# Solid-state Power OFF-delay Timers
# H3CR-H

## DIN 48 × 48-mm Power OFF-delay Timer

- Long power OFF-delay times;
  S-series: up to 12 seconds,
  M-series: up to 12 minutes.
- Models with forced-reset input are available.
- 11-pin and 8-pin models are available.

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

# Model Number Structure

## ■ Model Number Legend

**Note:** This model number legend includes combinations that are not available. Before ordering, please check the *List of Models* on page 42 for availability.

**H3CR - H □ □ L □ □**
**1 2 3 4 5 6**

**Note:** Specify the model number, supply voltage, and time range (S or M) when ordering.

**1. Classification**
H: Power OFF-delay timer

**2. Configuration**
None: 11-pin socket
8: 8-pin socket

**3. Input**
None: Without reset input
R: With reset input

**4. Dimensions**
L: Long-body model

**5. Supply Voltage**
100-120AC: 100 to 120 VAC
200-240AC: 200 to 240 VAC
24AC/DC: 24VAC/DC
48DC: 48 VDC
100-125DC: 100 to 125 VDC

**6. Time Range**
S: 0.05 to 12 s
M: 0.05 to 12 min

## ■ List of Models

| Input | Output | Supply voltage | S-series | | M-series | |
|---|---|---|---|---|---|---|
| | | | 11-pin models | 8-pin models | 11-pin models | 8-pin models |
| Without reset input | DPDT | 100 to 120 VAC | --- | H3CR-H8L 100-120AC S | --- | H3CR-H8L 100-120AC M |
| | | 200 to 240 VAC | | H3CR-H8L 200-240AC S | | H3CR-H8L 200-240AC M |
| | | 24 VAC/DC | | H3CR-H8L 24AC/DC S | | H3CR-H8L 24AC/DC M |
| | | 48 VDC | | H3CR-H8L 48DC S | | H3CR-H8L 48DC M |
| | | 100 to 125 VDC | | H3CR-H8L 100-125DC S | | H3CR-H8L 100-125DC M |
| With reset input | | 100 to 120 VAC | H3CR-HRL 100-120AC S | --- | H3CR-HRL 100-120AC M | --- |
| | | 200 to 240 VAC | H3CR-HRL 200-240AC S | | H3CR-HRL 200-240AC M | |
| | | 24 VAC/DC | H3CR-HRL 24AC/DC S | | H3CR-HRL 24AC/DC M | |
| | | 48 VDC | H3CR-HRL 48DC S | | H3CR-HRL 48DC M | |
| | | 100 to 125 VDC | H3CR-HRL 100-125DC S | | H3CR-HRL 100-125DC M | |
| | SPDT | 100 to 120 VAC | --- | H3CR-H8RL 100-120AC S | --- | H3CR-H8RL 100-120AC M |
| | | 200 to 240 VAC | | H3CR-H8RL 200-240AC S | | H3CR-H8RL 200-240AC M |
| | | 24 VAC/DC | | H3CR-H8RL 24AC/DC S | | H3CR-H8RL 24AC/DC M |
| | | 48 VDC | | H3CR-H8RL 48DC S | | H3CR-H8RL 48DC M |
| | | 100 to 125 VDC | | H3CR-H8RL 100-125DC S | | H3CR-H8RL 100-125DC M |

**Note:** Specify the model number, supply voltage, and time range (S or M) when ordering.
Example: H3CR-H8L 100-120AC S
Time range
Supply voltage

# ■ Accessories (Order Separately)

## Adapter, Protective Cover and Hold-down Clip

| Name/specifications | | Models |
|---|---|---|
| **Flush Mounting Adapters** | | **Y92F-30** |
| | | **Y92F-70 ✻1** |
| | | **Y92F-71 ✻1** |
| **Protective Cover** | | **Y92A-48B ✻2** |
| **Hold-down Clips** | **For PF085A Socket** | **Y92H-2** |
| | **For PL08 or PL11 Sockets** | **Y92H-1** |

**Note:** Refer to Operation (Common) datasheet for details.

**✻1.** The Y92A-48B Protective Cover and the Y92F-70/-71 Flush Mounting Adapter cannot be used at the same time.

**✻2.** The Y92F-48B Protective Cover is made from hard plastic. Remove the Protective Cover to change the set value.

## Sockets

| Timer | Round Sockets | | |
|---|---|---|---|
| **Pin** | **Connection** | **Terminal** | **Models** |
| 11-pin | Front Connecting | DIN track mounting | **P2CF-11** |
| | | DIN track mounting (Finger-safe type) | **P2CF-11-E** |
| | Back Connecting | Screw terminal | **P3GA-11** |
| | | Solder terminal | **PL11** |
| | | Wrapping terminal | **PL11-Q** |
| | | PCB terminal | **PLE11-0** |
| 8-pin | Front Connecting | DIN track mounting | **P2CF-08** |
| | | DIN track mounting (Finger-safe type) | **P2CF-08-E** |
| | | DIN track mounting | **PF085A** |
| | Back Connecting | Screw terminal | **P3G-08** |
| | | Solder terminal | **PL08** |
| | | Wrapping terminal | **PL08-Q** |
| | | PCB terminal | **PLE08-0** |

**Note: 1.** The P2CF-□□-E has a finger-protection structure. Round crimp terminals cannot be used. Use forked crimp terminals.
**2.** The P3GA-11 and P3G-08 Socket can be used together with the Y92A-48G Terminal Cover to implement finger protection.
**3.** For details, refer to your OMRON website.

## Terminal Cover

| Application | Model | Remarks |
|---|---|---|
| **For back connecting socket** | **Y92A-48G** | For P3G-08 and P3GA-11 |

**Note:** For details, refer to your OMRON website.

# Specifications

## ■ General

| Item | H3CR-H8L | H3CR-H8RL | H3CR-HRL |
|---|---|---|---|
| **Operating/Reset method** | Instantaneous operation/Time-limit reset | Instantaneous operation/Time-limit reset/Forced reset | |
| **Pin type** | 8-pin | | 11-pin |
| **Input type** | --- | No-voltage input | |
| **Output type** | Relay output (DPDT) | Relay output (SPDT) | Relay output (DPDT) |
| **Mounting method** | DIN track mounting, surface mounting, and flush mounting | | |
| **Approved standards** | UL508, CSA C22.2 No.14, NK, Lloyds, CCC: GB/T 14048.5 ✻<br>Conforms to EN61812-1 and IEC60664-1 (VDE0110) 4kV/2.<br>Output category according to EN60947-5-1. | | |

**Note:** For details, refer to your OMRON website.

✻ CCC certification requirements

| | |
|---|---|
| **Recommended fuse** | 0216005 (250VAC, 5A), manufactured by Littelfuse |
| **Rated operating voltage Ue**<br>**Rated operating current Ie** | AC-15: Ue: 250 VAC, Ie: 3 A<br>AC-13: Ue: 250 VAC, Ie: 5 A<br>DC-13: Ue: 30 VDC, Ie: 0.5 A |
| **Rated insulation voltage** | 250 V |
| **Rated impulse withstand voltage**<br>**(altitude: 2,000 m max.)** | 4 kV (at 240 VAC) |
| **Conditional short-circuit current** | 1000 A |

## ■ Time Ranges

| **Time unit** / **Scale number (max.)** | | **S-series**<br>**s (sec)** | **M-series**<br>**min (min)** |
|---|---|---|---|
| **0.6** | **Set time range** | 0.05 to 0.6 | |
| **1.2** | | 0.12 to 1.2 | |
| **6** | | 0.6 to 6 | |
| **12** | | 1.2 to 12 | |
| **Min. power ON time** | | 0.1 s min. | 2 s min. |
| **Time-up operation repeat period** | | 3 s min. | |
| **Forced-reset repeat period** | | 3 s min. | |

**Note: 1.** If the above minimum power ON time is not secured, the H3CR may not operate. Be sure to secure the above minimum power ON time.
**2.** Do not use the Timer with a repeat period of less than 3 s. Doing so may result in abnormal heating or burning. Refer to *Safety Precautions (H3CR-H)* on page 50 for details.

