

# Solid-state Twin Timers H3CR-F

CSM\_H3CR-F\_DS\_E\_1\_2

## DIN 48 × 48-mm Twin Timers

- Wide power supply ranges of 100 to 240 VAC and 48 to 125 VDC respectively.
- ON- and OFF-times can be set independently and so combinations of long ON- or OFF-time and short OFF- or ON-time settings are possible.
- Fourteen time ranges from 0.05 s to 30 h or from 1.2 s to 300 h depending on the model to be used.
- Models with a flicker ON start or flicker OFF start are available.
- Easy sequence checks through instantaneous outputs for a zero set value at any time range.
- Length, when panel-mounted with a Socket, of 80 mm or less.
- 11-pin and 8-pin models are available.



## Model Number Structure

### Model Number Legend

H3CR - F       -        
           1 2 3       4 5

#### 1. Classification

F: Twin timers

#### 2. Configuration

None: 11-pin socket

8: 8-pin socket

#### 3. Twin Timer Mode

None: Flicker OFF start

N: Flicker ON start

#### 4. Time Range

None: 0.05 s to 30 h models

300: 1.2 s to 300 h models

#### 5. Supply Voltage

100-240AC: 100 to 240 VAC

24AC/DC: 24 VAC/VDC

12DC: 12 VDC

48-125DC: 48 to 125 VDC

## Ordering Information

### List of Models

Operating modes	Supply voltage	0.05 s to 30 h models		1.2 s to 300 h models	
		11-pin models	8-pin models	11-pin models	8-pin models
Flicker OFF start	100 to 240 VAC	H3CR-F 100-240AC	H3CR-F8 100-240AC	H3CR-F-300 100-240AC	H3CR-F8-300 100-240AC
	24 VAC/DC	H3CR-F 24AC/DC	H3CR-F8 24AC/DC	H3CR-F-300 24AC/DC	H3CR-F8-300 24AC/DC
	12 VDC	H3CR-F 12DC	H3CR-F8 12DC	H3CR-F-300 12DC	H3CR-F8-300 12DC
	48 to 125 VDC	H3CR-F 48-125DC	H3CR-F8 48-125DC	H3CR-F-300 48-125DC	H3CR-F8-300 48-125DC
Flicker ON start	100 to 240 VAC	H3CR-FN 100-240AC	H3CR-F8N 100-240AC	H3CR-FN-300 100-240AC	H3CR-F8N-300 100-240AC
	24 VAC/DC	H3CR-FN 24AC/DC	H3CR-F8N 24AC/DC	H3CR-FN-300 24AC/DC	H3CR-F8N-300 24AC/DC
	12 VDC	H3CR-FN 12DC	H3CR-F8N 12DC	H3CR-FN-300 12DC	H3CR-F8N-300 12DC
	48 to 125 VDC	H3CR-FN 48-125DC	H3CR-F8N 48-125DC	H3CR-FN-300 48-125DC	H3CR-F8N-300 48-125DC

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

Example: H3CR-F 100-240AC

Supply voltage

## ■ Accessories (Order Separately)

Name/specifications		Models
Flush Mounting Adapter		Y92F-30 Y92F-73 Y92F-74
Mounting Track	50 cm (l) × 7.3 mm (t)	PFP-50N
	1 m (l) × 7.3 mm (t)	PFP-100N
	1 m (l) × 16 mm (t)	PFP-100N2
End Plate		PFP-M
Spacer		PFP-S
Protective Cover		Y92A-48B
Track Mounting/ Front Connecting Socket	8-pin	P2CF-08
	8-pin, finger safe type	P2CF-08-E
	11-pin	P2CF-11
	11-pin, finger safe type	P2CF-11-E
Back Connecting Socket	8-pin	P3G-08
	8-pin, finger safe type	P3G-08 with Y92A-48G (See note 1)
	11-pin	P3GA-11
	11-pin, finger safe type	P3GA-11 with Y92A-48G (See note 1)
Hold-down Clip (See note 2)	For PL08 and PL11 Sockets	Y92H-7
	For PF085A Socket	Y92H-8

Note: 1. Y92A-48G is a finger safe terminal cover which is attached to the P3G-08 or P3GA-11 Socket.

2. Hold-down Clips are sold in sets of two.

## Specifications

### ■ General

Item	H3CR-F	H3CR-F8	H3CR-FN	H3CR-F8N
Operating mode	Flicker OFF start		Flicker ON start	
Pin type	11-pin	8-pin	11-pin	8-pin
Operating/Reset method	Time-limit operation/Time-limit reset or self-reset			
Output type	Relay output (DPDT)			
Mounting method	DIN track mounting, surface mounting, and flush mounting			
Approved standards	UL508, CSA C22.2 No.14, NK, Lloyds Conforms to EN61812-1 and IEC60664-1 (VDE0110) 4kV/2. Output category according to EN60947-5-1.			

