

# Solid-state Timers

## H3DT

### DIN 17.5-mm-wide Slim Timers with Push-in Plus Terminal for In-panel Applications

- Helps save space and reduces work in control panels.
- Slim Timers (17.5-mm width) with two sets of contacts: One of the slimmest Timers worldwide. \*1
- Reduces power consumption (active power) by up to 60% to help reduce heat generation in control panels. \*2
- Certified for maritime standards (LR).

\*1. According to OMRON investigation in October 2015.  
 \*2. Based on OMRON comparison (excluding the H3DT-H).



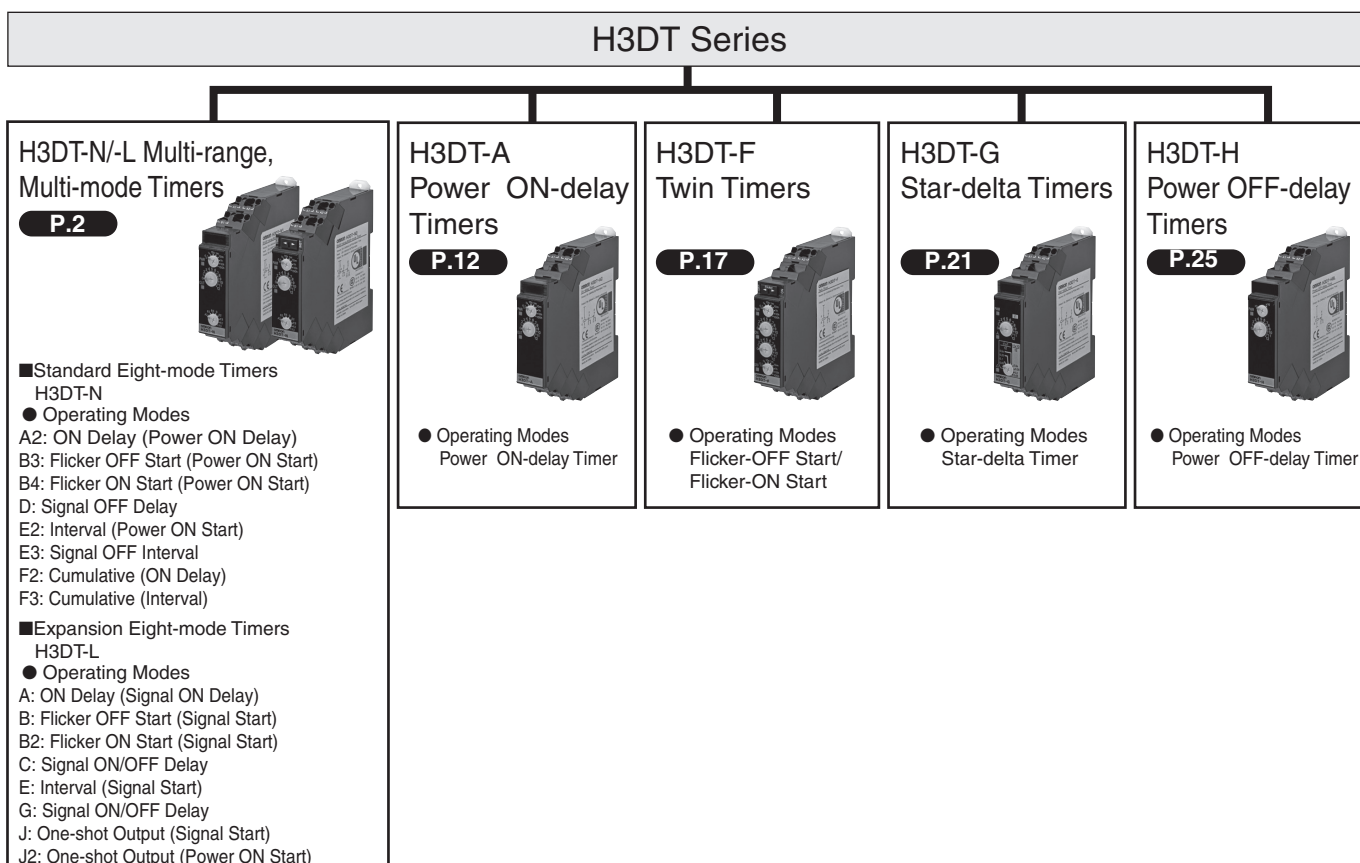
\* CSA conformance evaluation by UL.



