Solid-state Twin Timers

H3CR-F

DIN 48 × 48-mm Twin Timers

- Wide power supply ranges of High Voltage 100 to 240 VAC/100 to 125 VDC and Low Voltage 24 to 48 VAC/12 to 48 VDC.
- 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.
- Twenty-four time ranges from 0.05 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.

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

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 300 h models

5. Supply Voltage
100-240AC/100-125DC: 100 to 240 VAC/100 to 125 VDC
24-48AC/12-48DC: 24 to 48 VAC/12 to 48 VDC

Note: When your order, specify the power supply voltage.

Ordering Information

■ List of Models

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

Note: Specify both the model number and supply voltage when ordering.
Example: H3CR-F 100-240AC/100-125DC
Supply voltage

■ Accessories (Order Separately)

Adapter, Protective Cover and Hold-down Clip

Name/specifications		Models
Flush Mounting Adapter		**Y92F-30**
		Y92F-73 ✻1
		Y92F-74 ✻1
Protective Cover		**Y92A-48B ✻2**
Hold-down Clip (Sold in sets of two)	**For PF085A Socket**	**Y92H-8**
	For PL08 or PL11 Sockets	**Y92H-7**

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

✻1 The Y92A-48B Protective Cover and the Y92F-73/-74 Flush Mounting Adapter cannot be used at the same time.

✻2 The Y92A-48B Protective Cover is made from hard plastic.
Remove the Protective Cover to change the set value.
The Y92A-48B Protective Cover and the Y92F-73/-74 Flush Mounting Adapter also cannot be used at the same time.

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-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, CCC Conforms to EN61812-1 and IEC60664-1 (VDE0110) 4kV/2. Output category according to EN60947-5-1.			

Note: For details, refer to your OMRON website.

■ Time Ranges

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

Note: The times that can be set are given. When the time setting knob is turned below “0” until the point where the time setting knob stops, the output will operate instantaneously at all time range settings.
For details, refer to your OMRON website.

■ Ratings

Rated supply voltage (See notes 1, 2, and 3.)	• 100 to 240 VAC 50/60 Hz/100 to 125 VDC • 24 to 48 VAC 50/60 Hz/12 to 48 VDC
Operating voltage range	85% to 110% of rated supply voltage; 90% to 110% with 12-VDC models
Power reset	Minimum power-opening time: 0.1 s
Power consumption	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
Control outputs	Contact output: 5 A at 250 VAC/30 VDC, resistive load ($\cos\phi = 1$) The minimum applicable load is 10mA at 5VDC (P reference value). Contact materials : Ag-alloy

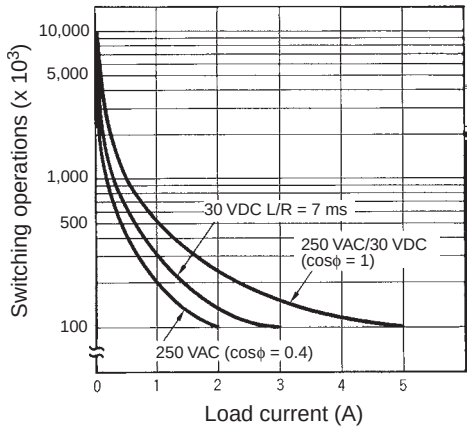
Note: 1. A power supply with a ripple of 20% max. (single-phase power supply with full-wave rectification) can be used with each DC Model.
2. Do not use an inverter output as the power supply. Refer to your OMRON website for details.
3. Refer to your OMRON website when using the Timer together with a 2-wire AC proximity sensor.