### ■ Time Ranges

#### 0.05 s to 30 h Models

Time unit		s (sec)	×10 s (10 sec)	min (min)	h (hrs)
Setting	1.2	0.05 to 1.2	1.2 to 12	0.12 to 1.2	
	3	0.3 to 3	3 to 30	0.3 to 3	
	12	1.2 to 12	12 to 120	1.2 to 12	
	30	3 to 30	30 to 300	3 to 30	

Note: Instantaneous output is available at any time range. To obtain instantaneous output, set to below 0.

#### 1.2 s to 300 h Models

Time unit		×10 s (10 sec)	×10 min (10 min)	h (hrs)	×10 h (10 hrs)
Setting	1.2	1.2 to 12	1.2 to 12	0.12 to 1.2	1.2 to 12
	3	3 to 30	3 to 30	0.3 to 3	3 to 30
	12	12 to 120	12 to 120	1.2 to 12	12 to 120
	30	30 to 300	30 to 300	3 to 30	30 to 300

Note: Instantaneous output is available at any time range. To obtain instantaneous output, set to below 0.

## ■ Ratings

<b>Rated supply voltage (See notes 1, 2, and 3.)</b>	100 to 240 VAC (50/60 Hz), 12 VDC, 24 VAC/DC (50/60 Hz), 48 to 125 VDC
<b>Operating voltage range</b>	85% to 110% of rated supply voltage; 90% to 110% with 12-VDC models
<b>Power reset</b>	Minimum power-opening time: 0.1 s
<b>Power consumption</b>	100 to 240 VAC: approx. 10 VA (2.1 W) at 240 VAC 24 VAC/VDC: approx. 2 VA (1.7 W) at 24 VAC approx. 1 W at 24 VDC 48 to 125 VDC: approx. 1.5 W at 125 VDC 12 VDC: approx. 1 W at 12 VDC
<b>Control outputs</b>	Contact output: 5 A at 250 VAC/30 VDC, resistive load ( $\cos\phi = 1$ )

**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 *Safety Precautions for All Timers* for details.

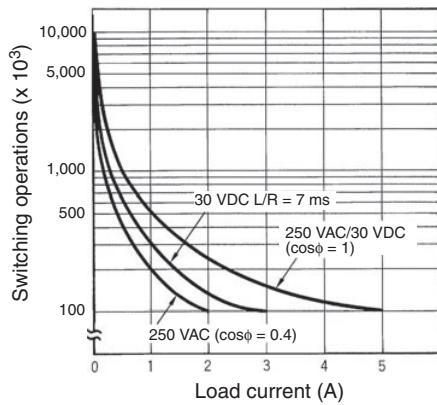
3. Refer to *Safety Precautions for All Timers* when using the Timer together with a 2-wire AC proximity sensor.

## ■ Characteristics

<b>Accuracy of operating time</b>	$\pm 0.2\%$ FS max. ( $\pm 0.2\%$ FS $\pm 10$ ms max. in ranges of 1.2 and 3 s)
<b>Setting error</b>	$\pm 5\%$ FS $\pm 50$ ms max.
<b>Reset time</b>	0.1 s max.
<b>Reset voltage</b>	10% max. of rated voltage
<b>Influence of voltage</b>	$\pm 0.2\%$ FS max. ( $\pm 0.2\%$ FS $\pm 10$ ms max. in ranges of 1.2 and 3 s)
<b>Influence of temperature</b>	$\pm 1\%$ FS max. ( $\pm 1\%$ FS $\pm 10$ ms max. in ranges of 1.2 and 3s)
<b>Insulation resistance</b>	100 M $\Omega$ min. (at 500 VDC)
<b>Dielectric strength</b>	2,000 VAC, 50/60 Hz for 1 min (between current-carrying metal parts and exposed non-current-carrying metal parts) 2,000 VAC, 50/60 Hz for 1 min (between control output terminals and operating circuit) 2,000 VAC, 50/60 Hz for 1 min (between contacts of different polarities) 1,000 VAC, 50/60 Hz for 1 min (between contacts not located next to each other)
<b>Impulse withstand voltage</b>	3 kV (between power terminals) for 100 to 240 VAC, 48 to 125 VDC 1 kV for 12 VDC, 24 VAC/DC 4.5 kV (between current-carrying terminal and exposed non-current-carrying metal parts) for 100 to 240 VAC, 48 to 125 VDC 1.5 kV for 12 VDC, 24 VAC/DC
<b>Noise immunity</b>	$\pm 1.5$ kV (between power terminals), square-wave noise by noise simulator (pulse width: 100 ns/1 $\mu$ s, 1-ns rise) $\pm 400$ V for 12 VDC
<b>Static immunity</b>	Malfunction: 8 kV Destruction: 15 kV
<b>Vibration resistance</b>	Destruction: 10 to 55 Hz with 0.75-mm single amplitude for 2 hrs each in three directions Malfunction: 10 to 55 Hz with 0.5-mm single amplitude for 10 min each in three directions
<b>Shock resistance</b>	Destruction: 980 m/s <sup>2</sup> three times each in six directions Malfunction: 98 m/s <sup>2</sup> three times each in six directions
<b>Ambient temperature</b>	Operating: $-10^{\circ}\text{C}$ to $55^{\circ}\text{C}$ (with no icing) Storage: $-25^{\circ}\text{C}$ to $65^{\circ}\text{C}$ (with no icing)
<b>Ambient humidity</b>	Operating: 35% to 85%
<b>Life expectancy</b>	Mechanical: 20 million operations min. (under no load at 1,800 operations/h) Electrical: 100,000 operations min. (5 A at 250 VAC, resistive load at 1,800 operations/h) (See note)
<b>EMC</b>	(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: 6 kV contact discharge (level 3) 8 kV air discharge (level 3) Immunity RF-interference from AM Radio Waves: IEC61000-4-3: 10 V/m (80 MHz to 1 GHz) (level 3) Immunity RF-interference from Pulse-modulated Radio Waves: IEC61000-4-3: 10 V/m (900 $\pm$ 5 MHz) (level 3) Immunity Conducted Disturbance: IEC61000-4-6: 10 V (0.15 to 80 MHz) (level 3) Immunity Burst: IEC61000-4-4: 2 kV power-line (level 3) 2 kV I/O signal-line (level 4) Immunity Surge: IEC61000-4-5: 1 kV line to line (level 3) 2 kV line to ground (level 3)
<b>Case color</b>	Light Gray (Munsell 5Y7/1)
<b>Degree of protection</b>	IP40 (panel surface)
<b>Weight</b>	Approx. 100 g

