

Solid-state Timer

H3YN

Miniature Timer with Multiple Time Ranges and Multiple Operating Modes

- Minimizes stock.
- Pin configuration compatible with MY Power Relay.
- Standard multiple operating modes and multiple time ranges.
- Conforms to EN 61812-1 and IEC 60664-1 for Low Voltage, and EMC Directives



Refer to *Safety Precautions* on page 38.

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	Time-limit contact	Short-time range model (0.1 s to 10 min)	Long-time range model (0.1 min to 10 h)
24, 100 to 120, 200 to 230 VAC; 12, 24, 48, 100 to 110, 125 VDC	DPDT	H3YN-2	H3YN-21
	4PDT	H3YN-4 *1	H3YN-41 *1
24 VDC	4PDT (Twin contacts)	H3YN-4-Z *1, *2	H3YN-41-Z *1, *2

Note: Sockets and Hold-down Clips are not included with the H3YN. They must be ordered separately.

*1. Use the H3YN-4 or H3YN-41 Series when switching micro loads, and use the H3YN-4-Z or H3YN-41-Z Series when switching even smaller loads.

*2. Only models with 24 VDC power supply are available.

Accessories (Order Separately)

Adapter, Mounting Plate, Hold-down Clips, Terminal covers

Name/specification	Model
Flush mounting adapter	Y92F-78
Mounting Plate for Socket	For 1 Socket PYP-1
	For 18 Sockets PYP-18
Hold-down Clips	For PYFZ-□ and PYF□A Y92H-3
	For PY□ and PYF□M Y92H-4
Terminal covers	For PYFZ-08 PYCZ-C08 (2 pcs/set)
	For PYFZ-14 PYCZ-C14 (1 pcs/set)

Note: For details, refer to *Precautions for H3Y-series Timers* on page 31.

Socket

Timer		Square Sockets			
Contact	Model	Pin	Connection	Terminal	Model
DPDT	H3YN-2□	8-pin	Front Connecting	DIN track mounting	PYFZ-08
				DIN track mounting (Finger Protection Structure)	PYFZ-08-E
			Back Connecting	Screw mounting	PYF08M
				Solder terminal	PY08
4PDT	H3YN-4□	14-pin	Front Connecting	PCB terminal	PY08-02
				DIN track mounting	PYFZ-14
			Back Connecting	DIN track mounting (Finger Protection Structure)	PYFZ-14-E
				Solder terminal	PY14
				PCB terminal	PY14-02

Note: 1. Cannot be used with the H3Y-□-0 (PCB terminals).

2. The PYFZ-□-E and PYF□A-E have a finger-protection structure. Round crimp terminals cannot be used. Use forked crimp terminals.

