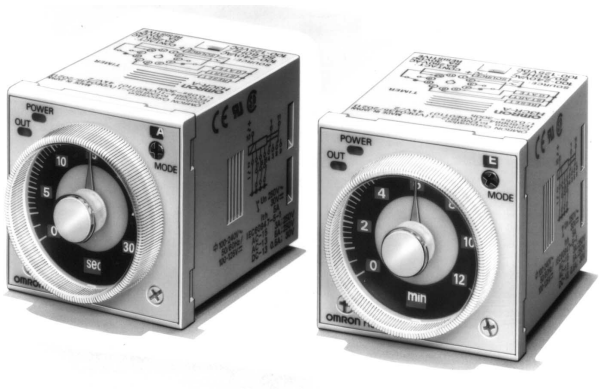
Solid-state Timer

H3CR-A

DIN 48 x 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)



Ordering Information

11-pin Models

Output	Supply voltage	Input type	Time range	Operating mode (see note 2)	Model
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
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				
	100 to 240 VAC (50/60 Hz)/ 100 to 125 VDC		0.1 s to 600 h		H3CR-A8-301
	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-A8S
Time-limit contact and instantaneous contact	100 to 240 VAC (50/60 Hz)/ 100 to 125 VDC				H3CR-A8E
	24 to 48 VDC/VAC (50/60 Hz)				

■ Accessories (Order Separately)

Name/specifications		Models
Flush Mounting Adapter		Y92F-30
		Y92F-70
		Y92F-71
Mounting Track	**50 cm (ℓ) x 7.3 mm (t)**	PFP-50N
	1 m (ℓ) x 7.3 mm (t)	PFP-100N
	1 m (ℓ) x 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	h (hrs)	x10 h (10 h)
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	h (hrs)	x10 h (10 h)
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

Rated supply voltage (see note 1)	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 note 2)
Operating voltage range	85% to 110% of rated supply voltage (90% to 110% at 12 VDC)
Power reset	Minimum power-opening time: 0.1 s
Input	No-voltage Input ON impedance: 1 kΩ max. ON residual voltage: 1 V max. OFF impedance: 100 kΩ min. Voltage Input 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
Power consumption	H3CR-A/-A8 • 100 to 240 VAC/100 to 125 VDC (When at 240 VAC, 60 Hz) Relay ON: approx. 2.1 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 H3CR-AP (see note 3) • 100 to 240 VAC/100 to 125 VDC (When at 240 VAC, 60 Hz) Relay ON: approx. 2.5 VA (2.2 W) Relay OFF: approx. 1.8 VA (1.7 W) • 24 to 48 VAC/12 to 48 VDC (When at 24 VDC) Relay ON: approx. 0.9 W Relay OFF: approx. 0.3 W H3CR-A8E • 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 H3CR-AS/-A8S • 24 to 48 VAC/12 to 48 VDC (When at 24 VDC) Output ON: 0.3 W Output OFF: 0.2 W
Control outputs	Time limit contacts: 5 A at 250 VAC/30 VDC, resistive load (cosϕ = 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, resistive load (cosϕ = 1)

Note:
1. DC ripple rate: 20% max. if the power supply incorporates a single-phase, full-wave rectifier.
2. Each 24-to-48-VAC/12-to-48-VDC model causes an inrush current of approximately 0.85 A. Pay careful attention when attempting to turn ON power to such a model with non-contact output from a device such as a sensor.
3. 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.

