

Power OFF-delay Timer

H3DK-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.



Ordering Information

List of Models

				H3DK-H	
Operating modes		Supply voltage		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	H3DK-HCS	H3DK-HCL
		200 to 240 VAC	Contact output: SPDT	H3DK-HDS	H3DK-HDL
		24 to 48 VAC/DC	Contact output: SPDT	H3DK-HBS	H3DK-HBL

Accessories (Order Separately)

Item	Specification	Model
Mounting Track	50 cm (l) x 7.3 mm (t)	PFP-50N
	1 m (l) x 7.3 mm (t)	PFP-100N
	1 m (l) x 16 mm (t)	PFP-100N2
End Plate	---	PFP-M
Spacer	---	PFP-S

Model Structure

Model	Terminal block	Operating/resetting method	Output type	Mounting method	Safety standards	Accessories
H3DK-H	6 terminals	Instantaneous operation/ time-limit reset	Relay, SPDT	DIN Track mounting	cURus (UL 508 CSA C22.2 No. 14) EN 61812-1 IEC 60664-1 4 kV/2 EN 50274	User label

Specifications

Time Ranges

	S Series		L Series	
Time range setting	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			

Note: The Timer will not operate if the specified power-on time is not kept. Be sure to supply power for at least the period specified.
Also, make sure that the repeat cycle for the timing-out operation is at least 3 s.

Ratings

Supply voltage		• 100 to 120 VAC, 50/60 Hz • 200 to 240 VAC, 50/60 Hz • 24 to 48 VAC/DC, 50/60 Hz ^{*1}
Allowable voltage fluctuation range		85% to 110% of rated voltage
Power consumption	H3DK-HCS/-HCL	At 120 VAC: 11.7 VA max.
	H3DK-HDS/-HDL	At 240 VAC: 29.5 VA max.
	H3DK-HBS/-HBL	At 48 VAC: 1.2 VA max. ^{*2}
Control output		Contact output, 5 A at 250 VAC with resistive load ($\cos\phi = 1$), 5 A at 30 VDC with resistive load ^{*2} The minimum applicable load is 100 mA at 5 VDC (Preference level). Contact materials : Ag-alloy
Ambient operating temperature		-20 to 55°C (with no icing)
Storage temperature		-40 to 70°C (with no icing)
Ambient operating humidity		25% to 85%

- *1. DC ripple: 20% max. (A single-phase, full-wave rectifying power supply can be connected.)
 *2. Refer to *DC Power Consumptions (Reference Information)* on page 27 for DC power consumptions.
 *3. The control output ratings are for one H3DK operating alone.
 If you operate two or more Timers side by side, refer to *Installation Pitch and Output Switching Capacity (Reference Values)* on the next page.

■ 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 current-carrying metal parts and exposed non-current-carrying metal parts: 2,000 VAC 50/60 Hz for 1 min. Between control output terminals and operating circuit: 2,000 VAC 50/60 Hz for 1 min. Between contacts not located next to each other: 1,000 VAC 50/60 Hz for 1 min.
Impulse withstand voltage		Between power supply terminals: 1 kV for 24-VAC/DC and 48-VAC/DC models, 5 kV for all other models. Between current-carrying metal parts and exposed non-current-carrying metal parts): 1.5 kV for 24-VAC/DC and 48-VAC/DC models, 5 kV for all other models.
Noise immunity		Square-wave noise generated by noise simulator (pulse width: 100 ns/1 μs, 1-ns rise): ±1.5 kV (between power supply terminals)
Static immunity		Malfunction: 4 kV, Destruction: 8 kV
Vibration resistance	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/s² 3 times each in 6 directions
	Malfunction	100 m/s² 3 times each in 6 directions
Life expectancy	Mechanical	10 million operations min. (under no load at 1,200 operations/h)
	Electrical	100,000 operations min. (5 A at 250 VAC, resistive load at 1,200 operations/h)
Degree of protection		IP30 (Terminal block: IP20)
Weight		Approx. 120 g