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

## Model Number Structure

### The Entire H3DT Series



## Model Number Legend

H3DT-□□□□

1 2 3 4

### 1. Type

Symbol	Meaning
N	Standard Eight-mode Timer
L	Expansion Eight-mode Timer
A	Power ON-delay Timer
F	Twin Timer
G	Star-delta Timer
H	Power OFF-delay Timer

### 2. Control Output \*

Symbol	Meaning
1	SPDT
2	DPDT

\* N-, L- and A-type models only.

### 3. Supply Voltage

Symbol	Meaning
Blank	24 to 240 VAC/DC
B *	24 to 48 VAC/DC
C *	100 to 120 VAC
D *	200 to 240 VAC

\* H-type models only.

### 4. Time Ranges \*

Symbol	Meaning
S	0.1 to 1.2 s or 1 to 12 s
L	1 to 12 s or 10 to 120 s

\* H-type models only.

# Multi-range, Multi-mode Timer H3DT-N/H3DT-L

- Multiple time ranges and operating modes let you cover a wide range of applications.
- The time-limit DPDT output contacts can be changed to time-limit SPDT and instantaneous SPDT output contacts using a switch.
- Sequence checks are easily performed by setting an instantaneous output to 0.
- Start signal control for some operating modes.



\* 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-N/H3DT-L	
				Standard Eight-mode Timer	Expansion Eight-mode Timer
24 to 240 VAC/DC	Contact output, DPDT (time-limit DPDT, or time-limit SPDT + instantaneous SPDT) Changed using a switch.	Model	H3DT-N2	H3DT-L2	
	Contact output, SPDT (time-limit SPDT)		H3DT-N1	H3DT-L1	

### Model Structure

Model	Operating modes	Terminal block	Input type	Output type	Mounting method	Safety standards
H3DT-N2	A2: ON Delay (Power ON Delay) B3: Flicker OFF Start (Power ON Start) B4: Flicker ON Start (Power ON Start) D: Signal OFF Delay	10 terminals	Voltage input	Relay, DPDT	DIN Track mounting	cULus (UL 508 CSA C22.2 No.14) CCC LR EN 61812-1 IEC 60664-1 4 kV/2
H3DT-N1	E2: Interval (Power ON Start) E3: Signal OFF Interval F2: Cumulative (ON Delay) F3: Cumulative (Interval)	8 terminals		Relay, SPDT		
H3DT-L2	A: ON Delay (Signal ON Delay) B: Flicker OFF Start (Signal Start) B2: Flicker ON Start (Signal Start) C: Signal ON/OFF Delay	10 terminals		Relay, DPDT		
H3DT-L1	E: Interval (Signal Start) G: Signal ON/OFF Delay J: One-shot Output (Signal Start) J2: One-shot Output (Power ON Start)	8 terminals		Relay, SPDT		

## 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.
Minimum input signal width	50 ms (start input)
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	<b>Destruction</b> 0.75-mm single amplitude at 10 to 55 Hz for 2 h each in 3 directions
	<b>Malfunction</b> 0.5-mm single amplitude at 10 to 55 Hz for 10 min each in 3 directions
Shock resistance	<b>Destruction</b> 1,000 m/s <sup>2</sup> 3 times each in 6 directions
	<b>Malfunction</b> 100 m/s <sup>2</sup> 3 times each in 6 directions
Life expectancy	<b>Mechanical</b> 10 million operations min. (under no load at 1,800 operations/h)
	<b>Electrical</b> 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 U <sub>e</sub> Rated operating current I <sub>e</sub>	AC-15: U <sub>e</sub> : 250 VAC, I <sub>e</sub> : 3 A AC-13: U <sub>e</sub> : 250 VAC, I <sub>e</sub> : 5 A DC-13: U <sub>e</sub> : 30 VDC, I <sub>e</sub> : 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