## ■ Ratings

| | |
|---|---|
| **Rated supply voltage (See notes 1 and 2.)** | 100 to 120 VAC (50/60 Hz), 200 to 240 VAC (50/60 Hz), 24 VAC/VDC (50/60 Hz), 48 VDC, 100 to 125 VDC |
| **Operating voltage range** | 85% to 110% of rated supply voltage |
| **No-voltage input (See note 3.)** | ON-impedance: 1 kΩ max.<br>ON residual voltage: 1 V max.<br>OFF impedance: 500 kΩ min. |
| **Power consumption** | 100 to 120 VAC: approx. 0.23 VA (0.22 W) at 120 VAC<br>200 to 240 VAC: approx. 0.35 VA (0.3 W) at 240 VAC<br>24 VAC/DC: approx. 0.17 VA (0.15 W) at 24 VAC<br>approx. 1.0 W at 24 VDC<br>48 VDC: approx. 0.18 W at 48 VDC<br>100 to 125 VDC: approx. 0.5 W at 125 VDC |
| **Control outputs** | Contact output: 5 A at 250 VAC/30 VDC, resistive load (cosϕ = 1)<br>The minimum applicable load is 10mA at 5VDC (P reference value).<br>Contact materials : Ag-alloy |

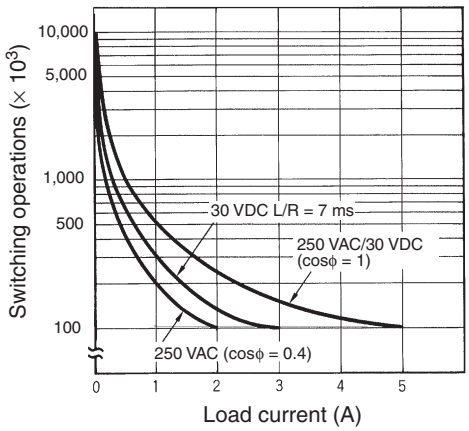
**Note: 1.** A power supply with a ripple of 20% max. (single-phase power supply with full-wave rectification) can be used with each DC Model.
**2.** Do not use an inverter output as the power supply. Refer to your OMRON website for details.
**3.** For contact input, use contacts which can adequately switch 1 mA at 5 V.

## ■ Characteristics

| | |
|---|---|
| **Accuracy of operating time** | ±0.2% FS max. (±0.2% FS ±10 ms max. in ranges of 0.6 and 1.2 s) |
| **Setting error** | ±5% FS ±50 ms max. |
| **Operation start voltage** | 30% max. of rated voltage |
| **Influence of voltage** | ±0.2% FS max. (±0.2% FS ±10 ms max. in ranges of 0.6 and 1.2 s) |
| **Influence of temperature** | ±1% FS max. (±1% FS ±10 ms max. in ranges of 0.6 and 1.2 s) |
| **Insulation resistance** | 100 MΩ min. (at 500 VDC) |
| **Dielectric strength** | 2,000 VAC, 50/60 Hz for 1 min (between current-carrying metal parts and exposed non-current-carrying metal parts)<br>2,000 VAC, 50/60 Hz for 1 min (between control output terminals and operating circuit)<br>2,000 VAC, 50/60 Hz for 1 min (between contacts of different polarities)<br>1,000 VAC, 50/60 Hz for 1 min (between contacts not located next to each other) |
| **Impulse withstand voltage** | 5 kV (between power terminals) for 100 to 120 VAC, 200 to 240 VAC, 100 to 125 VDC;<br>1 kV for 24 VAC/DC, 48 VDC<br>5 kV (between current-carrying terminal and exposed non-current-carrying metal parts) for 100 to 120 VAC, 200 to 240 VAC, 100 to 125 VDC;<br>1.5 kV for 24 VAC/DC, 48 VDC |
| **Noise immunity** | ±1.5 kV (between power terminals) and ±600 V (between input terminals), square-wave noise by noise simulator (pulse width: 100 ns/1 μs, 1-ns rise); ±1 kV (between power terminals) for 48 VDC |
| **Static immunity** | Malfunction: 8 kV, Destruction:15 kV |
| **Vibration resistance** | Destruction: 10 to 55 Hz with 0.75-mm single amplitude for 2 hrs each in three directions<br>Malfunction: 10 to 55 Hz with 0.5-mm single amplitude for 10 min each in three directions |
| **Shock resistance** | Destruction: 980 m/s$^2$ three times each in six directions<br>Malfunction: 98 m/s$^2$ three times each in six directions |
| **Ambient temperature** | Operating: −10°C to 55°C (with no icing),<br>Storage: −25°C to 65°C (with no icing) |
| **Ambient humidity** | Operating: 35% to 85% |
| **Life expectancy** | Mechanical: 10 million operations min. (under no load at 1,200 operations/h)<br>Electrical: 100,000 operations min. (5 A at 250 VAC, resistive load at 1,200 operations/h) (See note) |
| **EMC** | (EMI) EN61812-1<br>Emission Enclosure: EN55011 Group 1 class A<br>Emission AC Mains: EN55011 Group 1 class A<br>(EMS) EN61812-1<br>Immunity ESD: IEC61000-4-2<br>Immunity RF-interferenc: IEC61000-4-3<br>Immunity Burst: IEC61000-4-4<br>Immunity Surge: IEC61000-4-5<br>Immunity Conducted Disturbance: IEC61000-4-6<br>Immunity Voltage Dip/Interruption: IEC61000-4-11 |
| **Case color** | Light Gray (Munsell 5Y7/1) |
| **Degree of protection** | IP40 (panel surface) |
| **Weight** | Approx. 120 g |

**Note:** Refer to the *Life-test Curve(Reference)*.

## ■ Life-test Curve(Reference)



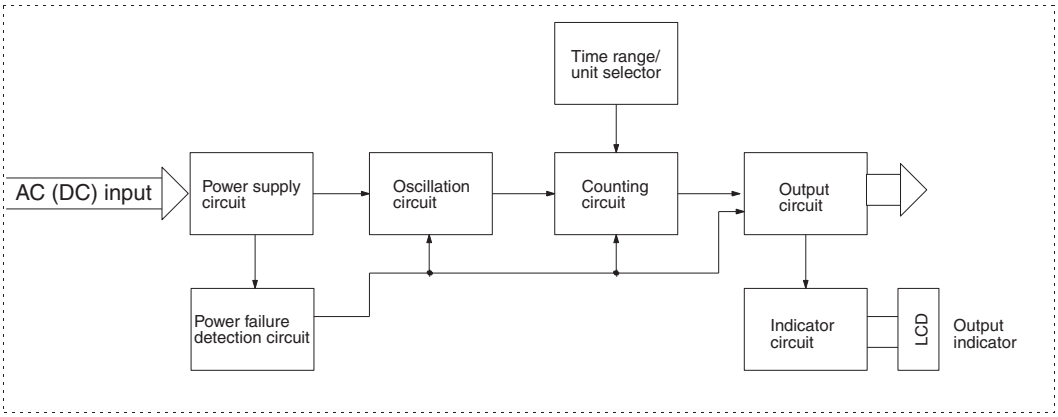

Reference: A maximum current of 0.15 A can be switched at 125 VDC (cosϕ = 1) and a maximum current of 0.1A can be switched at 125V DC and L/R = 7ms. In both cases, a life of 100,000 operations can be expected.

The minimum applicable load is 10 mA at 5 VDC for H3CR-H8L/-HRL and 100 mA at 5 VDC for H3CR-H8RL (failure level: P).