■ Characteristics

Accuracy of operating time	±0.2% FS max. (±0.2% FS ±10 ms max. in ranges of 1.2 and 3 s)
Setting error	±5% FS ±50 ms max.
Reset time	0.1 s max.
Reset voltage	10% max. of rated voltage
Influence of voltage	±0.2% FS max. (±0.2% FS ±10 ms max. in ranges of 1.2 and 3 s)
Influence of temperature	±1% FS max. (±1% FS ±10 ms max. in ranges of 1.2 and 3s)
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) 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)
Impulse withstand voltage	5kV (between power terminals), however, 1kV for 24 to 48VAC, 12 to 48 VDC 5kV (between current-carrying terminal and exposed non-current-carrying metal parts), however 1.5 kV for 24 to 48 VAC, 12 to 48 VDC
Noise immunity	±1.5 kV (between power terminals), square-wave noise by noise simulator (pulse width: 100 ns/1 μs, 1-ns rise)
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 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 Malfunction: 98 m/s^2 three times each in six directions
Ambient temperature	Operating: –10°C to 55°C (with no icing) Storage: –25°C to 65°C (with no icing)
Ambient humidity	Operating: 35% to 85%
Life expectancy	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)
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
Case color	Light Gray (Munsell 5Y7/1)
Degree of protection	IP40 (panel surface)
Weight	Approx. 100 g

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

■ Life-test Curve (Reference)

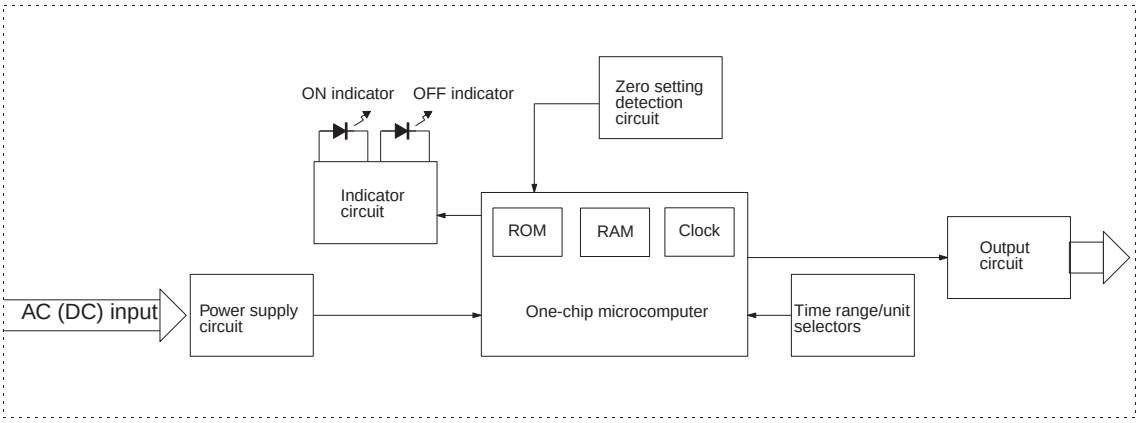


Reference: A maximum current of 0.15 A can be switched at 125 VDC (cosϕ = 1) and a maximum current of 0.1A can be switched at 125V DC and L/R = 7ms. In both cases, a life of 100,000 operations can be expected. The minimum applicable load is 10 mA at 5 VDC (failure level: P).

Connections

■ Block Diagrams

H3CR-F/-F8/-FN/F8N

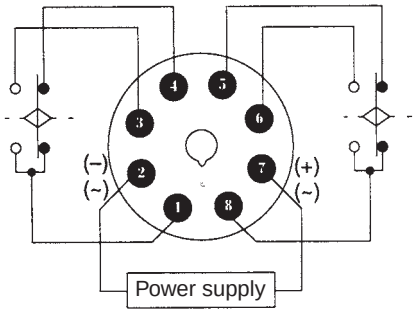


■ I/O Functions

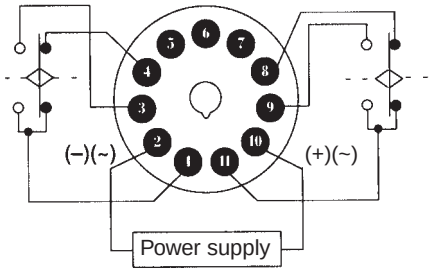
Inputs		---
Outputs	**Control output**	Outputs are turned ON/OFF according to the time set by the ON- and OFF-time setting knob.