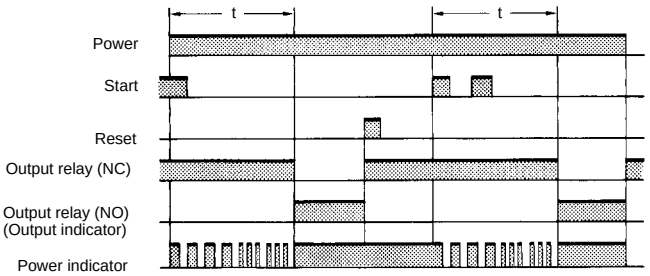
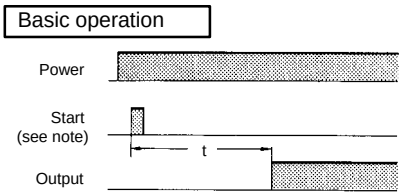
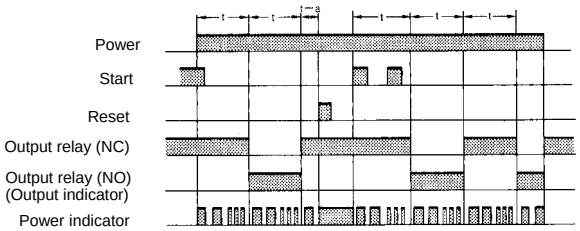
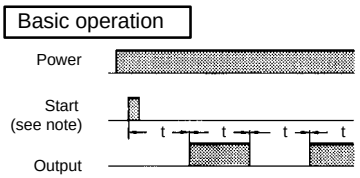
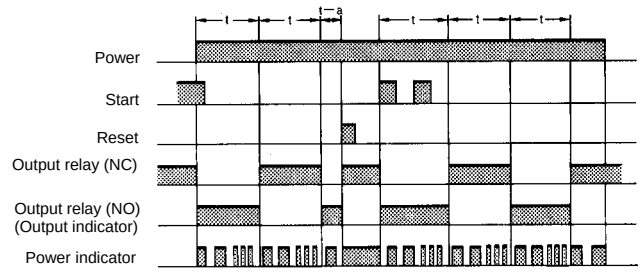
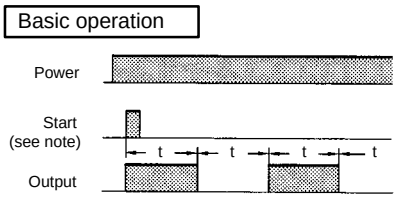
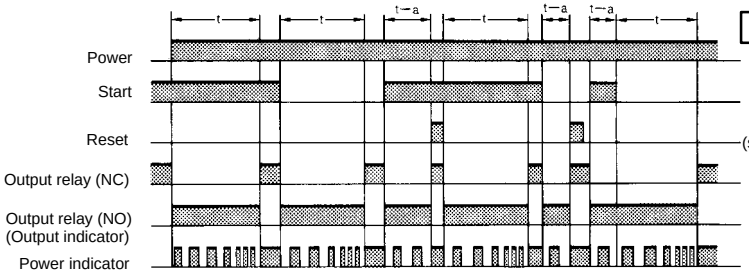
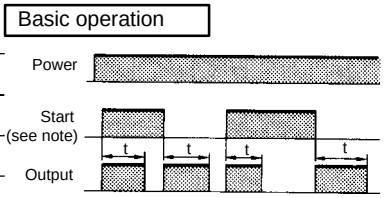
■ Timing Chart

