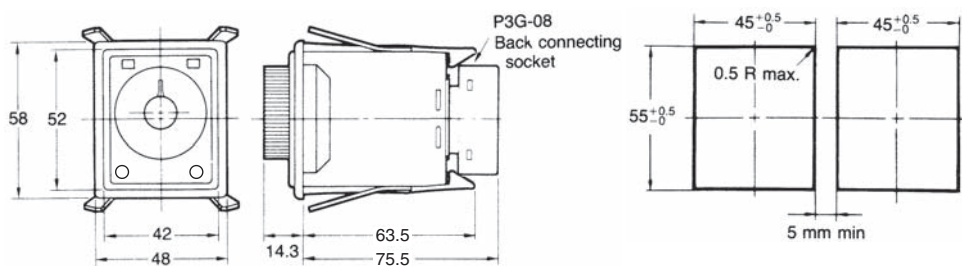
Note: All units are in millimeters unless otherwise indicated.

## H3M(-H)



## Accessories (Order Separately)

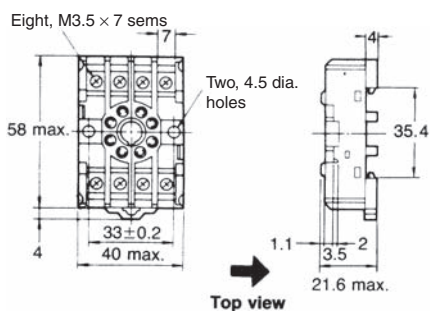
### Y92F-40 Adapter with Flush Mounting



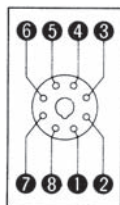
Note: When two or more timers mounted in line are to be continuously energized at the same time after the lapse of the set time, be sure to limit the carry current to less than 1 A. When using the timers at an ambient temperature of more than 40°C, be sure to reset the timers immediately after the set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

### Track Mounted/Front Connecting Socket

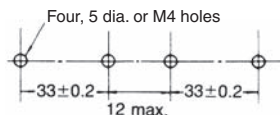
#### PF085A



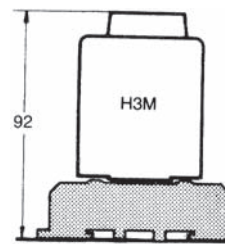
#### Terminal Arrangement (Top View)



#### Mounting Holes



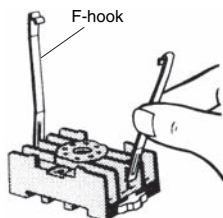
#### Mounting Height of Timer with Socket



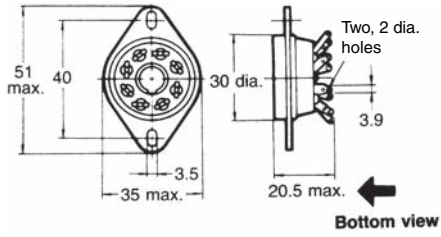
Note: There are no restrictions to the mounting direction.

### Hold-down Clips (Attached)

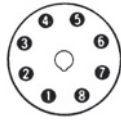
#### PHC-1 For PF085A



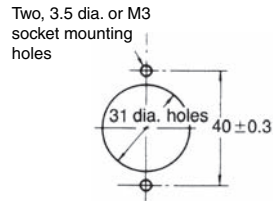
**Back Connecting Socket  
PL08**



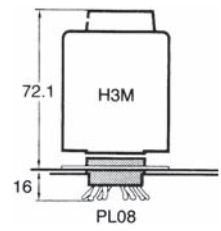
**Terminal Arrangement  
(Bottom View)**



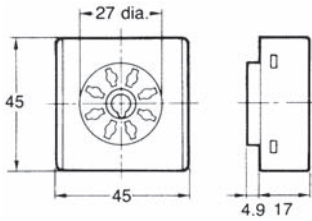
**Mounting Holes**



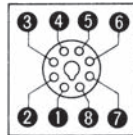
**Mounting Height of  
Timer with Socket**