■ Terminal Arrangement

H3CR-F8/-F8N



H3CR-F/-FN

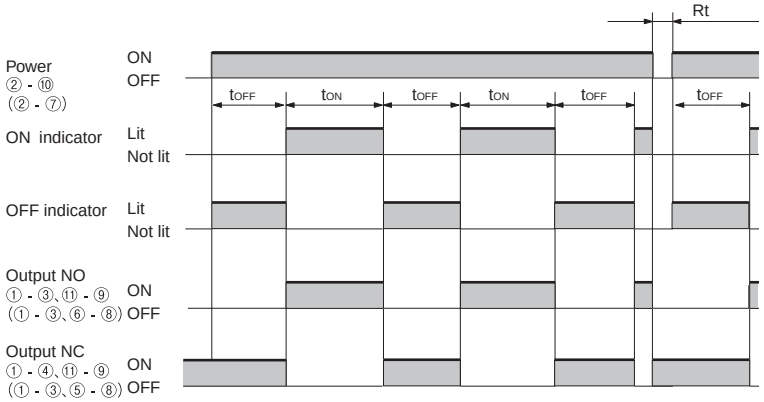
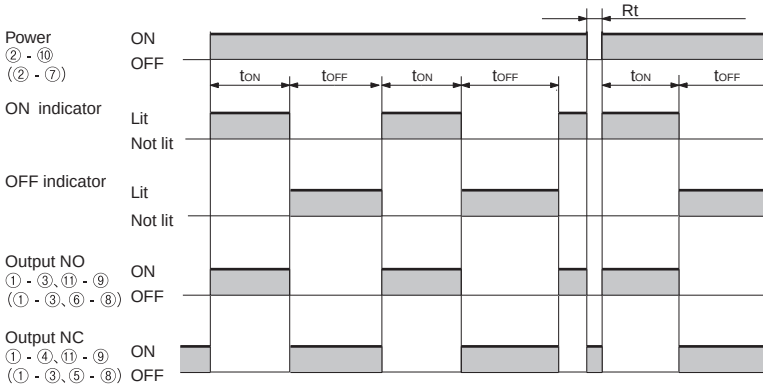


Note: Leave terminals 5, 6, and 7 open.
Do not use them as relay terminals.

Operation

■ Timing Chart

t_{ON}: ON set time
t_{OFF}: OFF set time

Operating mode	Timing chart
Flicker OFF start	
Flicker ON start	

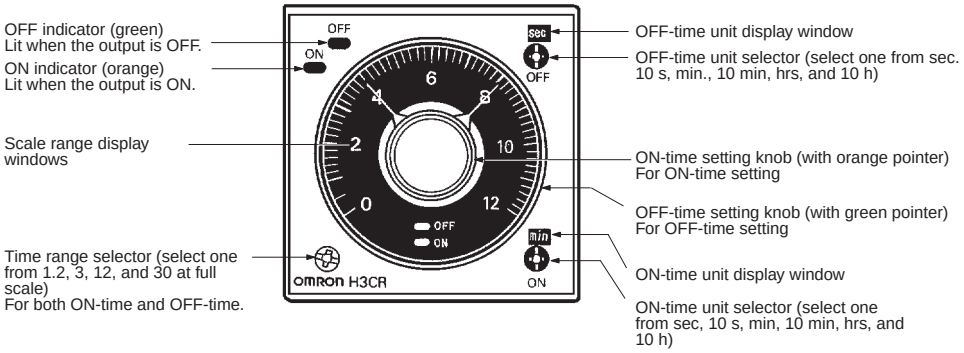
Note: 1. Allow a timer reset time (Rt) of 0.1 s or longer

2. When the setting dial is turned all the way past 0 for intantaneous output, "t" (set time) in the above time chart is 0-sec operation.

Nomenclature

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

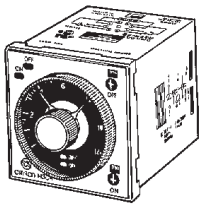
0	0.2	0.4	0.6	0.8	1.0	1.2
0	0.5	1	1.5	2	2.5	3
0	2	4	6	8	10	12
0	5	10	15	20	25	30

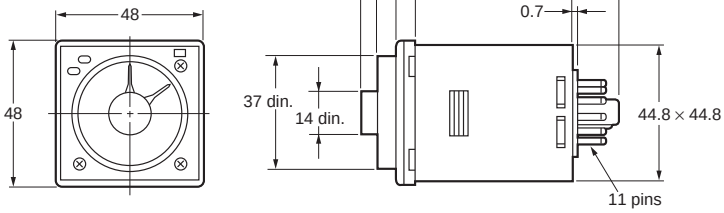


Dimensions

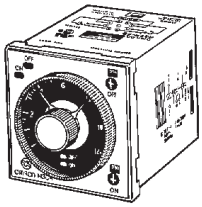
Note: All units are in millimeters unless otherwise indicated.

