

Power ON-delay Timer

H3DT-A

- Single Mode Timers with power ON delay operation.



* CSA conformance evaluation by UL.



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Ordering Information

List of Models

Supply voltage	Control output		H3DT-A
24 to 240 VAC/DC	Contact output, DPDT (time-limit DPDT)	Model	H3DT-A2
	Contact output, SPDT (time-limit SPDT)		H3DT-A1

Model Structure

Model	Operating modes	Terminal block	Output type	Mounting method	Safety standards
H3DT-A2	Power ON-delay	8 terminals	Relay, DPDT	DIN Track mounting	cULus (UL508 CSA C22.2 No.14) CCC LR EN61812-1 IEC60664-1 4 kV/2
H3DT-A1		6 terminals	Relay, SPDT		

Specifications

Time Ranges

Time range setting	0.1 s	1 s	10 s	1 min	10 min	1 h	10 h	100 h
Set time range	0.1 to 1.2 s	1 to 12 s	10 to 120 s	1 to 12 min	10 to 120 min	1 to 12 h	10 to 120 h	100 to 1,200 h
Scale numbers	12							

Ratings

Power supply voltage *1		24 to 240 VAC/DC, 50/60 Hz *2
Allowable voltage fluctuation range		85% to 110% of rated voltage
Power reset		Minimum power-OFF time: 0.1 s
Reset voltage		10% of rated voltage
*3 Power consumption	H3DT-A2	At 240 VAC: 2.2 VA max., at 240 VDC: 0.7 W max., at 24 VDC: 0.3 W max.
	H3DT-A1	At 240 VAC: 1.8 VA max., at 240 VDC: 0.6 W max., at 24 VDC: 0.3 W max.
Rated Insulation Voltage		250 VAC
Control output		Contact output: 5 A at 250 VAC with resistive load ($\cos\phi = 1$), 5 A at 30 VDC with resistive load, 0.15 A max. at 125 VDC with resistive load, 0.1 A max. at 125 VDC with L/R of 7 ms. The minimum applicable load is 10 mA at 5 VDC (P reference value). Contact materials : Ag-alloy (Recommended fuse: BLN5 (Littelfuse) or 0216005MXEP)
Ambient operating temperature		-20 to 60°C (with no icing)
Storage temperature		-40 to 70°C (with no icing)
Surrounding air operating humidity		25% to 85%

*1. When using a 24-VDC power supply voltage, there will be an inrush current of approximately 0.5 A. Allow for this inrush current when turning ON and OFF the power supply to the Timer with device with a solid-state output, such as a sensor.

*2. DC ripple: 20% max.

*3. The power consumption is the value after the Timer times out.

Characteristics

Accuracy of operating time		±1% of FS max. (±1% ±10 ms max. at 1.2-s range)
Setting error		±10% of FS ±0.05 s max.
Influence of voltage		±0.5% of FS max. (±0.5% ±10 ms max. at 1.2-s range)
Influence of temperature		±2% of FS max. (±2% ±10 ms max. at 1.2-s range)
Insulation resistance		100 MΩ min. at 500 VDC
Dielectric strength		Between charged metal part and operating section: 2,900 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 test voltage		5 kV between power terminals, 7.4 kV between conductor terminal and operating section
Noise immunity		Square-wave noise generated by noise simulator (pulse width: 100 ns/1 μs, 1-ns rise): ±1.5 kV
Static immunity		Malfunction: 4 kV, Destruction: 8 kV
Vibration resistance	Destruction	0.75-mm single amplitude at 10 to 55 Hz for 2 h each in 3 directions
	Malfunction	0.5-mm single amplitude at 10 to 55 Hz for 10 min each in 3 directions
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	Mechanical	10 million operations min. (under no load at 1,800 operations/h)
	Electrical	100,000 operations min. (5 A at 250 VAC, resistive load at 360 operations/h)
Degree of protection		IP30 (Terminal block: IP20)
Weight		Approx. 100 g