■ Applicable standards

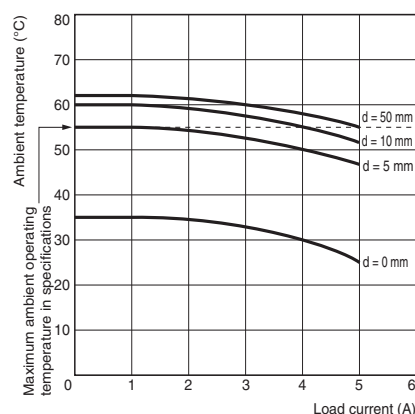
Safety standards	cURus: UL 508/CSA C22.2 No. 14 EN 50274: Finger protection, back-of-hand proof EN 61812-1: Pollution degree 2, Overvoltage category III CCC: GB/T 14048.5 Pollution degree 2, Overvoltage category III * LR: Test Specification No. 1-2002 Category ENV 1.2
EMC	(EMI)EN61812-1 Radiated Emissions:EN 55011 class B Emission AC Mains:EN 55011 class B Harmonic Current:EN 61000-3-2 Voltage Fluctuations and Flicker:EN61000-3-3 (EMS)EN61812-1 Immunity ESD: IEC61000-4-2 Immunity RF-interference: IEC61000-4-3 Immunity Burst: IEC61000-4-4 Immunity Surge: IEC61000-4-5 Immunity Conducted Disturbance: IEC61000-4-6 Immunity Voltage Dip/Interruption: IEC61000-4-11

* CCC certification requirements

Recommended fuse	0216005 (250 VAC, 5 A) manufactured by Littelfuse
Rated operating voltage Ue	AC-15: Ue: 250 VAC, Ie: 3 A
Rated operating current Ie	AC-13: Ue: 250 VAC, Ie: 5 A DC-13: Ue: 30 VDC, Ie: 0.1 A
Rated insulation voltage	250 V
Rated impulse withstand voltage (altitude: 2,000 m max.)	4 kV (at 240 VAC)
Conditional short-circuit current	1,000 A

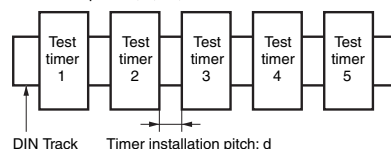
● Installation Pitch and Output Switching Capacity (Reference Values)

The relation between the installation pitch and the load current is shown in the following graph. (Except for the H3DK-GE)
 If Timer is used under load conditions that exceed the specified values, the temperature inside the Timer will increase, reducing the life expectancy of internal parts.



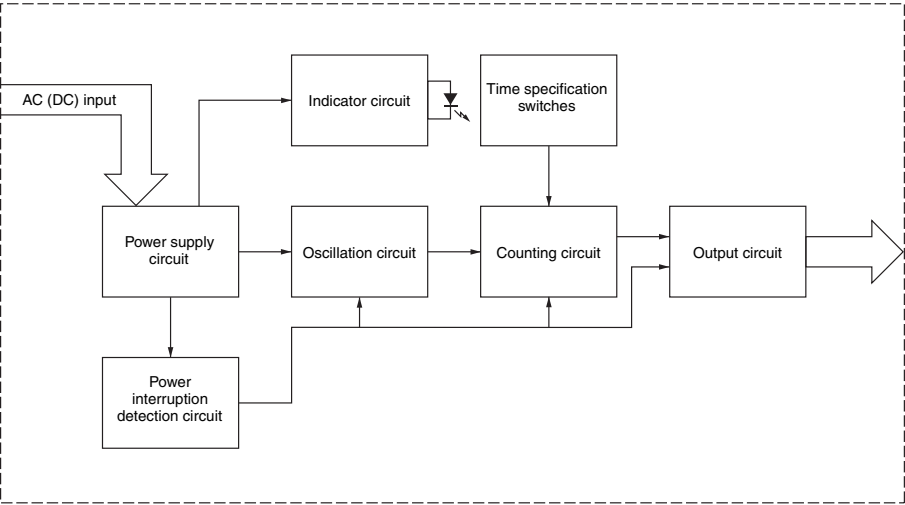
Testing Method

Tested Timer: H3DK-H
 Applied voltage: 240 VAC
 Installation pitch: 0, 5, 10, and 50 mm