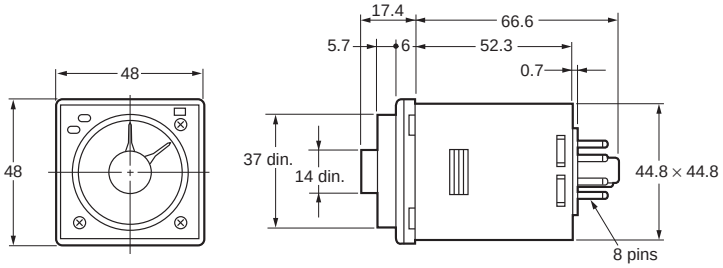
H3CR-F
H3CR-FN





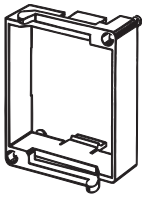
H3CR-F8
H3CR-F8N

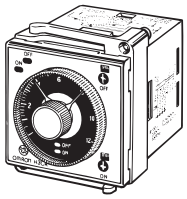


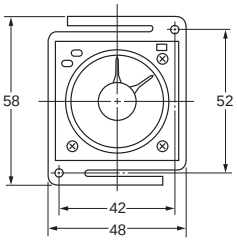


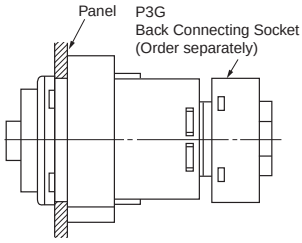
Dimensions with Flush Mounting Adapter

Y92F-30 Flush Mounting Adapter (Order Separately)

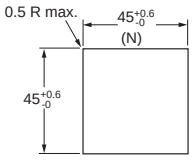








Mounting Hole Dimensions (Conform to DIN 43700.)

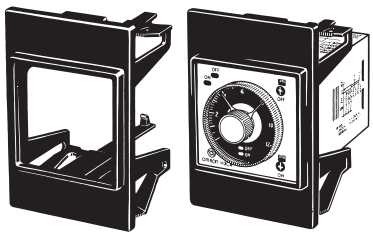


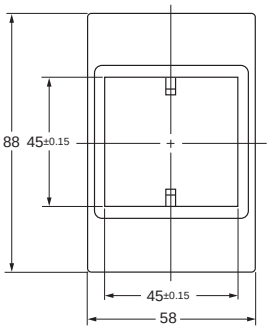
Note: 1. The orientation of the Adapters for two or more Timers is different for a horizontal or vertical layout. Make sure the orientation is correct.

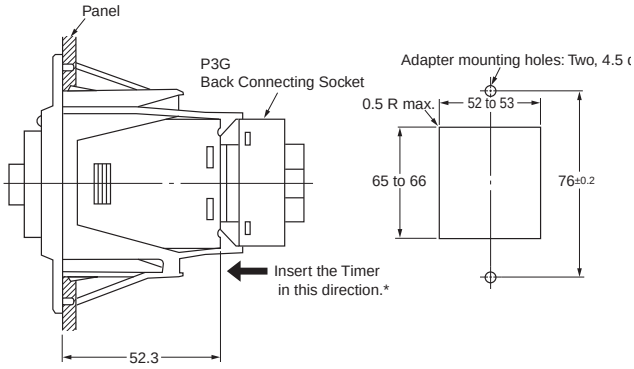
Consecutive Mounting of n Timers
Without Front Covers: N = (48n - 2.5) + 1 - 0
With Front Covers: N = (51n - 5.5) + 1 - 0
With Panel Covers: N = (50n - 4.5) + 1 - 0