3. For details, refer to *Precautions for H3Y-series Timers* on page 31.

H3YN

Specifications

Ratings

Item	H3YN-2/-4/-4-Z	H3YN-21/-41/-41-Z
Time ranges	0.1 s to 10 min (1 s, 10 s, 1 min, or 10 min max. selectable)	0.1 min to 10 h (1 min, 10 min, 1 h, or 10 h max. selectable)
Rated supply voltage *5, *6	24, 100 to 120, 200 to 230 VAC (50/60 Hz) *1 12, 24, 48, 100 to 110, 125 VDC *2	
Pin type	Plug-in	
Operating mode	ON-delay, interval, flicker OFF start, or flicker ON start (selectable with DIP switch)	
Operating voltage range	85% to 110% of rated supply voltage (12 VDC: 90% to 110% of rated supply voltage) *3	
Reset voltage	10% min. of rated supply voltage *4	
Power consumption	100 to 120 VAC: Relay ON: Approx. 1.8 VA (1.6 W) at 120 VAC, 60 Hz Relay OFF: Approx. 1 VA (0.6 W) at 120 VAC, 60 Hz 200 to 230 VAC: Relay ON: Approx. 2.2 VA (1.8 W) at 230 VAC, 60 Hz Relay OFF: Approx. 1.5 VA (1.1 W) at 230 VAC, 60 Hz 24 VAC: Relay ON: Approx. 1.8 VA (1.4 W) at 24 VAC, 60 Hz Relay OFF: Approx. 0.3 VA (0.2 W) at 24 VAC, 60 Hz 12 VDC: Relay ON: Approx. 1.1 W at 12 VDC Relay OFF: Approx. 0.1 W at 12 VDC 24 VDC: Relay ON: Approx. 1.1 W at 24 VDC Relay OFF: Approx. 0.1 W at 24 VDC 48 VDC: Relay ON: Approx. 1.2 W at 48 VDC Relay OFF: Approx. 0.3 W at 48 VDC 100 to 110 VDC: Relay ON: Approx. 1.6 W at 110 VDC Relay OFF: Approx. 0.4 W at 110 VDC 125 VDC: Relay ON: Approx. 1.6 W at 125 VDC Relay OFF: Approx. 0.4 W at 125 VDC	
Control outputs	DPDT: 5 A at 250 VAC, resistive load ($\cos\phi = 1$) The minimum applicable load is 1 mA at 5 VDC (P reference value). Contact materials: Ag 4PDT: 3 A at 250 VAC, resistive load ($\cos\phi = 1$) H3YN-4/-41 series: The minimum applicable load is 1 mA at 1 VDC (P reference value). H3YN-4-Z/-41-Z series: The minimum applicable load is 1 mA at 1 VDC (P reference value). Contact materials: Au-clad + Ag-alloy	
Ambient operating temperature	-10°C to 50°C (with no icing)	
Storage temperature	-25°C to 65°C	
Ambient operating humidity	35% to 85%	

*1. Do not use the output from an inverter as the power supply. Refer to *Safety Precautions for All Timers* for details on your OMRON website.

*2. Single-phase, full-wave-rectified power supplies can be used.

*3. When using the H3YN continuously in any place where the ambient temperature is in a range of 45°C to 50°C, supply 90% to 110% of the rated supply voltages (supply 95% to 110% with 12 VDC type).

*4. Set the reset voltage as follows to ensure proper resetting.

100 to 120 VAC: 10 VAC max.

200 to 230 VAC: 20 VAC max.

100 to 110 VDC: 10 VDC max.

*5. Refer to *Safety Precautions for All Timers* on your OMRON website when combining the Timer with an AC 2-wire proximity sensor.

*6. A diode to prevent reverse voltages is provided only on models with a DC power supply.

