

# Specifications

## ■ General

Item	H3CR-A/-AS/-A-301	H3CR-AP	H3CR-A8/-A8S/-A8-301	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 J: One-shot		A: ON-delay (power supply start) B: Flicker OFF start (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/-A-301/-A8-301: 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, CCC 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.  
For details, refer to your OMRON website.

## ■ 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.  
For details, refer to your OMRON website.

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

Time unit		s (sec)	×10 s (10 sec)	min (min)	×10 min (10 min)	h (hrs)	×10 h (10 hrs)
Full scale 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

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

Time unit		s (sec)	×10 s (10 sec)	min (min)	×10 min (10 min)	h (hrs)	×10 h (10 hrs)
Full scale setting	2.4	0.1 to 2.4	2.4 to 24	0.24 to 2.4	2.4 to 24	0.24 to 2.4	2.4 to 24
	6	0.6 to 6	6 to 60	0.6 to 6	6 to 60	0.6 to 6	6 to 60
	24	2.4 to 24	24 to 240	2.4 to 24	24 to 240	2.4 to 24	24 to 240
	60	6 to 60	60 to 600	6 to 60	60 to 600	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/-A8E-301) (See note 3.)
<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 (See note 6.)</b>	<p><b>No-voltage Input</b>  ON impedance: 1 k<math>\Omega</math> max.  ON residual voltage: 1 V max.  OFF impedance: 100 k<math>\Omega</math> 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).  • 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  • 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</p>
<b>Power consumption</b>	<p><b>H3CR-A/-A8</b>  • 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)  • 24 to 48 VAC/12 to 48 VDC  (When at 24 VDC)  Relay ON: approx. 0.8 W                                      Relay OFF: approx. 0.2 W</p> <p><b>H3CR-AP (See note 3)</b>  • 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.)  • 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.)</p> <p><b>H3CR-A8E</b>  • 100 to 240 VAC/100 to 125 VDC  (When at 240 VAC, 60 Hz)  Relay ON/OFF: approx. 2 VA (0.9 W)  • 24 to 48 VAC/VDC  (When at 24 VDC)  Relay ON/OFF: approx. 0.9 W</p> <p><b>H3CR-AS/-A8S</b>  • 24 to 48 VAC/12 to 48 VDC  (When at 24 VDC)  Output ON: 0.3 W Output OFF: 0.2 W</p>
<b>Control outputs</b>	Time limit contacts: 5 A at 250 VAC/30 VDC, 0.15 A at 125 VDC, resistive load ( $\cos\phi = 1$ ) Transistor output: Open collector (NPN/PNP), 100 mA max. at 30 VDC max., residual voltage: 2 V max. Instantaneous contact: 5 A at 250 VAC/30 VDC, 0.15 A at 125 VDC, resistive load ( $\cos\phi = 1$ )

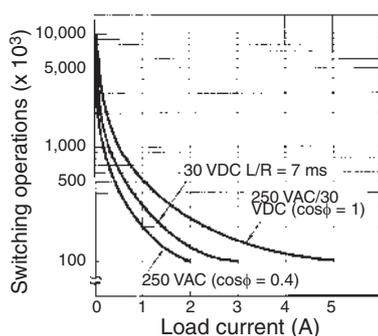
- Note:**
- DC ripple rate: 20% max. (A single-phase, full-wave-rectification power supply can be used).
  - Do not use an inverter output as the power supply. Refer to your OMRON website for details.
  - Models with 24-to-48-VAC or 12-to-48-VDC power supply have inrush current. Caution is thus required 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).) For details, consult your OMRON sales representative.
  - 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 your OMRON website when using the Timer together with a 2-wire AC proximity sensor.
  - For details, see *Input Connections: No-voltage Input Signal Levels* on page 11, and *Input Connections: Voltage Input Signal Levels* on page 12.

## ■ Characteristics

<b>Accuracy of operating time</b>	±0.2% FS max. (±0.2%±10 ms max. in a range of 1.2 s or 3 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 or 3 s)
<b>Influence of temperature</b>	±1% FS max. (±1%±10 ms max. in a range of 1.2 s or 3 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 8 kV air discharge Immunity RF-interference from AM Radio Waves: IEC61000-4-3: 10 V/m (80 MHz to 1 GHz AM modulation) 3 V/m (1.4 to 2 GHz AM modulation) 1 V/m (2 to 2.7 GHz AM modulation) Immunity RF-interference from Pulse-modulated Radio Waves: IEC61000-4-3: 10 V/m (900±5 MHz) Immunity Conducted Disturbance: IEC61000-4-6: 10 V (0.15 to 80 MHz) Immunity Burst: IEC61000-4-4: 2 kV power-line 2 kV I/O signal-line Immunity Surge: IEC61000-4-5: 1 kV line to line 2 kV line to ground Voltage dips: IEC61000-4-11: 0%, 1 cycle 70%, 25/30 cycles Voltage interruptions: IEC61000-4-11: 0%, 250/300 cycles
<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 (Reference)*.
  3. Contact output only.

## ■ Life-test Curve (Reference)



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