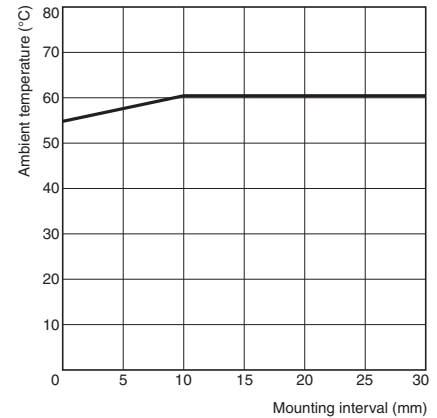
Item	Model	H3DT-N/L
Input	Start	Functions to start timing.
Output	Control output	The output is turned ON/OFF according to the operating mode when the value that is set on the dial is reached. *

\* If the INST/TIME switch on the front of the Timer is set to INST, relay R2 will operate as instantaneous contacts and will turn ON/OFF in synchronization with the power supply.

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

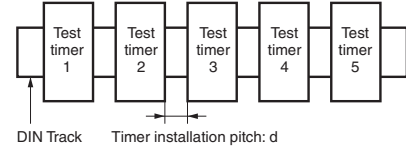
The relation between the ambient temperature and mounting interval is shown in the following graph.

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-N/L  
Applied voltage: 240 VAC  
Installation pitch: 0 and 10 mm  
Load current: 5 A



# 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	Model	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

<b>Accuracy of operating time</b>	±1% of FS max. (±1% ±10 ms max. at 1.2-s range)	
<b>Setting error</b>	±10% of FS ±0.05 s max.	
<b>Influence of voltage</b>	±0.5% of FS max. (±0.5% ±10 ms max. at 1.2-s range)	
<b>Influence of temperature</b>	±2% of FS max. (±2% ±10 ms max. at 1.2-s range)	
<b>Insulation resistance</b>	100 MΩ min. at 500 VDC	
<b>Dielectric strength</b>	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.	
<b>Impulse withstand test voltage</b>	5 kV between power terminals, 7.4 kV between conductor terminal and operating section	
<b>Noise immunity</b>	Square-wave noise generated by noise simulator (pulse width: 100 ns/1 μs, 1-ns rise): ±1.5 kV	
<b>Static immunity</b>	Malfunction: 4 kV, Destruction: 8 kV	
<b>Vibration resistance</b>	<b>Destruction</b>	0.75-mm single amplitude at 10 to 55 Hz for 2 h each in 3 directions
	<b>Malfunction</b>	0.5-mm single amplitude at 10 to 55 Hz for 10 min each in 3 directions
<b>Shock resistance</b>	<b>Destruction</b>	1,000 m/s <sup>2</sup> 3 times each in 6 directions
	<b>Malfunction</b>	100 m/s <sup>2</sup> 3 times each in 6 directions
<b>Life expectancy</b>	<b>Mechanical</b>	10 million operations min. (under no load at 1,800 operations/h)
	<b>Electrical</b>	100,000 operations min. (5 A at 250 VAC, resistive load at 360 operations/h)
<b>Degree of protection</b>	IP30 (Terminal block: IP20)	
<b>Weight</b>	Approx. 100 g	

## Applicable standards

<b>Safety standards</b>	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	
<b>EMC</b>	(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

<b>Rated operating voltage Ue</b> <b>Rated operating current Ie</b>	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
<b>Rated impulse withstand voltage</b> (altitude: 2,000 m max.)	4 kV (at 240 VAC)
<b>Conditional short-circuit current</b>	1,000 A