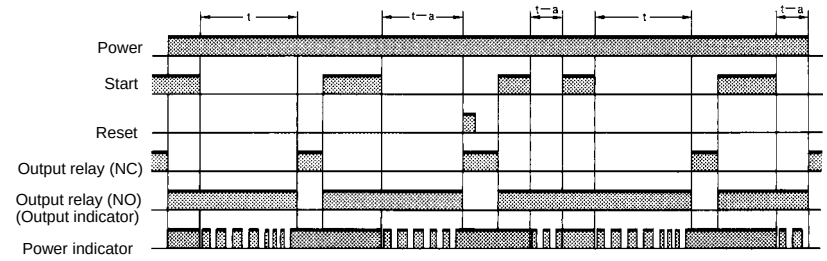
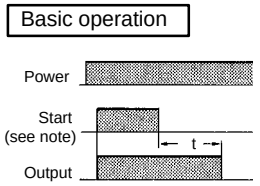
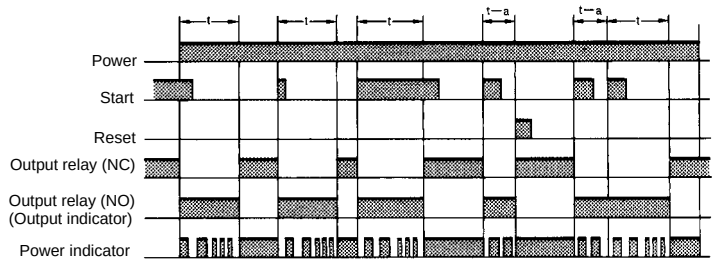
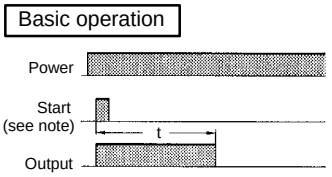
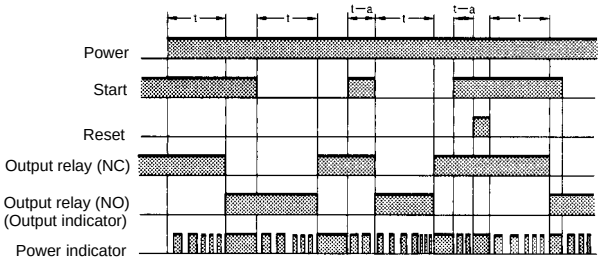
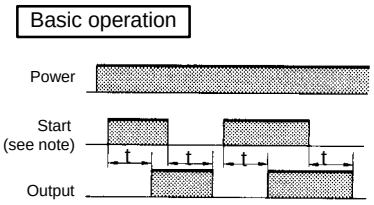
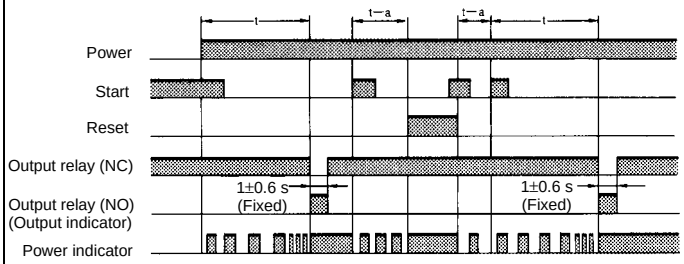
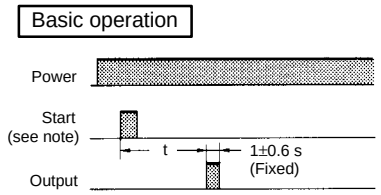
Note: 1. The minimum power-opening time (“Rt”) is 0.1 s and the minimum pulse width is 0.05 s.

2. The letter “t” in the timing charts stands for the set time and “t–a” means that the period is less than the time set.

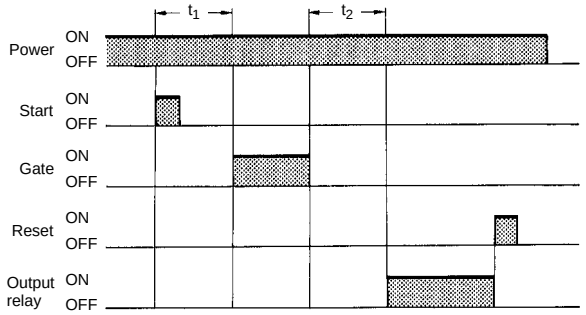
H3CR-A/-AS/-AP*

*H3CR-AP model incorporates start input only.

Operating mode	Timing chart
A: ON-delay	  **Note:** Start input is invalid while the Timer is in operation.
B: Flicker OFF start	  **Note:** Start input is invalid while the Timer is in operation.
B2: Flicker ON start	  **Note:** Start input is invalid while the Timer is in operation.
C: Signal ON/OFF-delay	  **Note:** Start input is valid and retriggerable while the Timer is in operation.

Operating mode	Timing chart
D: Signal OFF-delay	  **Note:** Start input is valid and re-triggerable while the Timer is in operation.
E: Interval	  **Note:** Start input is valid and re-triggerable while the Timer is in operation.
G: Signal ON/OFF-delay	  **Note:** Start input is valid and re-triggerable while the Timer is in operation.
J: One-shot output	  **Note:** Start input is valid and re-triggerable while the Timer is in operation.

