



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



Solid-state Timers H3DT

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

- Saves 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/DNV GL). *3

*1. According to OMRON investigation in October 2015.
 *2. Based on OMRON comparison (excluding the H3DT-H).
 *3. Certification is pending for DNV GL.



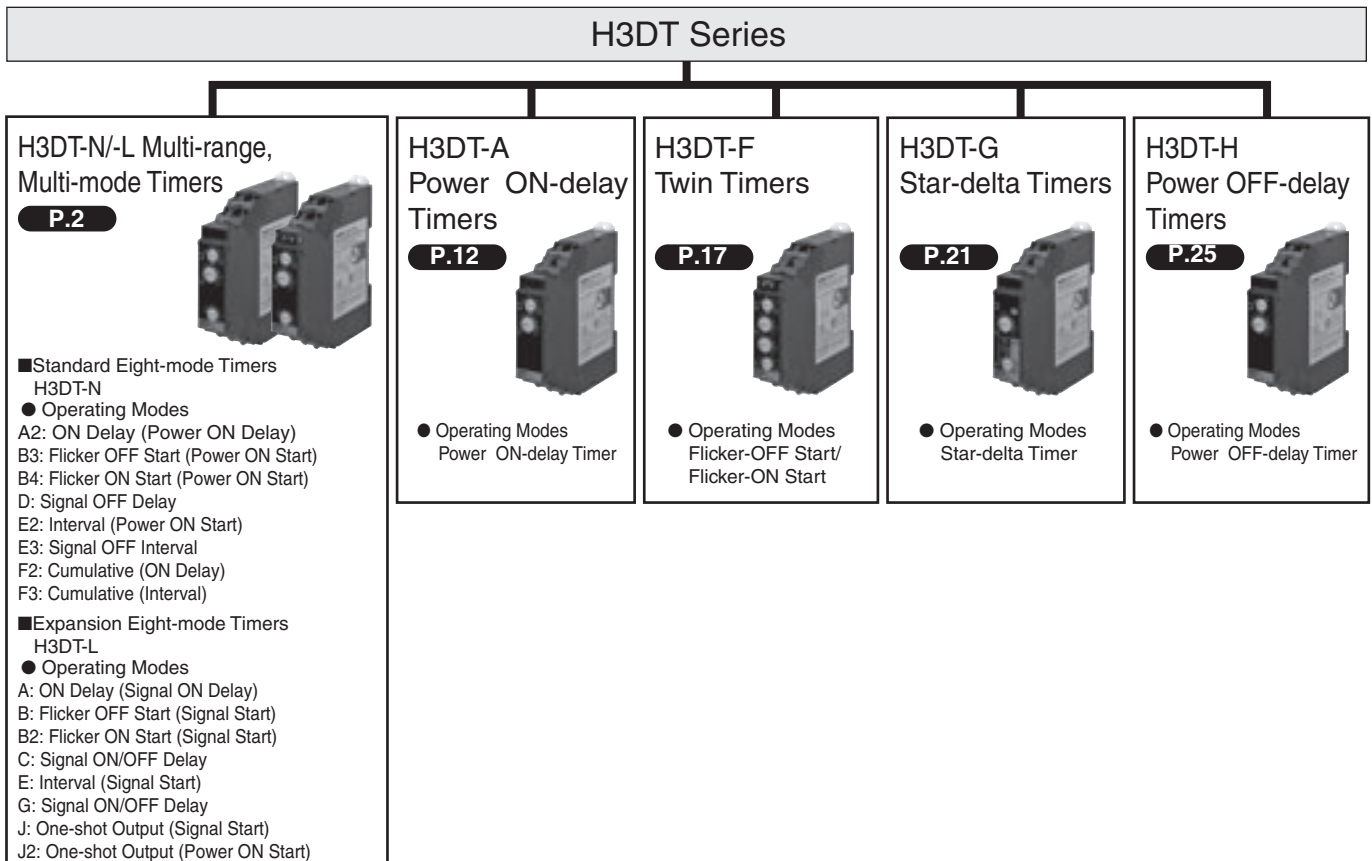
* CSA conformance evaluation by UL.



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 for 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 DNV GL * 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		

* Certification is pending for DNV GL.

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
Voltage input		24 to 240 VAC/DC High level: 20.4 to 264 VAC/DC, Low level: 0 to 2.4 VAC/DC
*3 Power consumption	H3DT-N2/-L2	At 240 VAC: 2.3 VA max., at 240 VDC: 1.0 W max., at 24 VDC: 0.3 W max.
	H3DT-N1/-L1	At 240 VAC: 2.0 VA max., at 240 VDC: 0.9 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 #5, 0.15 A max. at 125 VDC with resistive load, 0.1A 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 + Gold plating (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 for after the Timer times out in mode F2 for the H3DT-N and mode A for the H3DT-L.
The maximum power consumption is given, including the current consumed by the input circuit.

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	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: Pollution degree 2, Overvoltage category II, section GB 14048.5 LR: Category ENV1.2 DNV GL *
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

* Certification is pending for DNV GL.

I/O

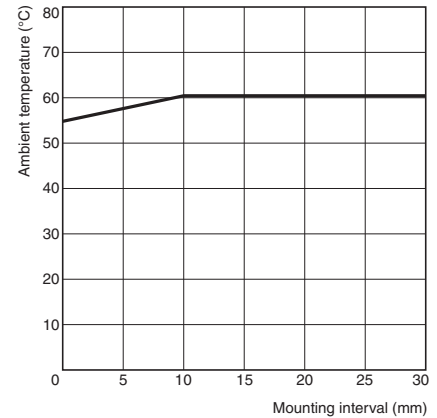
Item	Model	H3DT-N/L
Input	Start	Functions to start timing.
Output	Control output	The output is turned ON/OFF according to the operating mode when the value that is set on the dial is reached. *

* 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)

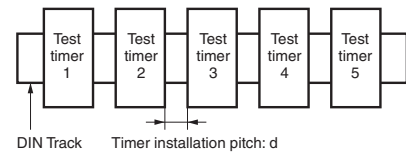
The relation between the ambient temperature and mounting interval is shown in the following graph.

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

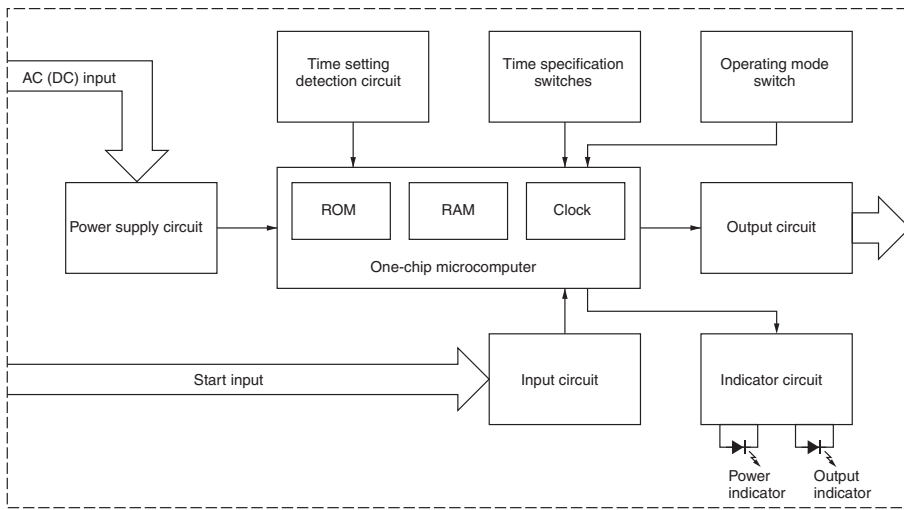
Tested Timer: H3DT-N/L
Applied voltage: 240 VAC
Installation pitch: 0 and 10 mm
Load current: 5 A



