

Solid-state Power OFF-delay Timer

H3DE-H

- Two delay-time models available.
0.1 to 12 seconds (S Series)
1 to 120 seconds (L Series)
- Covers wide range of supply voltage.
- Conforms to EMC Standard (EN50081-2 and EN50082-2).

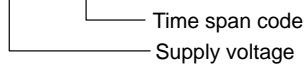


Ordering Information

Supply voltage	Model	
	S Series (time range: 0.1 to 12 s)	L Series (time range: 1 to 120 s)
100 to 120 VAC	H3DE-H	H3DE-H
200 to 230 VAC		
24 VAC/VDC		
48 VAC/VDC		

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

Example: H3DE-H 24 VAC/DC S



Model Number Legend

H3DE -
1

1. H: Power OFF-delay timer

Accessories (Order Separately)

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	

Specifications

■ General

Item	H3DE-H
Operating mode	Power OFF-delay
Operating/Reset method	Instantaneous operation/Time-limit reset
Terminal block	Clamps Two 2.5 mm ² max. bar terminals without sleeves
Terminal screw tightening torque	0.98 N • m max. {approx. 10 kgf • cm max.}
Output type	Relay: SPDT
Mounting method	DIN track mounting
Attachment	Nameplate
Approved standards	UL508, CSA 22.2 No.14 Conforms to EN61812-1 (VDE0435/P2021), IEC60664-1 (VDE0110) 4 kV/2, VDE0106/P100 Conforms to IEC60947-5-1 (AC-13; 250 V 5A/AC-15; 250 V 3 A/DC-13; 30 V 0.1 A) Conforms to EN50081-2 and EN50082-2

■ Time Ranges

Time scale display		Time ranges	Min. power ON time
S series	x 0.1 s	0.1 to 1.2 s	0.1 s minimum
	x 1 s	1 to 12 s	
L series	x 1 s	1 to 12 s	0.3 s minimum
	x 10 s	10 to 120 s	

Note: The Timer will not operate if the specified power-on time is not kept. Be sure to supply power for at least the period specified.

■ Ratings

Rated supply voltage (see note)		100 to 120 VAC (50/60 Hz) 200 to 230 VAC (50/60 Hz) 24 VAC/VDC (50/60 Hz) 48 VAC/VDC (50/60 Hz)
Operating voltage range		85% to 110% of rated supply voltage
Power consumption	24 VAC/VDC Type	AC: Approx. 0.3 VA (0.2 W) at 24 VAC DC: Approx. 0.2 W at 24 VDC
	48 VAC/VDC Type	AC: Approx. 0.5 VA (0.5 W) at 48 VAC DC: Approx. 0.5 W at 48 VDC
	100 to 120 VAC Type	AC: Approx. 0.8 VA (0.7 W) at 120 VAC
	200 to 230 VAC Type	AC: Approx. 1.6 VA (1.0 W) at 230 VAC
Control output		Contact output: 5 A at 250 VAC with resistive load ($\cos\phi = 1$) 5 A at 30 VDC with resistive load ($\cos\phi = 1$)
Ambient temperature		Operating: -10°C to 55°C (with no icing) Storage: -25°C to 65°C (with no icing)
Ambient humidity		Operating: 35% to 85%

Note: The ripple in DC power supply must be 20% max. A single-phase, full-wave rectifying power supply can be connected if the ripple output of the power supply is a maximum of 20% of the whole output.

