

Solid-state Multi-functional Timers

H3CR-A8 AC100-240/DC100-125

100 to 240 VAC 50/60 Hz, 100 to 125 VDC, Output Time-limit: DPDT, ON delay/Flicker OFF start/Flicker ON start/Interval/One shot output, Time range: 0.05 to 1.2 s (18 range), 8-pin



Image

Rated power supply voltage	100 to 240 VAC 50/60 Hz 100 to 125 VDC Ripple 20% max. (If power supply incorporates a single-phase full-wave rectifier)
Control output (Type)	Time-limit: DPDT
Operating resetting	Time-limit operation/Self-reset
Connecting method	8-pin round socket

Ratings/Specifications

As of July 16, 2020

Rated power supply voltage	100 to 240 VAC 50/60 Hz 100 to 125 VDC Ripple 20% max. (If power supply incorporates a single-phase full-wave rectifier)
Allowable voltage variable range	85% to 110% of rated voltage
Power consumption	Relay ON: Approx. 2 VA (at 240 VAC 60 Hz)/Relay OFF: Approx. 1.3 VA (at 240 VAC 60 Hz) Relay ON: Approx. 1.6 W (at 240 VAC 60 Hz)/Relay OFF: Approx. 1.1 W (at 240 VAC 60 Hz)
Reset voltage	10% max. of rated supply voltage
Number of time ranges	18
Operation mode	ON delay, Flicker OFF start, Flicker ON start, Interval, One shot output
Control output (Type)	Time-limit: DPDT
Control output (Contact output)	Resistive load: 250 VAC 5 A ($\cos\phi=1$)/5 A at 30 VDC/ Inductive load (Reference value): 2 A at 250 VAC ($\cos\phi=0.4$)/3 A at 30 VDC (L/R=7 ms) Minimum applicable load: 10 mA at 5 VDC (failure level: P Reference value)
Operating resetting	Time-limit operation/Self-reset
Ambient temperature range	Operating: -10 to 55 °C (with no icing) Storage: -25 to 65 °C (with no icing)
Ambient humidity range	Operating: 35 to 85%
Accuracy of operating time	$\pm 0.2\%$ FS max. $\pm 0.2\% \pm 10$ ms in a range of 1.2 s and 3 s
Setting error	$\pm 5\%$ FS ± 50 ms max.
Reset time	0.1 s max.
Influence of voltage	$\pm 0.2\%$ FS max.

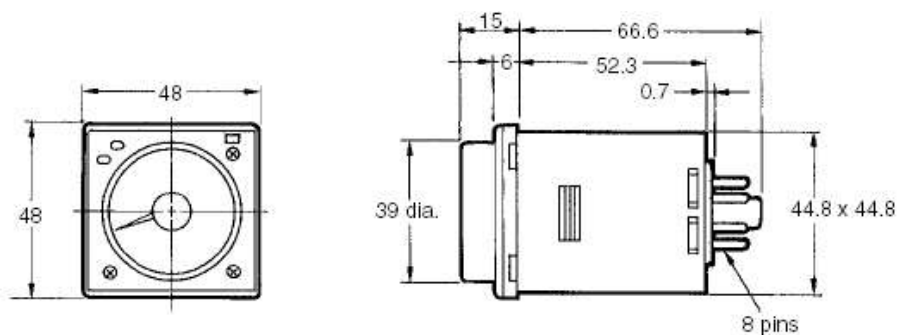
	±0.2% ±10 ms in a range of 1.2 s and 3 s
Influence of temperature	±1% FS max. (±1% ±10 ms in a range of 1.2 s and 3 s)
Insulation resistance	100 MΩ min. (at 500 VDC)
Dielectric strength	Between current carrying metal parts and non-current carrying metal parts: 2,000 VAC 50/60 Hz 1 min Between control output terminals and operating circuit: 2,000 VAC 50/60 Hz 1 min Between contacts of different polarity: 2,000 VAC 50/60 Hz 1 min Between non-continuous contacts: 1,000 VAC 50/60 Hz 1 min
Impulse withstand voltage	Between power terminals: 5 kV Between current carrying terminals and exposed non-current carrying metal parts: 5 kV
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	Multifunction: 8 kV, Destruction: 15 kV
Vibration resistance	Destruction: 10 to 55 Hz, 0.75 mm single amplitude each in 3 directions for 2 h Malfunction: 10 to 55 Hz, 0.5 mm single amplitude each in 3 directions for 10 min
Shock resistance	Destruction: 1,000 m/s ² , 3 times each in 6 directions Malfunction: 100 m/s ² , 3 times each in 6 directions
Life expectancy (relay output)	Electrical: 100,000 operations min. (5 A at 250 VAC, resistive load at 1800 operations/h) Mechanical: 20 million operations min. (under no load at 1,800 operations/h)
Degree of protection	Panel surface: IP40 Terminals: IP00
Connecting method	8-pin round socket
Case color	Munsell 5Y7/1
Accessories	Instruction manual, Compliance information sheet
Weight	Approx. 90 g

