

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 (See note 6, 7.)	100 to 120 (50/60 Hz), 200 to 230 VAC (50/60 Hz), 240 VAC (50/60 Hz), 24 VAC (50/60 Hz) (See note 1.), 12, 24, 48, 125, 100 to 110 VDC (See notes 2 and 3.)
Operating voltage range	All rated voltages except 12 VDC: 85% to 110% of rated supply voltage 12 VDC: 90% to 110% of rated supply voltage (See note 4.)
Reset voltage	10% min. of rated supply voltage (See note 5.)
Power consumption	100 to 120 VAC: 1.5 VA (at 120 VAC) 200 to 230 VAC: 1.8 VA (at 230 VAC) 240 VAC: 1.7 VA (at 240 VAC) 24 VAC: 1.5 VA (at 24 VAC) 12 VDC: 0.9 W (at 12 VDC) 24 VDC: 0.9 W (at 24 VDC) 48 VDC: 1.0 W (at 48 VDC) 100 to 110 VDC: 1.3 W (at 110 VDC) 125 VDC: 1.3 W (at 125 VDC)
Control outputs	H3Y-2(-0): 5 A at 250 VAC, resistive load ($\cos\phi = 1$) The minimum applicable load is 1 mA at 5 VDC (P reference value). Contact materials : Ag H3Y-4(-0): 3 A at 250 VAC, resistive load ($\cos\phi = 1$) The minimum applicable load is 1 mA at 1 VDC (P reference value). Contact materials : Au-clad + Ag-alloy

- Note:**
- Do not use the output from an inverter as the power supply. Refer to *Safety Precautions for All Times* for details.
 - With DC ratings, single-phase full-wave rectified power sources may be used.
 - Only the H3Y-2 and H3Y-2-0 Series include 2-VDC models.
 - 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.
 - 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.
 - Refer to *Safety Precautions for All Times* when combining the Timer with an AC 2-wire proximity sensor.
 - A diode to prevent reverse voltages is provided only on models with a DC power supply.

■ Characteristics

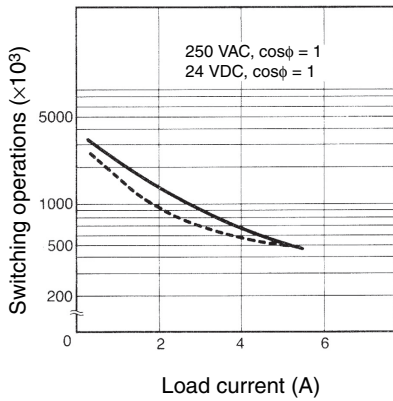
Accuracy of operating time	±1% FS max. (0.5 s range: ±1%±10 ms max.)
Setting error (see note 1)	±10%±50 ms FS max.
Reset time	Min. power-opening time: 0.1 s max. (including halfway reset)
Reset voltage	10% max. of rated supply voltage
Influence of voltage (see note 1)	±2% FS max.
Influence of temperature (see note 1)	±2% FS max.
Insulation resistance	100 MΩ min. (at 500 VDC)
Dielectric strength	2,000 VAC, 50/60 Hz for 1 min (between current-carrying terminals and exposed non-current-carrying metal parts) (see note 2) 2,000 VAC, 50/60 Hz for 1 min (between operating power circuit and control output) (see note 2) 2,000 VAC, 50/60 Hz for 1 min (between different pole contacts; 2-pole model) (see note 2) 1,500 VAC, 50/60 Hz for 1 min (between different pole contacts; 4-pole model) 1,000 VAC, 50/60 Hz for 1 min (between non-continuous contacts)
Vibration resistance	Destruction: 10 to 55 Hz, 0.75-mm single amplitude Malfunction: 10 to 55 Hz, 0.5-mm single 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 (with no icing) Storage: -25°C to 65°C (with no icing)
Ambient humidity	Operating: 35% to 85%
Life expectancy	Mechanical: 10,000,000 operations min. (under no load at 1,800 operations/h) Electrical: H3Y-2: 500,000 operations min. (5 A at 250 VAC, resistive load at 1800 operations/h) H3Y-4: 200,000 operations min. (3 A at 250 VAC, resistive load at 1800 operations/h)
Impulse withstand voltage	Between power terminals: 3 kV for 100 to 120 VAC, 200 to 230 VAC, 100 to 110 VDC, 125 VDC 1 kV for 12 VDC, 24 VDC, 48 VDC Between exposed non-current-carrying metal parts: 4.5 kV for 100 to 120 VAC, 200 to 230 VAC, 100 to 110 VDC, 125 VDC 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 Malfunction: 4 kV
Enclosure rating	IP40
Weight	Approx. 50 g
EMC	(EMI) EN61812-1 Emission Enclosure: EN55011 Group 1 class A Emission AC Mains: EN55011 Group 1 class A (EMS) EN61812-1 Immunity ESD: IEC61000-4-2 Immunity RF-interference: IEC61000-4-3 Immunity Burst: IEC61000-4-4 Immunity Surge: IEC61000-4-5 Immunity Conducted Disturbance: IEC61000-4-6 Immunity Voltage Dip/Interruption: IEC61000-4-11
Approved standards	UL508, CSA C22.2 No. 14, Lloyds, CCC Conforms to EN61812-1 and IEC60664-1. (2.5 kV/2 for H3Y-2/-2-0, 2.5 kV/1 for H3Y-4/-4-0) Output category according to EN60947-5-1.

