

Star-delta Timer

H3DT-G

- Set two time ranges between 1 and 120 s with one Timer.



* 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

Operating modes	Supply voltage	Control output		H3DT-G
Star-delta Timer	24 to 240 VAC/DC	Contact outputs Delta circuit: SPDT, Star circuit: SPDT	Model	H3DT-G

Model Structure

Model	Terminal block	Operating/resetting method	Output type	Mounting method	Safety standards
H3DT-G	8 terminals	Time-limit operation/ self-resetting	Time-limit (relay) Star circuit: SPDT Delta circuit: SPDT	DIN Track mounting	cULus (UL 508 CSA C22.2 No. 14) CCC LR EN 61812-1 IEC 60664-1 4 kV/2

Specifications

Time Ranges

Time range setting	t1x1	t1x10
Star set time (t1) range	1 to 12 s	10 to 120 s
Star-Delta transfer time (t2)	Select from 0.05, 0.1, 0.25, or 0.5 s.	

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
Power consumption	H3DT-G	At 240 VAC: 1.9 VA max., at 240 VDC: 0.6 W max., at 24 VDC: 0.3 W max.
Rated Insulation Voltage		250 V
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.

Characteristics

Accuracy of operating time	±1% of FS max.	
Setting error	±10% of FS ±0.05 s max.	
Transfer time	Total error ± (25% of transfer time + 5 ms) max.	
Influence of voltage	±0.5% of FS max.	
Influence of temperature	±2% of FS max.	
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 Rated operating current Ie	AC-15: Ue: 250 VAC, Ie: 3 A 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

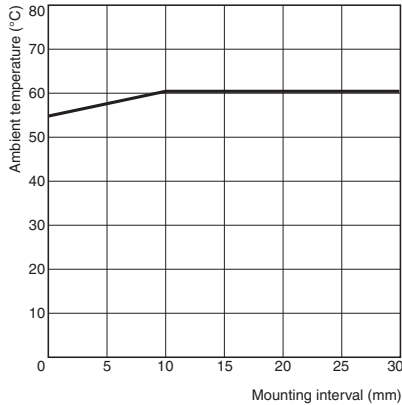
I/O

Input	None	
Output	Control output	The star output is turned OFF when the dial set value is reached and the delta output is turned ON after the preset transfer time elapses.

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

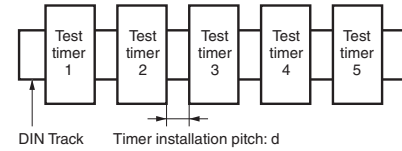
The relation between the ambient temperature and mounting interval is shown in the following graph.

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

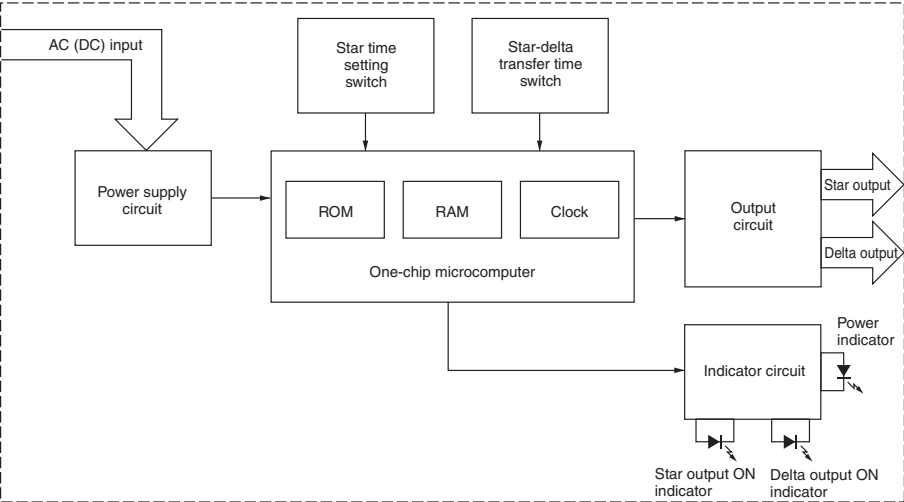
Tested Timer: H3DT-G
Applied voltage: 240 VAC
Installation pitch: 0 and 10 mm
Load current: 5 A