**Note:** Refer to the *Life-test Curve*.

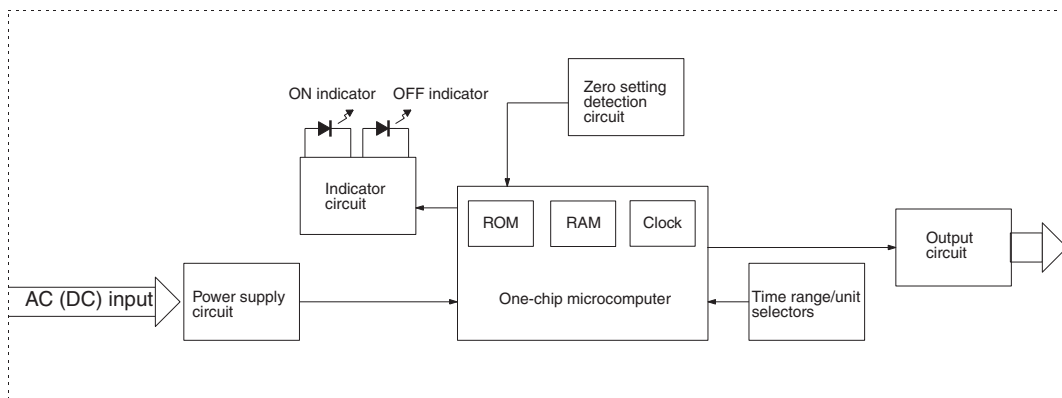
## Life-test Curve



Reference: A maximum current of 0.15 A can be switched at 125 VDC (cosφ = 1) and a maximum current of 0.1 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 10 mA at 5 VDC (failure level: P).

## Connections

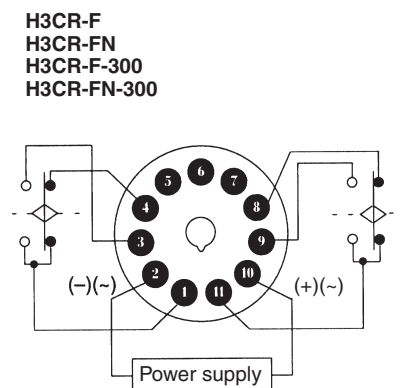
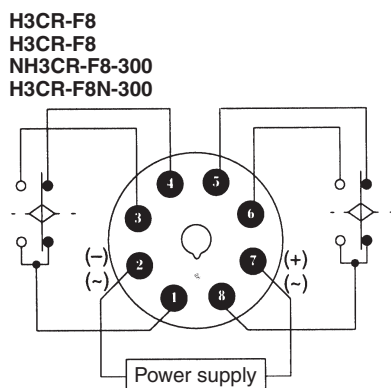
### Block Diagrams



### I/O Functions

Inputs	---	
Outputs	Control output	Outputs are turned ON/OFF according to the time set by the ON- and OFF-time setting knob.