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

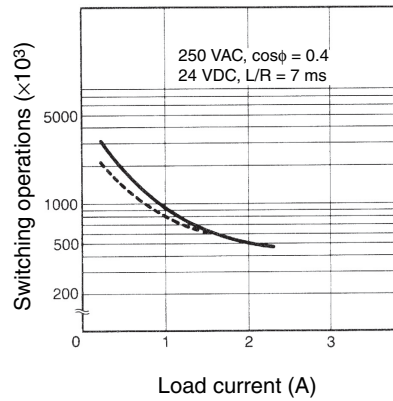
2. Terminal screw sections are excluded.

Engineering Data

H3Y-2, H3Y-2-0

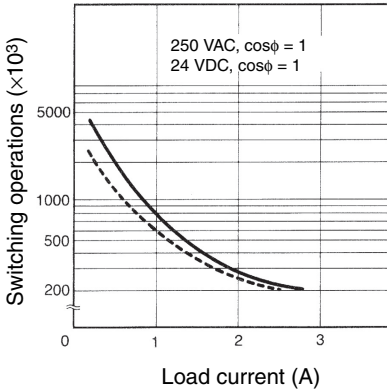


H3Y-2, H3Y-2-0

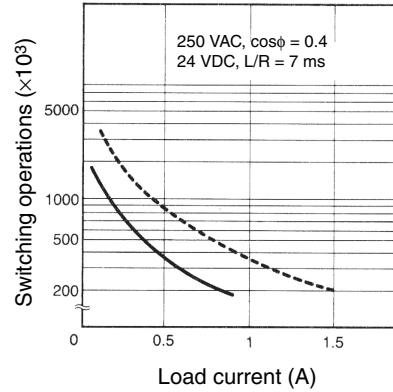


Reference: A maximum current of 0.6 A can be switched at 125 VDC ($\cos\phi = 1$).
 Maximum current of 0.2 A can be switched if L/R is 7 ms. In both cases, a life of 100,000 operations can be expected. The minimum applicable load is 1 mA at 5 VDC (P reference value).

H3Y-4, H3Y-4-0



H3Y-4, H3Y-4-0

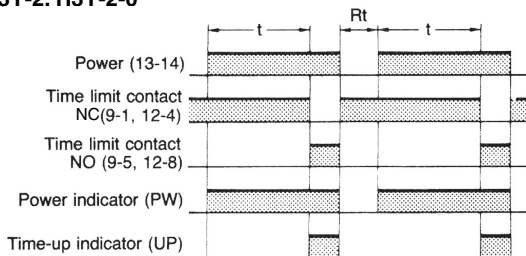


Reference: A maximum current of 0.5 A can be switched at 125 VDC ($\cos\phi = 1$).
 Maximum current of 0.2 A can be switched if L/R is 7 ms. In both cases, a life of 100,000 operations can be expected. The minimum applicable load is 1 mA at 1 VDC (P reference value).

