

Solid-state Timer

H3Y-C

Miniature Timer Compatible with the MY Relay

- On-delay function with precise time control.
- Large transparent time setting knob facilitates time setting.
- Pin configuration compatible with MY Power Relay.
- UL, CSA, and CCC certification
- Conforms to EN61812-1 and EMC standards.



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	0.1 s to 30 min	110 VAC, 220 VAC (50/60 Hz); 24 VDC	H3Y-2-C
	4PDT			H3Y-4-C

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

Ex. H3Y-2-C 110 VAC 30 s

└──────────┘ Rated time

└──────────┘ Supply voltage

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

■ Accessories (Order Separately)

Socket

Timer		Square Sockets			
Contact	Model	Pin	Connection	Terminal	Model
DPDT	H3Y-2-C	8-pin	Front Connecting	DIN track mounting	PYF08A
				DIN track mounting (Finger-safe type)	PYF08A-E
				DIN track mounting	PYF08F
			Back Connecting	Solder terminal	PY08
				PCB terminal	PY08-02
4PDT	H3Y-4-C	14-pin	Front Connecting	DIN track mounting	PYF14A
				DIN track mounting (Finger-safe type)	PYF14A-E
			Back Connecting	Solder terminal	PY14
				PCB terminal	PY14-02

Note: 1. The PYF□□A-E has a finger-protection structure. Round crimp terminals cannot be used. Use forked crimp terminals.

2. For details, refer to *Socket and DIN Track Products*.

Adapter, Mounting Plate, Clip

Name/specification		Model
Flush mounting adapter		Y92F-78
Mounting Plate for Socket	For 1 Socket	PYP-1
	For 18 Sockets	PYP-18
Clip	For PYF□A	Y92H-3
	For PY□ and PYF□M	Y92H-4

Note: For details, refer to *Safety Precautions*.

H3Y-C

Specifications

■ Time Ranges

Rated time	Time setting range
1 s	0.1 to 1 s
5 s	0.2 to 5 s
10 s	0.5 to 10 s
30 s	1.0 to 30 s
60 s	2.0 to 60 s
3 min	0.1 to 3 min
30 min	1 to 30 min

■ Ratings

Item	H3Y-2-C/H3Y-4-C
Rated supply voltage (See note 4.)	110 VAC (50/60 Hz), 220 VAC (50/60 Hz), 24 VDC (See note 1. and 2.)
Operating voltage range	85% to 110% of rated supply voltage (See note 5.)
Reset voltage	10% min. of rated supply voltage (See note 3.)
Power consumption	110 VAC: Relay ON: Approx. 1.8 VA (1.6 W), 50/60 Hz Relay OFF: Approx. 1 VA (0.6 W), 50/60 Hz 220 VAC: Relay ON: Approx. 2.2 VA (1.8 W), 50/60 Hz Relay OFF: Approx. 1.5 VA (1.1 W), 50/60 Hz 24 VDC: Relay ON: Approx. 1.1 W Relay OFF: Approx. 0.1 W
Control outputs	H3Y-2-C: 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-C: 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.
 - Set the reset voltage as follows to ensure proper resetting.
 110 VAC: 11 VAC max.
 220 VAC: 22 VAC max.
 24 VDC: 2.4 VDC max.
 - Refer to *Safety Precautions for All Times* when combining the Timer with an AC 2-wire proximity sensor.
 - Use the Timer within 90% to 110% of the rated supply voltage when using it continuously under an ambient operating temperature of 50°C.