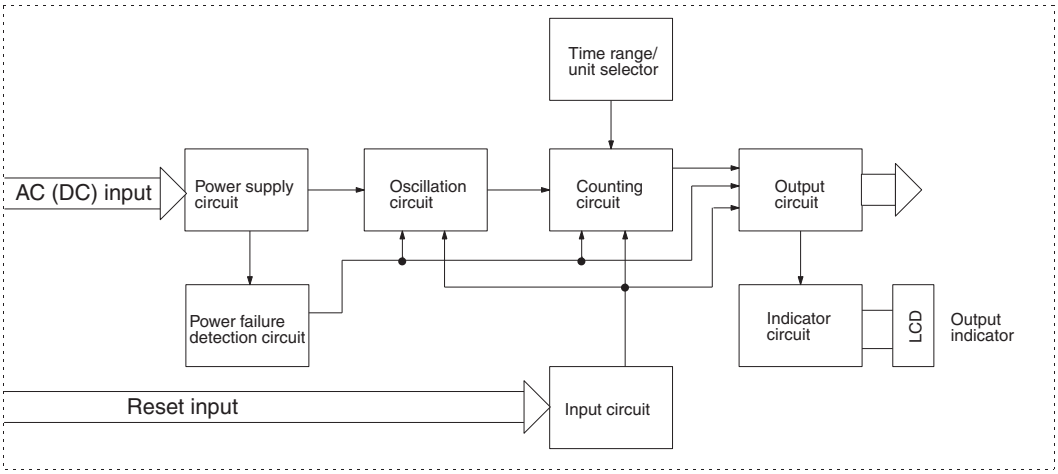
# Connections

## ■ Block Diagrams

**Without Reset Input (H3CR-H8L)**




**With Reset Input (H3CR-H8RL/-HRL)**




## ■ I/O Functions

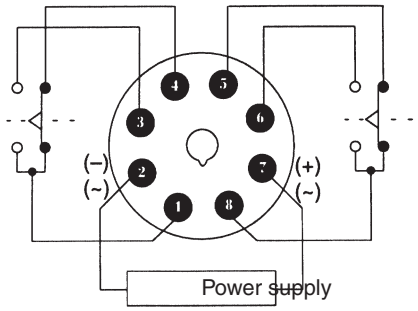
| | | |
|---|---|---|
| **Inputs** | **Reset** | Turns off the control output and resets the elapsed time. |
| **Outputs** | **Control output** | Operates instantaneously when the power is turned on and time-limit resets when the set time is up after the power is turned off. |

## ■ Terminal Arrangement

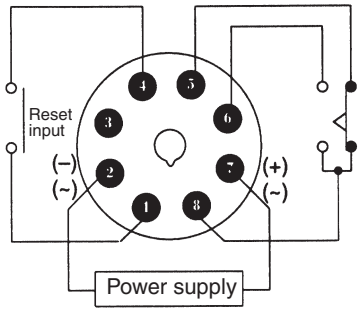
**Note:** DC models, including 24 VAC/DC models, have polarity.

**8-pin Models**

**Without Reset Input (H3CR-H8L)**



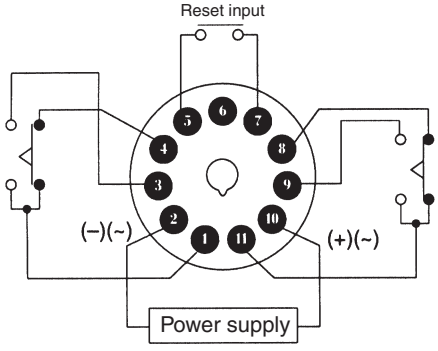

**With Reset Input (H3CR-H8RL)**




**Note1:** Leave terminal 3 open. Do not use them as relay terminals.
**Note2:** Do not apply voltage to reset input terminal.

**11-pin Model**

**With Reset Input (H3CR-HRL)**

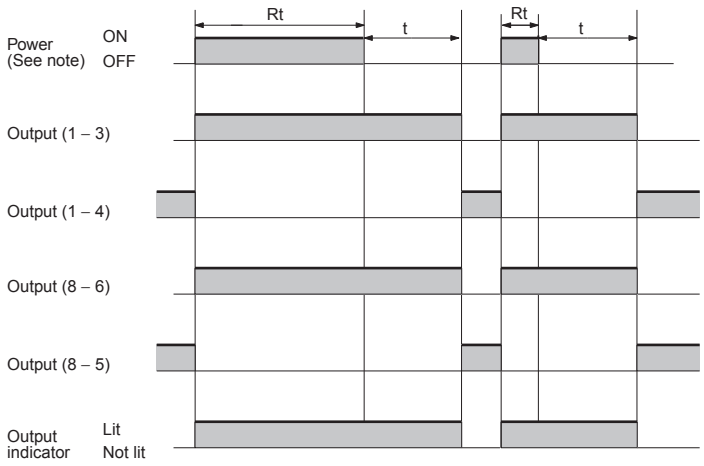
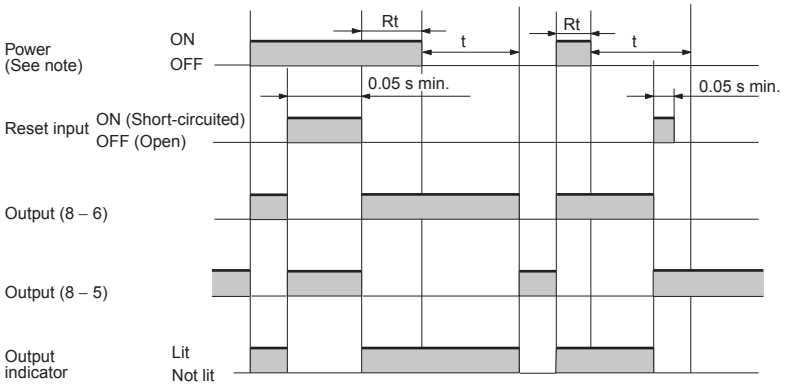
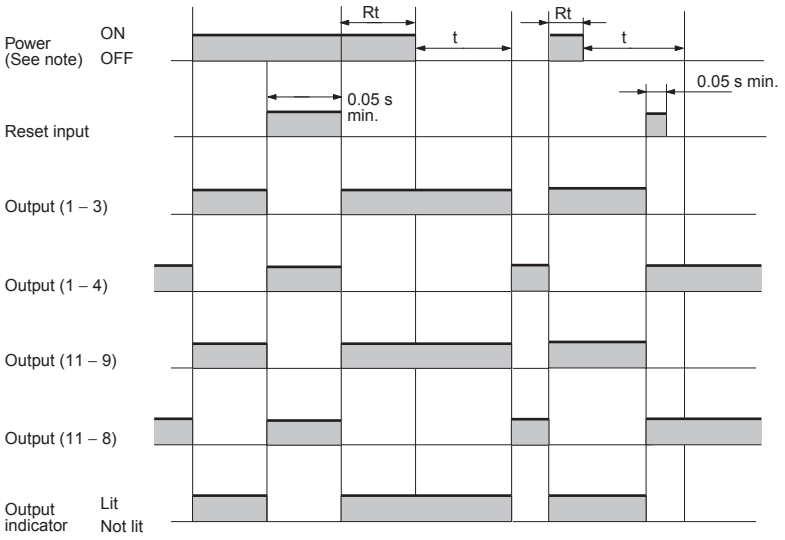



**Note1:** Leave terminal 6 open. Do not use them as relay terminals.
**Note2:** Do not apply voltage to reset input terminal.

# Operation

## ■ Timing Chart

t: Set time
Rt: Minimum power ON time (S-series: 0.1 s min.; M-series: 2 s min.)
If the power ON time is less than this value, the Timer may not operate (i.e., output may not turn ON).

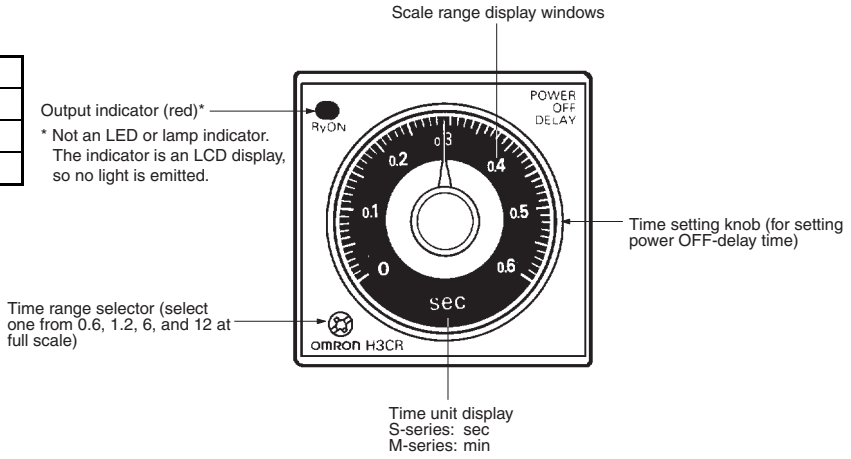
| Model | Timing chart |
|---|---|
| **H3CR-H8L** |  |
| **H3CR-H8RL** |  |
| **H3CR-HRL** |  |

**Note:** If the power is turned ON until the set time is up, the timer will be retriggered.

# Nomenclature

Scale range display windows changes as below by turning the Time range selector clockwise.