2. The applicable thickness of the mounting panel must be 1 to 5 mm.

Y92F-73 Flush Mounting Adapter (Order Separately)





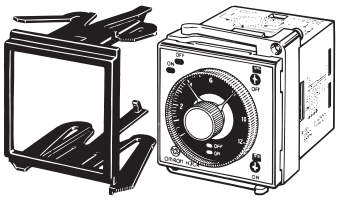


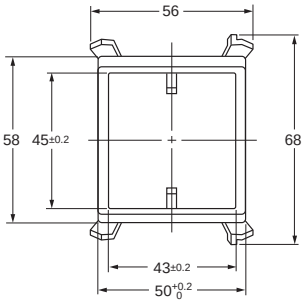
Note: A Front Cover and Flush Mounting Adapter cannot be used at the same time.

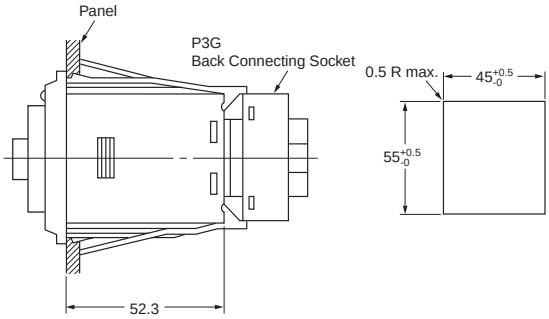
Note: The applicable thickness of the mounting panel must be 1 to 3.2 mm.

✻ Insert the Timer from the back of the Adapter.

Y92F-74 Flush Mounting Adapter (Order Separately)



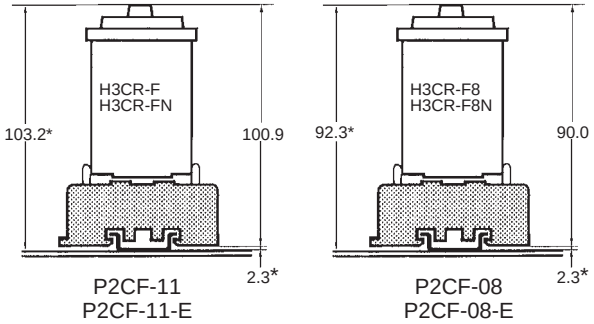




Note: A Front Cover and Flush Mounting Adapter cannot be used at the same time.

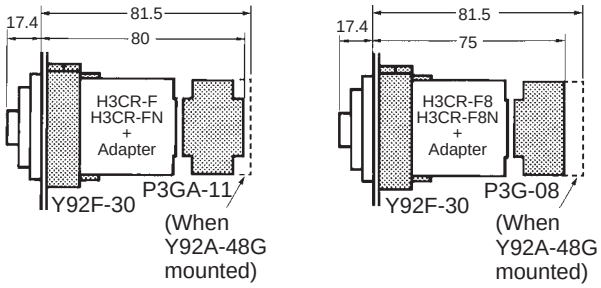
Note: The applicable thickness of the mounting panel must be 1 to 3.2 mm.

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



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

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



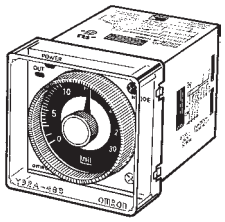
Note: There are no restrictions to the mounting direction.

■ Accessories (Order Separately)

Protective Cover
Y92A-48B

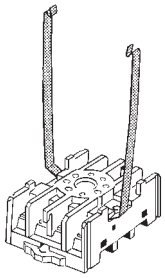
To use the Protective Cover with a flush mounting, use the Y92F-30 flush mounting adaptor.

This Protective Cover cannot be used together with the Y92F-73/-74 flush mounting adaptor or the panel cover.



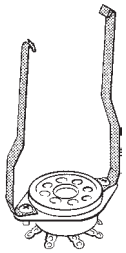
Hold-down Clip
Y92H-8

The Y92H-8 Hold-down Clip is attached to the PF085A socket.



Hold-down Clip
Y92H-7

Y92H-7 Hold-down Clip is attached with screws together with the PL08 socket or the PL11 socket.



ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

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