### Terminal Arrangement

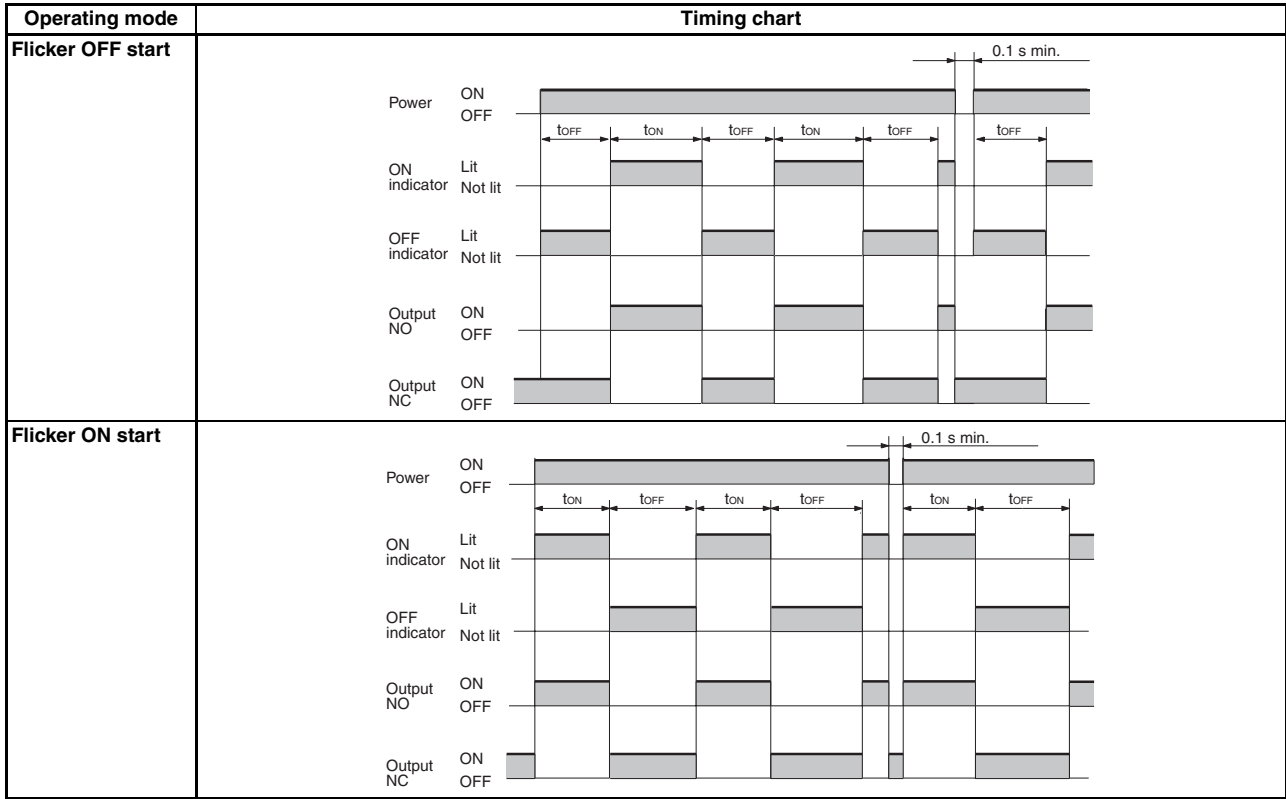


**Note:** Leave terminals 5, 6, and 7 open. Do not use them as relay terminals.

# Operation

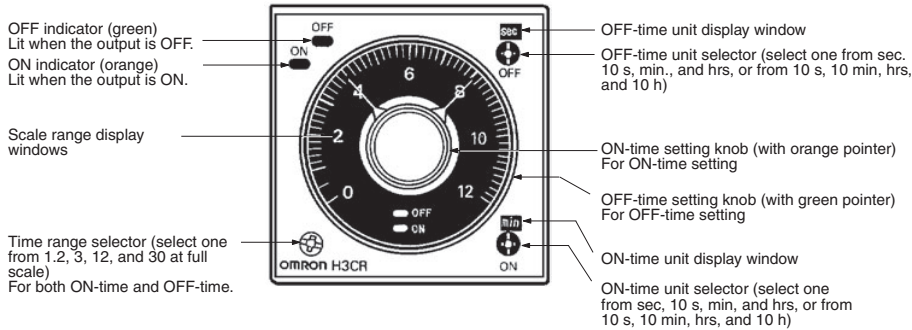
## ■ Timing Chart

t<sub>ON</sub>: ON set time  
t<sub>OFF</sub>: OFF set time



- Note:**
1. The reset time requires a minimum of 0.1 s.
  2. When power is supplied in flicker ON start mode, the OFF indicator lights momentarily. This, however, has no effect on the performance of the Timer.

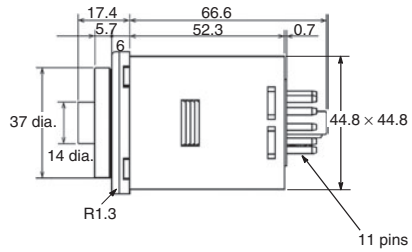
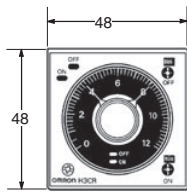
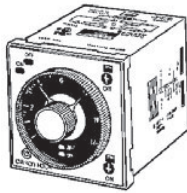
## Nomenclature



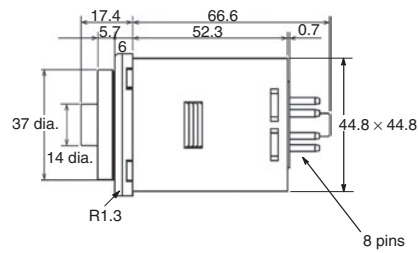
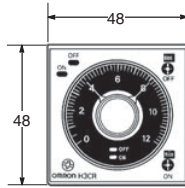
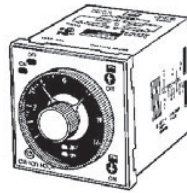
# Dimensions

Note: All units are in millimeters unless otherwise indicated.