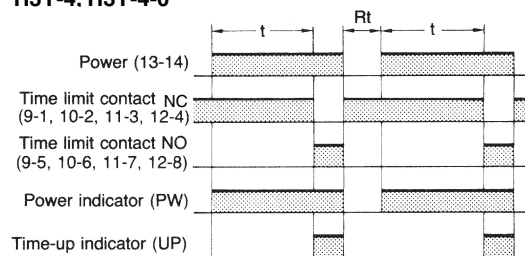
Operation

■ Timing Chart

H3Y-2, H3Y-2-0



H3Y-4, H3Y-4-0

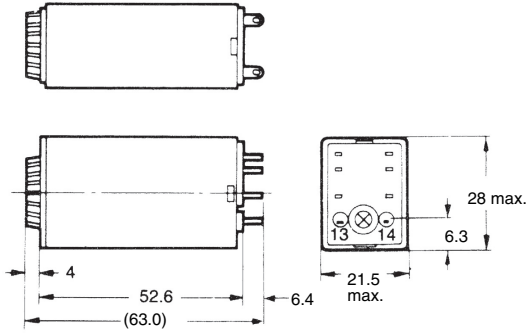


Dimensions

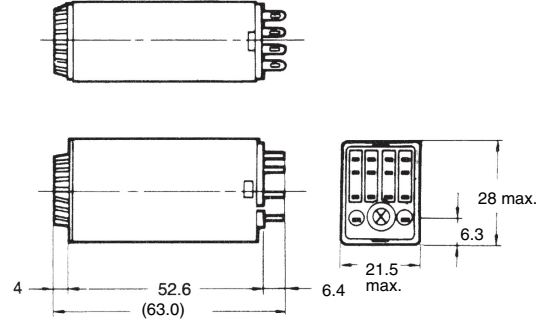
Note: All units are in millimeters unless otherwise indicated.

Timers

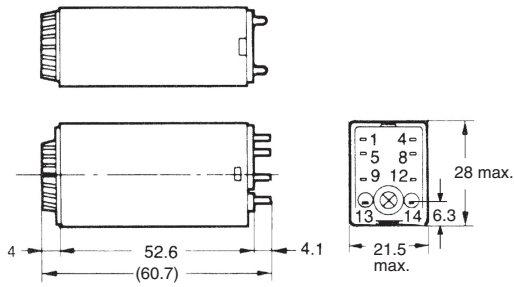
H3Y-2



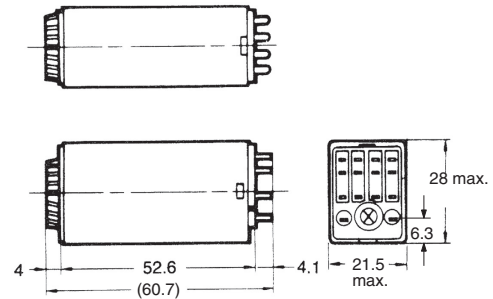
H3Y-4



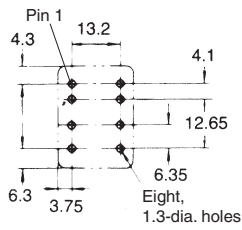
H3Y-2-0



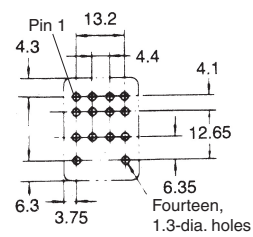
H3Y-4-0



Mounting Holes



Mounting Holes

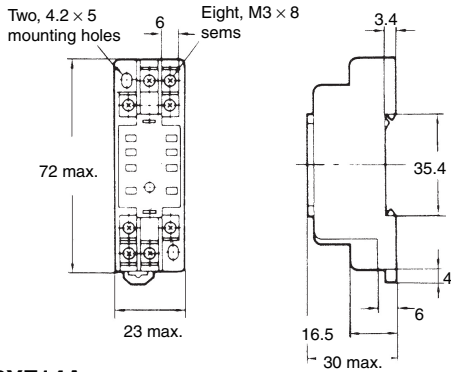


Accessories (Order Separately)

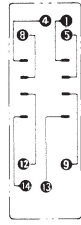
Use the PYF□A, PY□, PY□-02, or PY□QN(2) to mount the H3Y. When ordering any one of these sockets, replace "□" with "08" or "14."

