

# Solid-state Timer H3Y Series

## Miniature Timer Compatible with the MY Relay

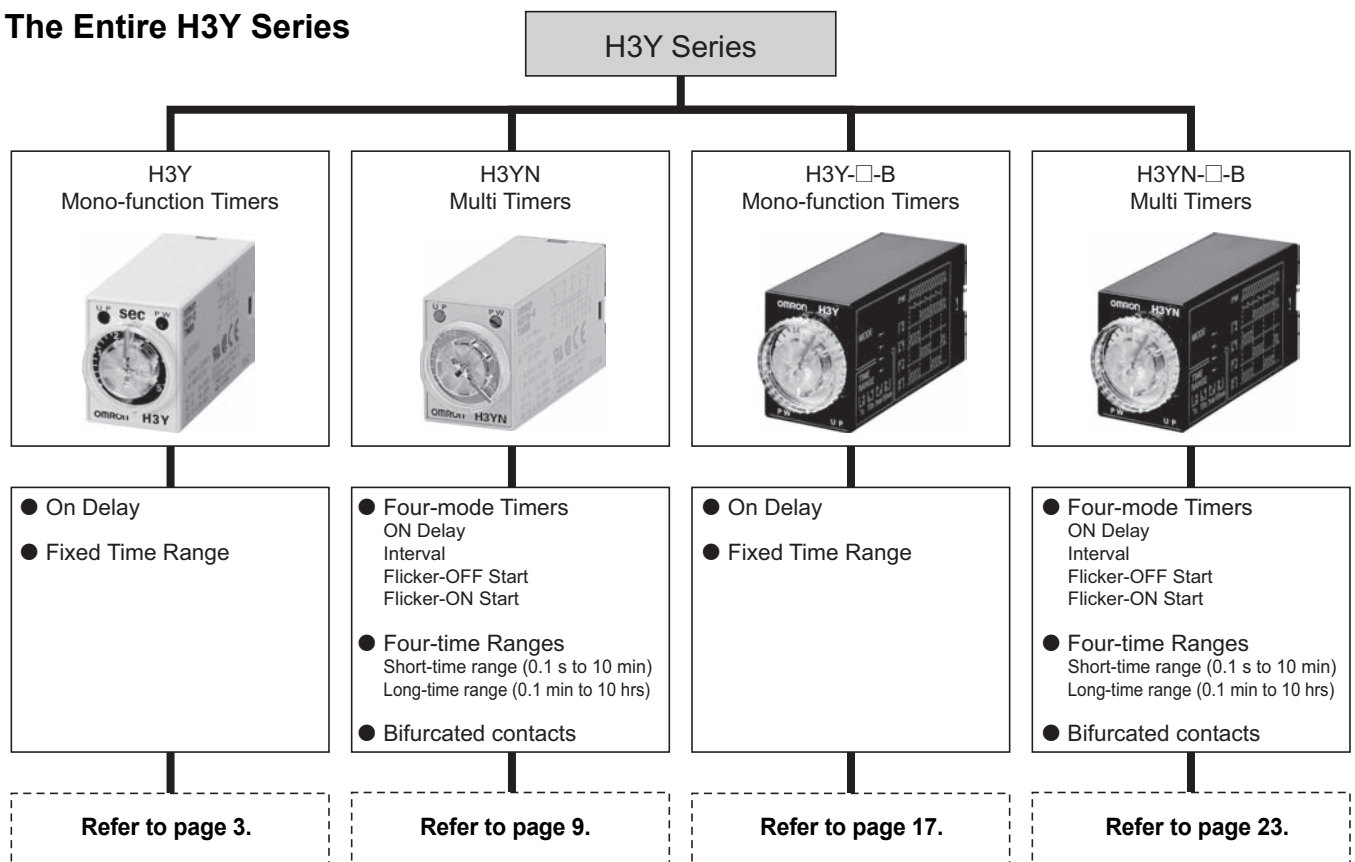
- The Push-In Plus Terminal Block Socket-compatible H3Y-□-B/H3YN-□-B Timers in a black design join the Single-mode H3Y and Multi-mode H3YN.
- The H3Y-□-B and H3YN-□-B are UL listed when they are used together with Push-In Plus Terminal Block Sockets.
- Large transparent time setting knob facilitates time setting.  
A flat-blade and Phillips screwdriver can also be used for time setting.
- Conforms to EMC standards.
- Conforms to EN 61812-1 and approved by UL and CSA.