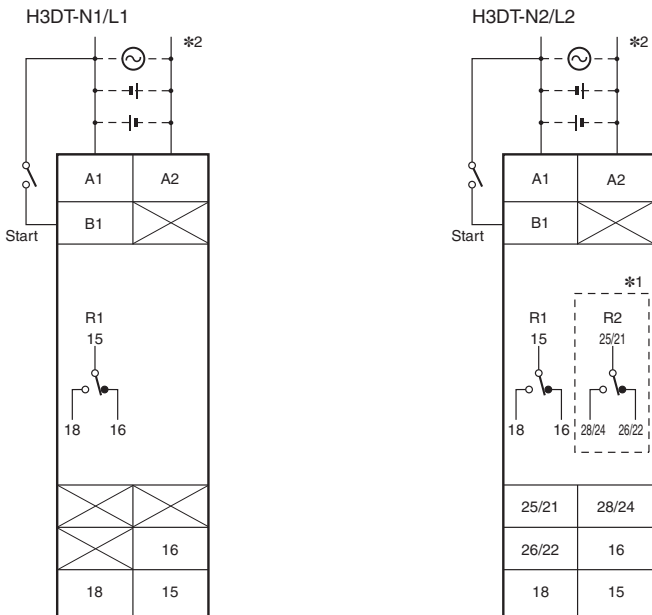
Connections

Block Diagrams

H3DT-N/L



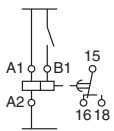
Terminal Arrangement



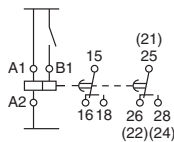
*1. The relay R2 can be set to either instantaneous or time-limit contacts using the switch on the front of the Timer.

*2. The power supply terminals do not have polarity.

(DIN notation)



(DIN notation)

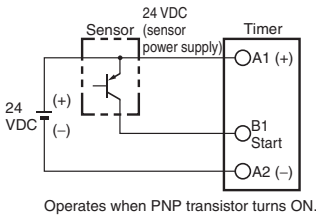


H3DT-N/H3DT-L

Input Connections

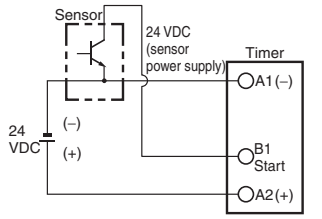
The start input is a voltage input.

PNP Transistor Input



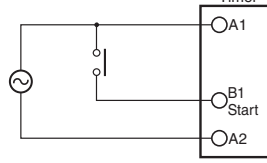
Operates when PNP transistor turns ON.

NPN Transistor Input



Operates when NPN transistor turns ON.

Relay Input



Operates when relay turns ON.

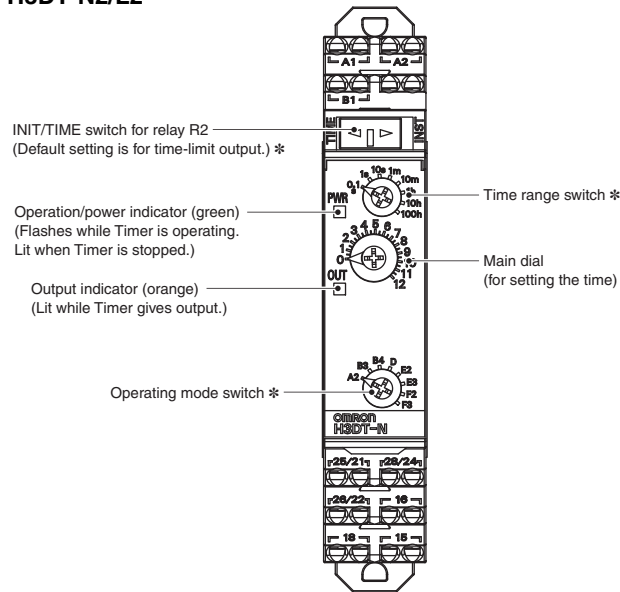
Consider the minimum load of the relay. (See signal levels on the right.)

Voltage Input Signal Levels

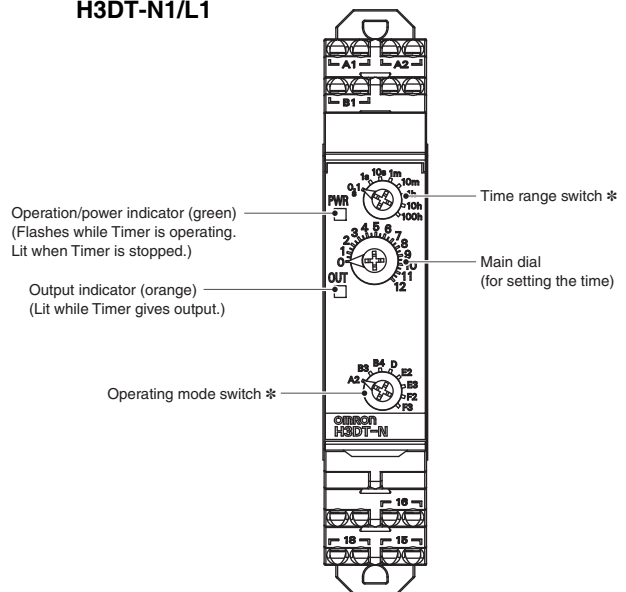
Transistor input	1. Transistor ON • Residual voltage: 1 V max. Voltage between terminals B1 and A2 must be equal to or higher than the rated high level voltage (20.4 VDC min.).
	2. Transistor OFF • Leakage current: 0.01 mA max. Voltage between terminals B1 and A2 must be equal to or below the rated low level voltage (2.4 VDC min.).
Relay input	Use relays that can adequately switch 0.1 mA at the imposed voltage. When the relay is ON or OFF, the voltage between terminals B1 and A2 must be within the following ranges: • 24 to 240 VAC/DC When relay is ON: 20.4 to 264 VAC/DC When relay is OFF: 0 to 2.4 V • 12 VDC When relay is ON: 10.8 to 13.2 V When relay is OFF: 0 to 1.2 V

Nomenclature

H3DT-N2/L2



H3DT-N1/L1



* 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 in mode A2 for the H3DT-N and mode A for the H3DT-L.

* 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 in mode A2 for the H3DT-N and mode A for the H3DT-L.

Dimensions

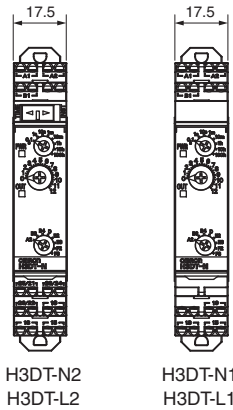
Timers

H3DT-N
H3DT-L



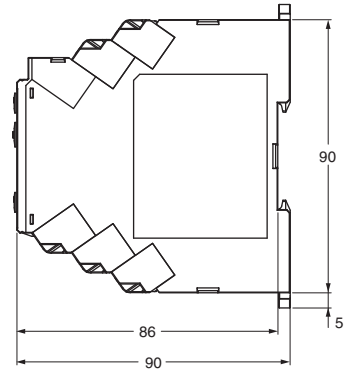
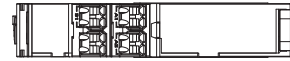
H3DT-N2
H3DT-L2

H3DT-N1
H3DT-L1



H3DT-N2
H3DT-L2

H3DT-N1
H3DT-L1



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

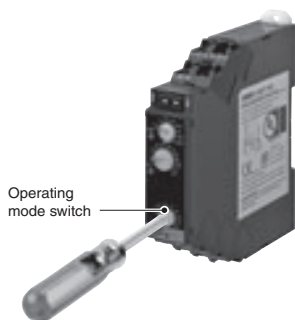
Setting Switches

- 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 Operating Mode

Setting the Operating Mode

The H3DT-N/L can be set to any of eight operating modes. Turn the operating mode switch with a flat-blade or Phillips screwdriver.