As of July 16, 2020

Dimensions

As of July 16, 2020

Outline drawing

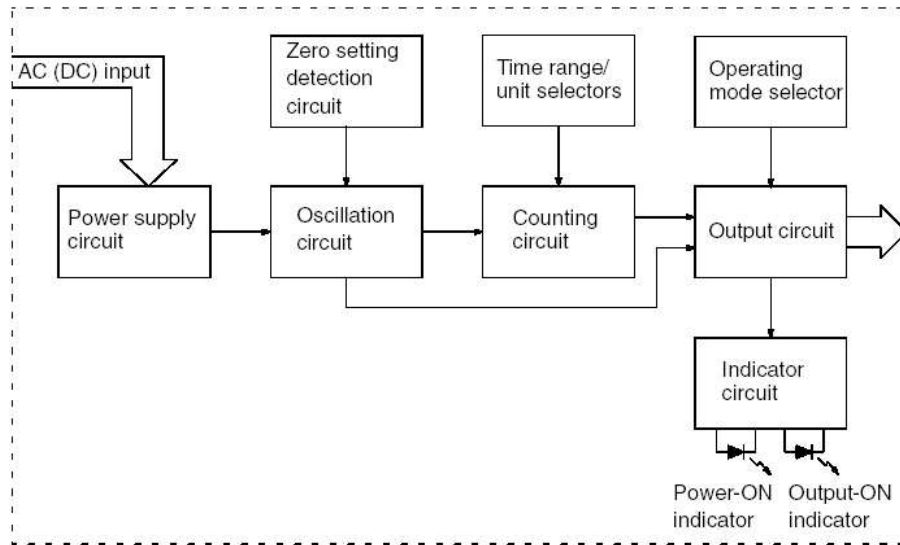


As of July 16, 2020

Internal connection

As of July 16, 2020

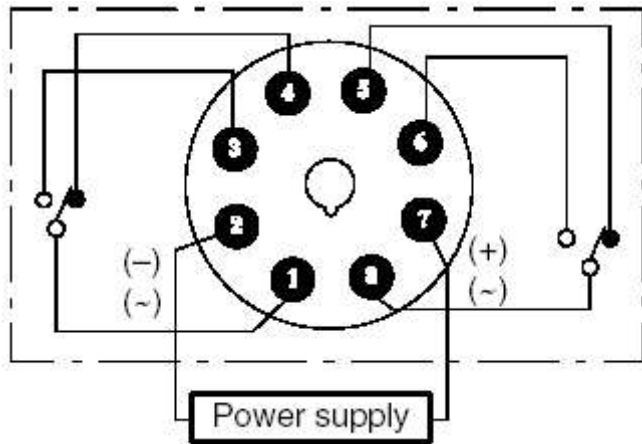
Internal connection



As of July 16, 2020

Terminal arrangement

Terminal arrangement



As of July 16, 2020

As of July 16, 2020

Time ranges

Time ranges

As of July 16, 2020

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
	3	0.3 to 3	3 to 30	0.3 to 3	3 to 30	0.3 to 3
	12	1.2 to 12	12 to 120	1.2 to 12	12 to 120	1.2 to 12
	30	3 to 30	30 to 300	3 to 30	30 to 300	3 to 30

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.