Track Mounting/Front Connecting Sockets

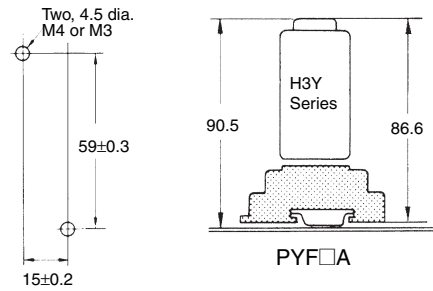
PYF08A



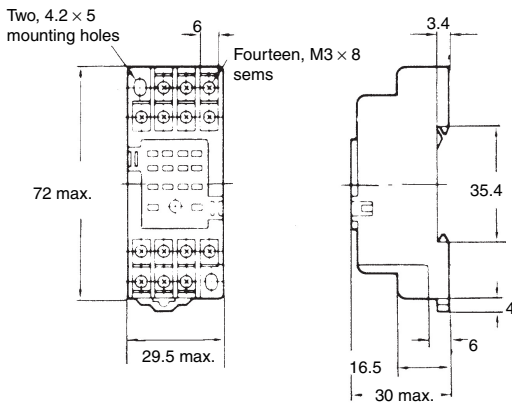
Terminal Arrangement (Top View)



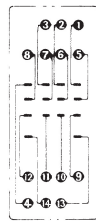
Mounting Holes



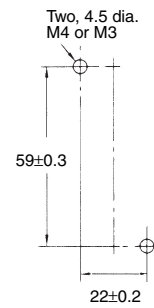
PYF14A



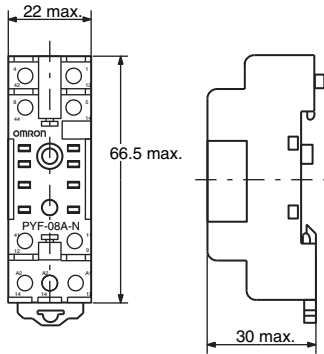
Terminal Arrangement (Top View)



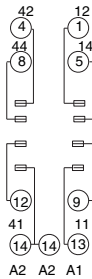
Mounting Holes



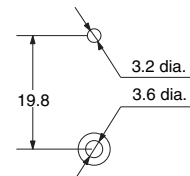
PYF08A-N



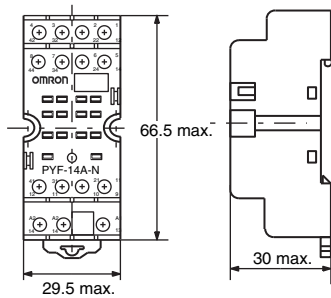
Terminal Arrangement



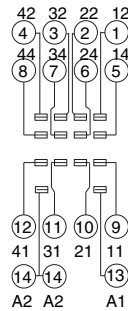
Mounting Holes (for Surface Mounting)



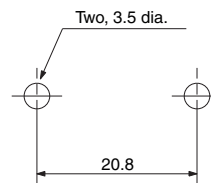
PYF14A-N



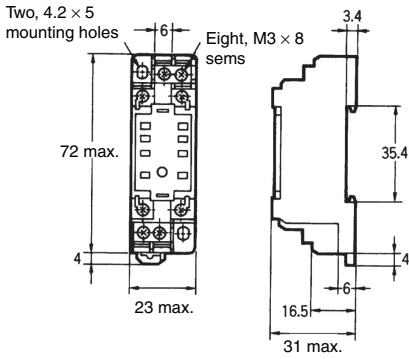
Terminal Arrangement



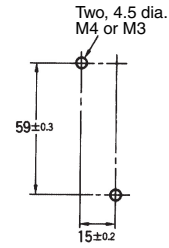
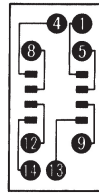
Mounting Holes (for Surface Mounting)