Setting the INIT/TIME Switch

Switching Relay R2 between Instantaneous and Time-limit Contacts (H3DT-N2/L2 Only)

The INIT/TIME switch can be used to switch relay R2 between instantaneous and time-limit operation.



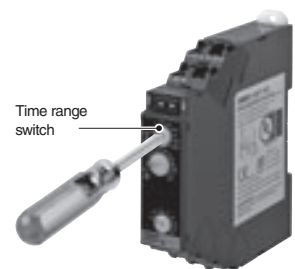
Time-limit operation ← → Instantaneous operation



Setting the Time Range

Setting the Time Range

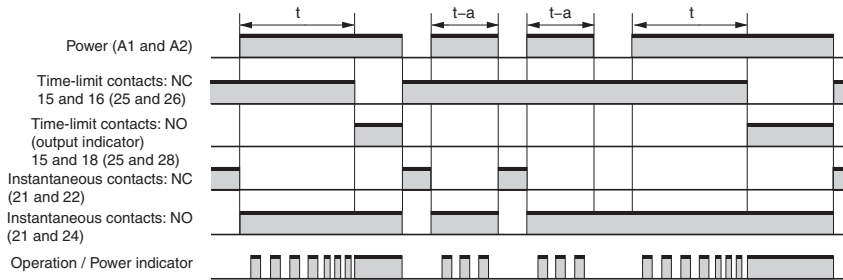
The time range switch can be used to set the time range. Turn the switch with a flat-blade or Phillips screwdriver.



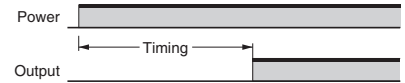
Timing Charts

- There is no instantaneous output with the H3DT-N1/L1.

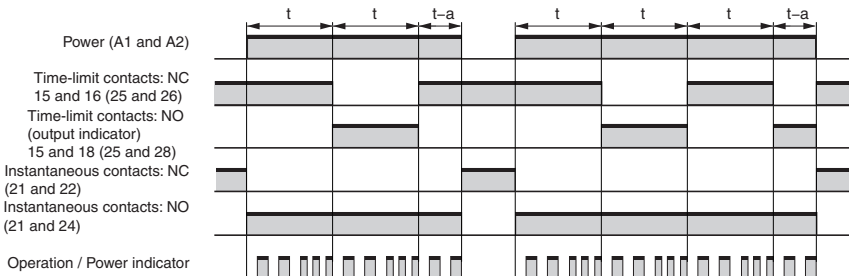
A2: ON Delay (Power ON Delay)



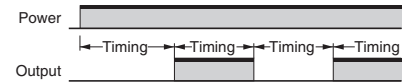
Basic Operation



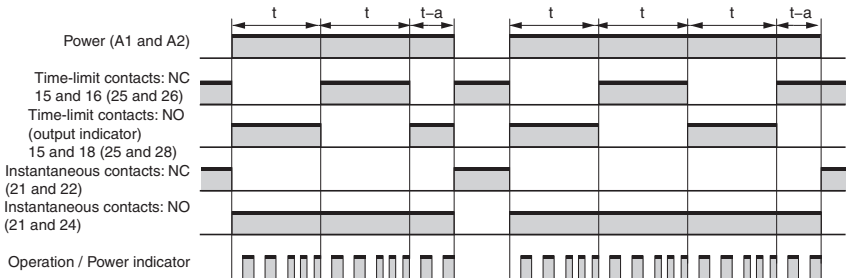
B3: Flicker OFF Start (Power ON Start)



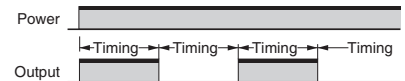
Basic Operation



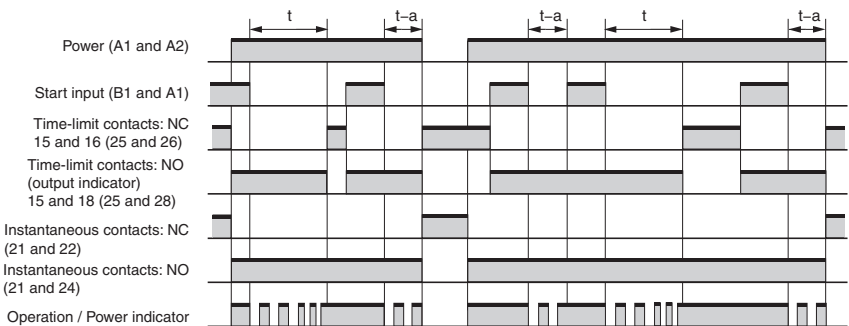
B4: Flicker ON Start (Power ON Start)



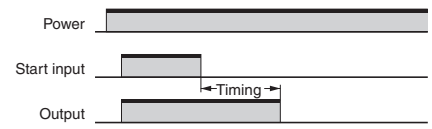
Basic Operation



D: Signal OFF Delay



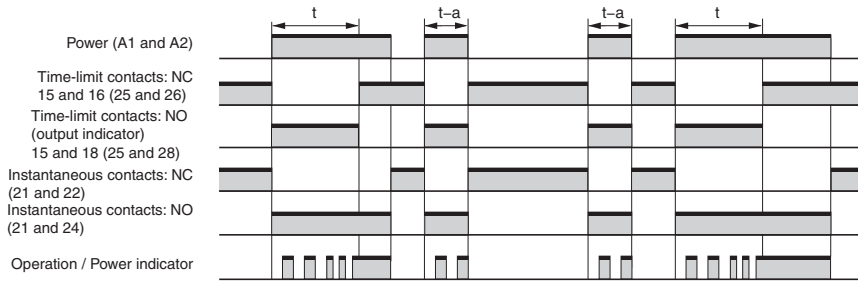
Basic Operation



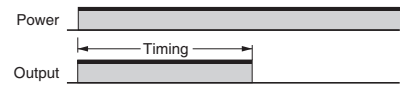
* The start input is valid while the Timer is in operation.

- Note:**
1. The reset time is 0.1 s min. Make sure the signal input time is 0.05 s or longer.
 2. " t " is the set time. " $t-a$ " is a time that is less than the set time.