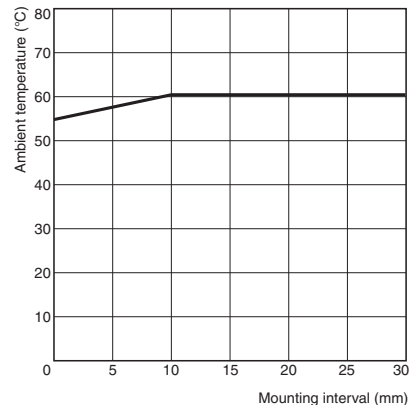
## I/O

<b>Input</b>	None
<b>Output</b>	<b>Control output</b>
	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)

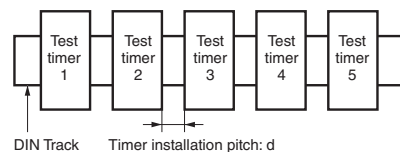
The relation between the ambient temperature and mounting interval is shown in the following graph.

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



# Twin Timer H3DT-F

- Switch between flicker-OFF or flicker-ON start mode.
- Independent ON time and OFF time settings.
- Eight time ranges from 0.1 s to 1,200 h.



\* 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-F
Flicker OFF start/flicker ON start	24 to 240 VAC/DC	Contact output: SPDT	Model	H3DK-F

### Model Structure

Model	Operating modes	Terminal block	Output type	Mounting method	Safety standards
H3DT-F	Flicker OFF start/flicker ON start	6 terminals	Relay, SPDT	DIN Track mounting	cULus (UL508 CSA C22.2 No. 14) CCC LR EN 61812-1 IEC 60664-1 4 kV/2

## 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
Power consumption	H3DT-F At 240 VAC: 1.9VA max., at 240 VDC: 0.6W max., at 24 VDC: 0.3W max.
Rated Insulation Voltage	250 VAC
Control output	Contact output: 5 A at 250 VAC with resistive load (cosφ = 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

<b>Accuracy of operating time</b>	±1% of FS max. (±1% ±10 ms max. at 1.2-s range)	
<b>Setting error</b>	±10% of FS ±0.05 s max.	
<b>Influence of voltage</b>	±0.5% of FS max. (±0.5% ±10 ms max. at 1.2-s range)	
<b>Influence of temperature</b>	±2% of FS max. (±2% ±10 ms max. at 1.2-s range)	
<b>Insulation resistance</b>	100 MΩ min. at 500 VDC	
<b>Dielectric strength</b>	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.	
<b>Impulse withstand test voltage</b>	5 kV between power terminals, 7.4 kV between conductor terminal and operating section	
<b>Noise immunity</b>	Square-wave noise generated by noise simulator (pulse width: 100 ns/1 μs, 1-ns rise): ±1.5 kV	
<b>Static immunity</b>	Malfunction: 4 kV, Destruction: 8 kV	
<b>Vibration resistance</b>	<b>Destruction</b>	0.75-mm single amplitude at 10 to 55 Hz for 2 h each in 3 directions
	<b>Malfunction</b>	0.5-mm single amplitude at 10 to 55 Hz for 10 min each in 3 directions
<b>Shock resistance</b>	<b>Destruction</b>	1,000 m/s <sup>2</sup> 3 times each in 6 directions
	<b>Malfunction</b>	100 m/s <sup>2</sup> 3 times each in 6 directions
<b>Life expectancy</b>	<b>Mechanical</b>	10 million operations min. (under no load at 1,800 operations/h)
	<b>Electrical</b>	100,000 operations min. (5 A at 250 VAC, resistive load at 360 operations/h)
<b>Degree of protection</b>	IP30 (Terminal block: IP20)	
<b>Weight</b>	Approx. 90 g	

## Applicable standards

<b>Safety standards</b>	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
<b>EMC</b>	(EMI) Radiated Emissions: EN 61812-1 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) Immunity ESD: EN 61812-1 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