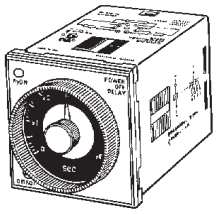
| | | | | | | |
|---|---|---|---|---|---|---|
| 0 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 |
| 0 | 0.2 | 0.4 | 0.6 | 0.8 | 1.0 | 1.2 |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 0 | 2 | 4 | 6 | 8 | 10 | 12 |

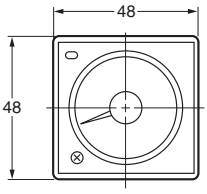


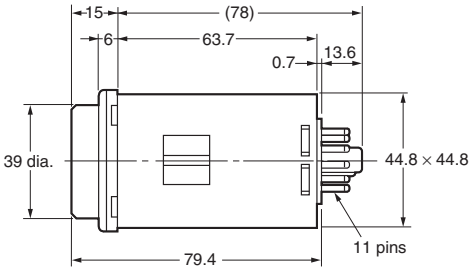

# Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

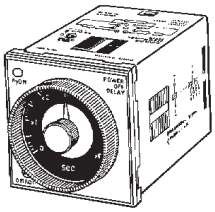
**H3CR-H8L**
**H3CR-H8RL**

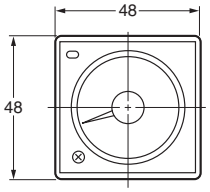


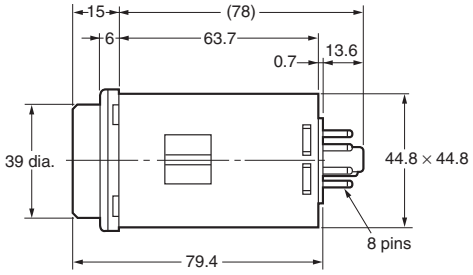


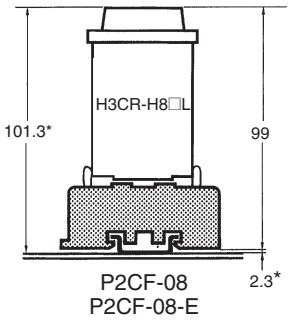

**H3CR-HRL**

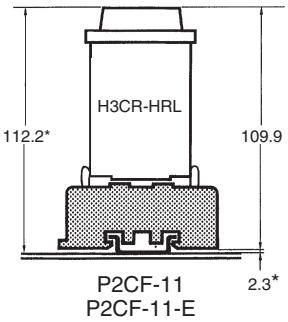




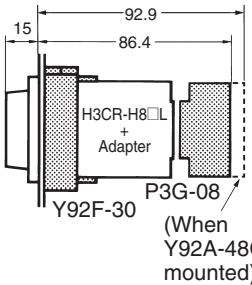



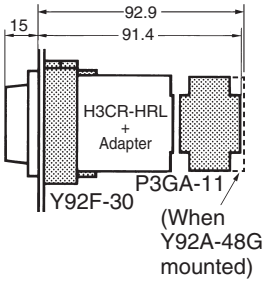

**Dimensions with Front Connecting Socket**
**P2CF-08-□/P2CF-11-□**




**Dimensions with Back Connecting Socket**
**P3G-08/P3GA-11**



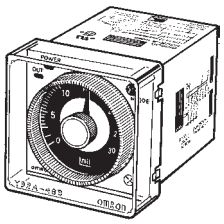

**Note:** There are no restrictions to the mounting direction.
***** These dimensions vary with the kind of DIN track (reference value).

# ■ Accessories (Order Separately)

## Protective Cover
## Y92A-48B

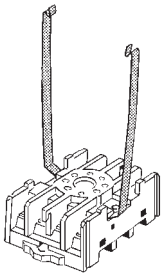
To use the Protective Cover with a flush mounting, use the Y92F-30 flush mounting adaptor.

This Protective Cover cannot be used together with the Y92F-70/-71 flush mounting adaptor or the panel cover.



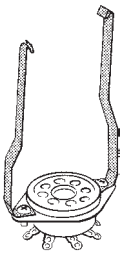
## Hold-down Clip
## Y92H-2

The Y92H-2 Hold-down Clip is attached to the PF085A socket.



## Y92H-1

Y92H-1 Hold-down Clip is attached with screws together with the PL08.



# Safety Precautions (H3CR-H)

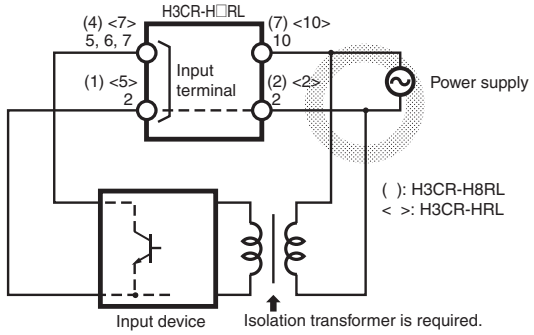
**Note:** The undermentioned is common for all H3CR-H models.

## ■ Power Supplies

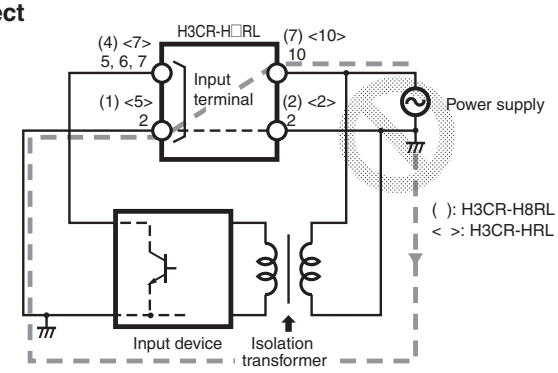
The H3CR-H has a large inrush current; provide sufficient power supply capacity. If the power supply capacity is too small, there may be delays in turning ON the output.

With the H3CR-H□RL, for the power supply of an input device, use an isolating transformer, of which the primary and secondary windings are mutually isolated and the secondary winding is not grounded.

**Correct**




**Incorrect**

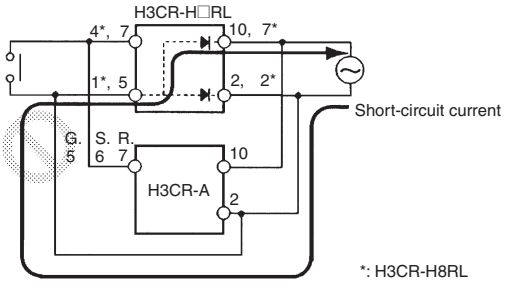



## ■ Input/Output (H3CR-H□RL)

An appropriate input is applied to the input signal terminal of the Timer when the input terminal for the input signal is short-circuited. Do not attempt to connect any input terminal to any terminal other than the input terminal or to apply voltage across other than the specified input terminals or the internal circuits of the Timer may be damaged.

The H3CR-H□RL uses transformerless power supply. When connecting a relay or transistor as an external signal input device, pay attention to the following points to prevent short-circuiting due to a sneak current to the transformerless power supply.

If input is made simultaneously from one input contact or a transistor to the H3CR-H and a Timer whose common input terminals are used as power terminals, such as the H3CR-A, a short-circuit current will be generated. Either input through isolated contacts, or isolate the power supply for one of the Timers.