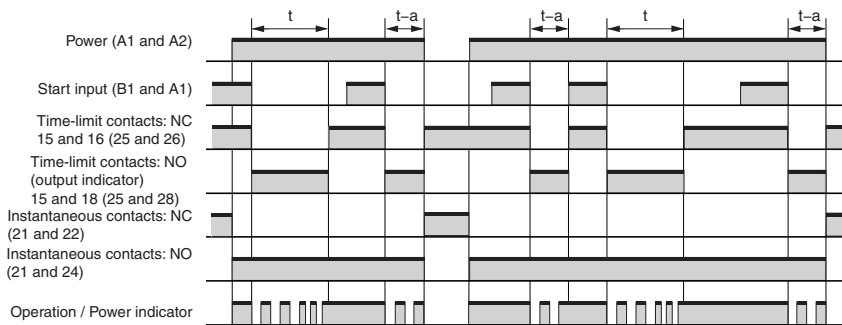
E2: Interval (Power ON Start)



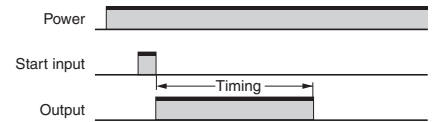
Basic Operation



E3: Signal OFF Interval

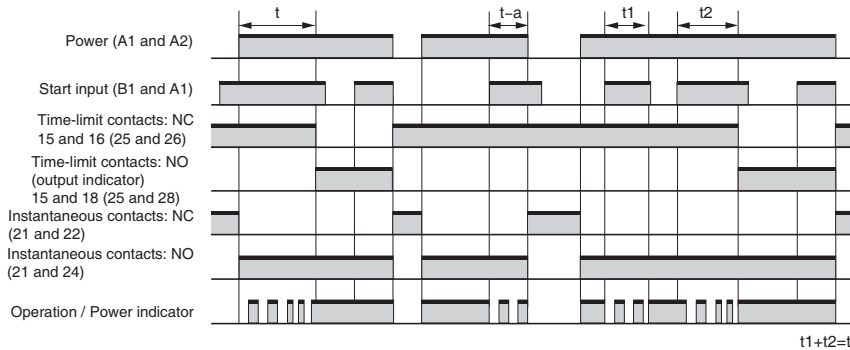


Basic Operation

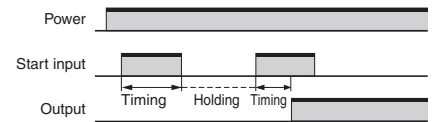


* The start input is valid while the Timer is in operation.

F2: Cumulative (ON Delay)

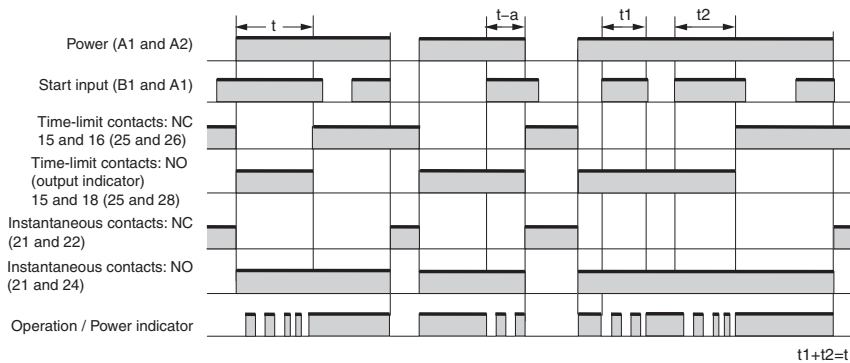


Basic Operation

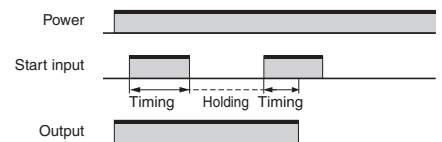


Note: Timing is performed while the start input is ON.

F3: Cumulative (Interval)



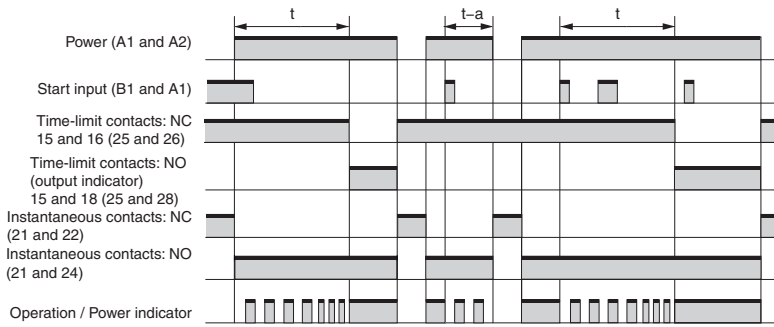
Basic Operation



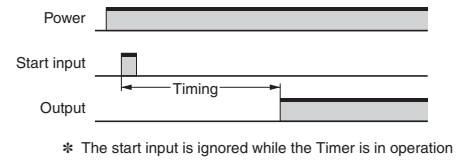
Note: Timing is performed while the start input is ON.

- Note:**
1. The reset time is 0.1 s min. Make sure the signal input time is 0.05 s or longer.
 2. "t" is the set time. "t-a" is a time that is less than the set time.

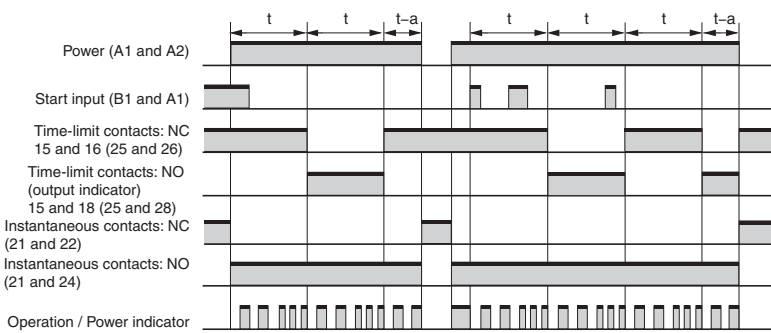
A: ON Delay (Signal ON Delay)



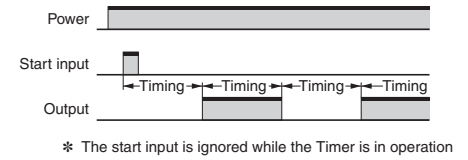
Basic Operation



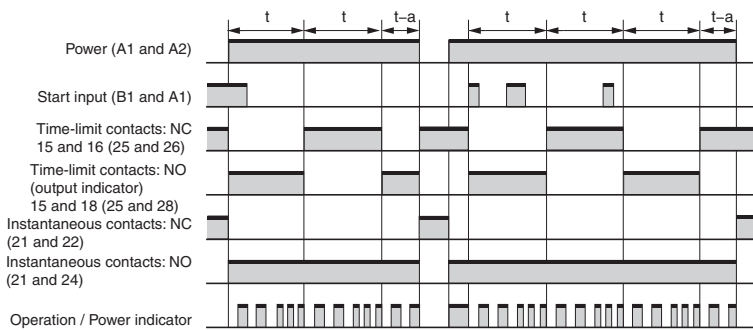
B: Flicker OFF Start (Signal Start)



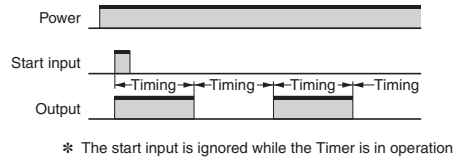
Basic Operation



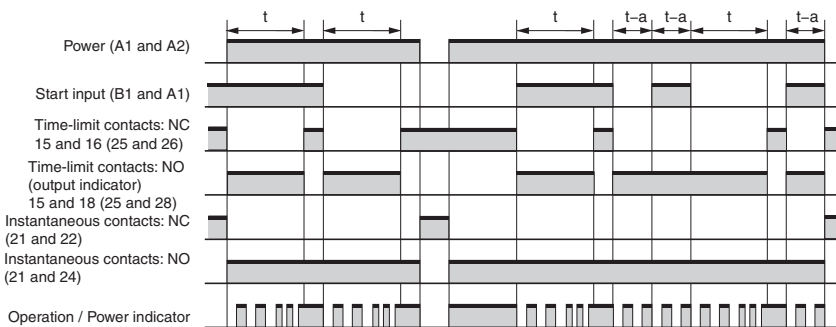
B2: Flicker ON Start (Signal Start)