■ Characteristics

Accuracy of operating time	±1% max. of FS (±1% ±10 ms max. at 1.2-s range)
Setting error	±10% ± 0.05 s max. of FS
Influence of voltage	±0.5% max. of FS (±0.5% ±10 ms max. at 1.2-s range)
Influence of temperature	±2% max. of FS (±2% ± 10 ms max. at 1.2-s range)
Insulation resistance	100 MΩ min. at 500 VDC
Dielectric strength	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 not located next to each other: 1,000 VAC (50/60 Hz) for 1 min.
Impulse withstand voltage	3 kV (or 1 kV for 24/48 VAC/VDC models) (between power supply terminals) 4.5 kV (or 1.5 kV for 24/48 VAC/VDC models) (between current-carrying metal parts and exposed non-current-carrying metal parts)
Noise immunity	Square-wave noise generated by noise simulator (pulse width: 100 ns/1 μs, 1-ns rise) ±1.5 kV (between power supply terminals)
Static immunity	Malfunction: 4 kV Destruction: 8 kV
Vibration resistance	Malfunction: 0.5-mm single amplitude at 10 to 55 Hz Destruction: 0.75-mm single amplitude at 10 to 55 Hz
Shock resistance	Malfunction: 100 m/s ² (approximately 10G) Destruction: 1,000 m/s ² (approximately 100G)
Life expectancy	Mechanical: 10 million operations min. (under no load at 1,200 operations/h) Electrical: 100,000 operations min. (5 A at 250 VAC, resistive load at 1,200 operations/h)
EMC	(EMI): EN50081-2 Emission Enclosure: EN55022 class A Emission AC Mains: EN55022 class A Harmonic Current: EN61000-3-2 Voltage Fluctuation and Flickering: EN61000-3-3 (EMS): EN50082-2 Immunity ESD: EN61000-4-2: 4 kV contact discharge (level 2) 8 kV air discharge (level 3) Immunity RF-interference from AM Radio Waves: ENV50140: 10 V/m (80 MHz and 1 GHz) (level 3) Immunity RF-interference from Pulse-modulated Radio Waves: ENV50204: 10 V/m (900 ±5 MHz) (level 3) Immunity Conducted Disturbance: ENV50141: 10 V (0.15 to 80 MHz) (level 3) Immunity Burst: EN61000-4-4: 2 kV power line (level 3) 2 kV I/O signal line (level 4)
Enclosure rating	IP30 (IP20 for terminal block)
Weight	Approx. 120 g

Note: For reference:

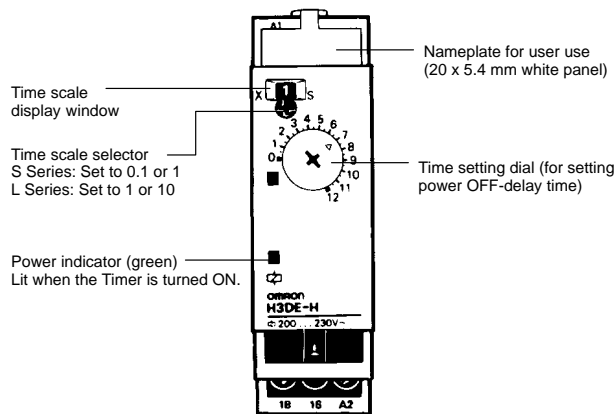
A maximum current of 0.15 A can be switched at 125 VDC (cosφ=1).

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 100 mA at 5 VDC (failure level: P).

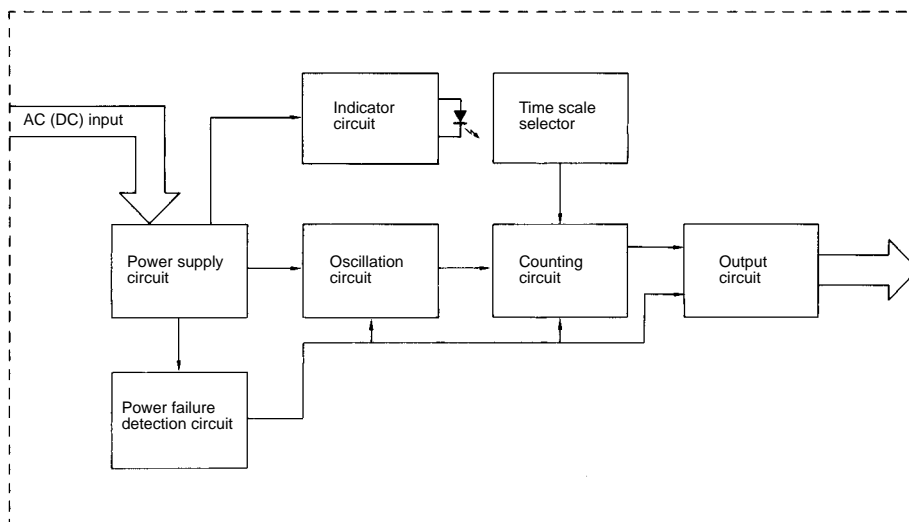
Nomenclature



(Front View)

