

# Solid-state Twin Timers

## H3CR-F

CSM\_H3CR-F\_DS\_E\_1\_5

### 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.
- Sixteen 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)

### 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 and PL11 Sockets	Y92H-7

**Note:** Refer to H3CR-A datasheet for details.

\*1 The Y92F-48B Front Cover and the Y92P-48G□ Panel Cover cannot be used at the same time.

\*2 The Y92F-48B Front Cover is made from hard plastic.

Remove the Front Cover to change the set value.

The Y92F-48B Front Cover and the Y92F-73/-74 Flush Mounting Adapter also cannot be used at the same time.

### Sockets

Timer Pin	Round Sockets		
	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 *Socket and DIN Track Products*.

### Terminal Cover

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

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

# 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

Rated supply voltage (See notes 1, 2, and 3.)	100 to 240 VAC (50/60 Hz), 12 VDC, 24 VAC/DC (50/60 Hz), 48 to 125 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 48 to 125 VDC: approx. 1.5 W at 125 VDC 12 VDC: approx. 1 W at 12 VDC
Control outputs	Contact output: 5 A at 250 VAC/30 VDC, resistive load ( $\cos\phi = 1$ )

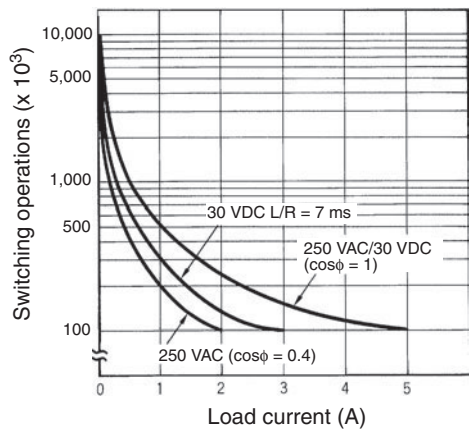
**Note:** 1. A power supply with a ripple of 20% max. (single-phase power supply with full-wave rectification) can be used with each DC Model.  
2. Do not use an inverter output as the power supply. Refer to *Safety Precautions for All Timers* for details.  
3. Refer to *Safety Precautions for All Timers*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

## ■ Characteristics

<b>Accuracy of operating time</b>	±0.2% FS max. (±0.2% FS ±10 ms max. in ranges of 1.2 and 3 s)
<b>Setting error</b>	±5% FS ±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>	±0.2% FS max. (±0.2% FS ±10 ms max. in ranges of 1.2 and 3 s)
<b>Influence of temperature</b>	±1% FS max. (±1% FS ±10 ms max. in ranges of 1.2 and 3s)
<b>Insulation resistance</b>	100 MΩ 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>	±1.5 kV (between power terminals), square-wave noise by noise simulator (pulse width: 100 ns/1 μs, 1-ns rise) ±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°C to 55°C (with no icing) Storage: -25°C to 65°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) Emission Enclosure: EN61812-1 Emission AC Mains: EN55011 Group 1 class A (EMS) Immunity ESD: EN61812-1 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±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*.

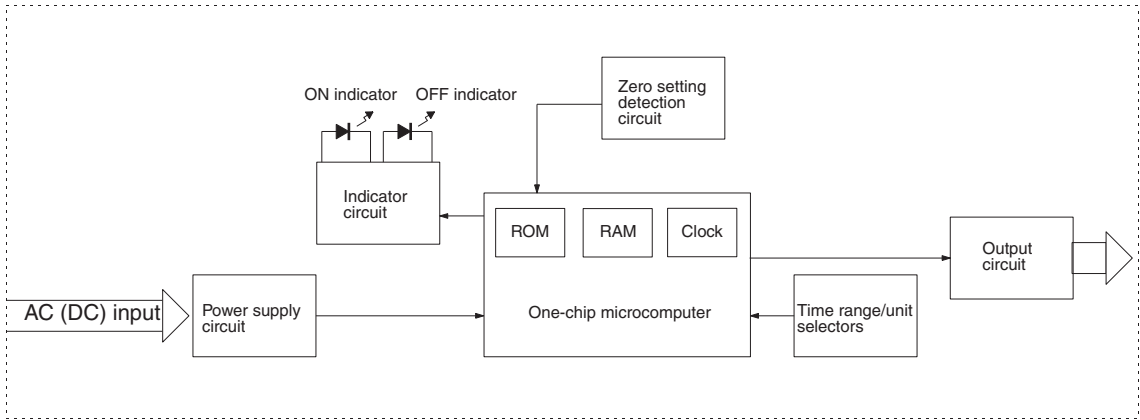
Life-test Curve



Reference: A maximum current of 0.15 A can be switched at 125 VDC ( $\cos\phi = 1$ ) 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