■ Characteristics

Accuracy of operating time	±2% FS max. (at the greatest scale time)
Setting error	±10% ±50 ms FS max. (at the greatest scale time)
Reset time	Min. power-opening time: 0.1 s min. (including halfway reset)
Influence of voltage	±2% FS max. (at the greatest scale time)
Influence of temperature	±5% FS max. (at the greatest scale time)
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 1) 2,000 VAC, 50/60 Hz for 1 min (between operating power circuit and control output) 2,000 VAC, 50/60 Hz for 1 min (between different pole contacts; 2-pole model) 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-C: 400,000 operations min. (5 A at 250 VAC, resistive load at 1,800 operations/h) H3Y-4-C: 160,000 operations min. (3 A at 250 VAC, resistive load at 1,800 operations/h) (See notes 2.)
Impulse withstand voltage	Between power terminals: 3 kV for 110VAC, 220VAC 1 kV for 24VDC Between exposed non-current-carrying metal parts: 4.5 kV for 110VAC, 220VAC 1.5 kV for 24VDC
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 Conforms to EN61812-1 and IEC60664-1. (2.5 kV/2 for H3Y-2-C, 2.5 kV/1 for H3Y-4-C) Output category according to EN60947-5-1. CCC: (H3Y-2-C) Pollution degree 2, Overvoltage category II, section GB/T 14048.5, (H3Y-4-C) Pollution degree 1, Overvoltage category II, section GB/T 14048.5 *3

Note: 1. Terminal screw sections are excluded.

2. Refer to the Life-test Curve.

3. CCC certification requirements

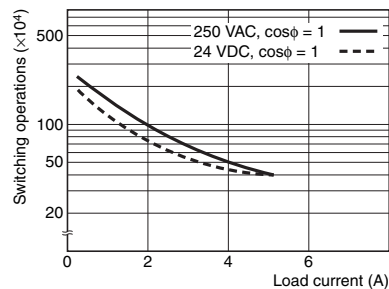
Model	H3Y-2-C	H3Y-4-C
Recommended fuse	RT14-20/6A (380 VAC 6 A), manufactured by DELIXI	RT14-20/4A (380 VAC 4 A), manufactured by DELIXI
Rated operating voltage U _e Rated operating current I _e	AC-15: U _e : 250 VAC, I _e : 3 A AC-13: U _e : 250 VAC, I _e : 5 A DC-13: U _e : 30 VDC, I _e : 0.5 A	AC-15: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

H3Y-C

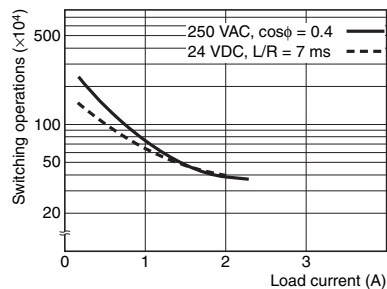
Engineering Data

Life-test Curve

H3Y-2-C

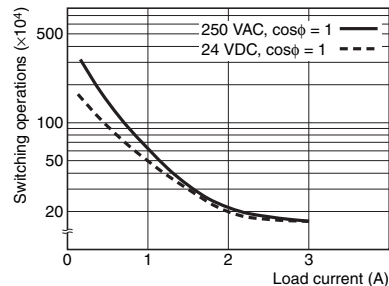


H3Y-2-C

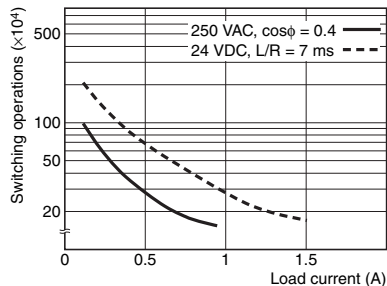


Reference: A maximum current of 0.6 A can be switched at 125 VDC ($\cos\phi = 1$).
Maximum current of 0.2 A can be switched if L/R is 7 ms. In both cases, a life of 100,000 operations can be expected. The minimum applicable load is 1 mA at 5 VDC (P reference value).

H3Y-4-C



H3Y-4-C

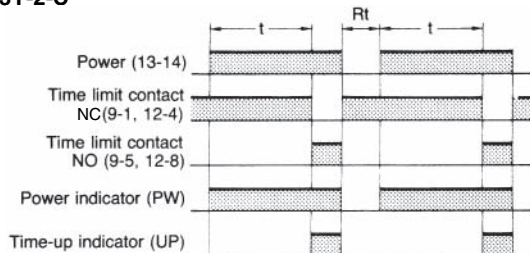


Reference: A maximum current of 0.5 A can be switched at 125 VDC ($\cos\phi = 1$).
Maximum current of 0.2 A can be switched if L/R is 7 ms. In both cases, a life of 100,000 operations can be expected. The minimum applicable load is 1 mA at 1 VDC (P reference value).