H3CR-F  
H3CR-FN  
H3CR-F-300  
H3CR-FN-300

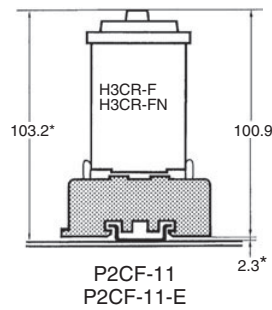


H3CR-F8  
H3CR-F8N  
H3CR-F8-300  
H3CR-F8N-300

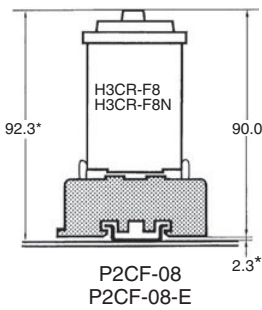


## Dimensions with Front Connecting Socket

P2CF-08-□/P2CF-11-□



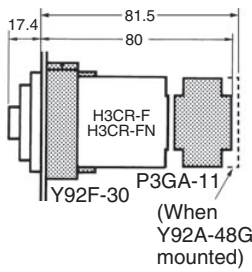
P2CF-11  
P2CF-11-E



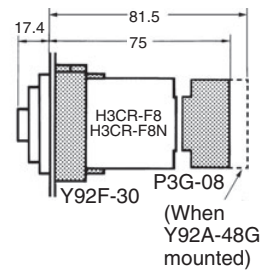
P2CF-08  
P2CF-08-E

## Dimensions with Back Connecting Socket

P3G-08/P3GA-11



P3GA-11  
(When Y92A-48G mounted)



P3G-08  
(When Y92A-48G mounted)

\*These dimensions vary with the kind of DIN track (reference value).

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.

# Operation (Common)

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

## Basic Setting

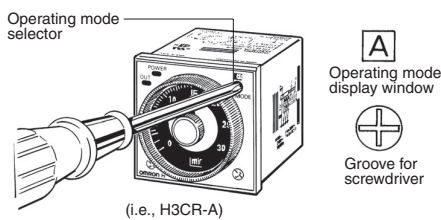
### Setting of Selectors

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

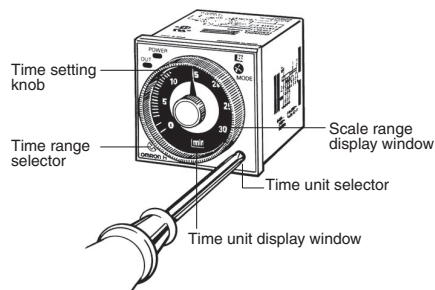
Turn the operating mode selector with a screwdriver until the desired operating mode (H3CR-A/AP/AS: A, B, B2, C, D, or E, H3CR-A8/A8S/A8E: A, B2, E or J, H3CR-A-300: G or J) appears in the display window located above the selector.



### Selection of Time Unit and Time Range

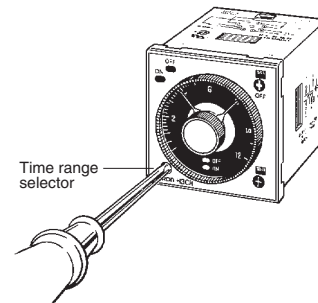
#### • H3CR-A Multifunctional Timer

The desired time unit (sec, min, hrs, or 10h) 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 30/2.4, 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.

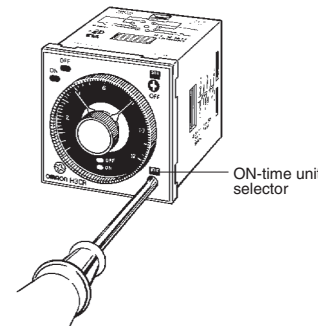


#### • H3CR-F Twin Timers

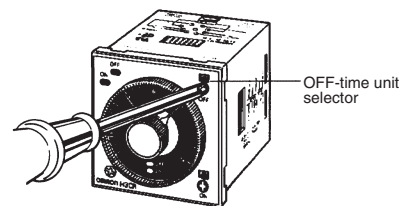
A time range (0 to 1.2, 0 to 3, 0 to 12, or 0 to 30) is selected for ON- and OFF-time using the time range selector at the lower left corner of the front panel, and the selected time range appears within the plastic frame of the time setting knob (= scale range display windows).



For ON-time, the desired time unit (sec, 10 s, min, and hrs, or 10 s, 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.

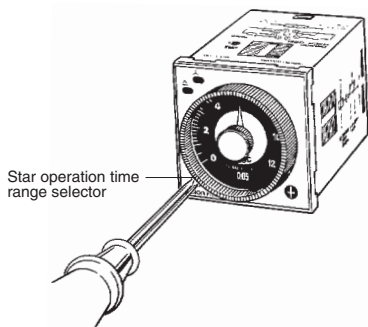


For OFF-time, the desired time unit (sec, 10 s, min, and hrs, or 10 s, 10 min, hrs, and 10 h) is indicated in the OFF-time unit display window at the upper right corner of the front panel and can be changed by turning the OFF-time unit selector located below the OFF-time unit display window.