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

## Model Number Structure

### The Entire H3Y Series



## H3Y Series

### Model Number Structure

H3Y-    -    -     
(1) (2) (3)

(1) Output

| Symbol | Meaning |
|--------|---------|
| 2      | DPDT    |
| 4      | 4PDT    |

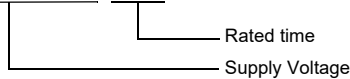
(2) Terminal Type

| Symbol | Meaning           |
|--------|-------------------|
| None   | Plug-in terminals |
| 0      | PCB terminals     |

(3) Body Color and Terminal Arrangement

| Symbol | Meaning                                                                 |
|--------|-------------------------------------------------------------------------|
| None   | Beige with output terminals on top and power supply terminals on bottom |
| B      | Black with power supply terminals on top and output terminals on bottom |

Ex) H3Y-2 100 to 120VAC 0.5S



**Note:** Specify both the model number, supply voltage, and rated time when ordering.

H3YN -          -     
(1) (2) (3) (4)

(1) Output

| Symbol | Meaning |
|--------|---------|
| 2      | DPDT    |
| 4      | 4PDT    |

(2) Time Range

| Symbol | Meaning          |
|--------|------------------|
| None   | Short-time range |
| 1      | Long-time range  |

(3) Contact Type

| Symbol | Meaning        |
|--------|----------------|
| None   | Single contact |
| Z      | Twin contacts  |

(4) Body Color and Terminal Arrangement

| Symbol | Meaning                                                                 |
|--------|-------------------------------------------------------------------------|
| None   | Beige with output terminals on top and power supply terminals on bottom |
| B      | Black with power supply terminals on top and output terminals on bottom |

Ex) H3YN-2 100 to 120VAC  
Supply Voltage

**Note:** Specify both the model number, supply voltage when ordering.

# Solid-state Timer H3Y

## Miniature Timer Compatible with the MY Relay

- Semi-multi power supply voltage.
- Large transparent time setting knob facilitates time setting.  
A flat-blade and Phillips screwdriver can also be used for time setting.
- Pin configuration compatible with MY Power Relay.
- LED indication for power and output statuses.
- Conforms to EMC standards.
- Conforms to EN 61812-1 and approved by UL and CSA.



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



Refer to *Safety Precautions* on page 38.

## Ordering Information

| Operation/resetting system          | Time-limit contact         | Time ranges   | Supply voltage                                                                     | Mounting                                 |                                       |
|-------------------------------------|----------------------------|---------------|------------------------------------------------------------------------------------|------------------------------------------|---------------------------------------|
|                                     |                            |               |                                                                                    | Surface/DIN-track mounting (with socket) | Surface mounting (with PCB terminals) |
| Time-limit operation/self-resetting | DPDT (for power switching) | 0.04 s to 3 h | 24, 100 to 120, 200 to 230, 240 VAC (50/60 Hz);<br>12, 24, 48, 125, 100 to 110 VDC | H3Y-2                                    | H3Y-2-0                               |
|                                     | 4PDT                       |               |                                                                                    | H3Y-4 *                                  | H3Y-4-0 *                             |

**Note:** Sockets and Hold-down Clips are not included with the H3Y. They must be ordered separately.

\* Use the H3Y-4 or H3Y-4-0 Series when switching micro loads.