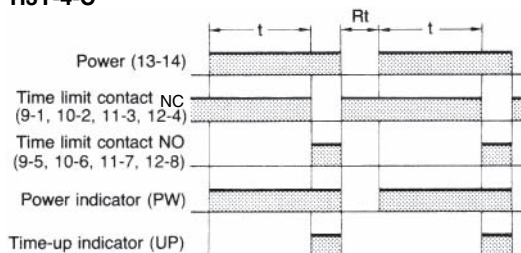
Operation

Timing Chart

H3Y-2-C



H3Y-4-C

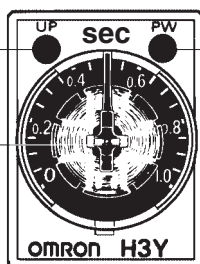


Note: "t" is the set time. "Rt" is the reset time (0.1s min.).

Nomenclature

Output Indicator (Orange)
(Lit: Output ON)

Main Dial
(For setting the time)



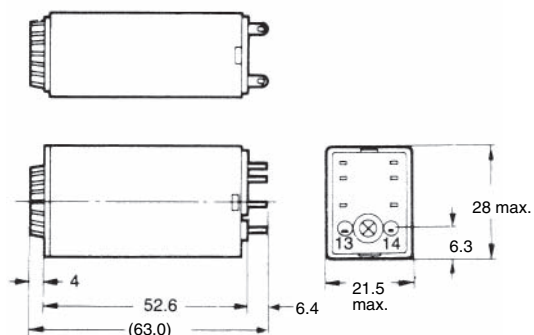
Run/Power Indicator (Green)
(Lit: Power ON)

Dimensions

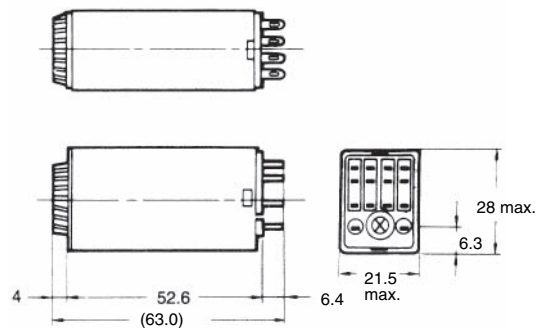
Note: All units are in millimeters unless otherwise indicated.

■ Timers

H3Y-2-C



H3Y-4-C

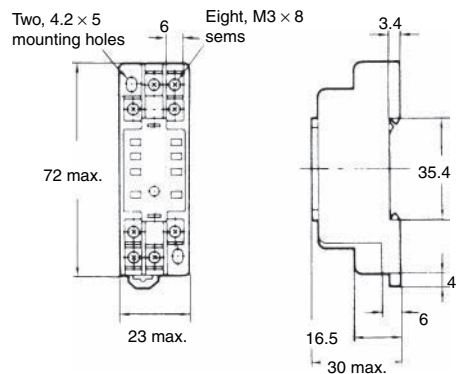


■ Accessories (Order Separately)

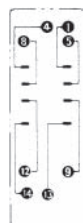
Use the PYF□A, PY□, PY□-02, or PY□QN(2) to mount the H3Y. When ordering any one of these sockets, replace "□" with "08" or "14."