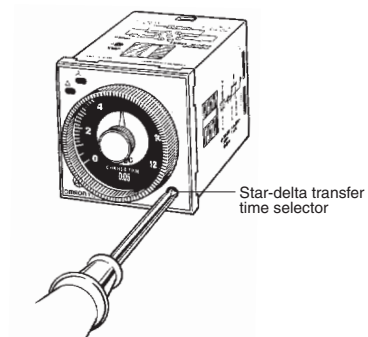


## • H3CR-G Star-delta Timers

A star operation time range (0 to 6, 0 to 12, 0 to 60, or 0 to 120 seconds) is selected with the star operation time range selector at the lower left corner of the front panel.

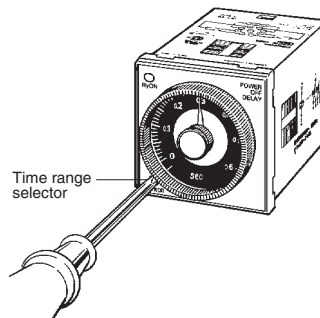


The time required for switching (0.05, 0.1, 0.25, or 0.5 second) from the star operation to the delta operation of the H3CR-G can be selected with the star-delta transfer time selector at the lower right corner of the front panel.



## • H3CR-H Power OFF-delay Timers

A time range (0 to 0.6, 0 to 1.2, 0 to 6, and 0 to 12) is selected with the time range selector at the lower left corner of the front panel. No time unit selector is available. When ordering the H3CR-H, specify S (for the second unit) or M (for the minute unit) for your H3CR-H.



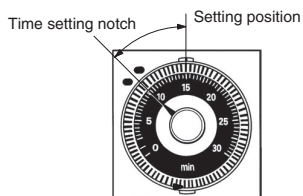
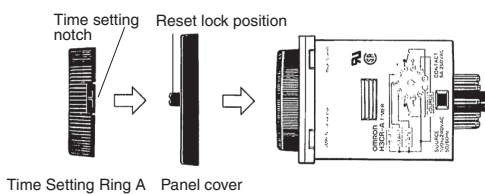
## Setting of Time

Use the time setting knob to set the desired time.

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

### Setting a Specific Time

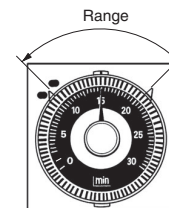
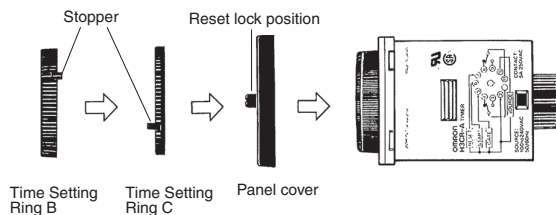
Mount the Panel Cover on the Timer, set the desired time with the time setting knob, and place Time Setting Ring A onto the time setting knob so that the time setting notch of Time Setting Ring A is in the center of the reset lock position of the Panel Cover.



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.





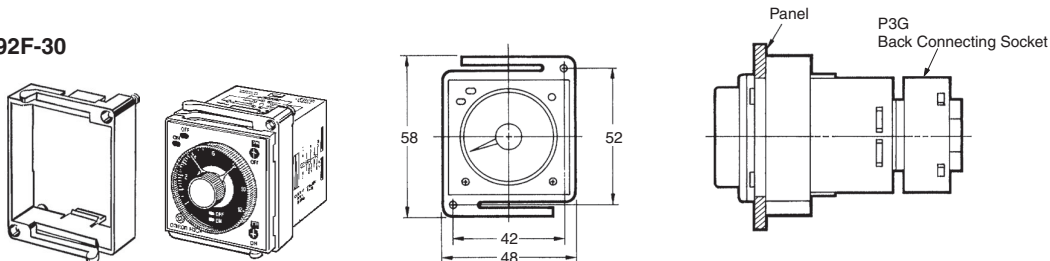
# Accessories (Order Separately) (Common)

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

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

## Flush Mounting Adaptor

### Y92F-30



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

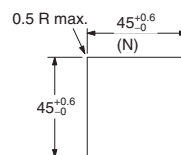
N can be obtained as follows (n: the number of H3CR models arranged side by side)

Without a Cover:  $N = (48n - 2.5)^{+1/-0}$

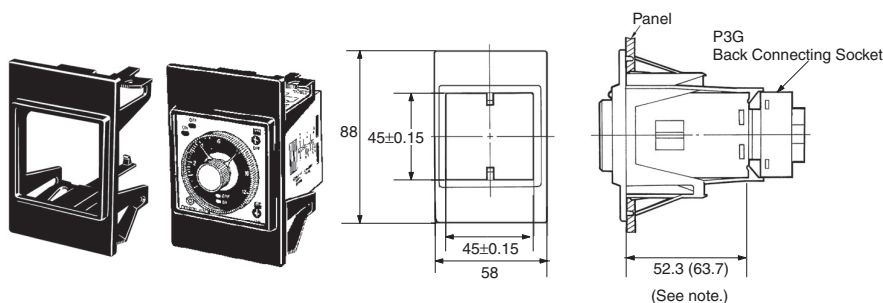
With the Protective Cover:  $N = (51n - 5.5)^{+1/-0}$

