

## DIN 48 × 48-mm State-of-the-art Multifunctional Timer

- A wider power supply range reduces the number of timer models kept in stock.
- A wide range of applications through six or four operating modes.
- Reduced power consumption.  
(Except for H3CR-A8E)
- Enables 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.
- Time Setting Rings enable consistent settings and limit the setting range.
- Panel Covers enable various panel designs.
- PNP input models available.
- Rich variety of inputs: Start, reset, and gate functions (11-pin models and -AP models)



## 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 2 for availability.

H3CR-A    -    
1    2    3        4    5

#### 1. Number of Pins

- None: 11-pin models
- 8: 8-pin models

#### 2. Input Type for 11-pin Models

- None: No-voltage input (NPN type)
- P: Voltage input (PNP type)

#### 3. Output

- None: Relay output (DPDT)
- S: Transistor output (NPN/PNP universal use)
- E: Relay output (SPDT) with instantaneous relay output (SPDT)

#### 4. Suffix

- 300: Dual mode models (signal ON/OFF-delay and one-shot)
- 301: Double time scale (range) models (0.1 s to 600 h)

#### 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
- 24-48AC/DC: 24 to 48 VAC/VDC (Only for H3CR-A8E)

# Ordering Information

## ■ List of Models

**Note:** 1. Specify both the model number and supply voltage when ordering.

Example: H3CR-A 100-240AC/100-125DC

Supply voltage

2. The operating modes are as follows

A: ON-delay	D: Signal OFF-delay
B: Flicker OFF start	E: Interval
B2: Flicker ON start	G: Signal ON/OFF-delay
C: Signal ON/OFF-delay	J: One-shot

## 11-pin Models

Output	Supply voltage	Input type	Time range	Operating mode (See note 2)	Model (See note 1.)
Contact	100 to 240 VAC (50/60 Hz)/ 100 to 125 VDC	No-voltage input	0.05 s to 300 h	Six multi-modes: A, B, B2, C, D, E	H3CR-A
	24 to 48 VAC (50/60 Hz)/ 12 to 48 VDC				
	100 to 240 VAC (50/60 Hz)/ 100 to 125 VDC			Dual-modes: G, J	H3CR-A-300
	24 to 48 VAC (50/60 Hz)/ 12 to 48 VDC				
	100 to 240 VAC (50/60 Hz)/ 100 to 125 VDC	Voltage input	Six multi-modes: A, B, B2, C, D, E	H3CR-AP	
	24 to 48 VAC (50/60 Hz)/ 12 to 48 VDC				
	100 to 240 VAC (50/60 Hz)/ 100 to 125 VDC	No-voltage input	0.1 s to 600 h	H3CR-A-301	
	24 to 48 VAC (50/60 Hz)/ 12 to 48 VDC				
Transistor (Photocoupler)	24 to 48 VAC (50/60 Hz)/ 12 to 48 VDC		0.05 s to 300 h	H3CR-AS	

## 8-pin Models

Output	Supply voltage	Input type	Time range	Operating mode (See note 2)	Model (See note 1.)
Contact	100 to 240 VAC (50/60 Hz)/ 100 to 125 VDC	No-input available	0.05 s to 300 h	Four multi-modes: A, B2, E, J (Power supply start)	H3CR-A8
	24 to 48 VAC (50/60 Hz)/ 12 to 48 VDC		0.1 s to 600 h		H3CR-A8-301
	100 to 240 VAC (50/60 Hz)/ 100 to 125 VDC				
	24 to 48 VAC (50/60 Hz)/ 12 to 48 VDC		0.05 s to 300 h		H3CR-A8S
Time-limit contact and instantaneous contact	100 to 240 VAC (50/60 Hz)/ 100 to 125 VDC				H3CR-A8E
	24 to 48 VAC/VDC (50/60 Hz)				

## ■ 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)
Time Setting Ring	Setting a specific time	Y92S-27
	Limiting the setting range	Y92S-28
Panel Cover (See note 2)	Light gray (5Y7/1)	Y92P-48GL
	Black (N1.5)	Y92P-48GB
	Medium gray (5Y5/1)	Y92P-48GM
Hold-down Clip (See note 3)	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. The Time Setting Ring and Panel Cover are sold together.  
 3. Hold-down Clips are sold in sets of two.