Characteristics

Item	H3YN-2/-21/-4/-41
Accuracy of operating time	±1% FS max. (1 s range: ±1%±10 ms max.)
Setting error	±10%±50 ms FS max.
Reset time	Min. power-opening time: 0.1 s max. (including halfway reset)
Influence of voltage	±2% FS max.
Influence of temperature	±2% FS max.
Insulation resistance	100 MΩ min. (at 500 VDC)
Dielectric strength	2,000 VAC, 50/60 Hz for 1 min (between current-carrying terminals and exposed non-current-carrying metal parts) *1 2,000 VAC, 50/60 Hz for 1 min (between operating power circuit and control output) 2,000 VAC, 50/60 Hz for 1 min (between different pole contacts; 2-pole model) 1,500 VAC, 50/60 Hz for 1 min (between different pole contacts; 4-pole model) 1,000 VAC, 50/60 Hz for 1 min (between non-continuous contacts)
Vibration resistance	Destruction: 10 to 55 Hz, 0.75-mm single amplitude for 1 h each in 3 directions Malfunction: 10 to 55 Hz, 0.5-mm single amplitude for 10 min each in 3 directions
Shock resistance	Destruction: 1,000 m/s ² *2 Malfunction: 100 m/s ²
Life expectancy	Mechanical: 10,000,000 operations min. (under no load at 1,800 operations/h) Electrical: DPDT: 500,000 operations min. (5 A at 250 VAC, resistive load at 1,800 operations/h) 4PDT: 200,000 operations min. (H3YN-4-Z/-41-Z: 100,000 operations min.) (3 A at 250 VAC, resistive load at 1,800 operations/h) *3
Impulse withstand voltage	Between power terminals: 3 kV for 100 to 120 VAC, 200 to 230 VAC, 100 to 110 VDC, 125 VDC 1 kV for 12 VDC, 24 VDC, 48 VDC, 24 VAC Between exposed non-current-carrying metal parts: 4.5 kV for 100 to 120 VAC, 200 to 230 VAC, 100 to 110 VDC, 125 VDC 1.5 kV for 12 VDC, 24 VDC, 48 VDC, 24 VAC
Noise immunity	±1.5 kV, square-wave noise by noise simulator (pulse width: 100 ns/1 μs, 1-ns rise)
Static immunity	Destruction: 8 kV Malfunction: 4 kV
Degree of protection	IP40
Weight	Approx. 50 g
EMC	(EMI) Emission Enclosure: EN 61812-1 Emission AC Mains: EN 55011 Group 1 class A (EMS) EN 55011 Group 1 class A EN 55011 Group 1 class A Immunity ESD: EN 61812-1 Immunity RF-interference: IEC 61000-4-2 Immunity Burst: IEC 61000-4-3 Immunity Surge: IEC 61000-4-4 Immunity Conducted Disturbance: IEC 61000-4-5 Immunity Voltage Dip/Interruption: IEC 61000-4-6 IEC 61000-4-11
Approved standards	UL 508, CSA C22.2 No. 14, Lloyds, CCC: GB/T 14048.5 *5 Conforms to EN 61812-1 and IEC 60664-1. (2.5 kV/2 for H3YN-2/-21, 2.5 kV/1 for H3YN-4/-41, H3YN-4-Z/-41-Z) *4

*1. Terminal screw sections are excluded.

*2. The destructive shock resistance test was performed on the Timer.

*3. Refer to the *Life-test Curve*.

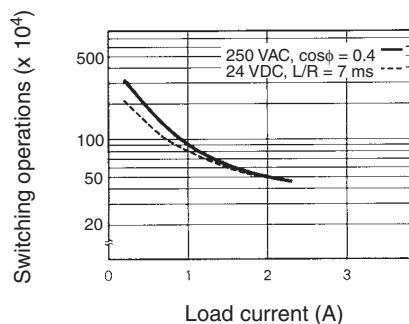
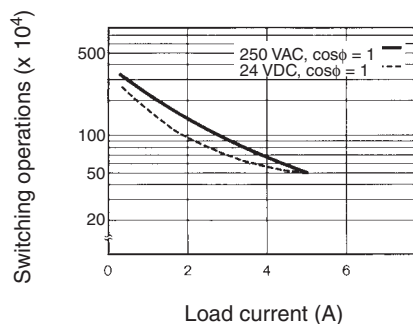
*4. Overvoltage category II.

*5. CCC certification requirements

Model	H3YN-2/-21	H3YN-4/-41
Recommended fuse	RT14-20/6A (380 VAC 6 A), manufactured by DELIXI	RT14-20/4A (380 VAC 4 A), manufactured by DELIXI
Rated operating voltage U _e Rated operating current I _e	AC-15: U _e : 250 VAC, I _e : 3 A AC-13: U _e : 250 VAC, I _e : 5 A DC-13: U _e : 30 VDC, I _e : 0.5 A	AC-15: U _e : 250 VAC, I _e : 2 A AC-13: U _e : 250 VAC, I _e : 3 A DC-13: U _e : 30 VDC, I _e : 0.5 A
Rated insulation voltage	250 V	
Rated impulse withstand voltage (altitude: 2,000 m max.)	2.5 kV (at 240 VAC)	
Conditional short-circuit current	1000 A	