With the Panel Cover:  $N = (50n - 4.5)^{+1/-0}$

#### Panel Cutout

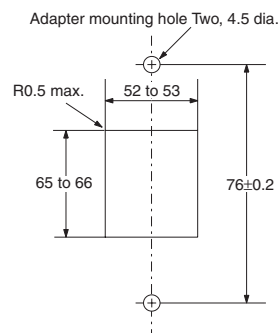


### Y92F-70/-73



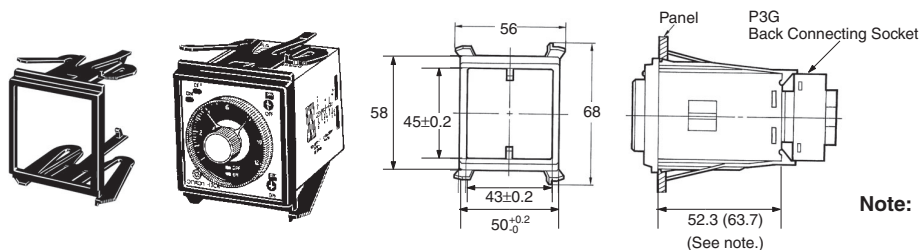
**Note:** The value shown in parentheses is for the Y92F-70.

#### Panel Cutout

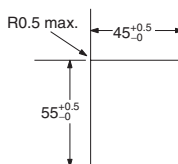


**Note:** The mounting panel thickness should be 1 to 3.2 mm.

### Y92F-71/-74



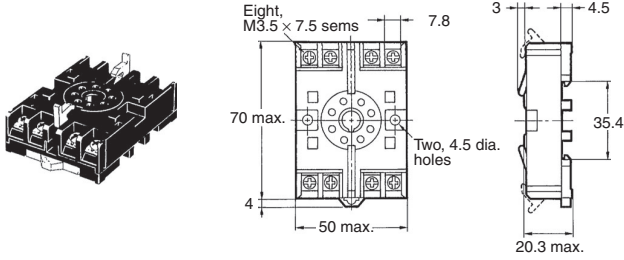
**Note:** The value shown in parentheses is for the Y92F-71.



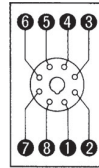
**Note:** The mounting panel thickness should be 1 to 3.2 mm.

**Track Mounting/Front Connecting Socket**

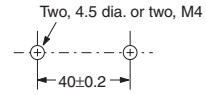
P2CF-08



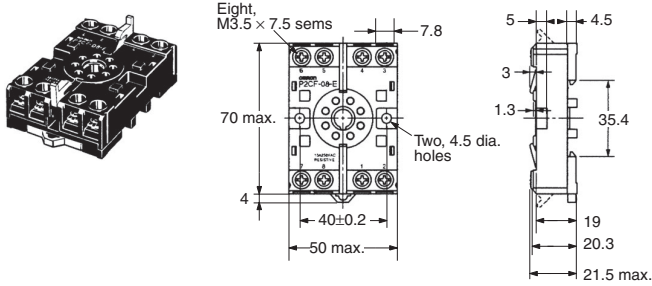
**Terminal Arrangement/  
Internal Connections  
(Top View)**



**Surface Mounting Holes**

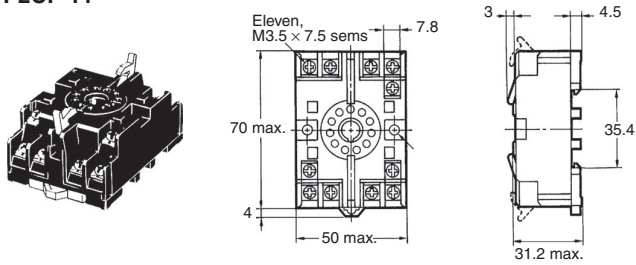


**P2CF-08-E (Finger Safe Terminal Type)  
Conforming to VDE0106/P100**

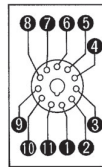


**Track Mounting/Front Connecting Socket**

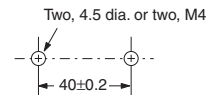
P2CF-11



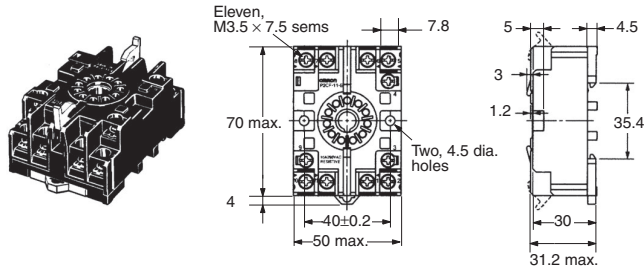
**Terminal Arrangement/  
Internal Connections  
(Top View)**