<b>Rated operating voltage Ue</b> <b>Rated operating current Ie</b>	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
<b>Rated impulse withstand voltage</b> (altitude: 2,000 m max.)	4 kV (at 240 VAC)
<b>Conditional short-circuit current</b>	1,000 A

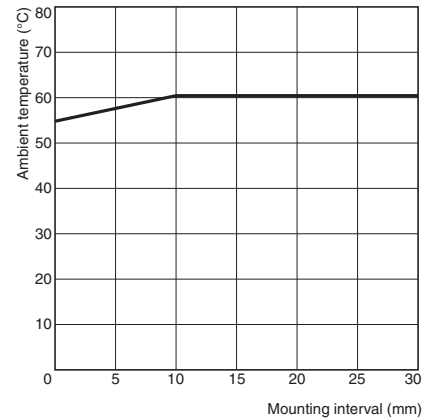
## I/O

<b>Input</b>	None
<b>Output</b>	<b>Control output</b> Output is turned ON/OFF according to the time set on the ON time setting dial and OFF time setting dial.

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

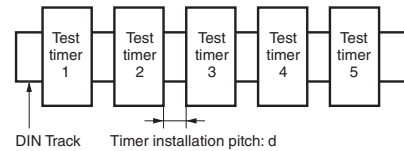
The relation between the ambient temperature and mounting interval is shown in the following graph.

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



# 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 (cosφ = 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 <sup>2</sup> 3 times each in 6 directions
	Malfunction	100 m/s <sup>2</sup> 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

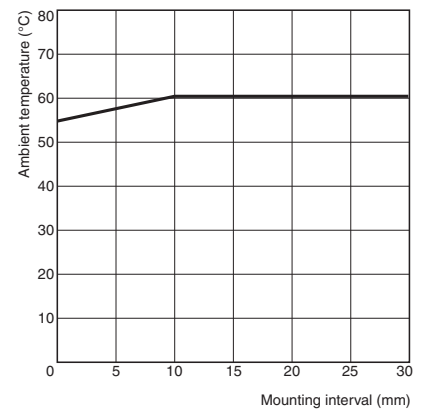
## I/O

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)

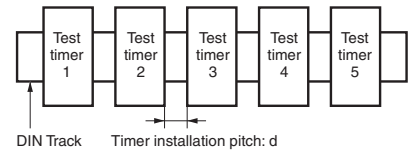
The relation between the ambient temperature and mounting interval is shown in the following graph.

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



# Power OFF-delay Timer H3DT-H

- Set two time ranges with each Timer, from 0.1 to 12 seconds for the S Series and from 1.0 to 120 seconds for the L Series.




  
 \* 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

				H3DT-H	
Operating modes		Supply voltage	Control output	S Series (time range: 0.1 to 12 s)	L Series (time range: 1.0 to 120 s)
Power OFF Delay	100 to 120 VAC	Contact output: SPDT	Model	H3DT-HCS	H3DT-HCL
	200 to 240 VAC			H3DT-HDS	H3DT-HDL
	24 to 48 VAC/DC			H3DT-HBS	H3DT-HBL

### Model Structure

Model	Terminal block	Operating/resetting method	Output type	Mounting method	Safety standards
H3DT-H	6 terminals	Instantaneous operation/ time-limit reset	Relay, 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	S Series		L Series	
	x0.1	x1	x1	x10
Set time range	0.1 to 1.2 s	1 to 12 s	1 to 12 s	10 to 120 s
Power ON time	0.1 s min.		0.3 s min.	
Scale numbers	12			

### Ratings

Supply voltage	H3DT-HCS/-HCL	100 to 120 VAC, 50/60 Hz
	H3DT-HDS/-HDL	200 to 240 VAC, 50/60 Hz
	H3DT-HBS/-HBL	24 to 48 VAC/DC, 50/60 Hz *1
Allowable voltage fluctuation range	85% to 110% of rated voltage	
Power consumption	H3DT-HCS	At 120 VAC: 8.7 VA max.
	H3DT-HCL	At 120 VAC: 8.8 VA max.
	H3DT-HDS	At 240 VAC: 21.6 VA max.
	H3DT-HDL	At 240 VAC: 21.7 VA max.
	H3DT-HBS/-HBL	At 48 VAC: 1.0 VA max., at 24 VDC: 0.4 W max.
Timer operation starting voltage	30% or less of power supply voltage	
Rated Insulation Voltage	250 VAC	
Control output	Contact output, 5 A at 250 VAC with resistive load (cosφ = 1), 5 A at 30 VDC with resistive load 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%	

\* DC ripple: 20% max.