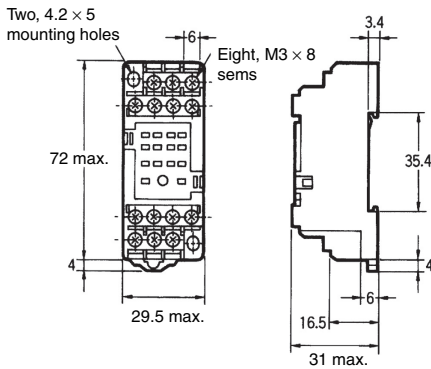
PYF08A-E



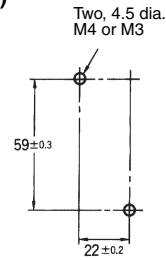
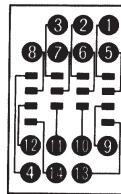
(Top View)



PYF14A-E



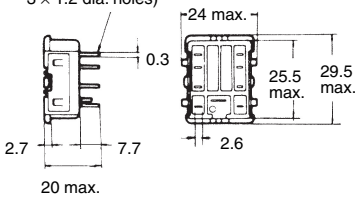
(Top View)



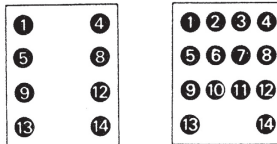
Back Connecting Sockets

PY08, PY14

Eight, 3 x 1.2 dia. holes only for PY08 (Fourteen, 3 x 1.2 dia. holes)



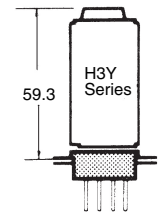
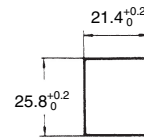
Terminal Arrangement (Bottom View)



PY08

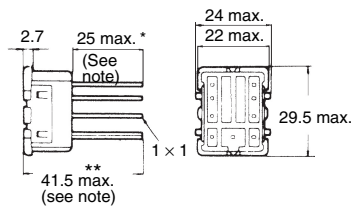
PY14

Panel Cutout

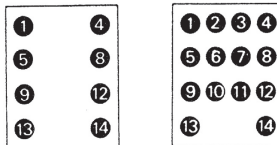


PY□, PY□-02, PY□QN(2)

**PY08QN, PY14QN
PY08QN(2), PY14QN(2)**



Terminal Arrangement (Bottom View)

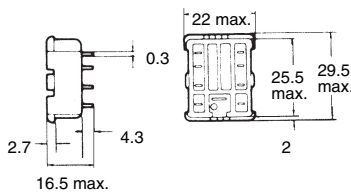


PY08QN
PY08QN(2)

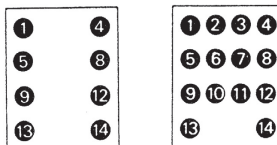
PY14QN
PY14QN(2)

Note: With PY□QN(2), dimension * should read 20 max. and dimension ** 36.5 max.

PY08-02, PY14-02



Terminal Arrangement (Bottom View)



PY08-02

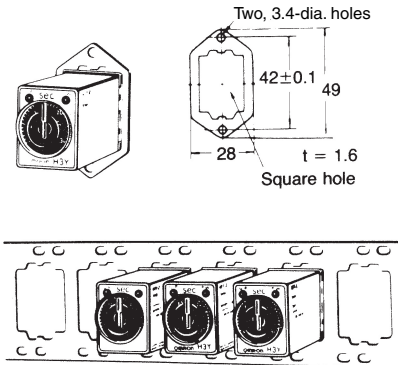
PY14-02

Socket Mounting Plates (t = 1.6)

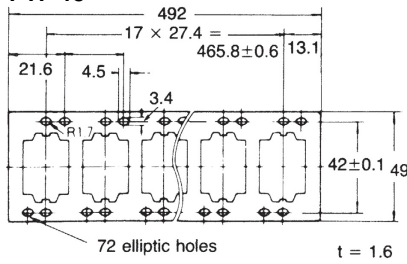
Applicable socket	For mounting 1 socket	For mounting 18 sockets
PY08, PY14, PY08QN(2), PY14QN(2)	PYP-1	PYP-18

Note: PYP-18 may be cut to any desired length.