Track Mounting/Front Connecting Sockets

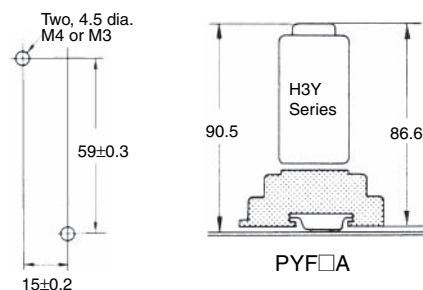
PYF08A



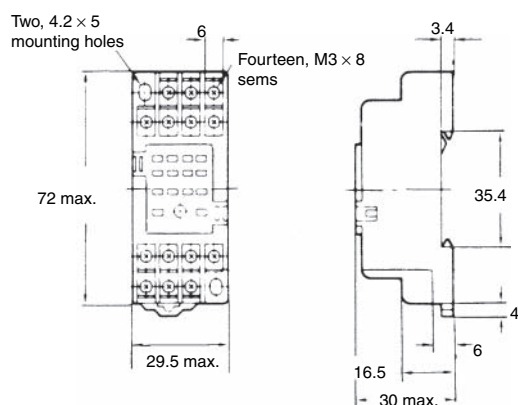
Terminal Arrangement (Top View)



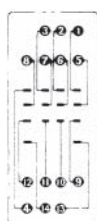
Mounting Holes



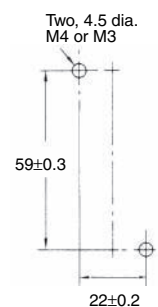
PYF14A



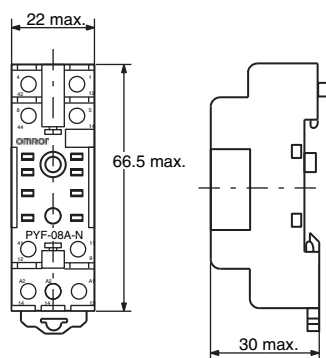
Terminal Arrangement (Top View)



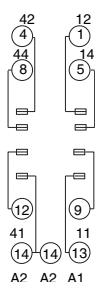
Mounting Holes



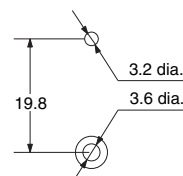
PYF08A-N



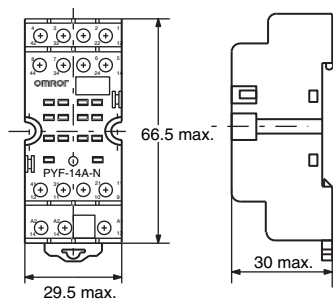
Terminal Arrangement



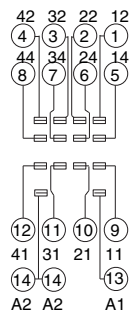
Mounting Holes (for Surface Mounting)



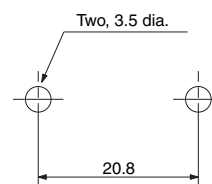
PYF14A-N



Terminal Arrangement

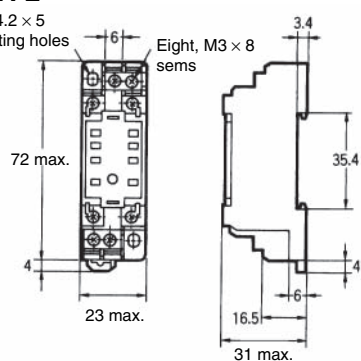


Mounting Holes (for Surface Mounting)

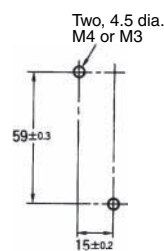
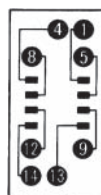


PYF08A-E

Two, 4.2 × 5
mounting holes

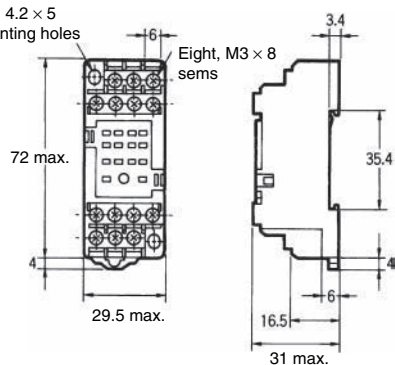


(Top View)