Operation

■ Block Diagram



■ I/O Functions

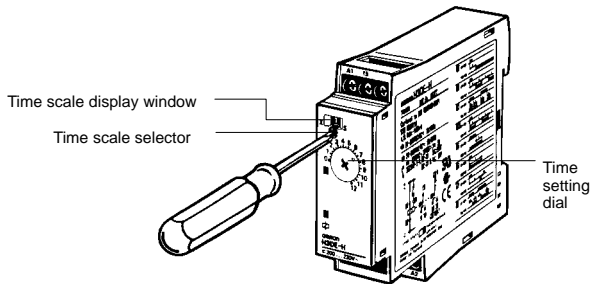
Inputs		---
Outputs	Control output	The Timer operates instantaneously when the Timer is turned ON. The Timer is in counting operation after the Timer is turned OFF and the output of the Timer is turned OFF when the preset time elapses.

■ Basic Operation
Time Scale Selection

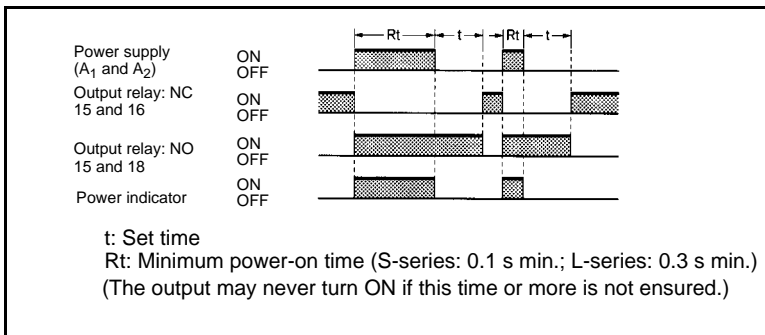
The time scale selector on the upper left-hand side of the front panel of the S Series can be set to 0.1 or 1 and that of the L Series can be set to 1 or 10 as magnification coefficients.

Time Setting

The operating time of the Timer is set with the time setting dial.

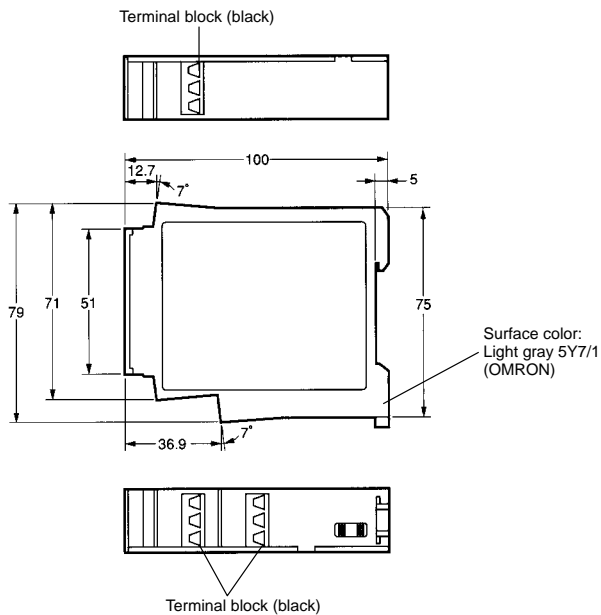
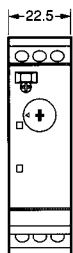
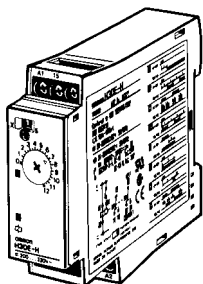


■ Timing Charts



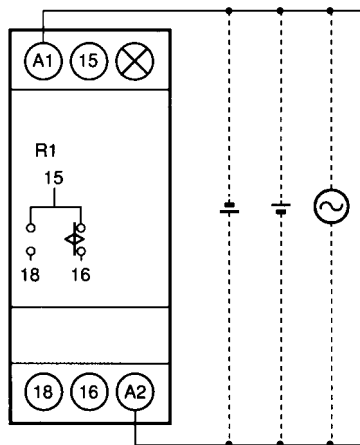
Dimensions

H3DE-H



Installation

■ Terminal Arrangement



Note: DC supply voltage does not require the designation of polarity.