Gate Signal Input

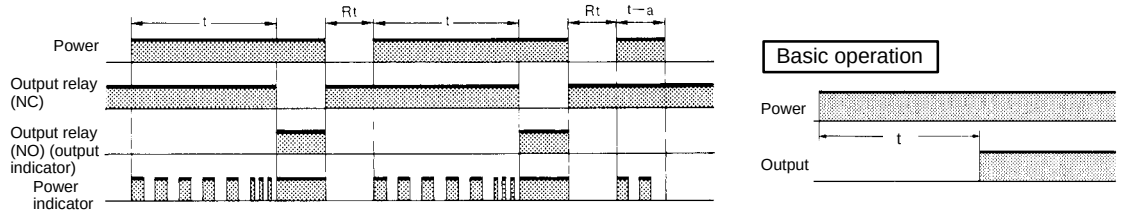
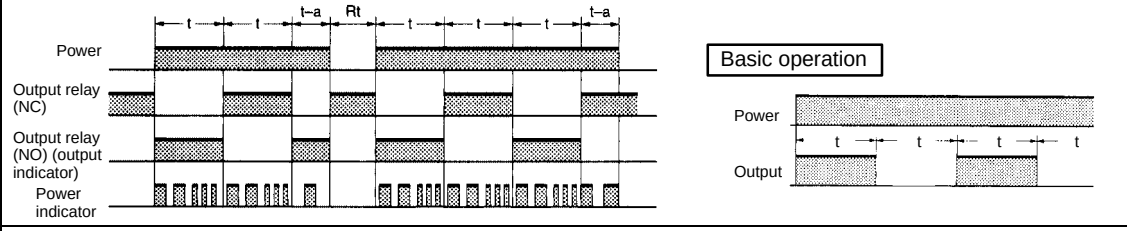
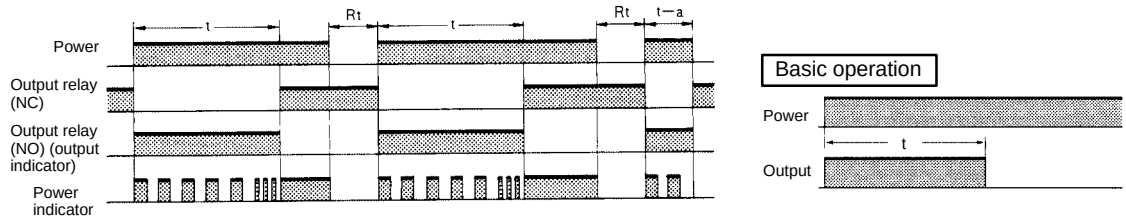
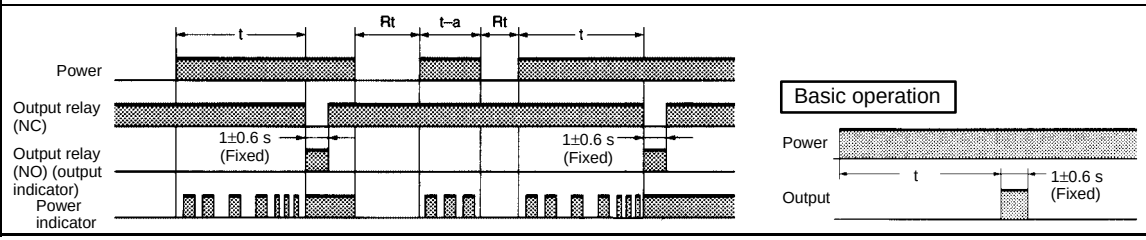


Note: 1. This timing chart indicates the gate input in operating mode A (ON-delay operation).