## Specifications

### ■ General

Item	H3CR-A/-AS	H3CR-AP	H3CR-A8/-A8S	H3CR-A8E
Operating mode	A: ON-delay B: Flicker OFF start B2: Flicker ON start C: Signal ON/OFF-delay D: Signal OFF-delay E: Interval G: Signal ON/OFF-delay (Only for H3CR-A-300) J: One-shot (Only for H3CR-A-300)		A: ON-delay (power supply start) B2: Flicker ON start (power supply start) E: Interval (power supply start) J: One-shot (power supply start)	
Pin type	11-pin		8-pin	
Input type	No-voltage input	Voltage input	---	
Time-limit output type	H3CR-A/-A8/-AP: Relay output (DPDT) H3CR-AS/-A8S: Transistor output (NPN/PNP universal)*			Relay output (SPDT)
Instantaneous output type	---			Relay output (SPDT)
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 for Timers with Contact Outputs. Output category according to EN60947-5-2 for Timers with Transistor Outputs.			

\*The internal circuits are optically isolated from the output. This enables universal application as NPN or PNP transistor.

## ■ Time Ranges

**Note:** 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.

### Standard (0.05-s to 300-h) Models

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

### Double (0.1-s to 600-h) Models

Time unit	s (sec)	min (min)	h (hrs)	×10 h (10 hrs)
Full scale setting	2.4	0.1 to 2.4	0.24 to 2.4	2.4 to 24
	6	0.6 to 6		6 to 60
	24	2.4 to 24		24 to 240
	60	6 to 60		60 to 600

## ■ Ratings

<b>Rated supply voltage (See notes 1, 2, and 5.)</b>	100 to 240 VAC (50/60 Hz)/100 to 125 VDC, 24 to 48 VAC (50/60 Hz)/12 to 48 VDC (24 to 48 VAC/VDC for H3CR-A8E) (See note3.)
<b>Operating voltage range</b>	85% to 110% of rated supply voltage (90% to 110% at 12 VDC)
<b>Power reset</b>	Minimum power-opening time: 0.1 s
<b>Input</b>	<p><b>No-voltage Input</b>            ON impedance: 1 kΩ max.            ON residual voltage: 1 V max.            OFF impedance: 100 kΩ min.</p> <p><b>Voltage Input</b>            Max. permissible capacitance between inputs lines (terminals 6 and 7): 1,200 pF            Load connectable in parallel with inputs (terminals 6 and 7).</p> <ul style="list-style-type: none"> <li>100 to 240 VAC/100 to 125 VDC              High (logic) level: 85 to 264 VAC/85 to 137.5 VDC              Low (logic) level: 0 to 10 VAC/0 to 10 VDC</li> <li>24 to 48 VAC/12 to 48 VDC              High (logic) level: 20.4 to 52.8 VAC/10.8 to 52.8 VDC              Low (logic) level: 0 to 2.4 VAC/0 to 1.2 VDC</li> </ul>
<b>Power consumption</b>	<p><b>H3CR-A/-A8</b></p> <ul style="list-style-type: none"> <li>100 to 240 VAC/100 to 125 VDC (When at 240 VAC, 60 Hz)              Relay ON: approx. 2.0 VA (1.6 W)      Relay OFF: approx. 1.3 VA (1.1 W)</li> <li>24 to 48 VAC/12 to 48 VDC (When at 24 VDC)              Relay ON: approx. 0.8 W      Relay OFF: approx. 0.2 W</li> </ul> <p><b>H3CR-AP (See note 3)</b></p> <ul style="list-style-type: none"> <li>100 to 240 VAC/100 to 125 VDC (When at 240 VAC, 60 Hz)              Relay ON: approx. 2.5 VA (2.2 W) (See note 4.)      Relay OFF: approx. 1.8 VA (1.7 W) (See note 4.)</li> <li>24 to 48 VAC/12 to 48 VDC (When at 24 VDC)              Relay ON: approx. 0.9 W (See note 4.)      Relay OFF: approx. 0.3 W (See note 4.)</li> </ul> <p><b>H3CR-A8E</b></p> <ul style="list-style-type: none"> <li>100 to 240 VAC/100 to 125 VDC (When at 240 VAC, 60 Hz)              Relay ON/OFF: approx. 2 VA (0.9 W)</li> <li>24 to 48 VAC/VDC (When at 24 VDC)              Relay ON/OFF: approx. 0.9 W</li> </ul> <p><b>H3CR-AS/-A8S</b></p> <ul style="list-style-type: none"> <li>24 to 48 VAC/12 to 48 VDC (When at 24 VDC)              Output ON: 0.3 W Output OFF: 0.2 W</li> </ul>
<b>Control outputs</b>	<p>Time limit contacts: 5 A at 250 VAC/30 VDC, 0.15 A at 125 VDC, resistive load (cosφ = 1)</p> <p>Transistor output: Open collector (NPN/PNP), 100 mA max. at 30 VDC max., residual voltage: 2 V max.</p> <p>Instantaneous contact: 5 A at 250 VAC/30 VDC, 0.15 A at 125 VDC, resistive load (cosφ = 1)</p>