PYP-1



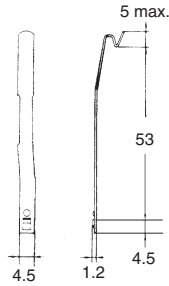
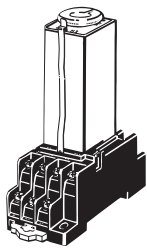
PYP-18



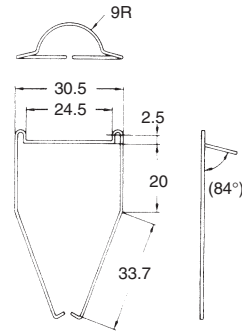
Relay Hold-down Clips

**Y92H-3
Y92H-4**

**Y92H-3 for
PY□A Socket
(Set of Two Clips)**

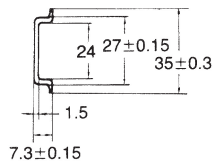
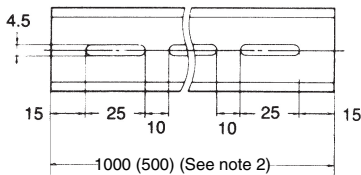


**Y92H-4 for
PY□ Socket**



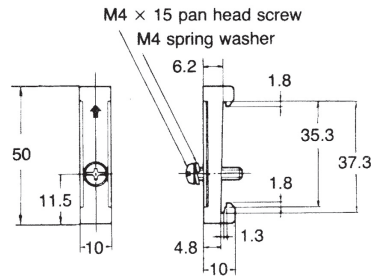
Mounting Track

PFP-100N/PFP-50N (see note 1)



End Plate

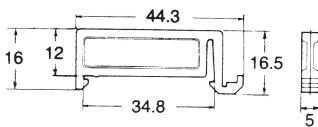
PFP-M



Note: 1. Meets DIN EN50022
2. This dimension applies to PFP-50N.

Spacer

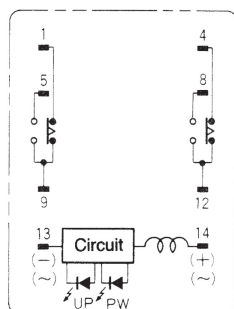
PFP-S



Installation

■ Connection

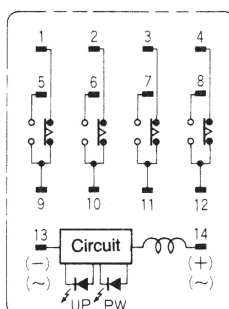
H3Y-2, H3Y-2-0



(Bottom View)

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

H3Y-4, H3Y-4-0




(Bottom View)

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




Safety Precautions

Refer to *Safety Precautions for All Timers*.


Warning Indications


 CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.
Precautions for Safe Use	Supplementary comments on what to do or avoid doing, to use the product safely.
Precautions for Correct Use	Supplementary comments on what to do or avoid doing, to prevent failure to operate, malfunction or undesirable effect on product performance.


Meaning of Product Safety Symbols


	Used for general prohibitions for which there is no specific symbol.
	Use to indicate prohibitions when there is a risk of minor injury from electrical shock or other source if the product is disassembled.
	Used for general mandatory action precautions for which there is no specified symbol.


CAUTION

Risk of fire and explosion due to arcing and relay heat generation that accompanies switching. Do not use in an environment where flammable or explosive gas is present. 

The service life of the output relay varies widely depending on switching capacity and switching conditions. Use only within the rated load and electrical life count, based on actual conditions of use. Risk of contact sticking and burning if used past the service life. Always use a load current that does not exceed the rating, and if a heater is used, use a thermal switch in the load circuit. 

Do not remove the outer casing. 