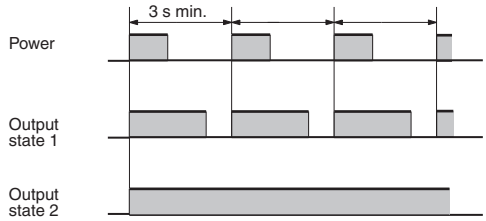



## ■ Wiring

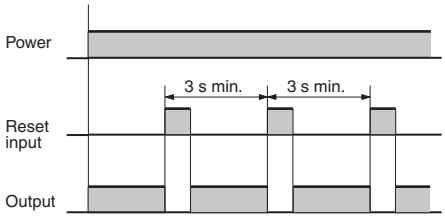
The H3CR-H has a high impedance circuit. Therefore, the H3CR-H may not be reset if the H3CR-H is influenced by inductive voltage. In order to eliminate any influence of inductive voltage, the wires connected to the H3CR-H must be as short as possible and should not be installed alongside power lines. If the H3CR-H is influenced by inductive voltage that is 30% or more of the rated voltage, connect a CR filter with a capacitance of approximately 0.1 μF and a resistance of approximately 120 Ω or a bleeder resistor between the power supply terminals. If there is any residual voltage due to current leakage, connect a bleeder resistor between the power supply terminals.

## ■ Operation

An interval of 3 s minimum is required to turn on the H3CR-H after the H3CR-H is turned off. If the H3CR-H is turned on and off repeatedly with an interval of shorter than 3 s, abnormal heating or burning may occur in internal elements.




After the forced reset function of the H3CR-H is activated, an interval of 3 s minimum is required to activate the forced reset function again. If the forced reset function is activated repeatedly with an interval of shorter than 3 s, the internal parts of the H3CR-H may deteriorate and the H3CR-H may malfunction.




If it is required that the output be turned on repeatedly with an interval of shorter than 3 s, consider use of the H3CR-A in mode D (signal OFF-delay).

On the H3CR-F□, do not set both the ON set dial and OFF set dial to the lowest settings. Doing so may damage the contacts.

## ■ Others

If the H3CR-H is dropped or experiences some other kind of shock, because a latching relay is used for output, contacts may be reversed or go into a neutral state. If the H3CR-H is dropped, reconfirm correct operation.

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.

MEMO

# Operation (Common)

**Note:** The undermentioned is common for all H3CR models.

## ■ Basic Setting

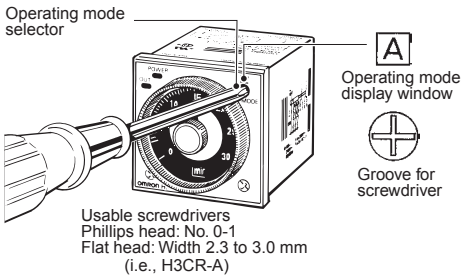
### Setting of Selectors

The selectors can be turned clockwise and counterclockwise to select the desired time unit, time range, or operating mode.
Each selector has a snap mechanism that secures the selector at a given position. Set the selector at a position at which it is secured. Do not set it midway between two securing positions or a malfunction could result from improper setting.

### Selection of Operating Mode

**• H3CR-A Multifunctional Timer**

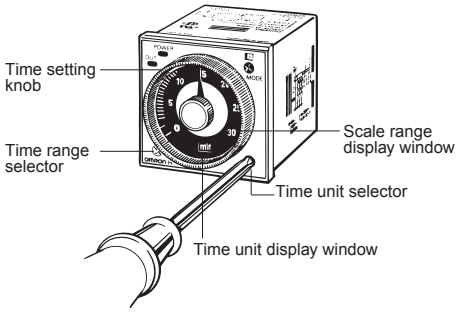
The operation mode A to E, G, and J of the H3CR-A can be selected. Use a Phillips head or flathead screwdriver to turn the selector switch. The operation mode can be set to one of eight modes. The window on the top shows E, G, J, A, B, B2, C, or D to indicate the selected mode. On the H3CR-A8, the window on the top shows E, J, B, A, or B2.




### Selection of Time Unit and Time Range

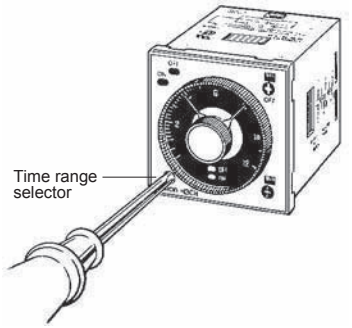
**• H3CR-A Multifunctional Timer**

The desired time unit (sec, ×10 s, min, ×10 m, hrs, or ×10 h) is displayed in the window below the time setting knob by turning the time unit selector located at the lower right corner of the front panel. A time range (1.2, 3, 12, or 30 for H3CR-A□/2.4, 6, 24, or 60 for H3CR-A□-301) is selected with the time range selector at the lower left corner of the front panel, and the selected time range appears (in the window at the lower right part) within the plastic frame of the time setting knob.

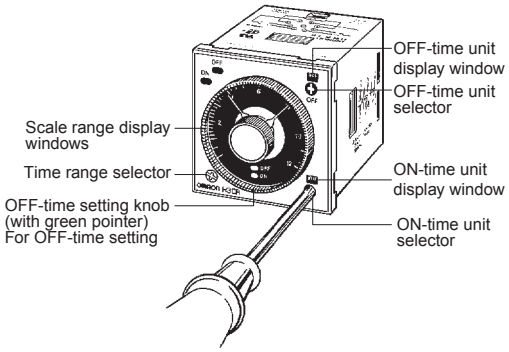



**• H3CR-F Twin Timers**

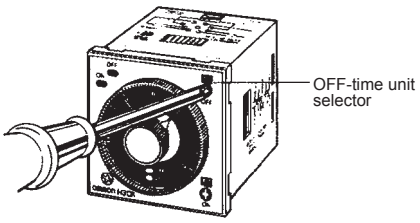
The display window at the bottom right inside the Time setting knob shows 1.2, 3, 12, or 30 to indicate the scale number selected with the selector switch on the front at bottom left.




Use a Phillips head or flathead screwdriver to turn the selector switch. For ON-time, the desired time unit (sec, 10 s, min, 10 min, hrs, and 10 h) is indicated in the ON-time unit display window at the lower right corner of the front panel and can be changed by turning the ON-time unit selector located below the ON-time unit display window.

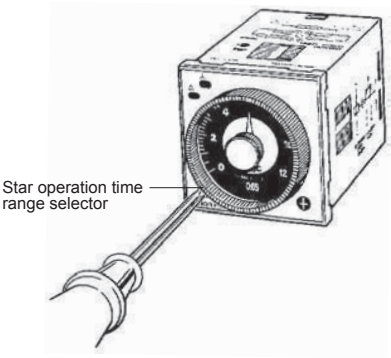



For OFF-time, the desired time unit (sec, 10 s, min, 10 min, hrs and 10 h) is indicated in the OFF-time unit display window at the upper right corner of the front panel and can be changed by turning the OFF-time unit selector located below the OFF-time unit display window.

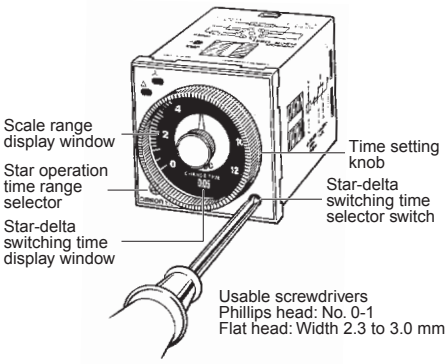


**• H3CR-G Star-delta Timers**

The display window at the bottom right inside the Time setting knob shows 6, 12, 60, or 120 to indicate the scale number Star operation time selected with the selector switch on the front at bottom left.

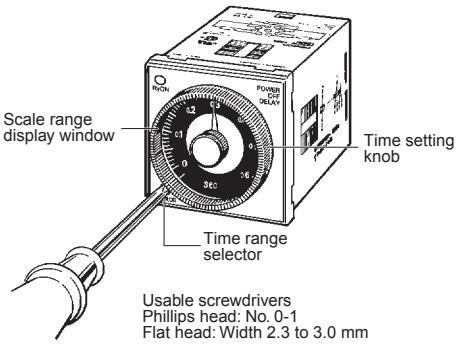



Use a Phillips head screwdriver or flathead screwdriver to turn the selector switch. The display window at the bottom center of the Time setting knob shows 0.05, 0.1, 0.25, 0.5, 0.75, or 1.0 to show the star -delta transfer time selected with the selector switch on the front at bottom right.