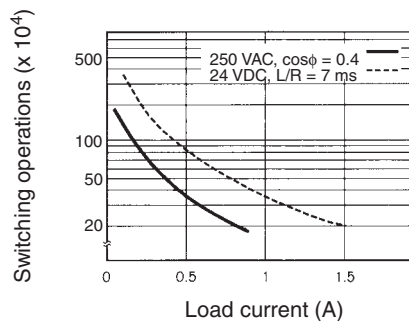
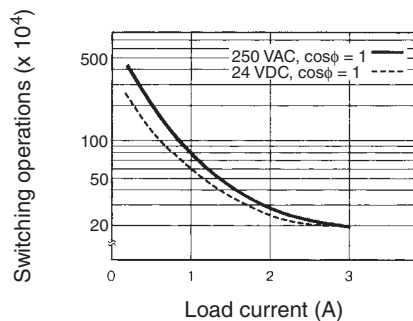
Life-test Curve (Reference Value)

H3YN-2/-21



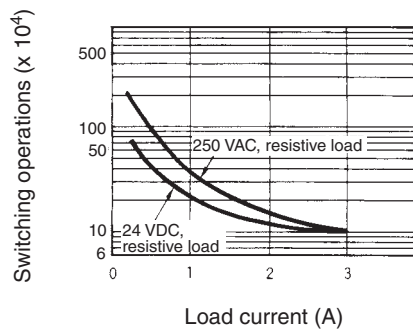
Reference: A maximum current of 0.6 A can be switched at 125 VDC ($\cos\phi = 1$).
 Maximum current of 0.2 A can be switched if L/R is 7 ms. In both cases, a life of 100,000 operations can be expected.
 The minimum applicable load is 1 mA at 5 VDC (P reference value)

H3YN-4/-41



Reference: A maximum current of 0.5 A can be switched at 125 VDC ($\cos\phi = 1$).
 Maximum current of 0.2 A can be switched if L/R is 7 ms. In both cases, a life of 100,000 operations can be expected.
 The minimum applicable load is 1 mA at 1 VDC (P reference value)

H3YN-4-Z/-41-Z

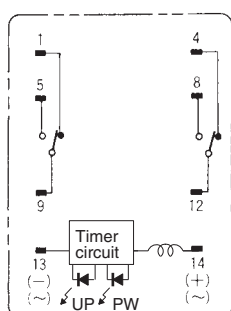


Reference: A maximum current of 0.5 A can be switched at 125 VDC ($\cos\phi = 1$).
 Maximum current of 0.2 A can be switched if L/R is 7 ms. In both cases, a life of 100,000 operations can be expected.
 The minimum applicable load is 0.1 mA at 1 VDC (P reference value)

Connections

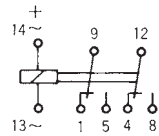
Connection

H3YN-2/-21

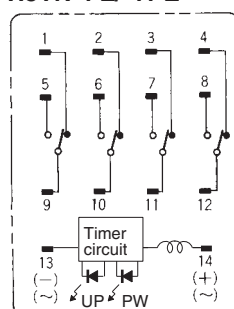


(Bottom View)

DIN Indication

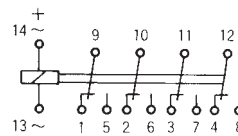


H3YN-4/-41 H3YN-4-Z/-41-Z



(Bottom View)

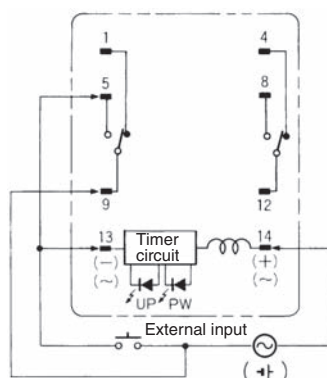
DIN Indication



Pulse Operation

A pulse output for a certain period can be obtained with a random external input signal. Use the H3YN in interval mode as shown in the following timing charts.