In rare circumstances there is a risk of slight electrical shock, fire, or device damage. Do not disassemble, modify, repair, or otherwise touch the inside. 

Tighten the screws for the lead wires to the Socket to the following torque.
 PYF Socket: 0.78 to 1.18 N·m
 This is the recommended range when crimp terminals are used. 
 If the screws are not tightened sufficiently on Front-connecting Sockets, the lead wires may come off, connection failure may cause abnormal heating, or fires may occur.
 If they are tightened excessively, the screw threads may be damaged.

Precautions for Safe Use

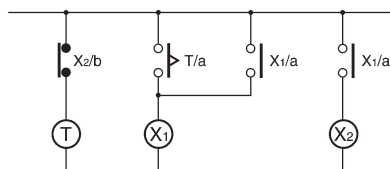
Confirm that the setting dial, indicators and plastic parts are operating normally. Depending on the operating environment, the setting dial, indicators and plastic parts may deteriorate faster than expected, causing the indicators to fail. Periodically perform inspections and replacements.
 We recommend that you use a surge absorber if surge voltages may occur. When you dispose of the Timer, do so according to all local ordinances for processing industrial waste.

Precautions for Correct Use

When selecting a control output, use the H3Y-2 for switching ON and OFF the power and the H3Y-4 for switching ON and OFF the minute load.

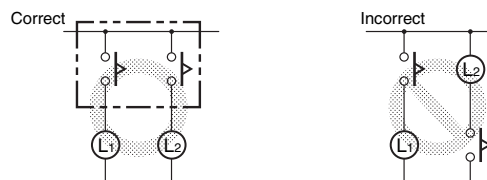
The operating voltage will increase when using the H3Y in any place where the ambient temperature is more than 50°C. Supply 90% to 110% of the rated voltages (at 12 VDC: 95% to 110%) when operating at 45°C or higher.

Do not leave the H3Y in time-up condition for a long period of time (for example, more than one month in any place where the ambient temperature is high), otherwise the internal parts (aluminum electrolytic capacitor) may become damaged. Therefore, the use of the H3Y with a relay as shown in the following circuit diagram is recommended to extend the service life of the H3Y.

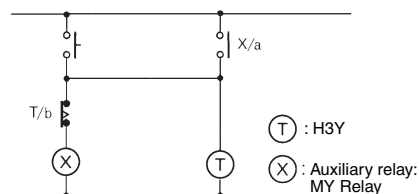


⊗: Auxiliary relay such as MY Relay

Do not connect the H3Y as shown in the following circuit diagram on the right hand side, otherwise the H3Y's internal contacts different from each other in polarity may become short-circuited.



Use the following safety circuit when building a self-holding or self-resetting circuit with the H3Y and an auxiliary relay, such as an MY Relay, in combination.



Do not use the H3Y in places where there is excessive dust, corrosive gas, or direct sunlight.

Do not mount more than one H3Y closely together, otherwise the internal parts may become damaged. Make sure that there is a space of 5 mm or more between any H3Y Models next to each other to allow heat radiation.

The internal parts may become damaged if a supply voltage other than the rated ones is imposed on the H3Y. When more than 100 V is applied to 12- or 24-VDC models, the internal element (varistor) may break.

Always use the same type of wire.

Installation
 There are no restrictions on the installation orientation. Install the Timer securely.

Precautions for EN61812-1

Conformance

The H3Y as a built-in timer conforms to EN61812-1 provided that the following conditions are satisfied.

Handling

Before dismantling the H3Y from the socket, make sure that no voltage is imposed on any terminal of the H3Y.

Wiring

The power supply for the H3Y must be protected with equipment such as a breaker approved by VDE.

Basic insulation is ensured between the H3Y's operating circuit and control output.

Insulation requirement: Overvoltage category II,
 pollution degree 1 (H3Y-4/-4-0),
 pollution degree 2 (H3Y-2/-2-0)
 (with a clearance of 1.5 mm and a
 creepage distance of 2.5 mm at 240 VAC)

Output terminals next to each other on the H3Y-4 or H3Y-4-0 must have the same polarity.

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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