## Accessories (Order Separately)

### Adapter, Mounting Plate, Hold-down Clips, Terminal covers

| Name/specification        | Model                               |
|---------------------------|-------------------------------------|
| Flush mounting adapter    | Y92F-78                             |
| Mounting Plate for Socket | For 1 Socket<br>PYP-1               |
|                           | For 18 Sockets<br>PYP-18            |
| Hold-down Clips           | For PYFZ-□ and PYF□A<br>Y92H-3      |
|                           | For PY□ and PYF□M<br>Y92H-4         |
| Terminal covers           | For PYFZ-08<br>PYCZ-C08 (2 pcs/set) |
|                           | For PYFZ-14<br>PYCZ-C14 (1 pcs/set) |

**Note:** For details, refer to *Precautions for H3Y-series Timers* on page 31.

## Socket

| Timer   |       | Square Sockets |                  |                                                  |           |
|---------|-------|----------------|------------------|--------------------------------------------------|-----------|
| Contact | Model | Pin            | Connection       | Terminal                                         | Model     |
| DPDT    | H3Y-2 | 8-pin          | Front Connecting | DIN track mounting                               | PYFZ-08   |
|         |       |                |                  | DIN track mounting (Finger Protection Structure) | PYFZ-08-E |
|         |       |                | Back Connecting  | Screw mounting                                   | PYF08M    |
|         |       |                |                  | Solder terminal                                  | PY08      |
| 4PDT    | H3Y-4 | 14-pin         | Front Connecting | PCB terminal                                     | PY08-02   |
|         |       |                |                  | DIN track mounting                               | PYFZ-14   |
|         |       |                | Back Connecting  | DIN track mounting (Finger Protection Structure) | PYFZ-14-E |
|         |       |                |                  | Solder terminal                                  | PY14      |
|         |       |                |                  | PCB terminal                                     | PY14-02   |

- Note:**
1. Cannot be used with the H3Y-□-0 (PCB terminals).
  2. The PYFZ-□-E and PYF□A-E have a finger-protection structure. Round crimp terminals cannot be used. Use forked crimp terminals.
  3. For details, refer to *Precautions for H3Y-series Timers* on page 31.

## Specifications

## Time Ranges

| Rated time | Time setting range | Rated time | Time setting range |
|------------|--------------------|------------|--------------------|
| 0.5 s      | 0.04 to 0.5 s      | 3 min      | 0.1 to 3 min       |
| 1 s        | 0.1 to 1 s         | 5 min      | 0.2 to 5 min       |
| 5 s        | 0.2 to 5 s         | 10 min     | 0.5 to 10 min      |
| 10 s       | 0.5 to 10 s        | 30 min     | 1 to 30 min        |
| 30 s       | 1.0 to 30 s        | 60 min     | 2 to 60 min        |
| 60 s       | 2.0 to 60 s        | 3 h        | 0.1 to 3 h         |
| 120 s      | 5.0 to 120 s       | ---        | ---                |

## Ratings

| Item                          | H3Y-2(-0)/H3Y-4(-0)                                                                                                                                                                                                                                                                                                                            |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rated supply voltage *6, *7   | 100 to 120 (50/60 Hz), 200 to 230 VAC (50/60 Hz), 24 VAC (50/60 Hz) *1<br>12, 24, 48, 125, 100 to 110 VDC *2, *3                                                                                                                                                                                                                               |
| Operating voltage range       | All rated voltages except 12 VDC: 85% to 110% of rated supply voltage<br>12 VDC: 90% to 110% of rated supply voltage *4                                                                                                                                                                                                                        |
| Reset voltage                 | 10% min. of rated supply voltage *5                                                                                                                                                                                                                                                                                                            |
| Power consumption             | 100 to 120 VAC: 1.5 VA (at 120 VAC)<br>200 to 230 VAC: 1.8 VA (at 230 VAC)<br>24 VAC: 1.5 VA (at 24 VAC)<br>12 VDC: 0.9 W (at 12 VDC)<br>24 VDC: 0.9 W (at 24 VDC)<br>48 VDC: 1.0 W (at 48 VDC)<br>100 to 110 VDC: 1.3 W (at 110 VDC)<br>125 VDC: 1.3 W (at 125 VDC)                                                                           |
| Control outputs               | H3Y-2(-0):<br>5 A at 250 VAC, resistive load ( $\cos\phi = 1$ )<br>The minimum applicable load is 1 mA at 5 VDC (P reference value).<br>Contact materials: Ag<br>H3Y-4(-0):<br>3 A at 250 VAC, resistive load ( $\cos\phi = 1$ )<br>The minimum applicable load is 1 mA at 1 VDC (P reference value).<br>Contact materials: Au-clad + Ag-alloy |
| Ambient operating temperature | -10°C to 50°C (with no icing)                                                                                                                                                                                                                                                                                                                  |
| Storage temperature           | -25°C to 65°C                                                                                                                                                                                                                                                                                                                                  |
| Ambient operating humidity    | 35% to 85%                                                                                                                                                                                                                                                                                                                                     |