Applicable standards

Safety standards	cULus: UL 508/CSA C22.2 No. 14 EN 61812-1: Pollution degree 2, Overvoltage category III CCC: GB/T 14048.5 Pollution degree 2, Overvoltage category III * LR: Category ENV1.2	
EMC	(EMI)	EN 61812-1
	Radiated Emissions:	EN 55011 class B
	Emission AC Mains:	EN 55011 class B
	Harmonic Current:	EN 61000-3-2
	Voltage Fluctuations and Flicker:	EN 61000-3-3
	(EMS)	EN 61812-1
	Immunity ESD:	EN 61000-4-2
	Immunity RF-interference:	EN 61000-4-3
	Immunity Burst:	EN 61000-4-4
	Immunity Surge:	EN 61000-4-5
	Immunity Conducted Disturbance:	EN 61000-4-6
	Immunity Voltage Dip/Interruption:	EN 61000-4-11

* CCC certification requirements

Rated operating voltage Ue	AC-15: Ue: 250 VAC, Ie: 3 A
Rated operating current Ie	AC-13: Ue: 250 VAC, Ie: 5 A DC-13: Ue: 30 VDC, Ie: 0.1 A
Rated impulse withstand voltage (altitude: 2,000 m max.)	4 kV (at 240 VAC)
Conditional short-circuit current	1,000 A

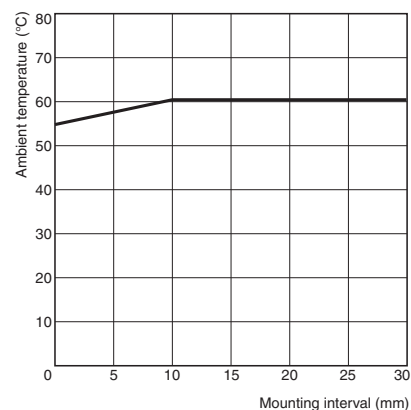
I/O

Input		None
Output	Control output	The output is turned ON/OFF according to the operating mode when the value that is set on the dial is reached.

Relation between H3DT Ambient Temperature and Mounting Interval (Reference Values)

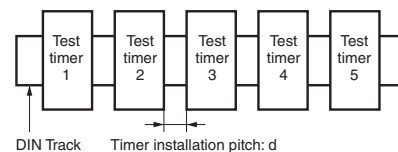
The relation between the ambient temperature and mounting interval is shown in the following graph.

If the Timer is used at 55°C or higher with a mounting interval that is smaller than that shown in the following diagram, the temperature inside the Timer will increase, reducing the life expectancy of internal parts.



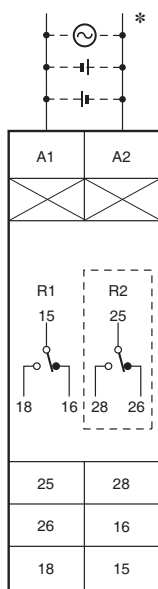
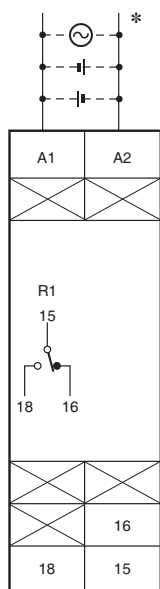
Testing Method

Tested Timer: H3DT-A
Applied voltage: 240 VAC
Installation pitch: 0 and 10 mm
Load current: 5 A