**• H3CR-H Power OFF-delay Timers**

Use a Phillips head screwdriver or flathead screwdriver to turn the selector switch. The display window at the bottom right inside the Time setting knob shows 0.6, 1.2, 6, or 12 to indicate the scale number selected with the selector switch on the front at bottom left.



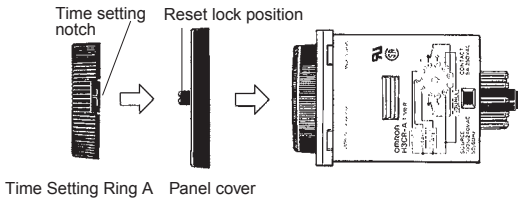

## Setting of Time

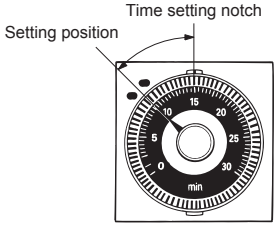
Use the time setting knob to set the desired time.

# ■ Using the Time Setting Ring for H3CR-A/-G

## Locking the Set Time

Mount the Panel Cover on the Timer, set the desired time with the time setting knob, and place Time Setting Ring A onto the time setting knob so that the time setting notch of Time Setting Ring A is in the center of the reset lock position of the Panel Cover.

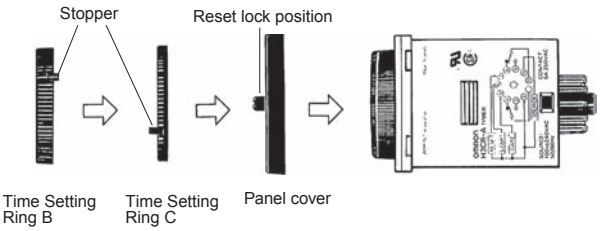


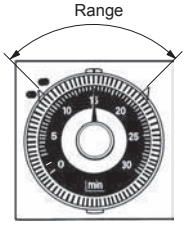




Example: To set the time to 10 s.

## Limiting the Setting Range

Example: To set a range of 10 and 20 s.
Mount the Panel Cover on the Timer, set the time setting knob to 10 s (the lower limit of the setting range), and place Time Setting Ring C onto the time setting knob so that the stopper of Time Setting Ring C is on the right edge of the reset lock position of the Panel cover. Next, set the time setting knob to 20 s (the upper limit of the setting range), place Time Setting Ring B onto the time setting knob so that the stopper of Time Setting Ring B is on the left edge of the reset lock position of the Panel Cover.



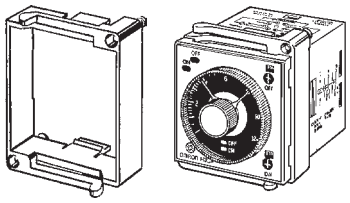
# Accessories (Order Separately) (Common)

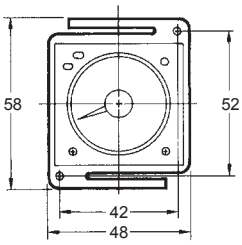
**Note:** The undermentioned is common for all H3CR models.

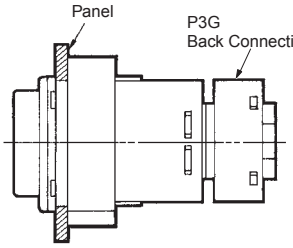
**Note:** All units are in millimeters unless otherwise indicated.

## Flush Mounting Adaptor

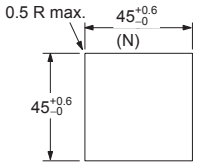
**Y92F-30**






**Panel Cutout**
(Conforms ro DIN 43700)

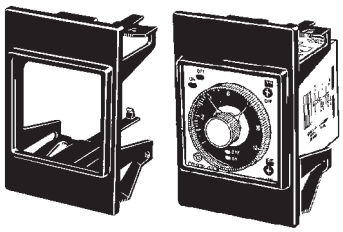


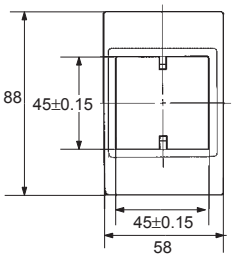

**Note1:** The adapters for two or more timers mounted in a vertical line are different in orientation from those mounted in a horizontal line.

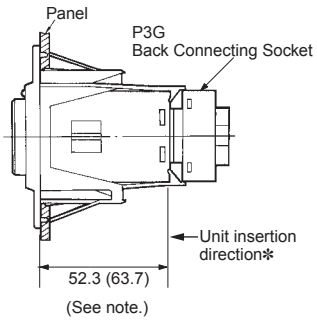
N can be obtained as follows (n: the number of H3CR models arranged side by side)
Without a Cover: N = $(48n - 2.5)^{+1}/_{-0}$
With the Protective Cover: N = $(51n - 5.5)^{+1}/_{-0}$
With the Panel Cover: N = $(50n - 4.5)^{+1}/_{-0}$

**Note2:** The applicable thickness of the mounting panel must be 1 to 5 mm.

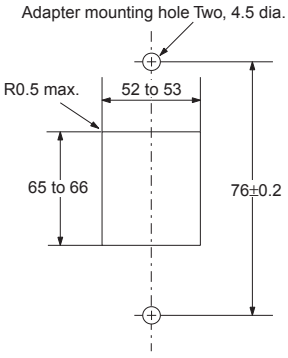
**Y92F-70/-73**





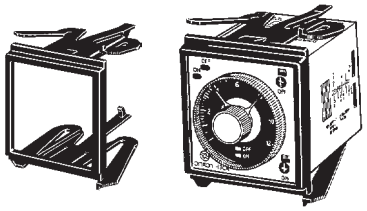

**Panel Cutout**

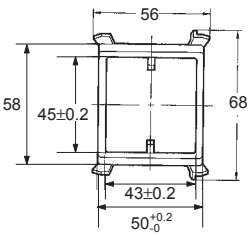


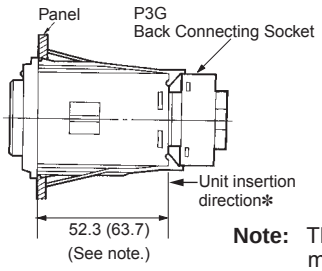

**Note:** The value shown in parentheses is for the Y92F-70.

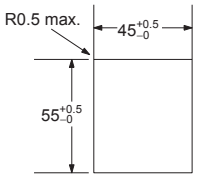
**Note:** The applicable thickness of the mounting panel must be 1 to 3.2 mm.
✻ Insert timer unit from back side of adapter.

**Y92F-71/-74**





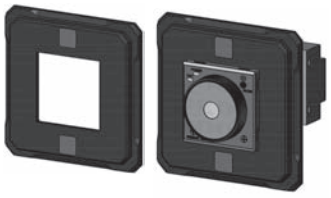



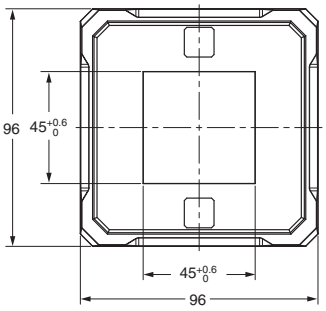



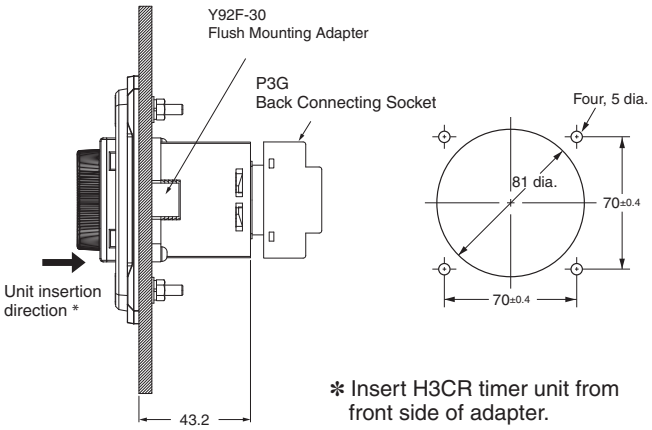

**Note:** The applicable thickness of the mounting panel must be 1 to 3.2 mm.
✻ Insert timer unit from back side of adapter.