\*1. Do not use the output from an inverter as the power supply. Refer to *Safety Precautions for All Timers* for details on your OMRON website.

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

\*3. Only the H3Y-2 and H3Y-2-0 Series include 12 VDC models.

\*4. Use the Timer within 90% to 110% of the rated supply voltage (95% to 110% for 12 VDC) when using it continuously under an ambient operating temperature of 50°C.

\*5. Set the reset voltage as follows to ensure proper resetting.

100 to 120 VAC: 10 VAC max.

200 to 230 VAC: 20 VAC max.

100 to 110 VDC: 10 VDC max.

\*6. Refer to *Safety Precautions for All Timers* on your OMRON website when combining the Timer with an AC 2-wire proximity sensor.

\*7. A diode to prevent reverse voltages is provided only on models with a DC power supply.

## Characteristics

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accuracy of operating time | ±1% FS max. (0.5 s range: ±1%±10 ms max.) *1                                                                                                                                                                                                                                                                                                                                                                                                           |
| Setting error              | ±10%±50 ms FS max.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Reset time                 | Min. power-opening time: 0.1 s max. (including halfway reset)                                                                                                                                                                                                                                                                                                                                                                                          |
| Influence of voltage       | ±2% FS max. *1                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Influence of temperature   | ±2% FS max. *1                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Insulation resistance      | 100 MΩ min. (at 500 VDC)                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Dielectric strength        | 2,000 VAC, 50/60 Hz for 1 min<br>(between current-carrying terminals and exposed non-current-carrying metal parts) *2<br>2,000 VAC, 50/60 Hz for 1 min (between operating power circuit and control output) *2<br>2,000 VAC, 50/60 Hz for 1 min (between different pole contacts; 2-pole model) *2<br>1,500 VAC, 50/60 Hz for 1 min (between different pole contacts; 4-pole model)<br>1,000 VAC, 50/60 Hz for 1 min (between non-continuous contacts) |
| Impulse withstand voltage  | Between power terminals:<br>3 kV for 100 to 120 VAC, 200 to 230 VAC, 100 to 110 VDC, 125 VDC<br>1 kV for 12 VDC, 24 VDC, 48 VDC<br>Between exposed non-current-carrying metal parts:<br>4.5 kV for 100 to 120 VAC, 200 to 230 VAC, 100 to 110 VDC, 125 VDC<br>1.5 kV for 12 VDC, 24 VDC, 48 VDC                                                                                                                                                        |
| Noise immunity             | ±1.5 kV, square-wave noise by noise simulator (pulse width: 100 ns/1 μs, 1-ns rise)                                                                                                                                                                                                                                                                                                                                                                    |
| Static immunity            | Destruction: 8 kV<br>Malfunction: 4 kV                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Vibration resistance       | Destruction: 10 to 55 Hz, 0.75-mm single amplitude<br>Malfunction: 10 to 55 Hz, 0.5-mm single amplitude                                                                                                                                                                                                                                                                                                                                                |
| Shock resistance           | Destruction: 1,000 m/s <sup>2</sup> (approx. 100G) *3<br>Malfunction: 100 m/s <sup>2</sup> (approx. 10G)                                                                                                                                                                                                                                                                                                                                               |
| Life expectancy            | Mechanical: 10,000,000 operations min. (under no load at 1,800 operations/h)<br>Electrical:<br>H3Y-2: 500,000 operations min. (5 A at 250 VAC, resistive load at 1800 operations/h)<br>H3Y-4: 200,000 operations min. (3 A at 250 VAC, resistive load at 1800 operations/h) *4                                                                                                                                                                         |
| Enclosure rating           | IP40                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Weight                     | Approx. 50 g                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| EMC                        | (EMI)<br>Emission Enclosure: EN 61812-1<br>Emission AC Mains: EN 55011 Group 1 class A<br>(EMS)<br>Immunity ESD: EN 61812-1<br>Immunity RF-interference: IEC 61000-4-2<br>Immunity Burst: IEC 61000-4-3<br>Immunity Surge: IEC 61000-4-4<br>Immunity Conducted Disturbance: IEC 61000-4-5<br>Immunity Voltage Dip/Interruption: IEC 61000-4-6<br>IEC 61000-4-11                                                                                        |
| Approved standards         | UL 508, CSA C22.2 No. 14, Lloyds, CCC: GB/T 14048.5 *6<br>Conforms to EN 61812-1 and IEC 60664-1. (2.5 kV/2 for H3Y-2/-2-0, 2.5 kV/1 for H3Y-4/-4-0) *5                                                                                                                                                                                                                                                                                                |