H3YN-2/-21



Power (9-14)

External short circuit (5-13)

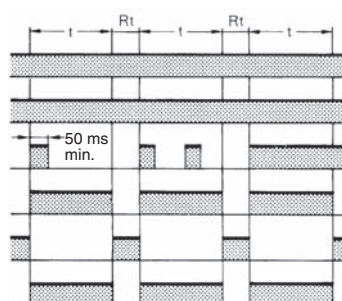
External input (9-13)

Time limit contact NO (12-8)

Time limit contact NC (12-4)

Run/Power indicator (PW)

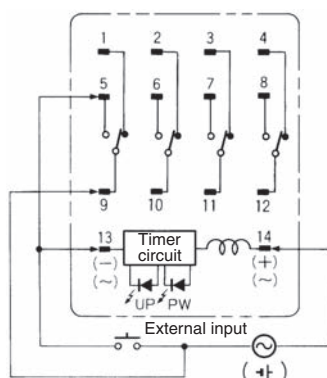
Output indicator (UP)



Note: t: Set time
Rt: Reset time

H3YN-4/-41

H3YN-4-Z/-41-Z



Power (9-14)

External short circuit (5-13)

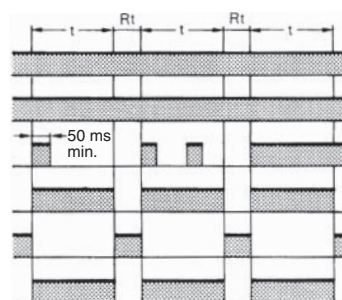
External input (9-13)

Time limit contact NO (10-6, 11-7, 12-8)

Time limit contact NC (10-2, 11-3, 12-4)

Run/Power indicator (PW)

Output indicator (UP)



Note: t: Set time
Rt: Reset time

Caution

Be careful when connecting wires.

Mode	Terminals
Pulse operation	Power supply between 9 and 14 Short-circuit between 5 and 13 Input signal between 9 and 13
Operating mode; interval and all other modes	Power supply between 13 and 14

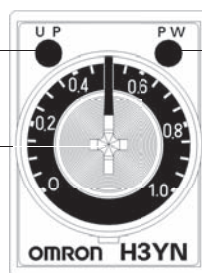
H3YN

Nomenclature

Output Indicator (Orange)
(Lit: Output ON)

Main Dial

Set the desired time according to time range selectable by DIP switch.



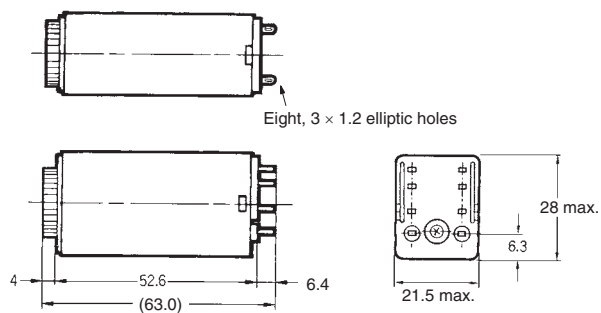
Run/Power Indicator (Green)
(Lit: Power ON)

Dimensions

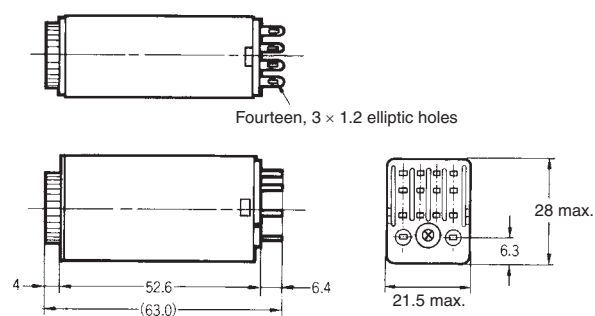
(Unit: mm)

Timers

H3YN-2/-21 Front Mounting



H3YN-4/-41 Front Mounting H3YN-4-Z/-41-Z



Operation

DIP Switch Settings

The 1-s range and ON-delay mode for H3YN-2/-4/-4-Z, the 1-min range and ON-delay mode for H3YN-21/-41/-41-Z are factory-set before shipping.