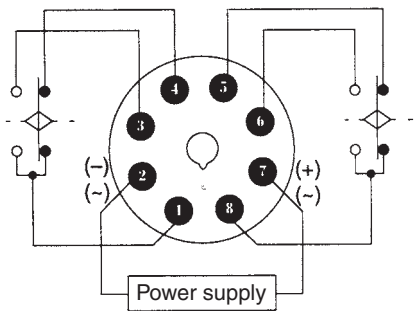


I/O Functions

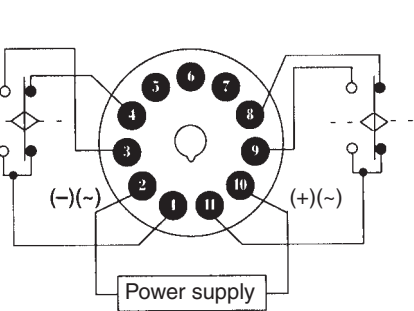
Inputs	---
Outputs	Control output
Outputs are turned ON/OFF according to the time set by the ON- and OFF-time setting knob.	

Terminal Arrangement

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



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

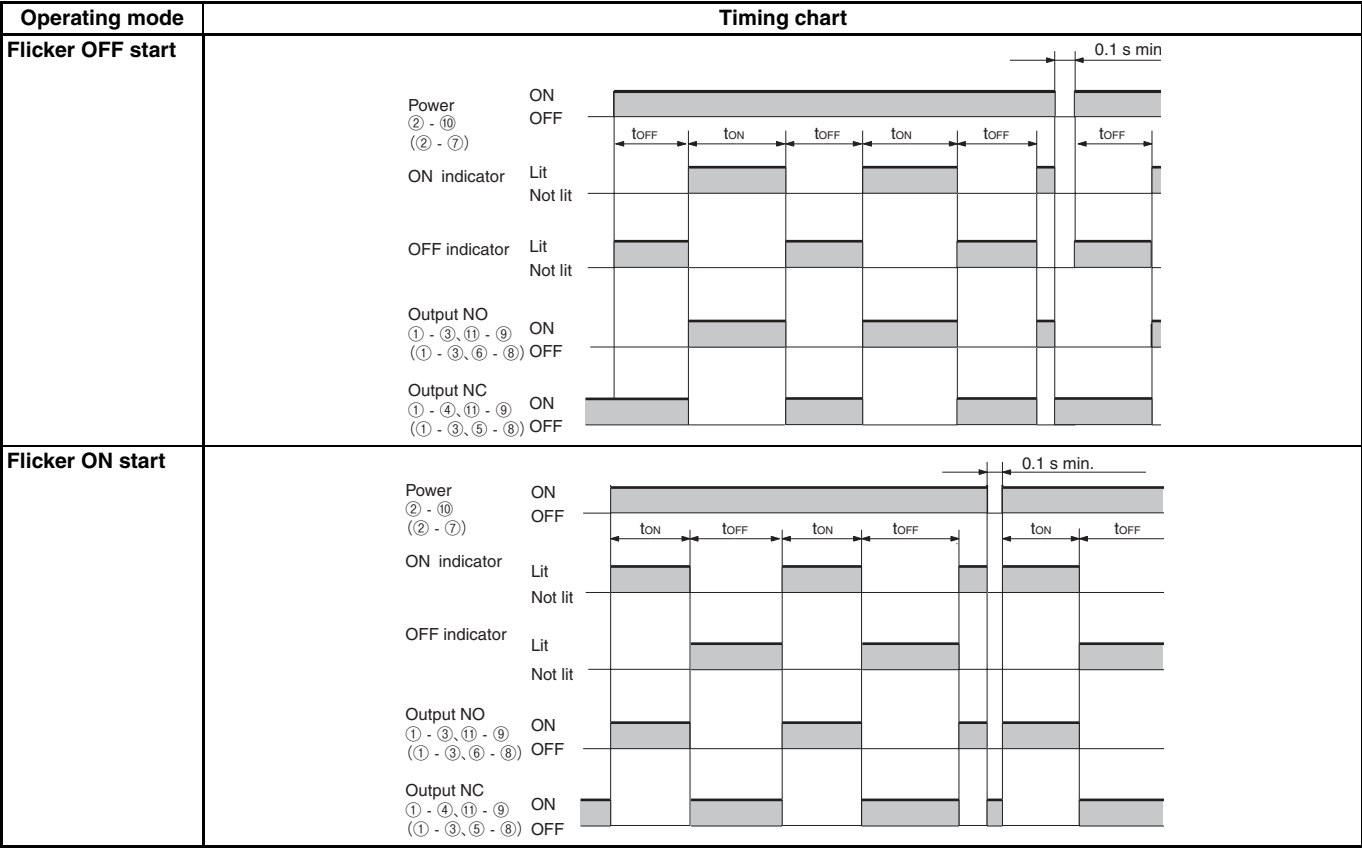


**Note:** Leave terminals 5, 6, and 7 open.  
Do not use them as relay terminals.

Operation

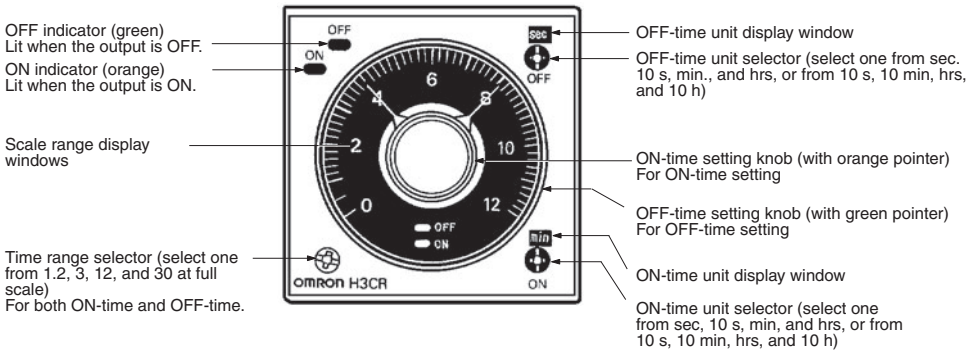
■ Timing Chart

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.

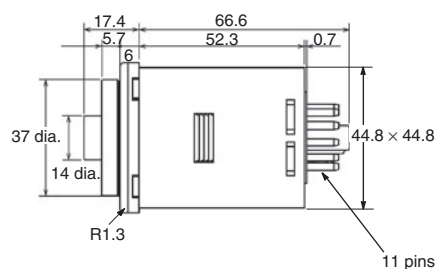
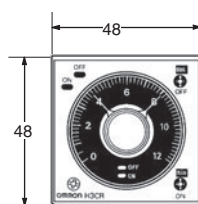
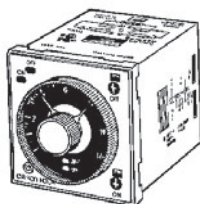
Nomenclature



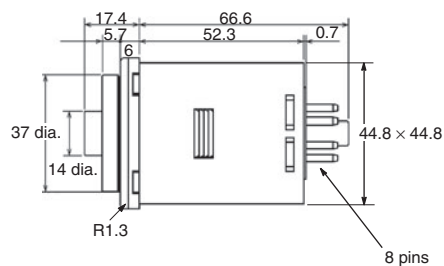
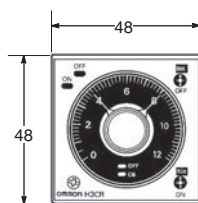
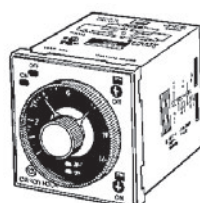
# Dimensions

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

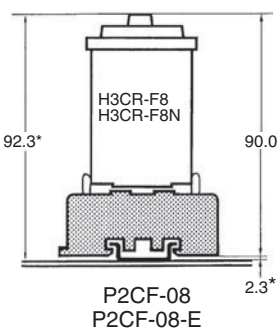
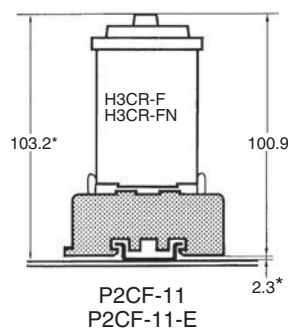
H3CR-F  
H3CR-FN  
H3CR-F-300  
H3CR-FN-300



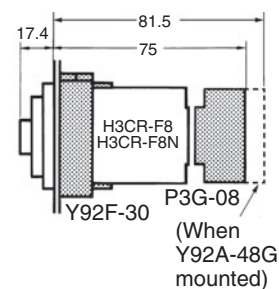
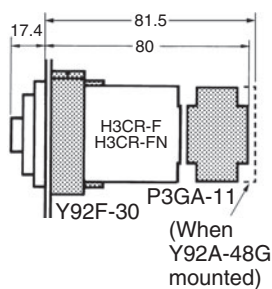
H3CR-F8  
H3CR-F8N  
H3CR-F8-300  
H3CR-F8N-300



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



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



\*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.

## Read and Understand This Catalog

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

## Warranty and Limitations of Liability

### WARRANTY

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

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

### LIMITATIONS OF LIABILITY

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

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

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

## Application Considerations

### SUITABILITY FOR USE

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

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

The information in this document has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical, or proofreading errors, or omissions.



# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Omron:

Y92F-73