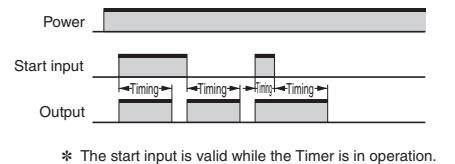
Basic Operation



C: Signal ON/OFF Delay

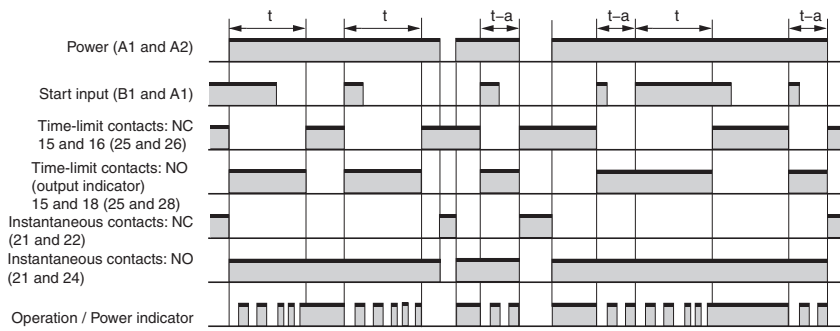


Basic Operation

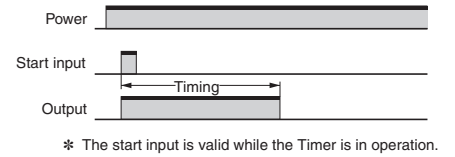


Note: 1. The reset time is 0.1 s min. Make sure the signal input time is 0.05 s or longer.
 2. "t" is the set time. "t-a" is a time that is less than the set time.

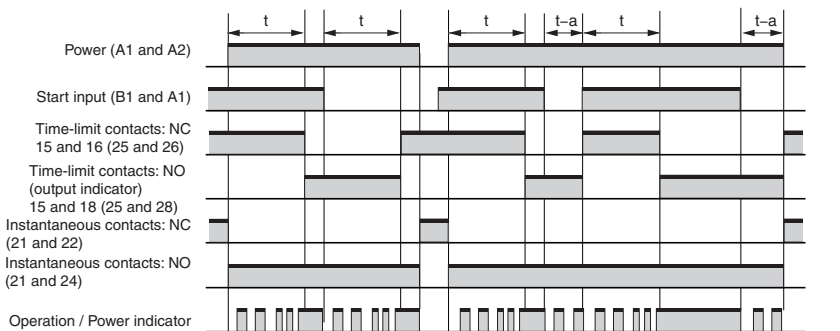
E: Interval (Signal Start)



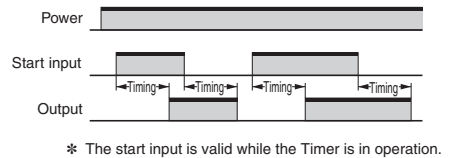
Basic Operation



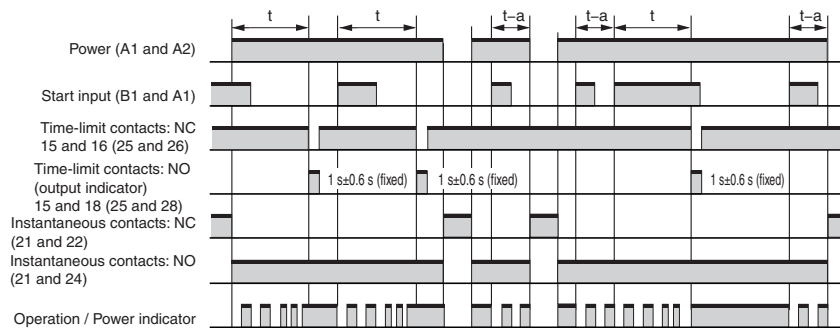
G: Signal ON/OFF Delay



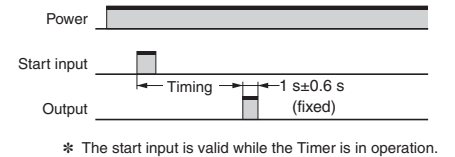
Basic Operation



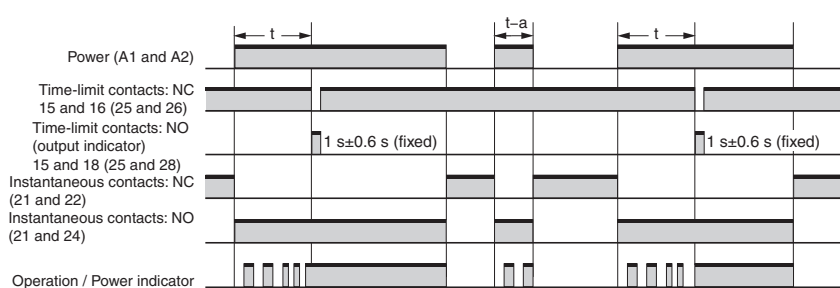
J: One-shot Output (Signal Start)



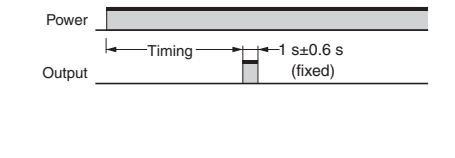
Basic Operation



J2: One-shot Output (Power ON Start)



Basic Operation



Note: 1. The reset time is 0.1 s min. Make sure the signal input time is 0.05 s or longer.
 2. "t" is the set time. "t-a" is a time that is less than the set time.

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)		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 DNV GL * EN61812-1 IEC60664-1 4 kV/2
H3DT-A1		6 terminals	Relay, SPDT		

* Certification is pending for DNV GL.

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	<table border="1"> <tr> <td>H3DT-A2</td> <td>At 240 VAC: 2.2 VA max., at 240 VDC: 0.7 W max., at 24 VDC: 0.3 W max.</td> </tr> <tr> <td>H3DT-A1</td> <td>At 240 VAC: 1.8 VA max., at 240 VDC: 0.6 W max., at 24 VDC: 0.3 W max.</td> </tr> </table>	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.
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/GSA C22.2 No. 14 EN 61812-1: Pollution degree 2, Overvoltage category III CCC: Pollution degree 2, Overvoltage category II, section GB 14048.5 LR: Category ENV1.2 DNV GL *
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

* Certification is pending for DNV GL.

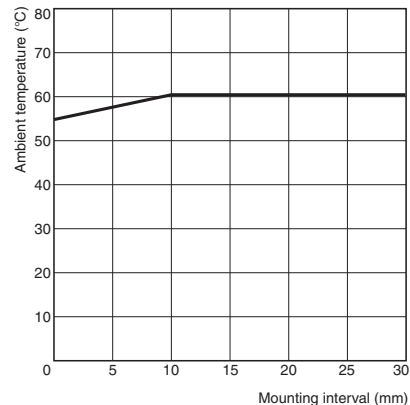
I/O

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)

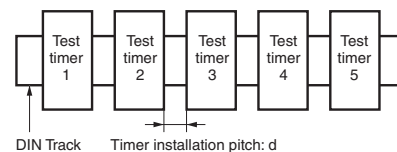
The relation between the ambient temperature and mounting interval is shown in the following graph.