Time Ranges

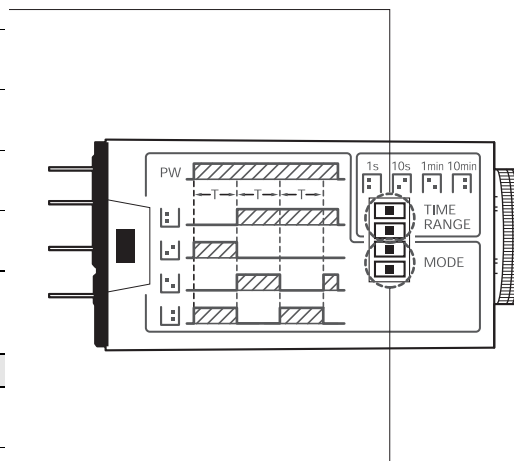
Model	Time range	Time setting range	Setting	Factory-set
H3YN-2, H3YN-4 H3YN-4-Z	1 s	0.1 to 1 s		Yes
	10 s	1 to 10 s		No
	1 min	0.1 to 1 min		No
	10 min	1 to 10 min		No
H3YN-21, H3YN-41 H3YN-41-Z	1 min	0.1 to 1 min		Yes
	10 min	1 to 10 min		No
	1 h	0.1 to 1 h		No
	10 h	1 to 10 h		No

Note: The top two DIP switch pins are used to select the time ranges.

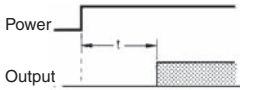
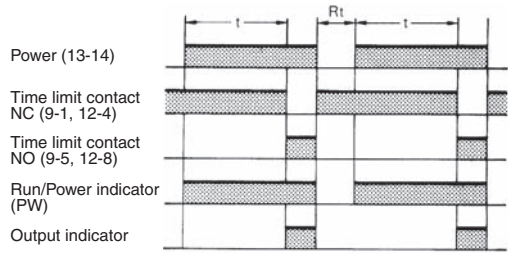
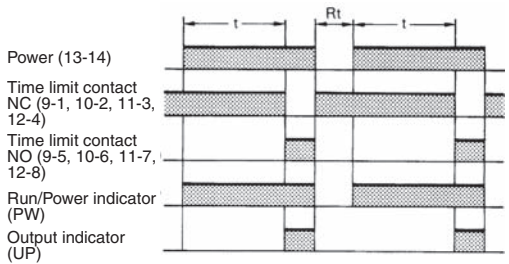
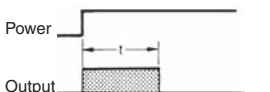
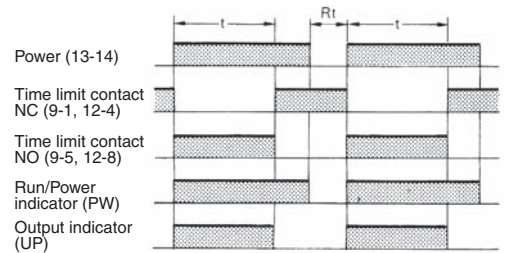
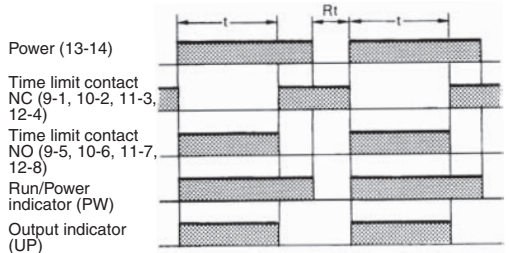
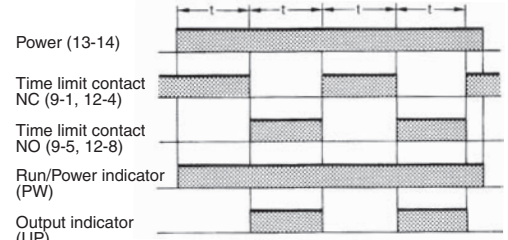
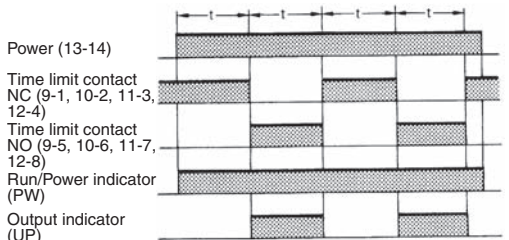
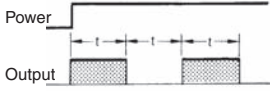
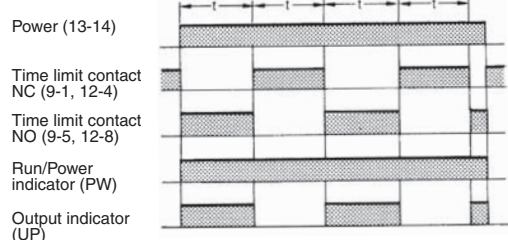
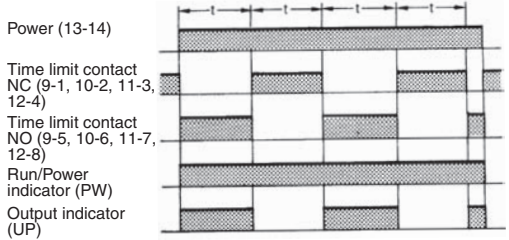
Operating Modes

