

# Solid-state Timer

# H3Y-□-B

## Miniature Timer Compatible with the MY Relay



- UL listed when used with a Push-In Plus Terminal Block Socket. \*  
Conforms to CSA, CE Marking, CCC and LR.
- Black design with power supply terminals on top and contact output terminals on bottom.
- Large transparent time setting knob facilitates time setting.  
A flat-blade and Phillips screwdriver can also be used for time setting.
- Semi-multi power supply voltage.

\* When used in combination with a Push-In Plus Terminal Block Socket (PYF-□-PU-L).



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) |
| Time-limit operation/self-resetting | DPDT (for power switching) | 0.04 s to 3 h | 100 to 120, 200 to 230 VAC (50/60 Hz); 12, 24, 48, 100 to 110 VDC | H3Y-2-B                                  |
|                                     | 4PDT                       |               |                                                                   | H3Y-4-B *                                |

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

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

## Accessories (Order Separately)

### Hold-down Clips

| Name/specification             | Model  |
|--------------------------------|--------|
| Hold-down Clips For PYF-□-PU-L | Y92H-3 |

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

### Socket

| Timer   |         | Square Sockets |                  |                    |             |                             |
|---------|---------|----------------|------------------|--------------------|-------------|-----------------------------|
| Contact | Model   | Pin            | Connection       | Terminal           | Model       | Terminal Type               |
| DPDT    | H3Y-2-B | 8-pin          | Front Connecting | DIN track mounting | PYF-08-PU-L | Push-In Plus Terminal Block |
| 4PDT    | H3Y-4-B | 14-pin         | Front Connecting | DIN track mounting | PYF-14-PU-L | Push-In Plus Terminal Block |

**Note:** 1. Cannot be used with the H3Y-□-0 (PCB terminals).

2. 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-B/H3Y-4-B                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rated supply voltage *6, *7</b>   | 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                                                                                                                                                                                                                               |
| <b>Operating voltage range</b>       | All rated voltages except 12 VDC: 85% to 110% of rated supply voltage<br>12 VDC: 90% to 110% of rated supply voltage *4                                                                                                                                                                                                                        |
| <b>Reset voltage</b>                 | 10% min. of rated supply voltage *5                                                                                                                                                                                                                                                                                                            |
| <b>Power consumption</b>             | 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)                                                                           |
| <b>Control outputs</b>               | H3Y-2-B:<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><br>H3Y-4-B:<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 |
| <b>Ambient operating temperature</b> | -10°C to 55°C (with no icing)                                                                                                                                                                                                                                                                                                                  |
| <b>Storage temperature</b>           | -25°C to 65°C                                                                                                                                                                                                                                                                                                                                  |
| <b>Ambient operating humidity</b>    | 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-B 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-B: 500,000 operations min. (5 A at 250 VAC, resistive load at 1800 operations/h)<br>H3Y-4-B: 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) EN 61812-1<br>Emission Enclosure: EN 55011 Group 1 class A<br>Emission AC Mains: EN 55011 Group 1 class A<br>(EMS) EN 61812-1<br>Immunity ESD: IEC 61000-4-2<br>Immunity RF-interference: IEC 61000-4-3<br>Immunity Burst: IEC 61000-4-4<br>Immunity Surge: IEC 61000-4-5<br>Immunity Conducted Disturbance: IEC 61000-4-6<br>Immunity Voltage Dip/Interruption: IEC 61000-4-11                                                                  |
| Approved standards         | UL 508/CSA C22.2 No.14 *5, CSA C22.2 No.14, Lloyds, CCC: GB/T 14048.5 *7<br>Conforms to EN 61812-1 and IEC 60664-1. (2.5 kV/2 for H3Y-2-B *6, 2.5 kV/1 for H3Y-4-B *6)                                                                                                                                                                                                                                                                                 |

\*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. cULus listing applies when the OMRON PYF-□-PU-L is used.

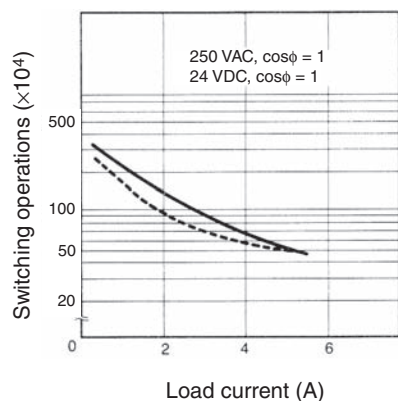
cURus recognition applies when any other socket is used.

\*6. Overvoltage category II.

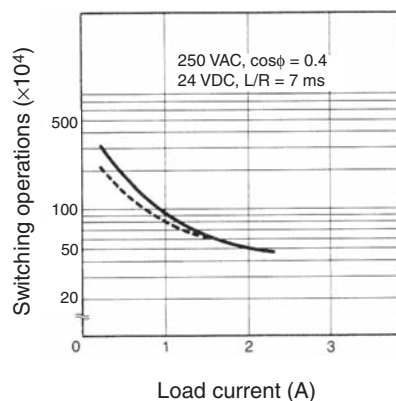
\*7. CCC certification requirements

| Model                                                                            | H3Y-2-B                                                                                                                                                                  | H3Y-4-B                                                                                                                                                                  |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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-B