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

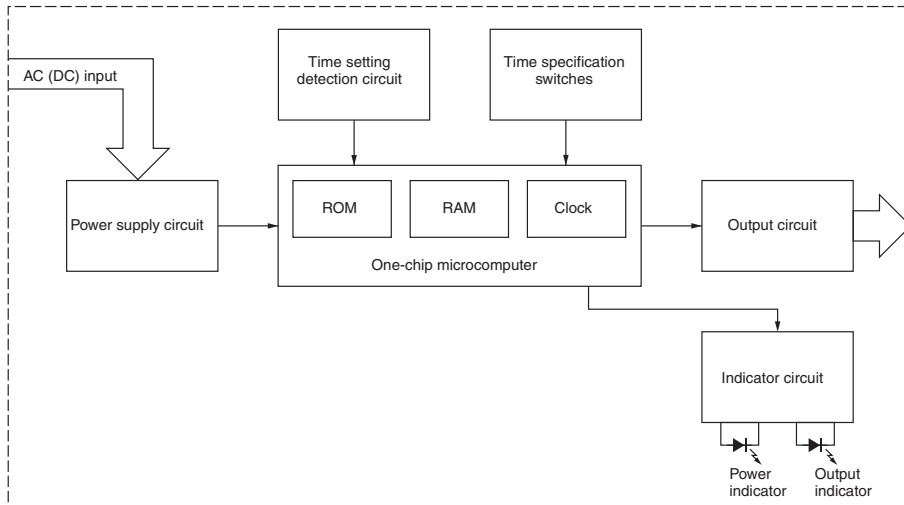


H3DT-A

Connections

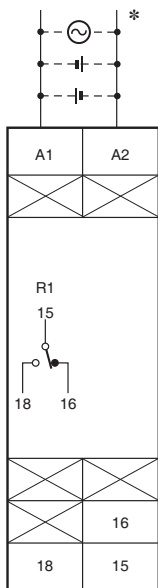
Block Diagrams

H3DT-A

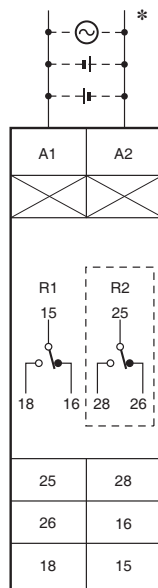


Terminal Arrangement

H3DT-A1

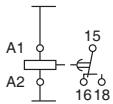


H3DT-A2

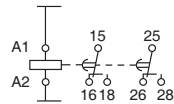


* The power supply terminals do not have polarity.

(DIN notation)



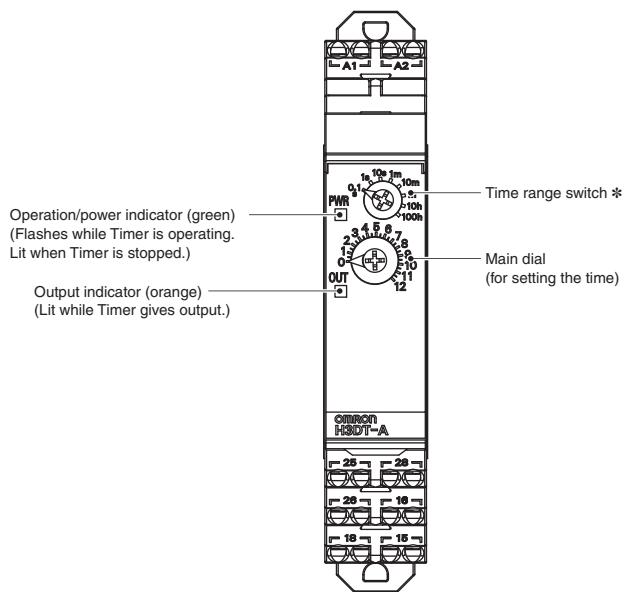
(DIN notation)



Nomenclature

H3DT-A2

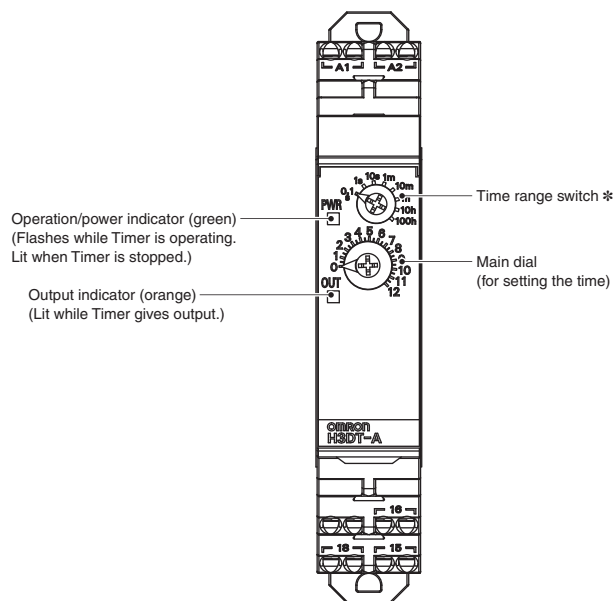
Front View



* 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



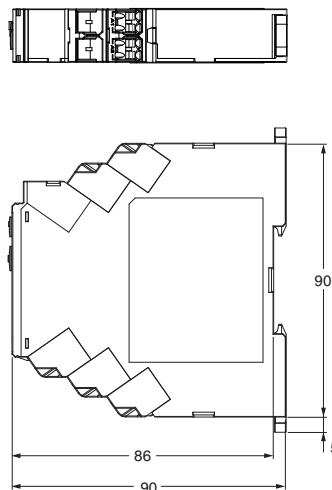
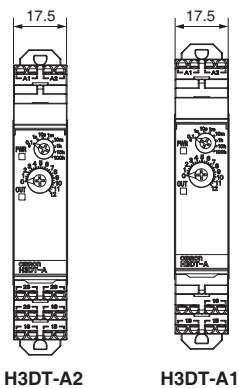
* If the switch is left between settings, proper operation may not be possible.
Make sure that the switch is set properly.
Note: The default settings are for 0.1 s.

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

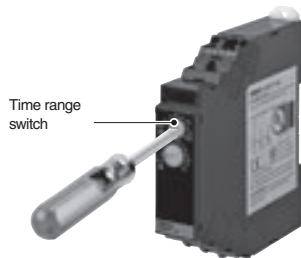
Setting Switches

- 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

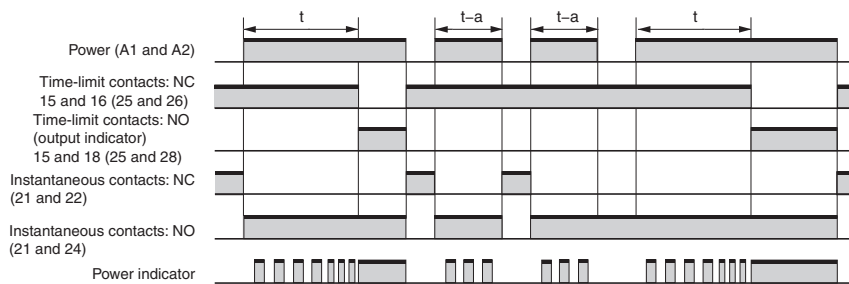
Setting the Time Range

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



Timing Charts

ON Delay (Power ON Delay)



Note: 1. The reset time is 0.1 s min.

2. " t " is the set time. " $t-a$ " is a time that is less than the set time.

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 DNV GL * EN 61812-1 IEC 60664-1 4 kV/2

* Certification is pending for DNV GL.

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

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. 90 g	

Applicable standards

Safety standards	cULus: UL 508/CSA C22.2 No. 14 EN 61812-1: Pollution degree 2, Overvoltage category III CCC: Pollution degree 2, Overvoltage category II, section GB 14048.5 LR: Category ENV1.2 DNV GL *
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

* Certification is pending for DNV GL.