\*1. Add ±10 mS to the above value for the 0.5-S range model.

\*2. Terminal screw sections are excluded.

\*3. The destructive shock resistance test was performed on the Timer.

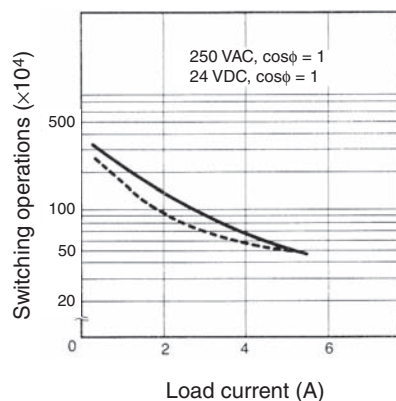
\*4. Check the electrical life curve.

\*5. Overvoltage category II.

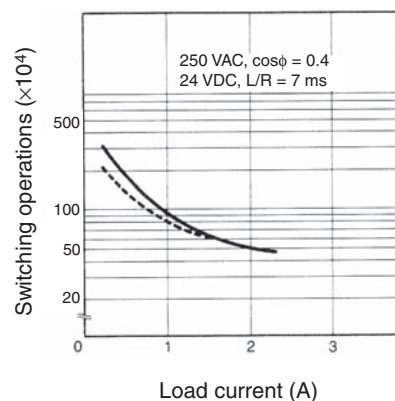
\*6. CCC certification requirements

| Model                                                                            | H3Y-2 (-0)                                                                                                                                                               | H3Y-4 (-0)                                                                                                                                                               |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recommended fuse                                                                 | RT14-20/6A (380 VAC 6 A), manufactured by DELIXI                                                                                                                         | RT14-20/4A (380 VAC 4 A), manufactured by DELIXI                                                                                                                         |
| Rated operating voltage U <sub>e</sub><br>Rated operating current I <sub>e</sub> | AC-15: U <sub>e</sub> : 250 VAC, I <sub>e</sub> : 3 A<br>AC-13: U <sub>e</sub> : 250 VAC, I <sub>e</sub> : 5 A<br>DC-13: U <sub>e</sub> : 30 VDC, I <sub>e</sub> : 0.5 A | AC-15: U <sub>e</sub> : 250 VAC, I <sub>e</sub> : 2 A<br>AC-13: U <sub>e</sub> : 250 VAC, I <sub>e</sub> : 3 A<br>DC-13: U <sub>e</sub> : 30 VDC, I <sub>e</sub> : 0.5 A |
| Rated insulation voltage                                                         | 250 V                                                                                                                                                                    |                                                                                                                                                                          |
| Rated impulse withstand voltage<br>(altitude: 2,000 m max.)                      | 2.5 kV (at 240 VAC)                                                                                                                                                      |                                                                                                                                                                          |
| Conditional short-circuit current                                                | 1000 A                                                                                                                                                                   |                                                                                                                                                                          |

