Twin Timer
H3DK-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.**

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

■ 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	Operating modes	Terminal block	Output type	Mounting method	Safety standards	Accessories
H3DK-F	Flicker OFF start/flicker ON start	6 terminals	Relay, SPDT	DIN Track mounting	cURus (UL508 CSA C22.2 No. 14) EN 61812-1 IEC 60664-1 4 kV/2 EN 50274	User label

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							

Note: When the main dial is set to “0” for all settings, the output will operate instantaneously.

■ Ratings

Power supply voltage *1		• 24 to 240 VAC/DC, 50/60 Hz *2 • 12 VDC *2
Allowable voltage fluctuation range		• 24 to 240 VAC/DC: 85% to 110% of rated voltage • 12 VDC: 90% to 110% of rated voltage
Power reset		Minimum power-OFF time: 0.1 s
Reset voltage		10% of rated voltage
Power consumption	H3DK-F	At 240 VAC: 4.5VA max. *3
	H3DK-FA	At 12 VDC: 0.6 W max.
Control output		Contact output: 5 A at 250 VAC with resistive load (cosϕ = 1), 5 A at 30 VDC with resistive load *4, 0.15 A max. at 125 VDC with resistive load, 0.1 A 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

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. When using a 24-VDC power supply voltage, there will be an inrush current of approximately 0.25 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. Refer to *DC Power Consumptions (Reference Information)* on page 27 for DC power consumptions.
*4. 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		24 to 240 VAC/VDC: 5 kV between power terminals, 5 kV between current-carrying metal parts and exposed non-current-carrying metal parts 12 VDC: 1 kV between power terminals, 1.5 kV between current-carrying metal parts and exposed non-current-carrying metal parts
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/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 1,800 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. 110 g

■ Applicable standards

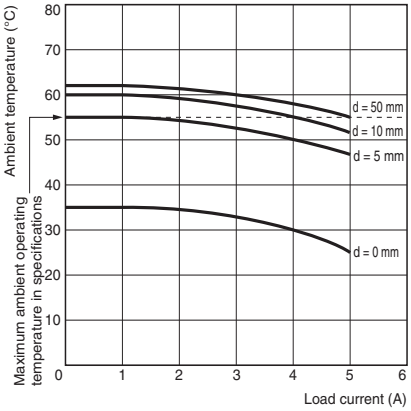
Safety standards	cURus: UL 508/CSA C22.2 No. 14 EN 50274: Finger protection, back-of-hand proof EN 61812-1: Pollution degree 2, Overvoltage category III CCC: GB/T 14048.5 Pollution degree 2, Overvoltage category III * LR: Test Specification No. 1-2002 Category ENV 1.2	
EMC	(EMI)	EN61812-1
	Radiated Emissions:	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 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 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

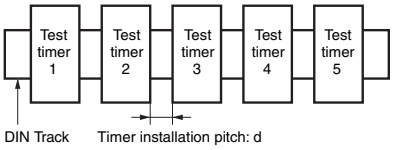
● Installation Pitch and Output Switching Capacity (Reference Values)

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

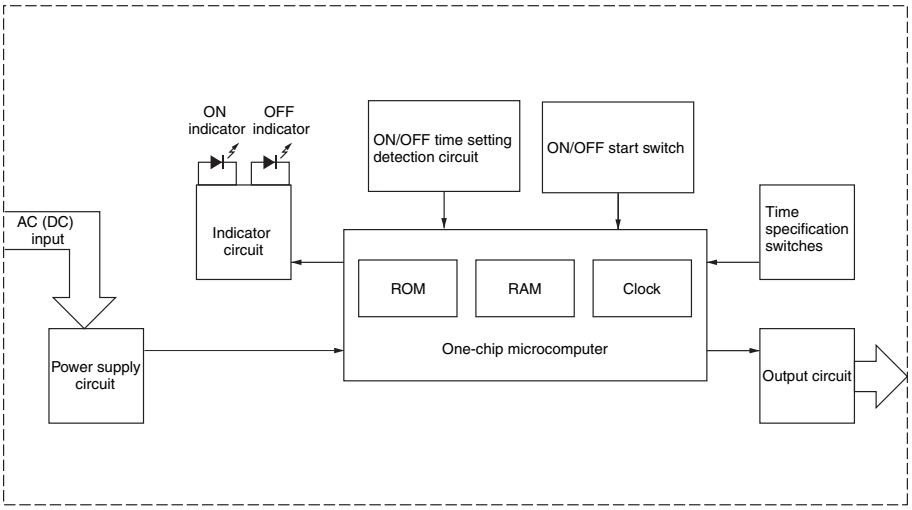
Tested Timer: H3DK-F
Applied voltage: 240 VAC
Installation pitch: 0, 5, 10, and 50 mm