**Surface Mounting Holes**

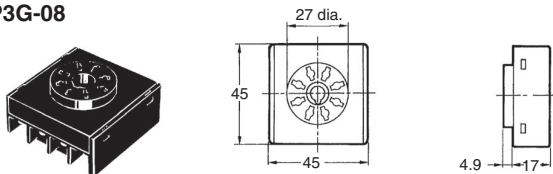


**P2CF-11-E (Finger Safe Terminal Type)  
Conforming to VDE0106/P100**

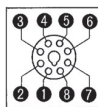


### Back Connecting Socket

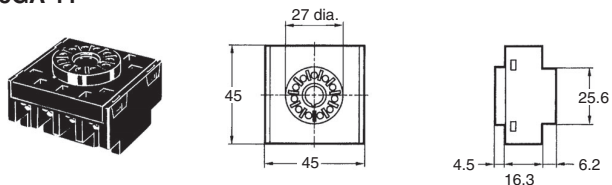
P3G-08



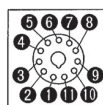
Terminal Arrangement/  
Internal Connections  
(Bottom View)



P3GA-11



Terminal Arrangement/  
Internal Connections  
(Bottom View)

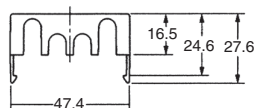
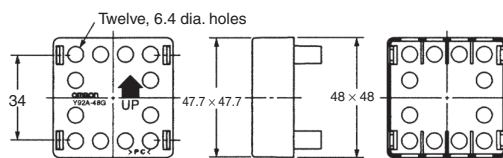
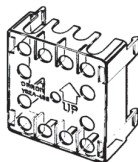


### Finger Safe Terminal Cover

Conforming to VDE0106/P100

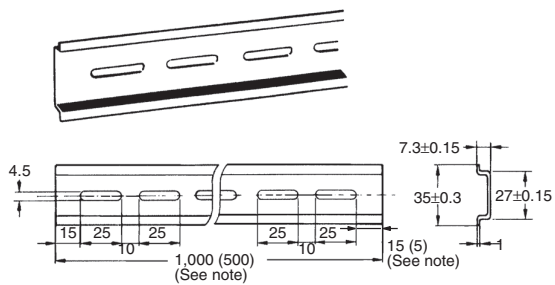
Y92A-48G

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

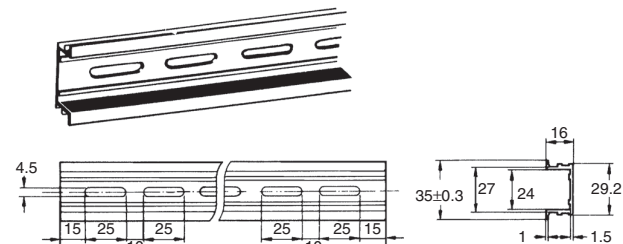


### Mounting Track

PFP-100N, PFP-50N



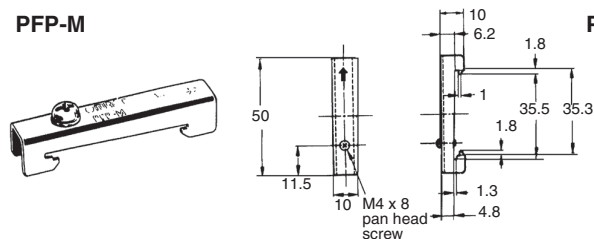
PFP-100N2



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

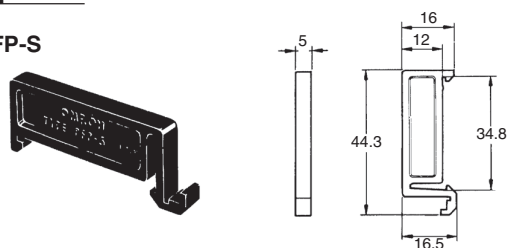
### End Plate

PFP-M



### Spacer

PFP-S



# Safety Precautions for All H3CR Models

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

## ■ Precautions for Safe Use

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.

Organic solvents (such as paint thinner) as well as strong acid or alkali solutions will damage the outer casing of the Timer.

If the Timer is used in an area with excessive electronic noise, be sure to separate the Timer, wires, and input device as far as possible from the noise sources. Furthermore, it is recommended that the input signal wiring be shielded to prevent electronic interference.

Using a surge absorber is recommended if surge voltages occur.

Pay the utmost attention not to make mistakes in polarity when wiring the Timer.

The H3CR Series uses a transformerless power supply. Do not touch the input terminals while the supply voltage is applied, otherwise an electric shock may be received.

## ■ 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, 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.

## 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 dismantling 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, dismantle 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.

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.

## 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

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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.

At the customer's request, OMRON will provide applicable third party certification documents identifying ratings and limitations of use that apply to the products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this catalog.
- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

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.

### PROGRAMMABLE PRODUCTS

OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

## Disclaimers

### CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons.

It is our practice to change model numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the products may be changed without any notice. When in doubt, special model numbers may be assigned to fix or establish key specifications for your application on your request. Please consult with your OMRON representative at any time to confirm actual specifications of purchased products.

### DIMENSIONS AND WEIGHTS

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

### 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.

### ERRORS AND OMISSIONS

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