H3Y-2, H3Y-2-0

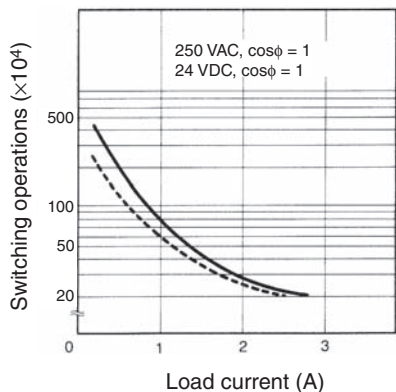


H3Y-2, H3Y-2-0

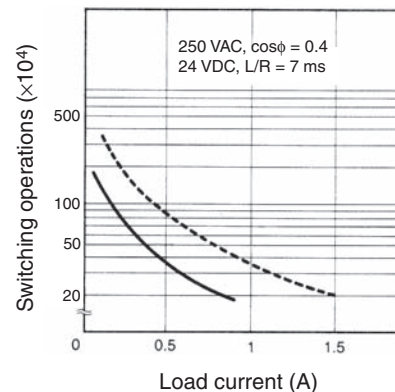


Reference: A maximum current of 0.6 A can be switched at 125 VDC ( $\cos\phi = 1$ ).  
Maximum current of 0.2 A can be switched if  $L/R$  is 7 ms. In both cases, a life of 100,000 operations can be expected. The minimum applicable load is 1 mA at 5 VDC (P reference value).

H3Y-4, H3Y-4-0



H3Y-4, H3Y-4-0

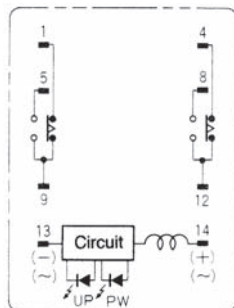


Reference: A maximum current of 0.5 A can be switched at 125 VDC ( $\cos\phi = 1$ ).  
Maximum current of 0.2 A can be switched if  $L/R$  is 7 ms. In both cases, a life of 100,000 operations can be expected. The minimum applicable load is 1 mA at 1 VDC (P reference value).

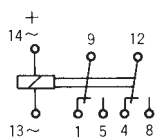
## Connections

### Connections

H3Y-2, H3Y-2-0

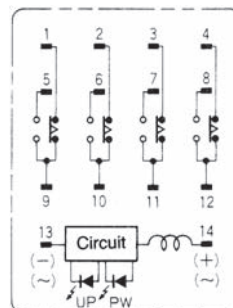


(Bottom View)

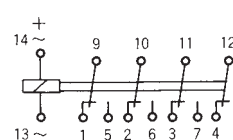


(DIN notation)

H3Y-4, H3Y-4-0



(Bottom View)



(DIN notation)

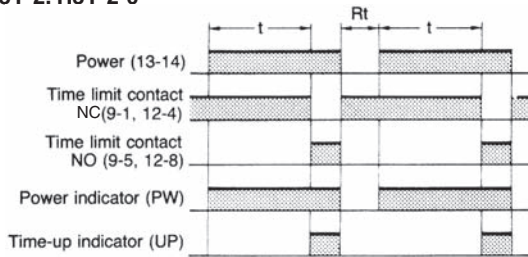
Connect the DC power supply to terminals 13 and 14 according to the polarity marks.

Connect the DC power supply to terminals 13 and 14 according to the polarity marks.