- Note:**
- DC ripple rate: 20% max. if the power supply incorporates a single-phase, full-wave rectifier.
  - Do not use an inverter output as the power supply. Refer to *Safety Precautions for All Timers* for details.
  - Models with 24-to-48-VAC or 12-to-48-VDC power supply have inrush current. Caution is thus required when turning ON and OFF power to the Timer with a non-contact output from a device such as a sensor. (Models with an inrush current of approximately 50 mA and a 24-VDC power supply are available (the H3CR-A-302 and H3CR-A8-302).)
  - The values are for when the terminals 2 and 7 and terminals 10 and 6 are short-circuited, and include the consumption current of the input circuit.
  - Refer to *Safety Precautions for All Timers* when using the Timer together with a 2-wire AC proximity sensor.

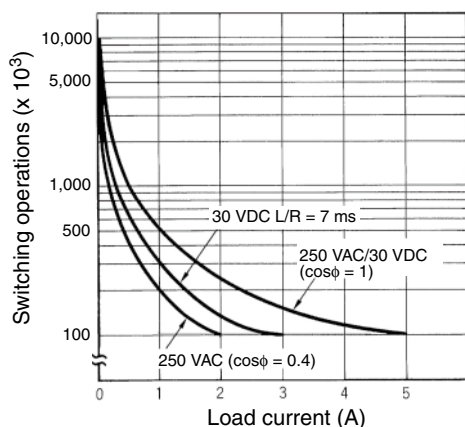
## Characteristics

<b>Accuracy of operating time</b>	±0.2% FS max. (±0.2%±10 ms max. in a range of 1.2 s)
<b>Setting error</b>	±5% FS ±50 ms (See note 1)
<b>Reset time</b>	Min. power-opening time: 0.1 s max. Min. pulse width: 0.05 s (H3CR-A/-AS)
<b>Reset voltage</b>	10% max. of rated supply voltage
<b>Influence of voltage</b>	±0.2% FS max. (±0.2%±10 ms max. in a range of 1.2 s)
<b>Influence of temperature</b>	±1% FS max. (±1%±10 ms max. in a range of 1.2 s)
<b>Insulation resistance</b>	100 MΩ min. (at 500 VDC)
<b>Dielectric strength</b>	2,000 VAC (1,000 VAC for H3CR-A□S), 50/60 Hz for 1 min (between current-carrying metal parts and exposed non-current-carrying metal parts) 2,000 VAC (1,000 VAC for H3CR-A□S), 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) 2,000 VAC, 50/60 Hz for 1 min (between input and control output terminals and operation circuit) for H3CR-AP
<b>Impulse withstand voltage</b>	3 kV (between power terminals) for 100 to 240 VAC/100 to 125 VDC, 1 kV for 24 to 48 VAC/12 to 48 VDC 4.5 kV (between current-carrying terminal and exposed non-current-carrying metal parts) for 100 to 240 VAC/100 to 125 VDC, 1.5 kV for 24 to 48 VAC/12 to 48 VDC and 24 to 48 VAC/VDC
<b>Noise immunity</b>	±1.5 kV (between power terminals) and ±600 V (between no-voltage input terminals), square-wave noise by noise simulator (pulse width: 100 ns/1 μs, 1-ns rise)
<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 each in 3 directions for 2 hours each Malfunction: 10 to 55 Hz with 0.5-mm single amplitude each in 3 directions for 10 minutes each
<b>Shock resistance</b>	Destruction: 1,000 m/s <sup>2</sup> 3 times each in 6 directions Malfunction: 100 m/s <sup>2</sup> 3 times each in 6 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: 20,000,000 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 2)
<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±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. 90 g