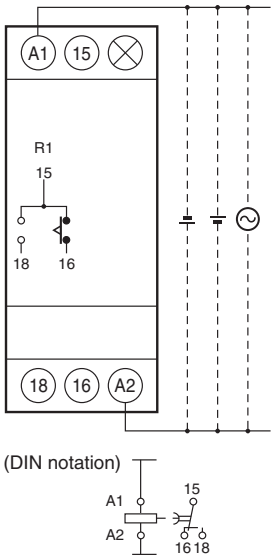


Connections

■ Block Diagrams
H3DK-H



■ Terminal Arrangement
H3DK-H

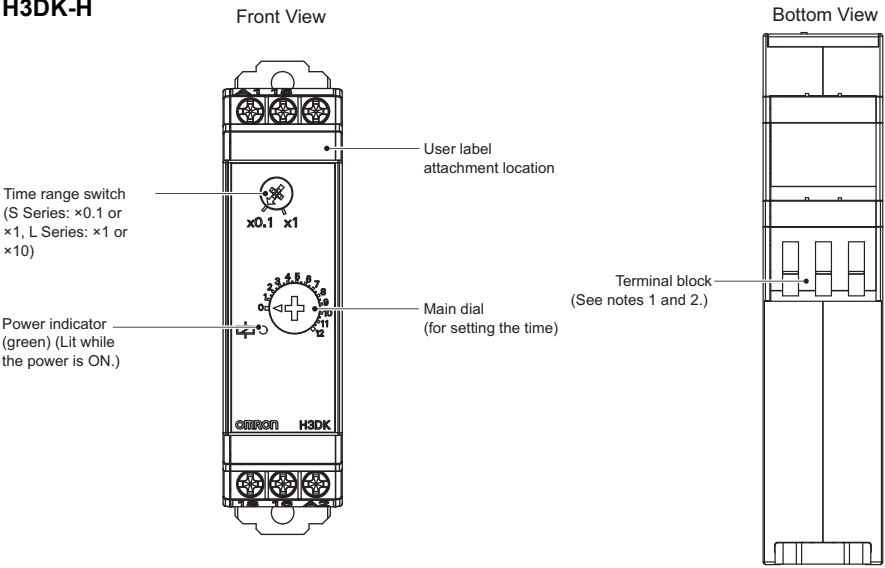


Note 1: The above figure shows the terminal arrangement for a 24 to 48-VAC/DC model. Models with 100 to 120-VAC or 200 to 240-VAC power input do not have a DC input.

Note 2: The power supply terminals do not have polarity.

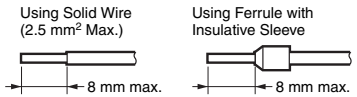
Nomenclature

H3DK-H



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

Note 1. Use solid wire (2.5 mm² max.) or ferrules with insulative sleeves to connect to the terminals. To maintain the withstand voltage after connecting the terminals, insert no more than 8 mm of exposed conductor into the terminal.



Recommended Ferrules
Phoenix Contact
• AI□□□ Series
• AI-TWIN□□□ Series

Note 2. Screw Tightening Torque
Recommended torque: 0.49 N·m
Maximum torque: 0.98 N·m

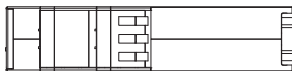
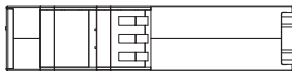
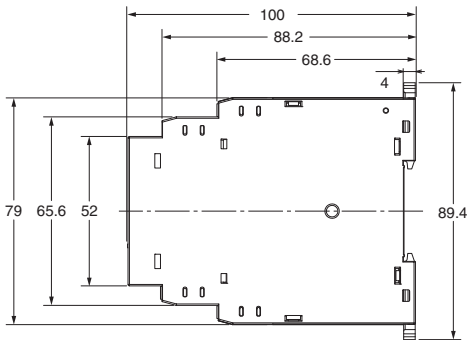
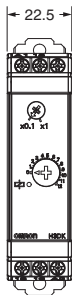
H3DK-H

Dimensions

(Unit: mm)

Timers

H3DK-H



Track Mounting Products (Sold Separately)

Refer to page 28 for details.

Operating Procedures

Basic Operation

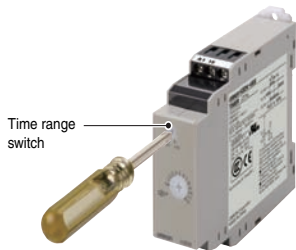
Setting Switches

- 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 Time Ranges

Setting the Time Ranges

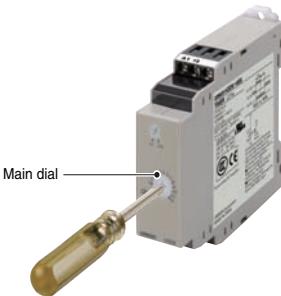
The scale multiplier can be changed with the timer range switch. It can be changed between $\times 0.1$ s and $\times 1$ s for an S-series Timer and between $\times 1$ s and $\times 10$ s for an L-series Timer.



Setting the Time

Setting the Time

The operation time is set with the main dial.



Timing Charts