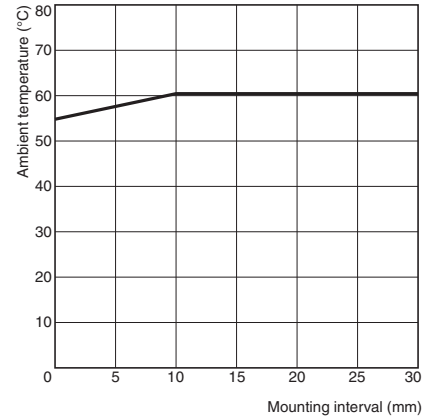
I/O

Input	None
Output	Control output 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)

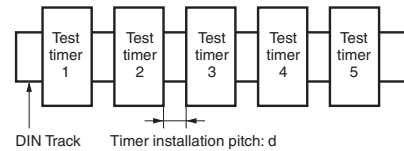
The relation between the ambient temperature and mounting interval is shown in the following graph.

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

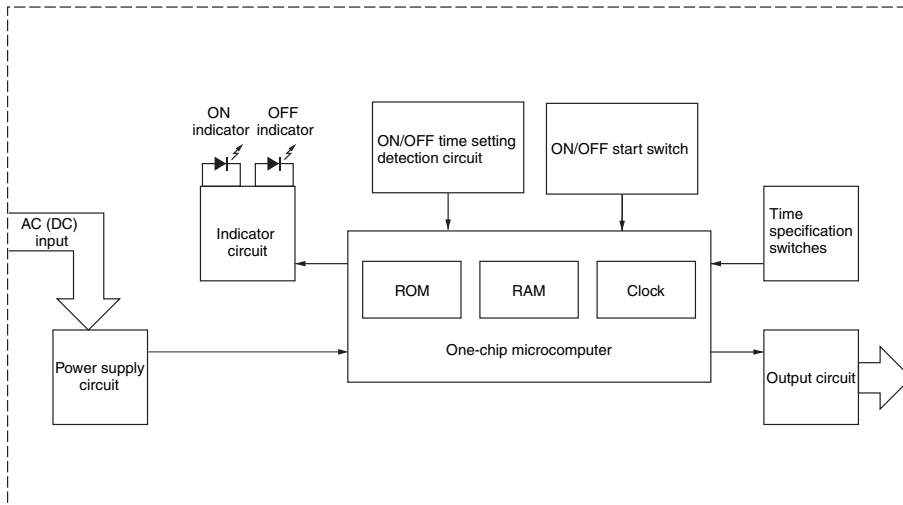
Tested Timer: H3DT-F
Applied voltage: 240 VAC
Installation pitch: 0 and 10 mm
Load current: 5 A



Connections

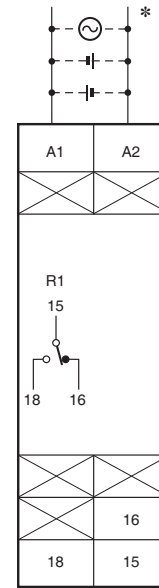
Block Diagrams

H3DT-F

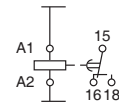


Terminal Arrangement

H3DT-F



(DIN notation)

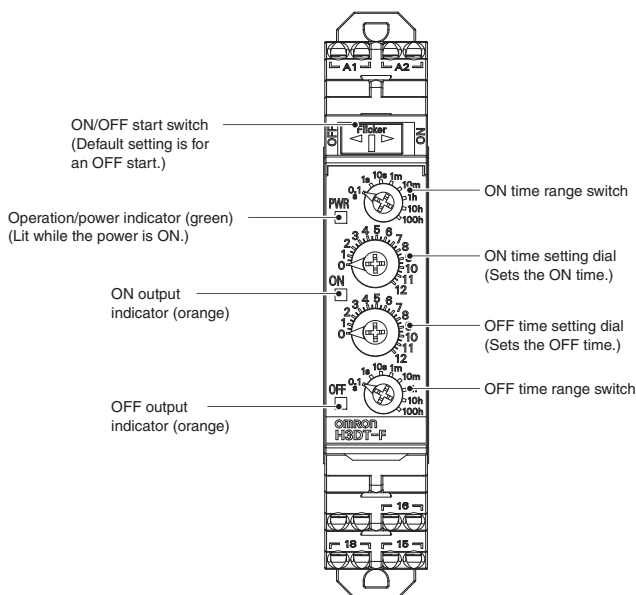


* The power supply terminals do not have polarity.

Nomenclature

H3DT-F

Front View



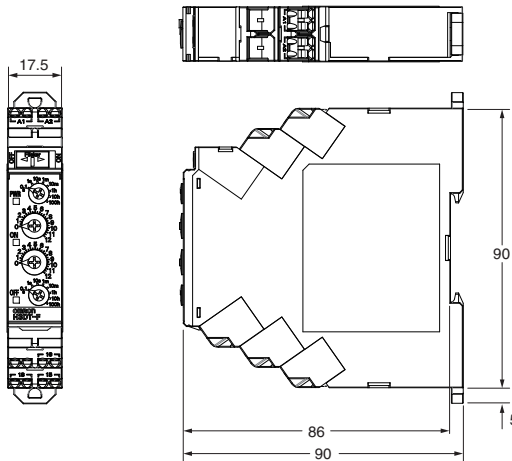
H3DT-F

Dimensions

(Unit: mm)

Timers

H3DT-F



Track Mounting Products (Sold Separately)

Refer to page 29 for details.

Options (Order Separately)

Front Cover

Refer to page 29 for details.

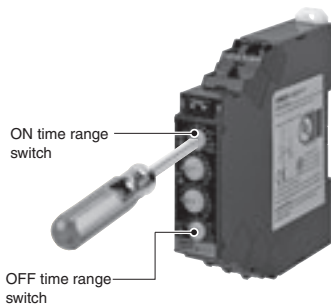
Operating Procedures

Basic Operation

Setting the Time Ranges

Setting the Time Ranges

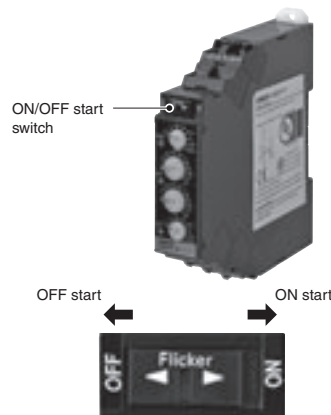
Use the ON time range switch to set the ON time range and the OFF time range switch to set the OFF time range. Turn the switches with a flat-blade or Phillips screwdriver.



Setting the ON/OFF Start Switch

Setting an ON Start or OFF Start

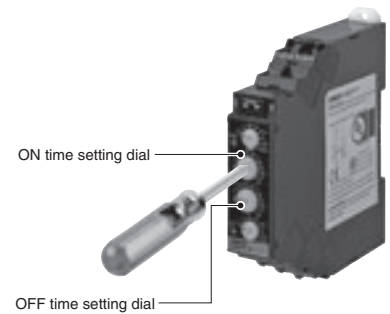
The ON/OFF start switch can be used to switch between ON-start and OFF-start operation.



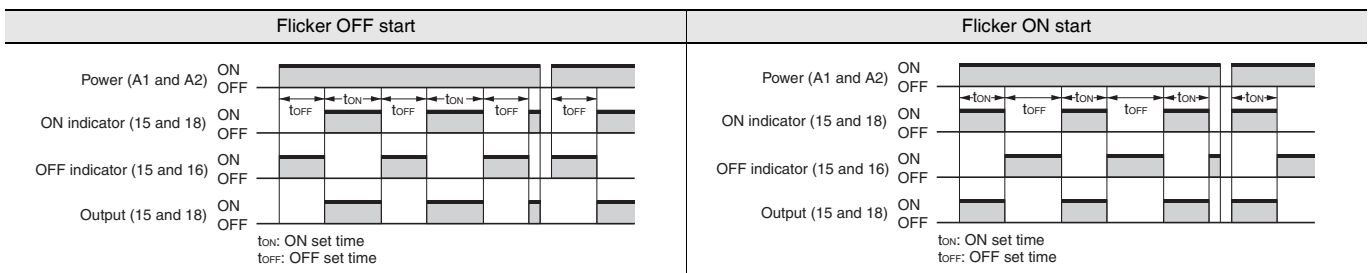
Setting the Times

Setting the Times

Use the ON time setting dial and the OFF time setting dial to set the ON time and OFF time.