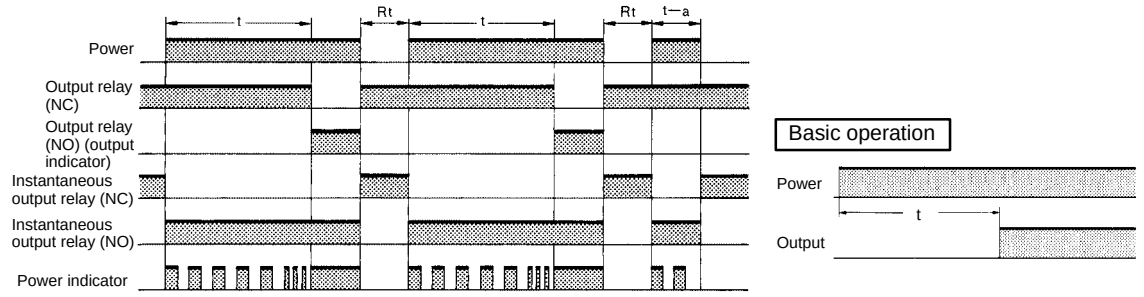
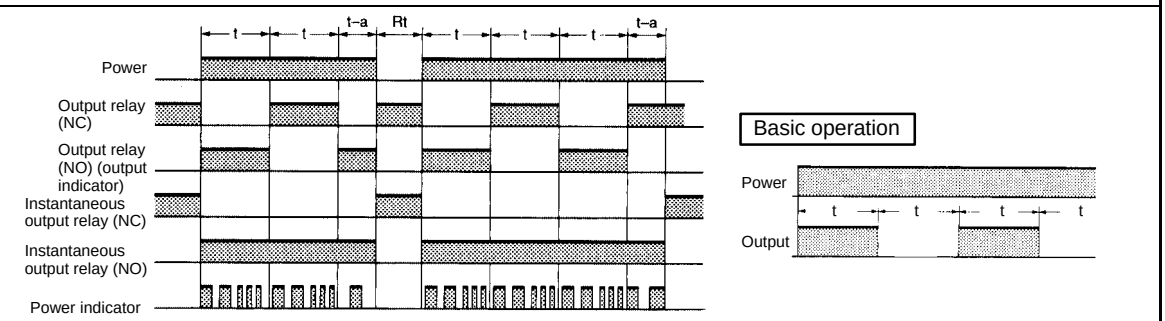
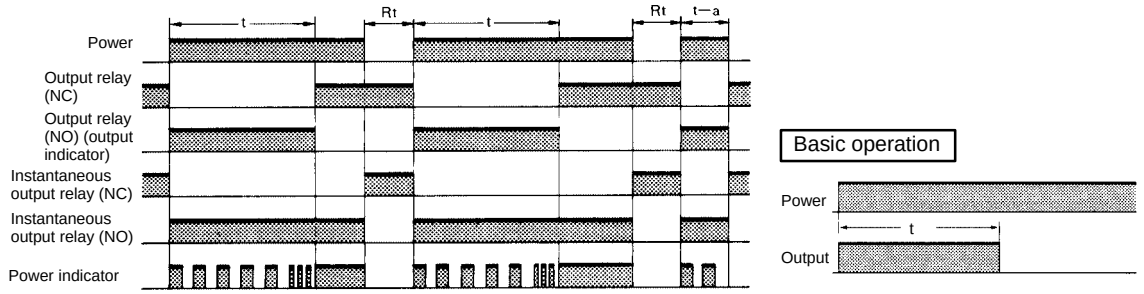
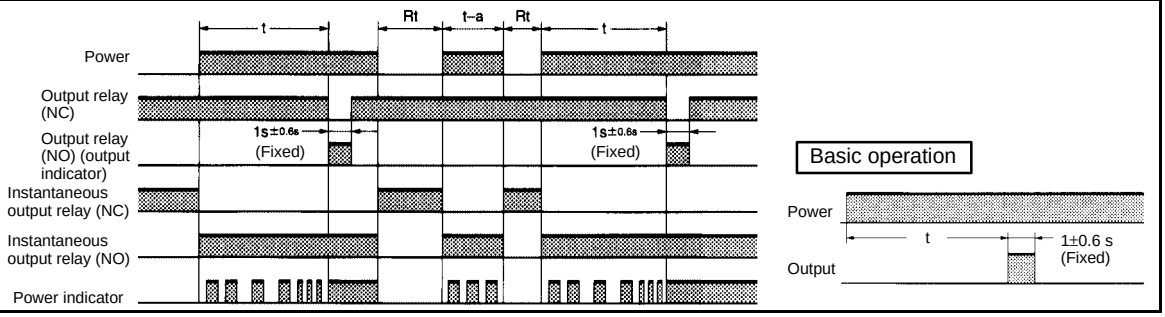
2. The set time is the sum of t_1 and t_2.