## Characteristics

<b>Accuracy of operating time</b>	±1% of FS max. (±1% ±10 ms max. at 1.2-s range)	
<b>Setting error</b>	±10% of FS ±0.05 s max.	
<b>Influence of voltage</b>	±0.5% of FS max. (±0.5% ±10 ms max. at 1.2-s range)	
<b>Influence of temperature</b>	±2% of FS max. (±2% ±10 ms max. at 1.2-s range)	
<b>Insulation resistance</b>	100 MΩ min. at 500 VDC	
<b>Dielectric strength</b>	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.	
<b>Impulse withstand test voltage</b>	Between power supply terminals: 1 kV for 24-VAC/DC and 48-VAC/DC models, 5 kV for all other models. Between conductor terminal and operating section: 7.4 kV	
<b>Noise immunity</b>	Square-wave noise generated by noise simulator (pulse width: 100 ns/1 μs, 1-ns rise): ±1.5 kV (between power supply terminals)	
<b>Static immunity</b>	Malfunction: 4 kV, Destruction: 8 kV	
<b>Vibration resistance</b>	<b>Destruction</b>	0.75-mm single amplitude at 10 to 55 Hz for 2 h each in 3 directions
	<b>Malfunction</b>	0.5-mm single amplitude at 10 to 55 Hz for 10 min each in 3 directions
<b>Shock resistance</b>	<b>Destruction</b>	1,000 m/s <sup>2</sup> 3 times each in 6 directions
	<b>Malfunction</b>	100 m/s <sup>2</sup> 3 times each in 6 directions
<b>Life expectancy</b>	<b>Mechanical</b>	10 million operations min. (under no load at 1,800 operations/h)
	<b>Electrical</b>	100,000 operations min. (5 A at 250 VAC, resistive load at 360 operations/h)
<b>Degree of protection</b>	IP30 (Terminal block: IP20)	
<b>Weight</b>	Approx. 90 g	

## Applicable standards

<b>Safety standards</b>	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
<b>EMC</b>	(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

<b>Rated operating voltage Ue</b> <b>Rated operating current Ie</b>	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
<b>Rated impulse withstand voltage (altitude: 2,000 m max.)</b>	4 kV (at 240 VAC)
<b>Conditional short-circuit current</b>	1,000 A

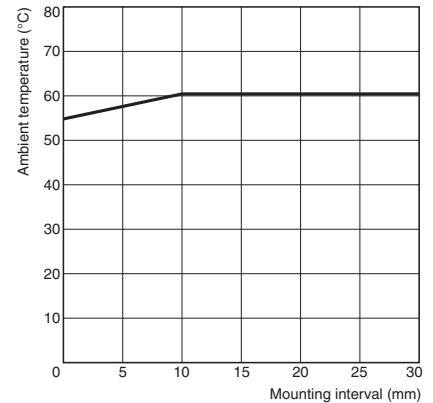
## I/O

<b>Input</b>	None
<b>Output</b>	<b>Control output</b> The Timer operates as soon as the Timer is turned ON. The Timer starts timing when the power is turned OFF and the output is turned OFF when the time set on the dial elapses.

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

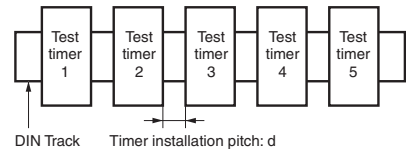
The relation between the ambient temperature and mounting interval is shown in the following graph.

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



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