**Note:** 1. The value is ±5% FS +100 ms to -0 ms max. when the C, D, or G mode signal of the H3CR-AP is OFF.

2. Refer to the *Life-test Curve*.

## Life-test Curve

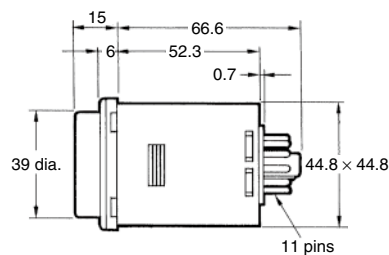
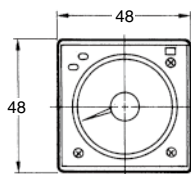
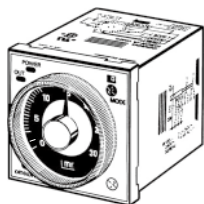


**Reference:** A maximum current of 0.15 A can be switched at 125 VDC ( $\cos\phi = 1$ ) and a maximum current of 0.1 A can be switched if L/R is 7 ms. In both cases, a life of 100,000 operations can be expected. The minimum applicable load is 10 mA (100 mA for H3CR-A8E) at 5 VDC (failure level: P).

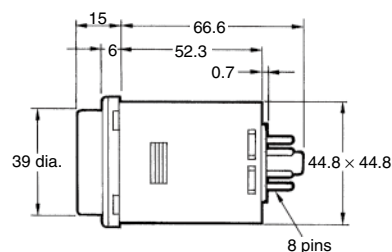
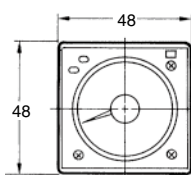
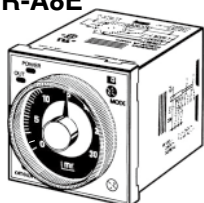
## Dimensions

Note: All units are in millimeters unless otherwise indicated.

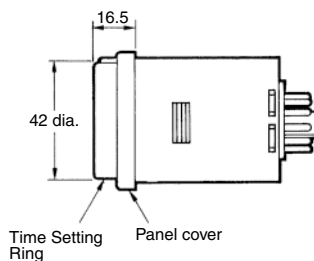
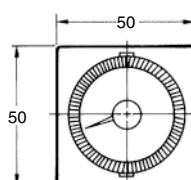
### H3CR-A H3CR-AP H3CR-AS



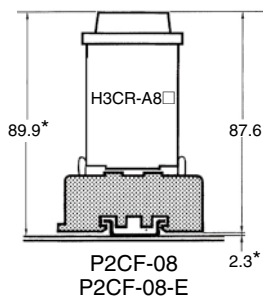
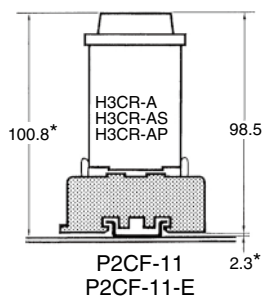
### H3CR-A8 H3CR-A8S H3CR-A8E



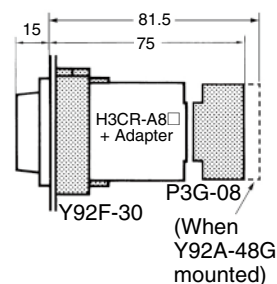
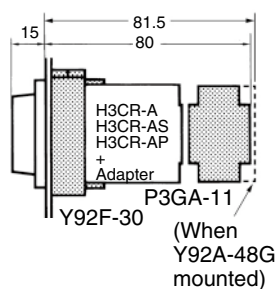
### Dimensions with Set Ring



### 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).