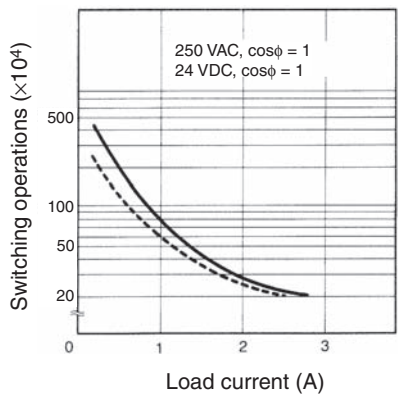


H3Y-2-B

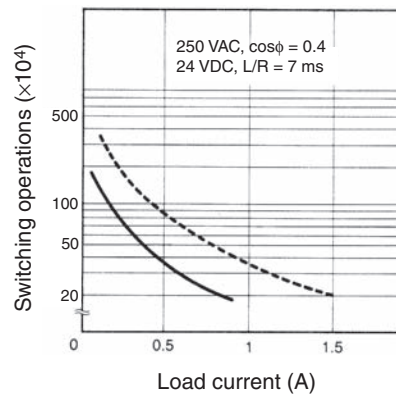


Reference: A maximum current of 0.6 A can be switched at 125 VDC ( $\cos\phi = 1$ ).  
Maximum current of 0.2 A can be switched if  $L/R$  is 7 ms. In both cases, a life of 100,000 operations can be expected. The minimum applicable load is 1 mA at 5 VDC (P reference value).

H3Y-4-B



H3Y-4-B

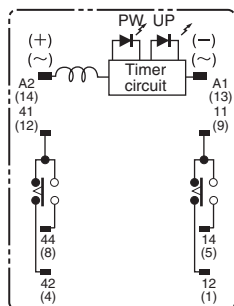


Reference: A maximum current of 0.5 A can be switched at 125 VDC ( $\cos\phi = 1$ ).  
Maximum current of 0.2 A can be switched if  $L/R$  is 7 ms. In both cases, a life of 100,000 operations can be expected. The minimum applicable load is 1 mA at 1 VDC (P reference value).

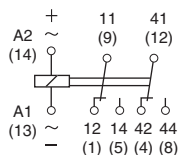
## Connections

### Connections

H3Y-2-B



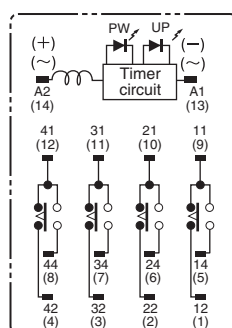
(Bottom View)



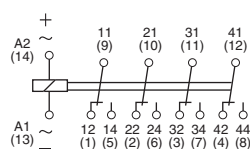
(DIN notation)

Connect the DC power supply to terminals A1(13) and A2(14) according to the polarity marks.

H3Y-4-B



(Bottom View)

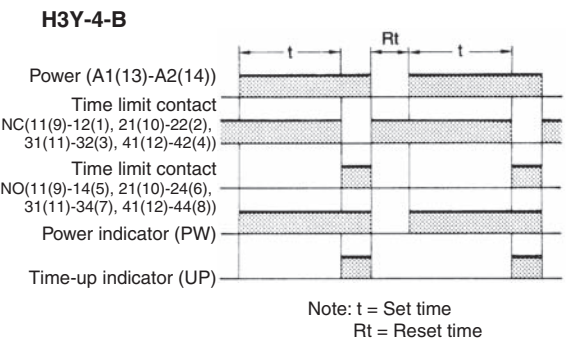
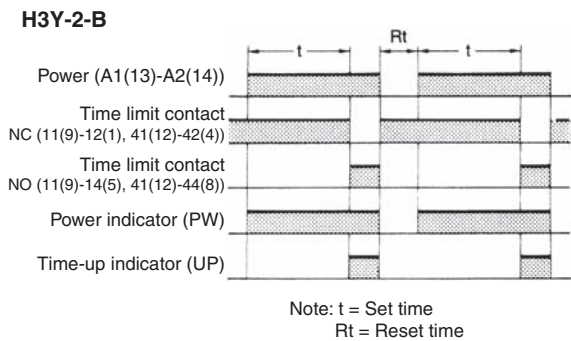


(DIN notation)

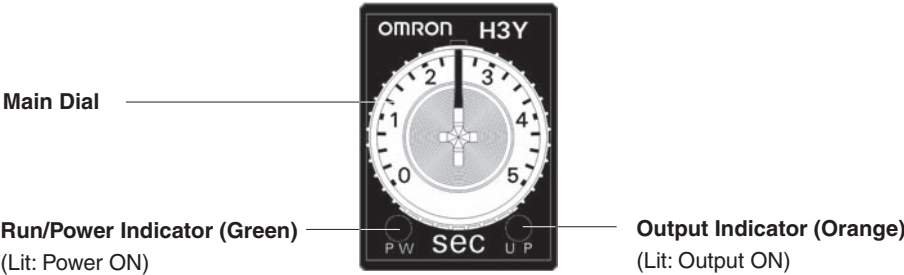
Connect the DC power supply to terminals A1(13) and A2(14) according to the polarity marks.

Operation

Timing Chart



Nomenclature



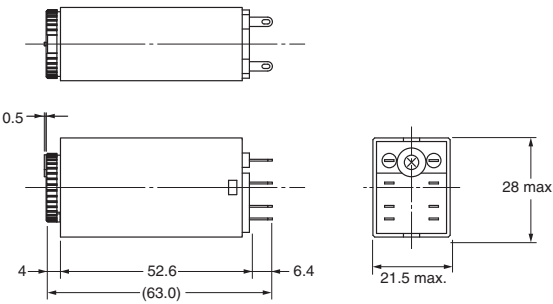
H3Y-□-B

Dimensions

(Unit: mm)

Timers

H3Y-2-B



H3Y-4-B