3. H3CR-AP model incorporates start input only.

H3CR-A8/-A8S

Operating mode	Timing chart
A: ON-delay	
B_2: Flicker ON start	
E: Interval	
J: One-shot output	

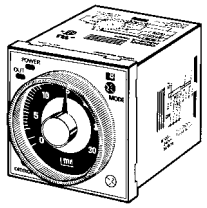
H3CR-A8E

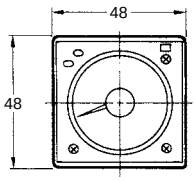
Operating mode	Timing chart
A: ON-delay	
B_2: Flicker ON start	
E: Interval	
J: One-shot output	

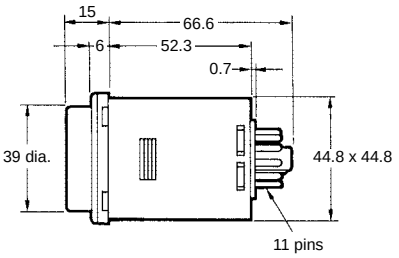
Dimensions

Note: All units are in millimeters unless otherwise indicated.

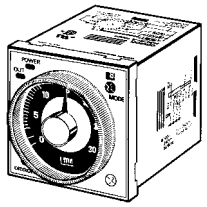
H3CR-A
H3CR-AP
H3CR-AS

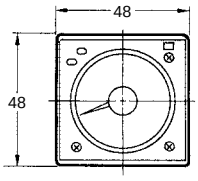


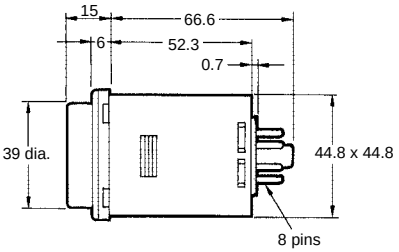




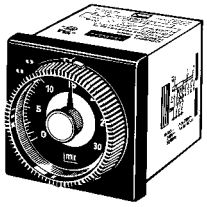
H3CR-A8
H3CR-A8S
H3CR-A8E

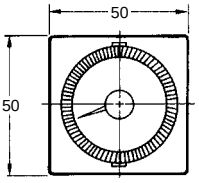


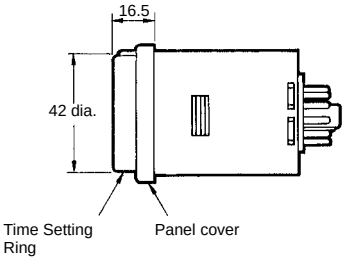




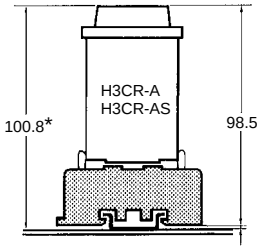
Dimensions with Set Ring

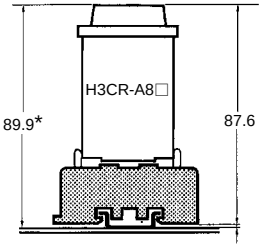




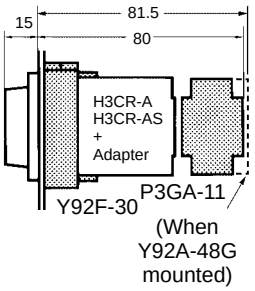


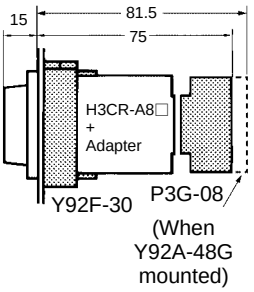
Dimensions with Front Connecting Socket
P2CF-08-□/P2CF-11-□