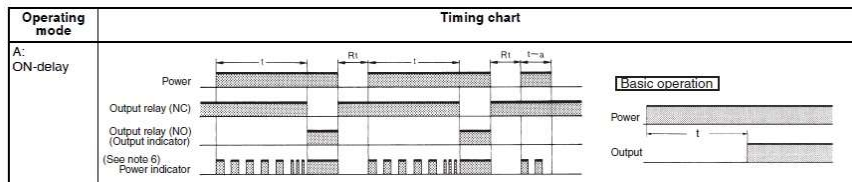
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Operating chart

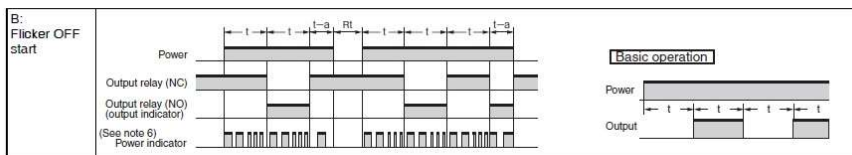
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Operating chart

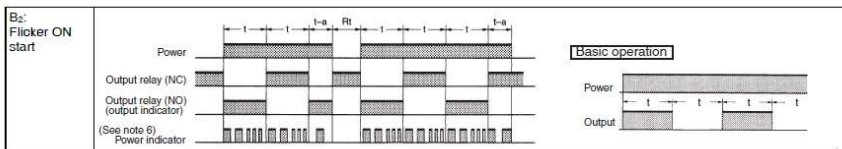
ON delay



Flicker OFF start

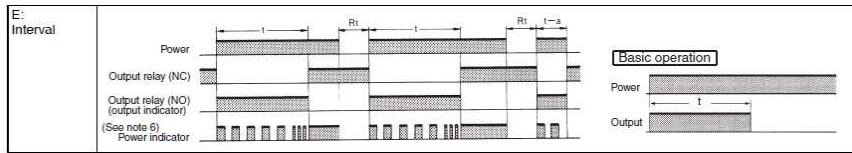


Flicker ON start

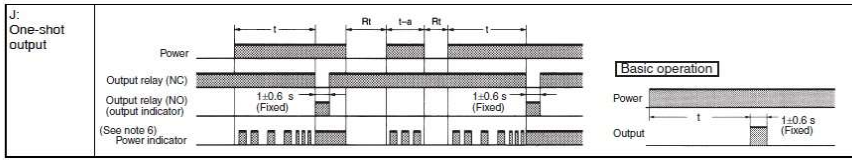


- Note:**
1. Allow at least 0.1 s for the Timer reset time if the power supply is reset due to an interruption in the power supply.
 2. The minimum input pulse width (for start, reset) is 0.05 s.
 3. The letter "t" in the timing charts indicates the set time, and "t-a" means that the period is less than the set time. (t - a < 1)
 4. H3CR-AP model incorporates start input only. As such, the power supply is reset.
 5. Model H3CR-AS only has operation equivalent to time-limit contact: NO.
 6. When the setting dial is turned all the way past 0 for instantaneous output, "t" (set time) in the above time chart is 0-sec operation.
 7. During timer operation, the flash frequency changes when 90% of the set time has been reached.

Interval



One shot output

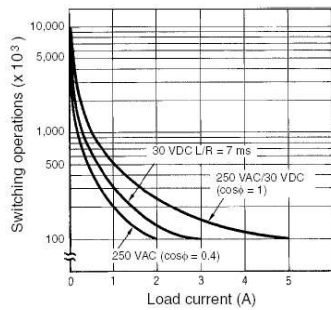


- Note:**
1. Allow a timer reset time (Rt) of 0.1 s or longer.
 2. The letter "t" in the timing charts indicates the set time, and "t-a" means that the period is less than the set time. ($t - a < t$)
 3. Model H3CR-A8S only has operation equivalent to time-limit contact: NO.
 4. When the setting dial is turned all the way past 0 for instantaneous output, "t" (set time) in the above time chart is 0-sec operation.
 5. You can use J Mode to use the power supply as the start input.
 6. During timer operation, the flash frequency changes when 90% of the set time has been reached.

As of July 16, 2020

Electrical life curve

Electrical life 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).

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