Connections

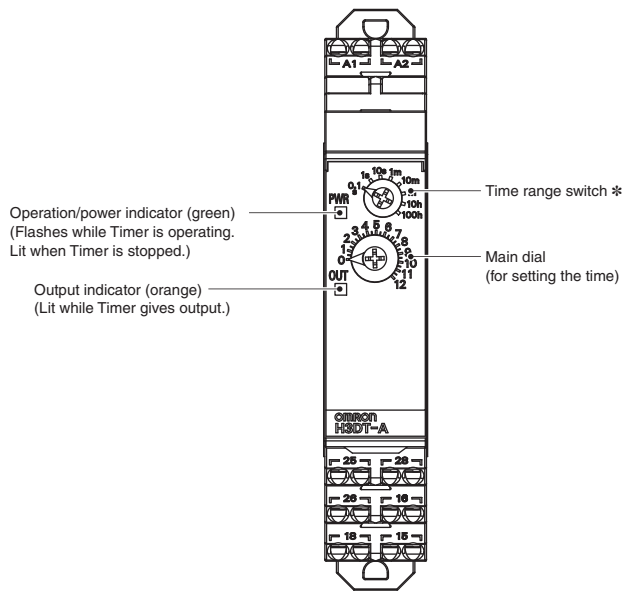
H3DT-A



Nomenclature

H3DT-A2

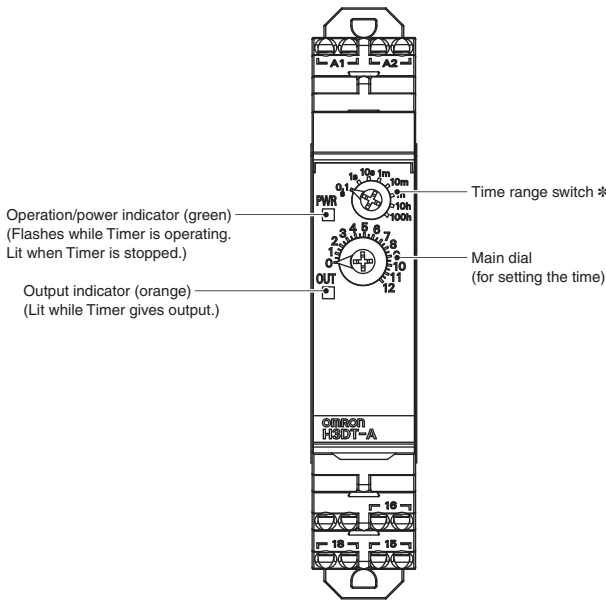
Front View



* If the switch is left between settings, proper operation may not be possible.
Make sure that the switch is set properly.
Note: The default settings are for 0.1 s.

H3DT-A1

Front View



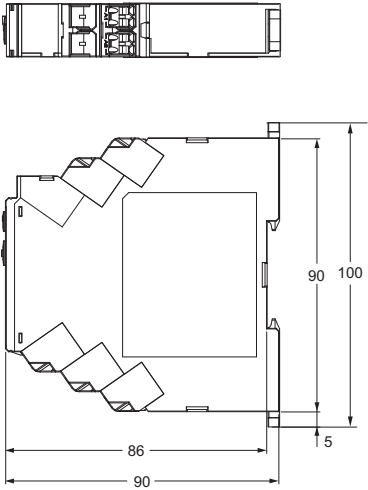
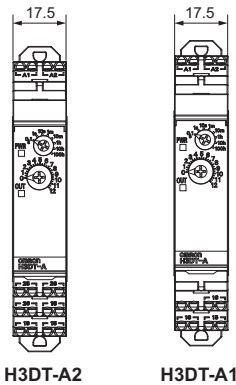
* If the switch is left between settings, proper operation may not be possible.
Make sure that the switch is set properly.
Note: The default settings are for 0.1 s.

Dimensions

(Unit: mm)

Timers

H3DT-A



Track Mounting Products (Sold Separately)

Refer to page 29 for details.

Options (Order Separately)

Front Cover

Refer to page 29 for details.

H3DT-A

Operating Procedures

Basic Operation

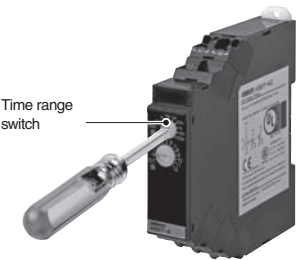
Setting Switches

- Each switch has a snap mechanism that secures the switch at given positions. Set the switch to one of these positions. Do not set it midway between two positions. Malfunction could result from an improper setting.

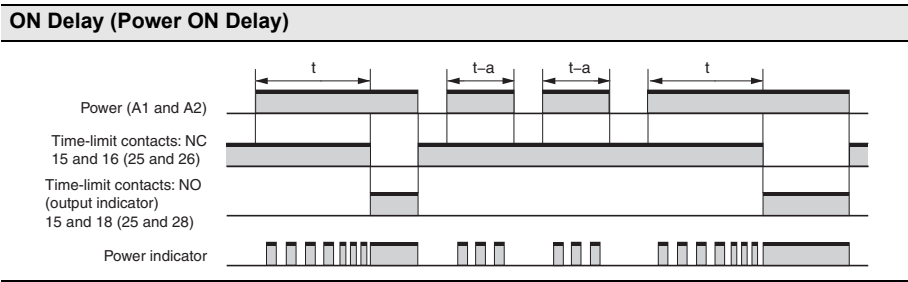
Setting the Time Range

Setting the Time Range

The time range switch can be used to set the time range. Turn the switch with a flat-blade or Phillips screwdriver.



Timing Charts



- Note:** 1. The reset time is 0.1 s min.
2. “t” is the set time. “t-a” is a time that is less that the set time.