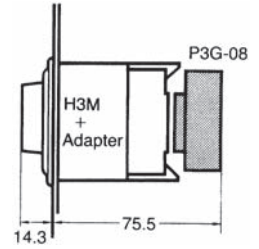
**P3G-08**



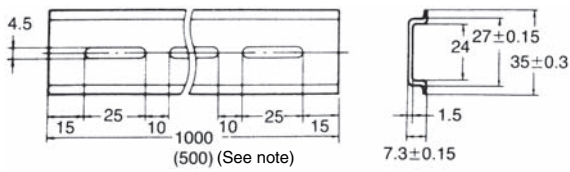
**Terminal Arrangement  
(Bottom View)**



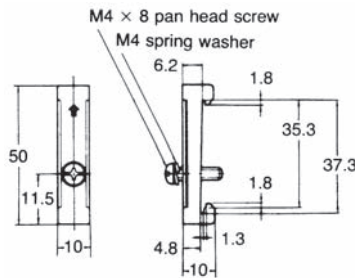
**Mounting Height of  
Timer with Socket**



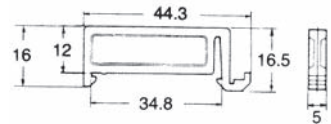
**Mounting Track  
PFP-100N/PFP-50N**



**End Plate  
PFP-M**



**Spacer  
PFP-S**

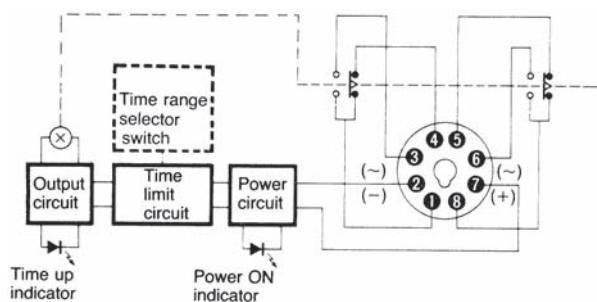


**Note:** This dimension applies to PFP-50N.

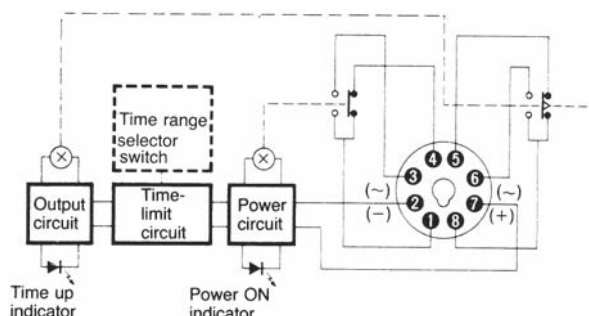
# Installation

## ■ Connection

H3M



H3M-H



## Safety Precautions

Refer to *Safety Precautions for All Timers*.

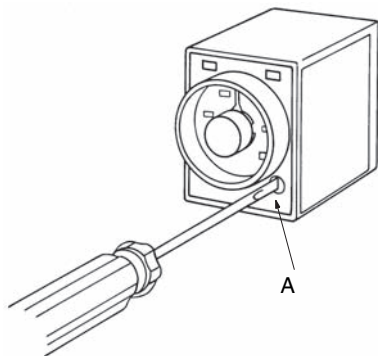
### Power Source Connection

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.

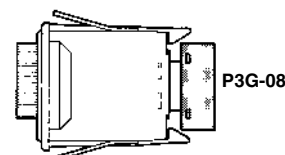
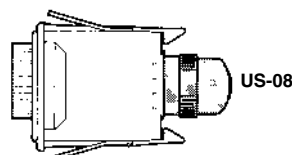
### Connections

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.

## Terms and Conditions Agreement

### Read and understand this catalog.

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

### Warranties.

(a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.

(b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.

Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.

See <http://www.omron.com/global/> or contact your Omron representative for published information.

### Limitation on Liability; Etc.

OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY.

Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

### Suitability of Use.

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

### Programmable Products.

Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

### Performance Data.

Data presented in Omron Company websites, catalogs and other materials 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 user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

### Change in Specifications.

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

### Errors and Omissions.

Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

2015.8

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

**OMRON Corporation**  
Industrial Automation Company

<http://www.ia.omron.com/>

(c)Copyright OMRON Corporation 2015 All Right Reserved.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Omron:](#)

[Y92F-40](#)