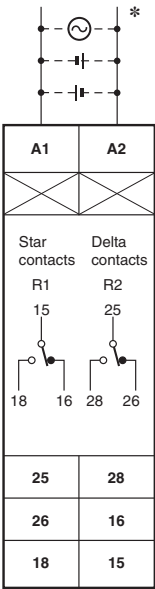
Connections

Block Diagrams

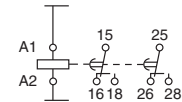
H3DT-G



Terminal Arrangement
H3DT-G



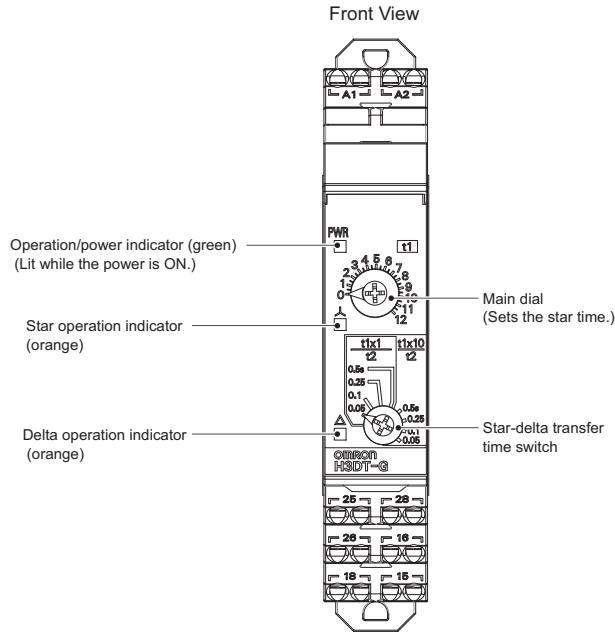
(DIN notation)



* The power supply terminals do not have polarity.

Nomenclature

H3DT-G



Note: If the switch is left between settings, proper operation may not be possible.
Make sure that the switch is set properly.

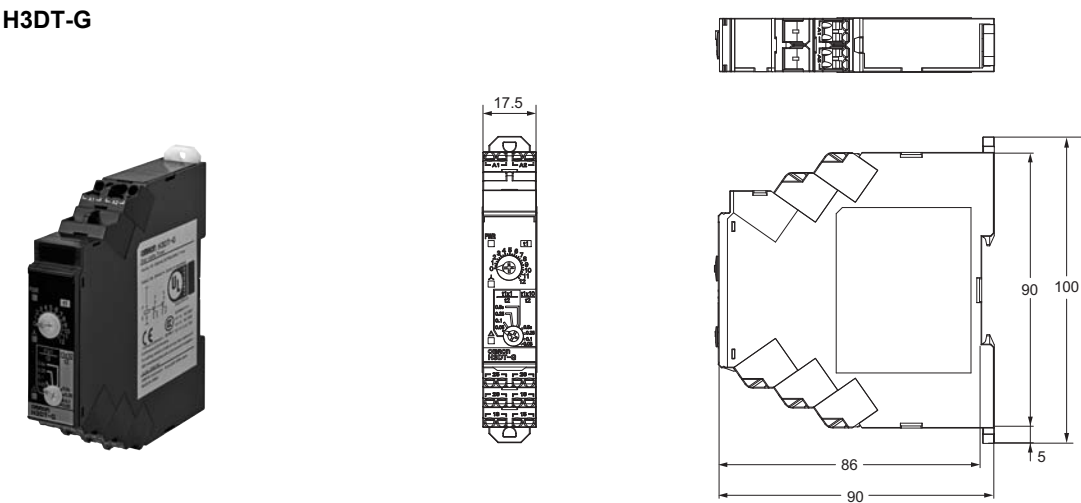
H3DT-G

Dimensions

(Unit: mm)

Timers

H3DT-G



Track Mounting Products (Sold Separately)

Refer to page 29 for details.

Options (Order Separately)

Front Cover

Refer to page 29 for details.

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.

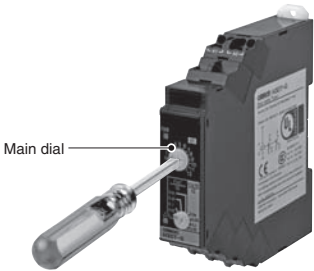
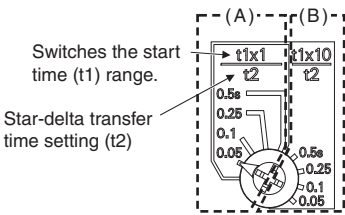


Setting the Delta Time Range (t1) and the Star-delta Transfer Time (t2)

If the Delta Time Range (t1) is set to $\times 1$ (1 to 12 s), set the Star-delta Transfer Time on side (A) (the side labeled $t1 \times 1$).
If the Delta Time Range (t1) is set to $\times 10$ (10 to 120 s), set the Star-delta Transfer Time on side (B) (the side labeled $t1 \times 10$).

Setting the Time

The start time is set with the main dial.



Timing Chart