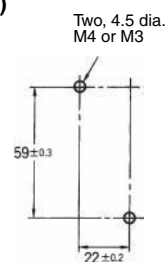
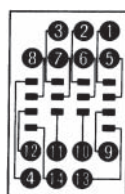


PYF14A-E

Two, 4.2 × 5
mounting holes



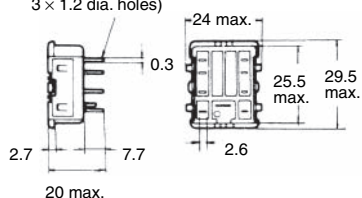
(Top View)



Back Connecting Sockets

PY08, PY14

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



Terminal Arrangement (Bottom View)

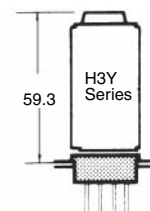
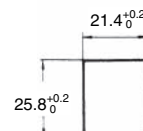


PY08



PY14

Panel Cutout



PY□, PY□-02,
PY□QN(2)

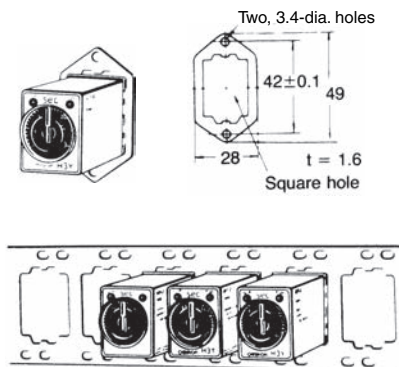
H3Y-C

Socket Mounting Plates (t = 1.6)

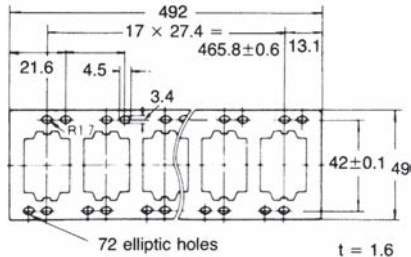
Applicable socket	For mounting 1 socket	For mounting 18 sockets
PY08, PY14, PY08QN(2), PY14QN(2)	PYP-1	PYP-18

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

PYP-1



PYP-18



Relay Hold-down Clips

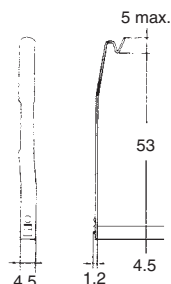
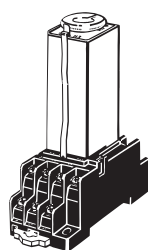
The Hold-down Clip makes it possible to mount the H3YN securely and prevent the H3YN from falling out due to vibration or shock.

Note: When you attach the Hold-down Clip to or remove it from the Socket, take sufficient precautions to not injury your fingers, such as wearing gloves.

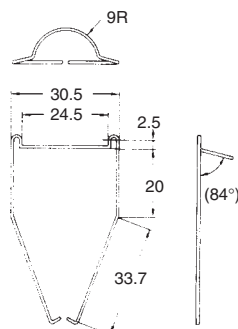
Y92H-3

Y92H-4

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

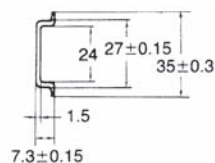
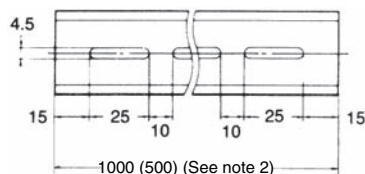


**Y92H-4 for
PY□ Socket**



Mounting Track

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

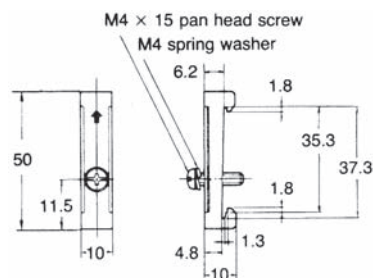


Note:

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

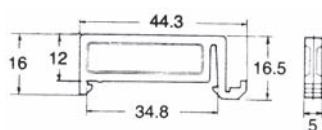
End Plate

PFP-M



Spacer

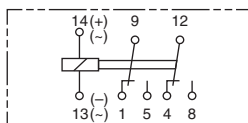
PFP-S



Installation

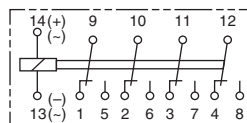
■ Connection

H3Y-2-C



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

H3Y-4-C



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

H3Y-C

Precautions

Refer to *Safety Precautions for All Timers*.

Precautions for Safe Use

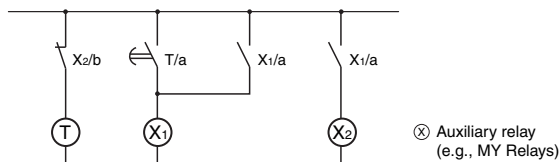
Confirm that the setting dial, indicators and plastic parts are operating normally. Depending on the operating environment, the setting dial, indicators and plastic parts may deteriorate faster than expected, causing the indicators to fail. Periodically perform inspections and replacements.

Precautions for Correct Use

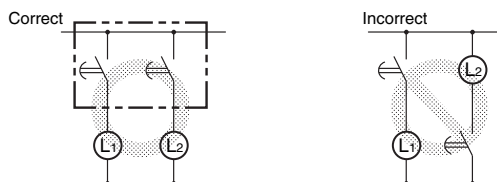
When selecting a control output, use the H3Y-2-C for switching ON and OFF the power and the H3Y-4-C for switching ON and OFF the minute load.

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

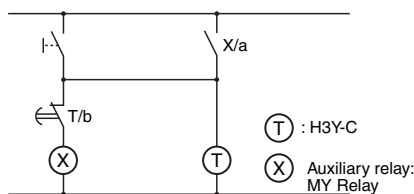
Do not leave the H3Y-C in time-up condition for a long period of time (for example, more than one month in any place where the ambient temperature is high), otherwise the internal parts (aluminum electrolytic capacitor) may become damaged. Therefore, the use of the H3Y with a relay as shown in the following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



Do not connect the H3Y-C as shown in the following circuit diagram on the right hand side, otherwise the H3Y-C'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-C and an auxiliary relay, such as an MY Relay, in combination.



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

Do not mount more than one H3Y-C closely together, otherwise the internal parts may become damaged. Make sure that there is a space of 5 mm or more between any H3Y-C 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-C. When more than 100 V is applied to 24 VDC models, the internal element (varistor) may break.

Use the same type of wiring for all Timer wiring.

When disposing of the Timer, observe all local ordinances as they apply.

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

Lead Wire Screw Connections

Tighten lead wire screws to the following torque.

PYF socket: 0.78 to 1.18 N·m

The values are recommended when crimp terminals are used.

If the screws connecting a panel-mounting socket are not sufficiently tightened, the lead wire can become detached and abnormal heating or fire can be caused by the contact failure.

Conversely, excessive tightening can strip the threads.

Precautions for EN61812-1 Conformance

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

Handling

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

Wiring

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

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

Insulation requirement: Overvoltage category II, pollution degree 1 (H3Y-4-C), pollution degree 2 (H3Y-2-C) (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-C 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.

Warranty and Application Considerations

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.

Warranty and Limitations of Liability

WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

LIMITATIONS OF LIABILITY

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

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS 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 OR REPAIR.

Application Considerations

SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products.

Take all necessary steps to determine the suitability of the product for the systems, machines, and equipment with which it will be used.

Know and observe all prohibitions of use applicable to this product.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Disclaimers

PERFORMANCE DATA

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

CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons. Consult with your OMRON representative at any time to confirm actual specifications of purchased product.

DIMENSIONS AND WEIGHTS

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