Connections

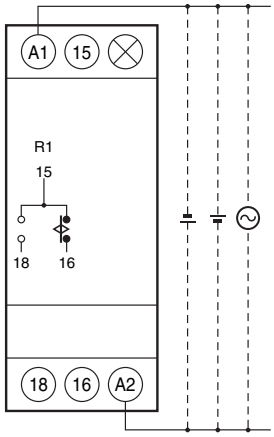
■ Block Diagrams

H3DK-F

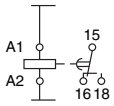


■ Terminal Arrangement

H3DK-F



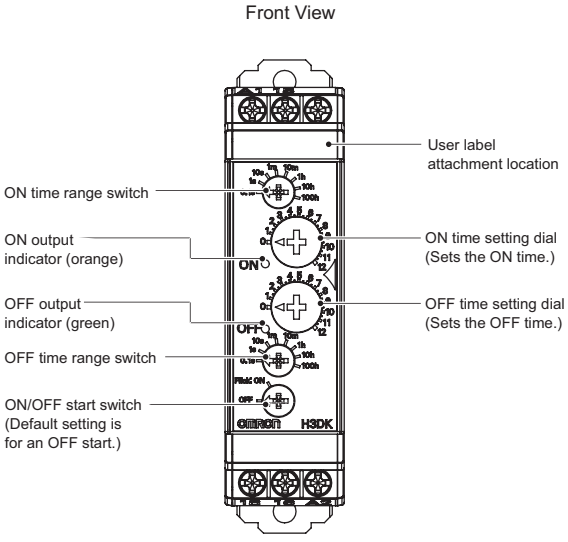
(DIN notation)



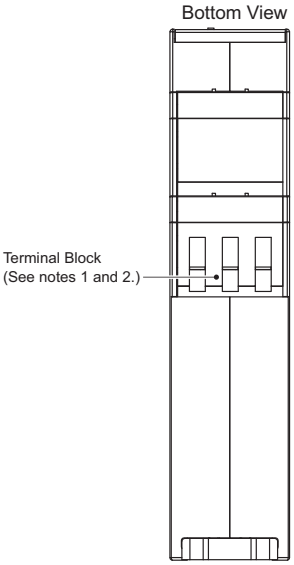
Note: The power supply terminals do not have polarity.

Nomenclature

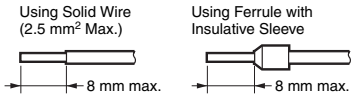
H3DK-F



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 mm^2 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

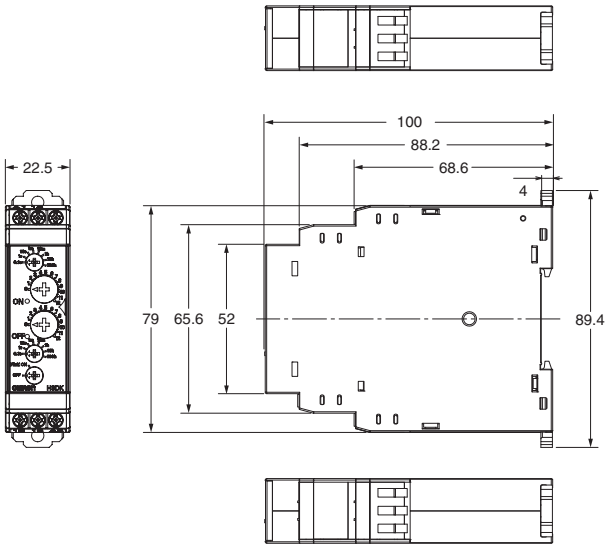
Note 2. Screw Tightening Torque
Recommended torque: 0.49 N·m
Maximum torque: 0.98 N·m

Dimensions

(Unit: mm)

■ Timers

H3DK-F



■ Track Mounting Products (Sold Separately)

Refer to page 28 for details.

Operating Procedures

■ Basic Operation

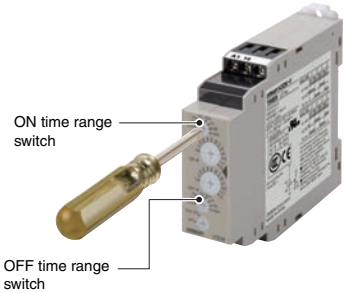
● Setting Switches

- 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

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

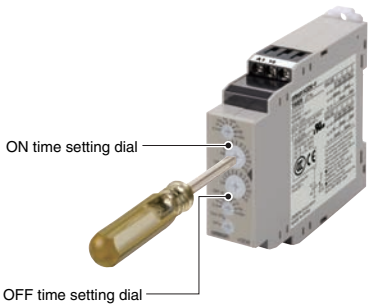
● Setting an ON Start or OFF Start

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

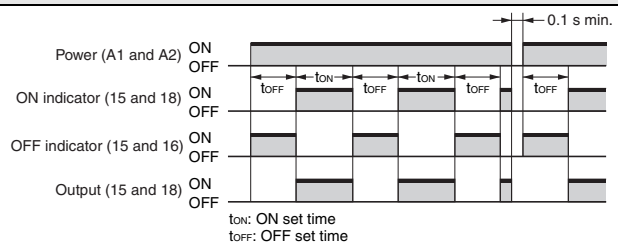
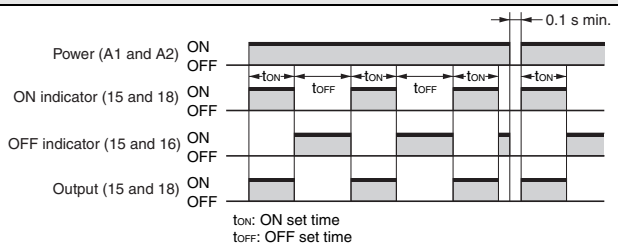
Setting the Times

● 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

Flicker OFF start	Flicker ON start
	

Note 1. The reset time is 0.1 s min.
Note 2. When power is supplied in flicker ON start mode, the OFF indicator lights momentarily. This, however, has no effect on the performance of the Timer.