**Note:** The value shown in parentheses is for the Y92F-71.

### Y92F-38



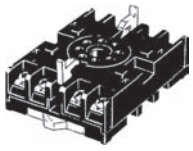


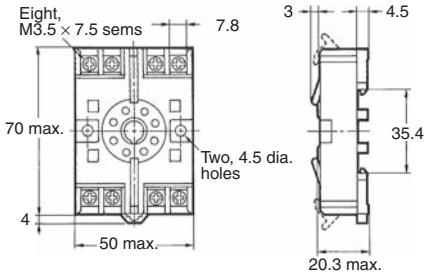




✻ Insert H3CR timer unit from front side of adapter.

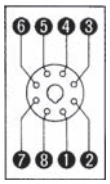
## Track Mounting/Front Connecting Socket

### P2CF-08

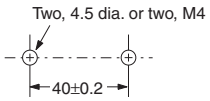




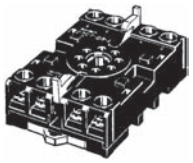

**Terminal Arrangement/ Internal Connections (Top View)**

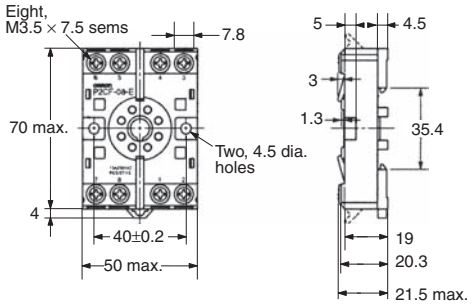



**Surface Mounting Holes**



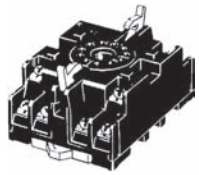

### P2CF-08-E (Finger Safe Terminal Type) Conforming to VDE0106/P100

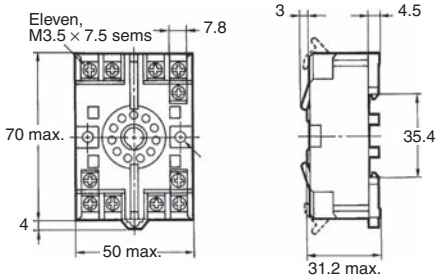




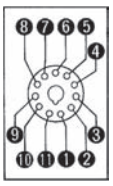

## Track Mounting/Front Connecting Socket

### P2CF-11

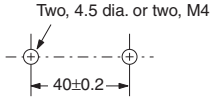




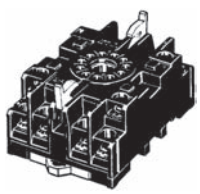

**Terminal Arrangement/ Internal Connections (Top View)**

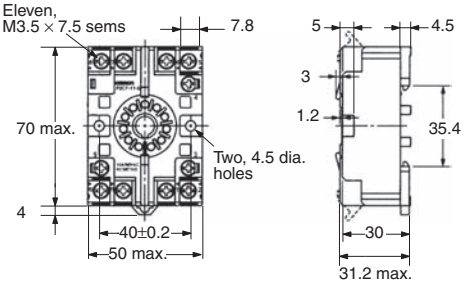



**Surface Mounting Holes**



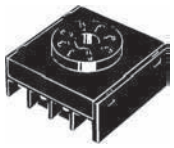

### P2CF-11-E (Finger Safe Terminal Type) Conforming to VDE0106/P100

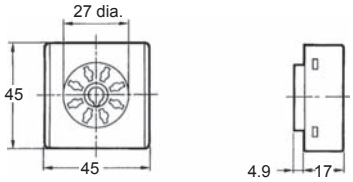




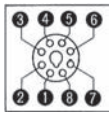
## Back Connecting Socket

**P3G-08**

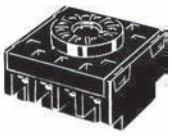


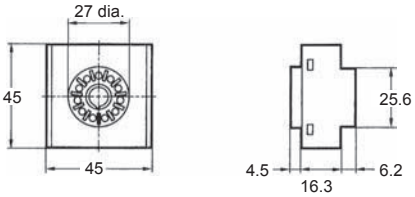



**Terminal Arrangement/ Internal Connections (Bottom View)**

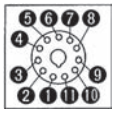



**P3GA-11**






**Terminal Arrangement/ Internal Connections (Bottom View)**

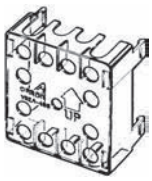


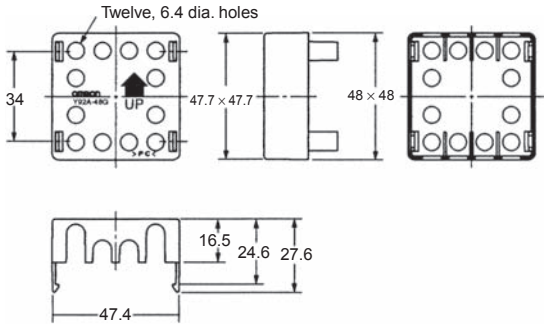

## Finger Safe Terminal Cover

**Conforming to VDE0106/P100**

**Y92A-48G**

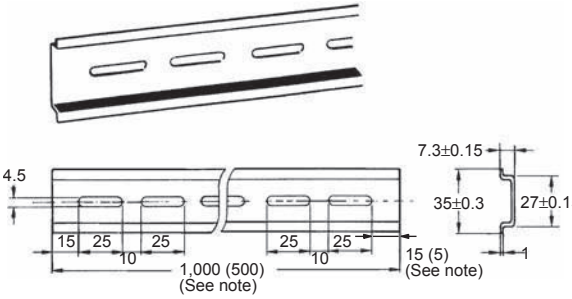
**(Attachment for P3G-08/P3GA-11 Socket)**



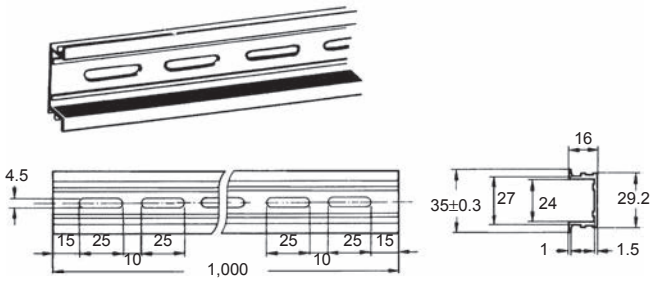



## Mounting Track

**PFP-100N, PFP-50N**



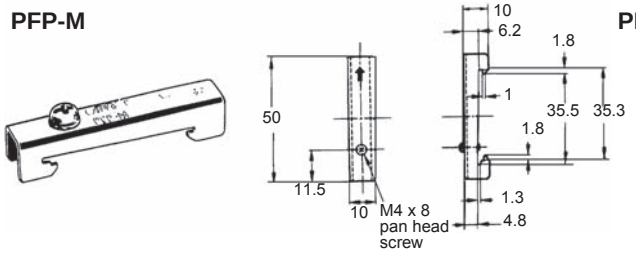

**PFP-100N2**




**Note:** The values shown in parentheses are for the PFP-50N.

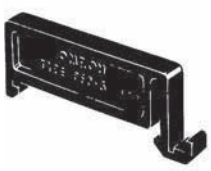
## End Plate

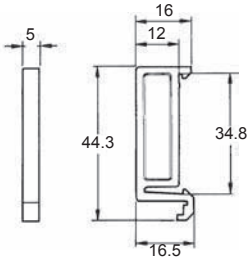
**PFP-M**




## Spacer

**PFP-S**





## Time Setting Ring/Panel Cover for H3CR-A/-G

There are two types of Panel Covers (Y92P-48GL, and Y92P-48GB), all of which are available in two colors. Use the most suitable type of Panel Cover with the design of the scaling plate according to the application.
To lock the set time, you can lock the setting dial by using a Y92S-27 Setting Ring and a Y92P-48GL/-48GB Panel Cover. This will help to prevent the set time from being changed accidentally.
To restrict the set time range, you can restrict the rotating range of the setting dial by using a Y92S-28 Setting Ring and a 92P-48GL/-48GB Panel Cover. Use them to restrict the upper and lower limits of the setting range.