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





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

Installation

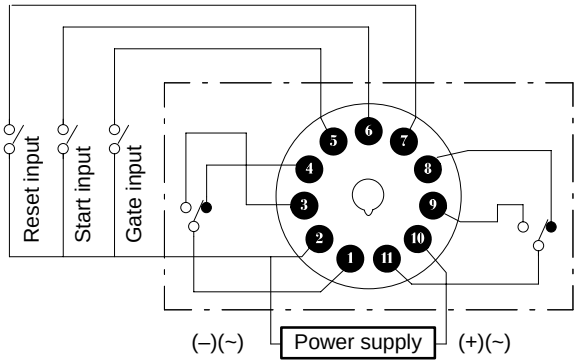
■ Terminal Arrangement

Note: The delayed contact of conventional Timers was indicated as 

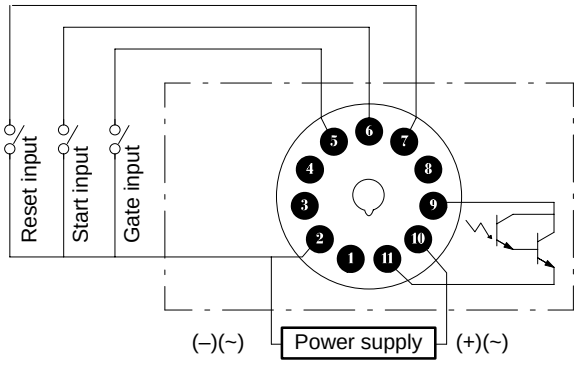
The contact symbol of the H3CR-A is indicated as  because its operating mode is six multi-modes (four multi-modes for the H3CR-A8).

11-pin Models

H3CR-A (Contact Output)

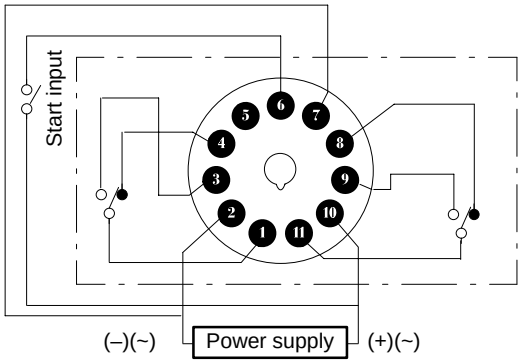


H3CR-AS (Transistor Output)



Note: Terminals 1, 3, 4, and 8 are empty. Terminals 2, 5, 6, 7, and 10 are the same as for the H3CR-A.

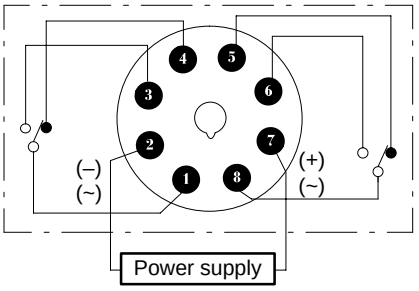
H3CR-AP (Contact Output)



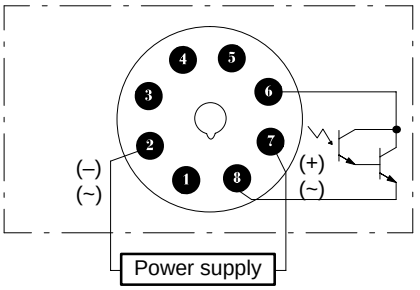
Note: Terminal 5 is empty.

8-pin Models

H3CR-A8 (Contact Output)



H3CR-A8S (Transistor Output)



Note: Terminals 1, 3, 4, and 5 are empty. Terminals 2 and 7 are the same as for the H3CR-A8.

H3CR-A8E (Contact Output)