Operating mode	Setting	Factory-set
ON-delay		Yes
Interval		No
Flicker OFF-start		No
Flicker ON-start		No

Note: The bottom two DIP switch pins are used to select the operating mode.



Timing Chart

Operating mode	Timing chart	
	H3YN-2/-21	H3YN-4/-41
ON-delay 	Power (13-14) Time limit contact NC (9-1, 12-4) Time limit contact NO (9-5, 12-8) Run/Power indicator (PW) Output indicator 	Power (13-14) Time limit contact NC (9-1, 10-2, 11-3, 12-4) Time limit contact NO (9-5, 10-6, 11-7, 12-8) Run/Power indicator (PW) Output indicator (UP) 
Interval 	Power (13-14) Time limit contact NC (9-1, 12-4) Time limit contact NO (9-5, 12-8) Run/Power indicator (PW) Output indicator (UP) 	Power (13-14) Time limit contact NC (9-1, 10-2, 11-3, 12-4) Time limit contact NO (9-5, 10-6, 11-7, 12-8) Run/Power indicator (PW) Output indicator (UP) 
Flicker OFF-start 	Power (13-14) Time limit contact NC (9-1, 12-4) Time limit contact NO (9-5, 12-8) Run/Power indicator (PW) Output indicator (UP) 	Power (13-14) Time limit contact NC (9-1, 10-2, 11-3, 12-4) Time limit contact NO (9-5, 10-6, 11-7, 12-8) Run/Power indicator (PW) Output indicator (UP) 
Flicker ON-start 	Power (13-14) Time limit contact NC (9-1, 12-4) Time limit contact NO (9-5, 12-8) Run/Power indicator (PW) Output indicator (UP) 	Power (13-14) Time limit contact NC (9-1, 10-2, 11-3, 12-4) Time limit contact NO (9-5, 10-6, 11-7, 12-8) Run/Power indicator (PW) Output indicator (UP) 

Note: t: Set time
Rt: Reset time