Refer to *Using the Time Setting Ring for H3CR-A/-G* on page 53 for the procedure to attach the Setting Ring.

The Flush Mounting Adapter Y92F-70/Y92F-71 for H3CR-G, Y92F-73/Y92F-74 for H3CR-A or the Protective Cover cannot be used.

**Note:** The Time Setting Ring/Panel Cover cannot be used for H3CR-F model or H3CR-H model.

The Time Setting Ring and Panel Cover should be used as a pair.

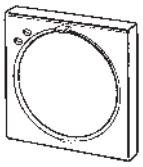
| | |
|---|---|
| **Locking the Set Time** | Time Setting Ring A (Y92S-27) and Panel Cover (Y92P-48GL, or -48GB) |
| **Limiting the setting range** | Time Setting Ring B or C (Y92S-28), and Panel Cover (Y92P-48GL, or -48GB) |

**Y92S-27**
**Time Setting A**

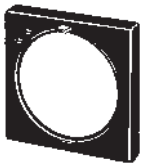
**Y92S-28**
**Time Setting B**

**Y92S-28**
**Time Setting C**

**Y92P-48GL**
**Light Gray**



**Y92P-48GB**
**Black**



# Safety Precautions for All H3CR Models

**Note:** The undermentioned is common for all H3CR models.

## 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 to warn of the risk of electric shock under specific conditions. |
|  | 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 H3CR series uses a transformer-less power supply. Exercise full caution as there is a risk of electrical shock if input terminal is touched when power voltage is applied.

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.

In rare circumstances there is a risk of fire if the screws become loose. Tighten the terminal screws to the specified torque (1.08N·m).

### Precautions for Safe Use

1. Do not use the Timer in the following locations.
- Locations with radical temperature changes.
- Locations with high humidity that may result in condensation.
- Locations with excessive vibration or shock.
- Locations with corrosive gas or dust.
- Locations where the Timer is exposed to sprayed water, oil, or chemicals.

2. Pay the utmost attention not to make mistakes in polarity when wiring the Timer.
3. Do not connect anything to terminals that are not used.
4. Risk of internal element damage if a voltage that exceeds the rating is applied.
5. Using a surge absorber is recommended if surge voltages occur.
6. Verify that the power and output LEDs (LCD) are operating normally. In some usage environments, the LEDs/LCD/ resin components may deteriorate faster than normal, resulting in display failure. Inspect and replace regularly.
7. When disposing of this product, follow the procedures for disposal of industrial waste that apply in your region.
8. Verify that the product is the desired product before use.
9. Exercise caution as the outer casing of the timer may be immersed in organic solvents (thinner, benzene, etc.), strong alkali, or strong acids.

### Precautions for Correct Use

## Changing the Setting

Do not change the time unit, time range, or operation mode while the Timer is in operation, otherwise the Timer may malfunction.

The time unit and time range can be set with the respective selectors turned clockwise or counterclockwise.

The selectors are of notched so that they will snap when they are properly set. Do not set the selectors midway between notches, otherwise the Timer may break or malfunction.

Do not use H3CR-A models (except for H3CR-A□S) in flicker mode at the lowest selector setting, or H3CR-F models at the lowest selector setting. Doing so may result in damage to contacts.

## Power Supplies

A DC power supply can be connected if its ripple factor is 20% or less and the mean voltage is within the rated operating voltage range of the Timer.

An AC power supply can be connected to the power input terminals without regard to polarity. A DC power supply must be connected to the power input terminals as designated according to the polarity of the terminals.

Make sure that the voltage is applied within the specified range, otherwise the internal elements of the Timer may be damaged.

Connect the power supply voltage through a relay or switch in such a way that the voltage reaches a fixed value at once, otherwise the Timer may not be reset or a timer error may result.

Be aware that the operating voltage will rise by 5% if the rated voltage is applied to the Timer continuously while the ambient temperature is close to the maximum permissible ambient temperature.

The power supply circuit of any H3CR-A model (except for H3CR-A□S), H3CR-F 100-to-240-VAC model, and H3CR-G model is a switching circuit. If the power line connected to the power supply circuit has a transformer with high inductance, a counter-electromotive voltage will be induced by the inductance. To suppress the voltage, apply a CR filter to the power supply line.

Apply the power voltage at once through the switch and relay contacts. If not applied at once, power reset may not take place or time-up may occur.

When the power is turned on, a rush current (refer to your OMRON website) may flow briefly and the timer may not start if there is insufficient power capacity. Use a power supply with sufficient capacity.

## Mounting Direction

There are no restrictions to the mounting direction.

## Precautions for EN61812-1 Conformance

The H3CR Series as a built-in timer conforms to EN61812-1 provided that the following conditions are satisfied.

Make sure that no voltage is applied to any terminals before dismounting the Timer from the Socket.

The output section of the H3CR is provided only with basic isolation.

The H3CR itself is designed under the following conditions:

- Overvoltage category III
- Pollution degree 2
- Isolation

  Operation parts: Reinforced isolation

  –With clearance of 5.5 mm and creepage distance of 5.5 mm at 230 VAC

  Output: Basic isolation (See note)

  –With clearance of 3 mm and creepage distance of 3 mm at 230 VAC

**Note:** The 11-pin model ensures basic isolation by itself and also ensures basic isolation with the 11-pin model mounted to the OMRON P2CF-11-□ or P3GA-11 Socket.

Connect the two output contacts different in polarity to the loads so that they will be the same in potential.

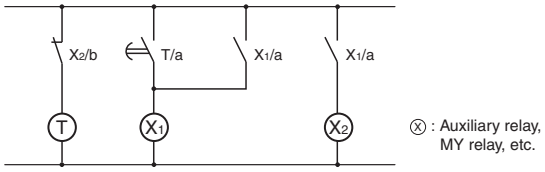
## Others

If the Timer is mounted to a control board, dismount the Timer from the control board or short-circuit the control board circuitry before carrying out a voltage withstand test between the electric circuitry and non-charged metal part of the Timer. This protects the internal circuitry of the Timer from damage.

If the timer is left for an extended time at high temperature in the time-up state (internal relay ON), the internal components (electrolytic capacitors, etc.) may deteriorate faster than normal. For this reason, use in combination with a relay, and avoid leaving in the time-up state for an extended time (for example, one month or longer). (Excluding H3CR-H)

### Reference example

Use as shown below.




### Cleaning

Do not use solvents such as thinner. Use commercially available alcohol.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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**OMRON Corporation** **Industrial Automation Company**
**Kyoto, JAPAN**
**Contact: www.ia.omron.com**

***Regional Headquarters***
**OMRON EUROPE B.V.**
Wegalaan 67-69, 2132 JD Hoofddorp
The Netherlands
Tel: (31)2356-81-300/Fax: (31)2356-81-388

**OMRON ELECTRONICS LLC**
2895 Greenspoint Parkway, Suite 200
Hoffman Estates, IL 60169 U.S.A.
Tel: (1) 847-843-7900/Fax: (1) 847-843-7787

**OMRON ASIA PACIFIC PTE. LTD.**
No. 438A Alexandra Road # 05-05/08 (Lobby 2),
Alexandra Technopark,
Singapore 119967
Tel: (65) 6835-3011/Fax: (65) 6835-2711

**OMRON (CHINA) CO., LTD.**
Room 2211, Bank of China Tower,
200 Yin Cheng Zhong Road,
PuDong New Area, Shanghai, 200120, China
Tel: (86) 21-5037-2222/Fax: (86) 21-5037-2200

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