## Operation

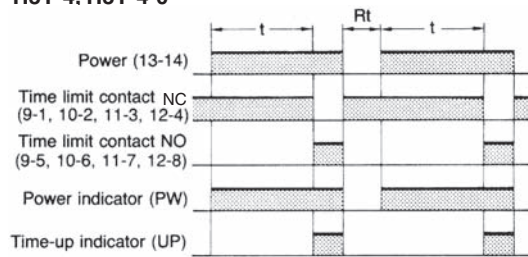
### Timing Chart

H3Y-2, H3Y-2-0



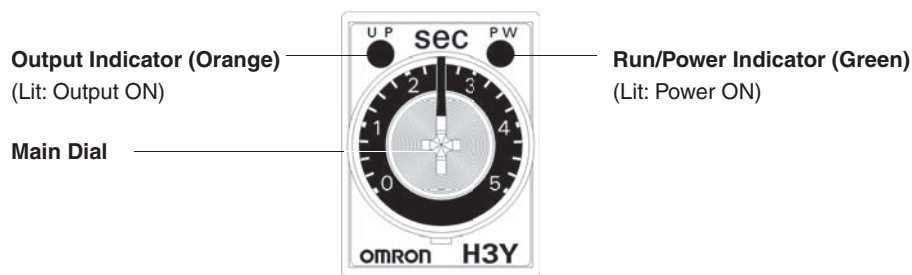
Note:  $t$  = Set time  
 $Rt$  = Reset time

H3Y-4, H3Y-4-0



Note:  $t$  = Set time  
 $Rt$  = Reset time

### Nomenclature

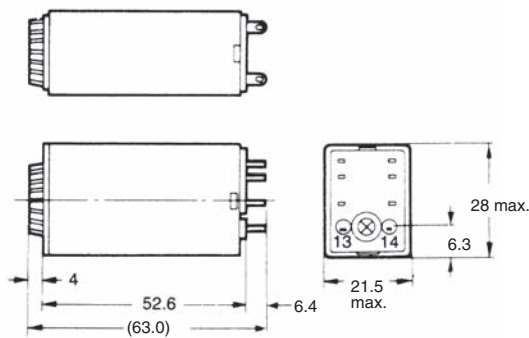


H3Y  
Dimensions

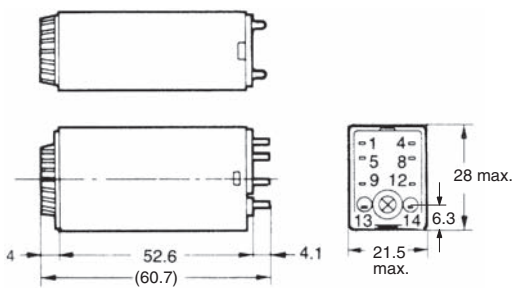
(Unit: mm)

Timers

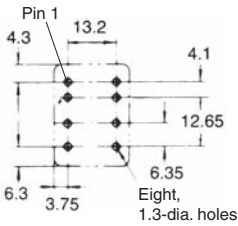
H3Y-2



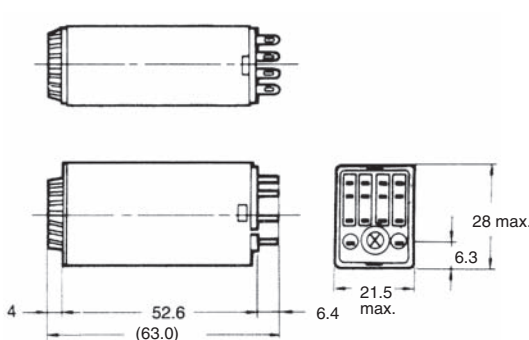
H3Y-2-0



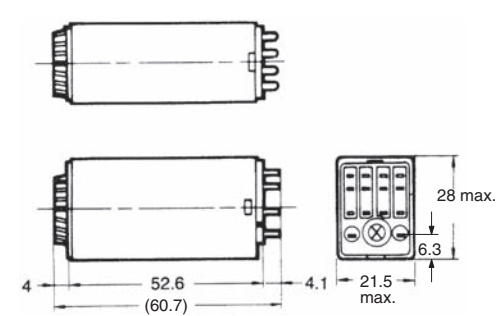
Mounting Holes



H3Y-4



H3Y-4-0



Mounting Holes