Timing Charts



Note: The reset time is 0.1 s min.

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 DNV GL * EN 61812-1 IEC 60664-1 4 kV/2

* Certification is pending for DNV GL.

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 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: Pollution degree 2, Overvoltage category II, section GB 14048.5 LR: Category ENV1.2 DNV GL *
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

* Certification is pending for DNV GL.

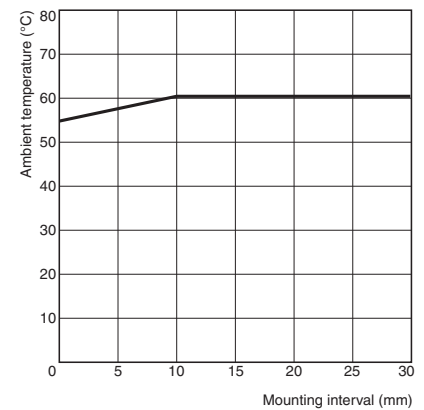
I/O

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)

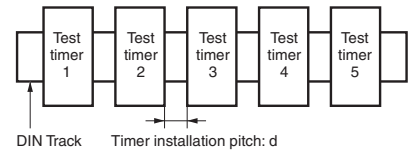
The relation between the ambient temperature and mounting interval is shown in the following graph.

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

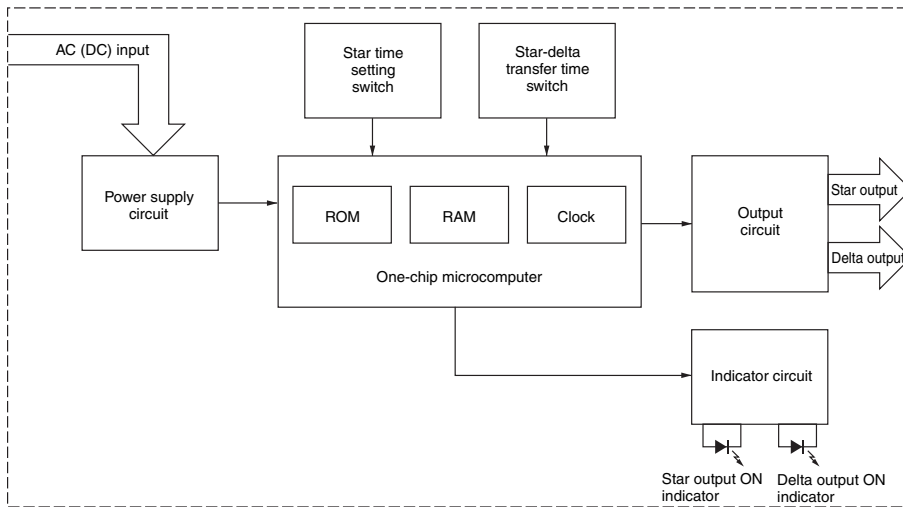
Tested Timer: H3DT-G
Applied voltage: 240 VAC
Installation pitch: 0 and 10 mm
Load current: 5 A



Connections

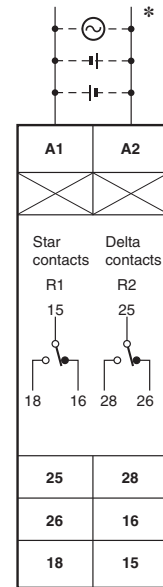
Block Diagrams

H3DT-G

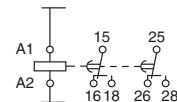


Terminal Arrangement

H3DT-G



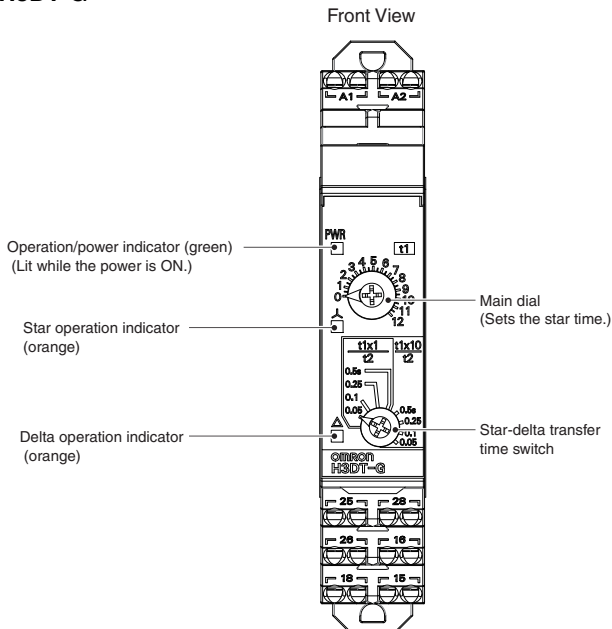
(DIN notation)



* The power supply terminals do not have polarity.

Nomenclature

H3DT-G



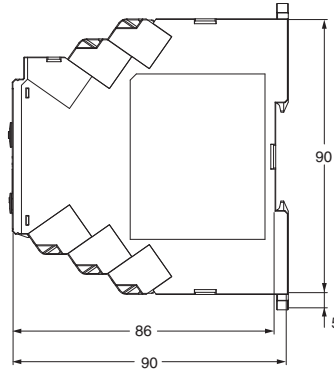
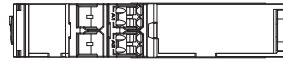
H3DT-G

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 the Time Ranges

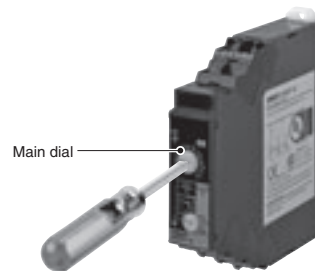
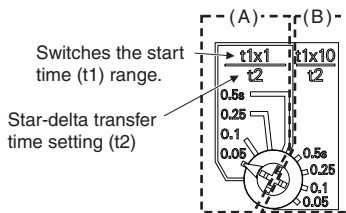
Setting the Time

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

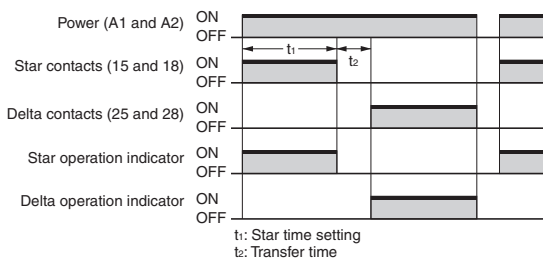
If the Delta Time Range (t1) is set to $\times 1$ (1 to 12 s), set the Star-delta Transfer Time on side (A) (the side labeled t1 $\times 1$).
 If the Delta Time Range (t1) is set to $\times 10$ (10 to 120 s), set the Star-delta Transfer Time on side (B) (the side labeled t1 $\times 10$).

Setting the Time

The start time is set with the main dial.



Timing Chart



Note: 1. The reset time is 0.1 s min.
 2. "t1" is the start set time. "t2" is the transfer time.

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 DNV GL * EN 61812-1 IEC 60664-1 4 kV/2

* Certification is pending for DNV GL.

Specifications

Time Ranges

	S Series		L Series	
	x0.1	x1	x1	x10
Time range setting				
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.