

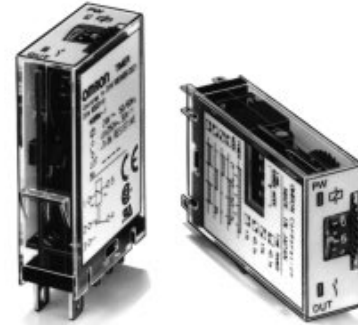
# Solid-state timer H3RN



Ph: 03 5278 8222 Fax: 03 5278 9761  
65 Douro Street, North Geelong VIC 3215  
www.factorycontrols.com.au

## Ultra-slim Timer for G2R Relay Socket

- Pin configuration compatible with G2R Relay and mounts to the P2R/P2RF Socket.
- Standard multiple time ranges and multiple operating modes.
- Conforms to EN61812-1 and IEC60664-1 4 kV/2 for Low Voltage, and EMC Directives.



## Model Number Structure

### Model Number Legend

H3RN-□□  
1 2

#### 1. Output

- 1: SPDT
- 2: DPST-NO

#### 2. Time Range

- None: Short-time range (0.1 s to 10 min)
- 1: Long-time range (0.1 min to 10 hrs)

## 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 VAC; 12, 24 VDC	SPDT	H3RN-1	H3RN-11
	DPST-NO	H3RN-2	H3RN-21

**Note:** Specify both the model number and supply voltage when ordering.  
Example: H3RN-1 24 VAC

□ Supply voltage

### Accessories (Order Separately)

#### Connecting Socket

Timer	Track mounting/Front connecting socket	Back connecting socket
H3RN-1/-11	P2RF-05-E	P2R-057P
H3RN-2/-21	P2RF-08-E	P2R-087P

# Specifications

## ■ Ratings

Item	H3RN-1/H3RN-2	H3RN-11/H3RN-21
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 hrs max. selectable)
Rated supply voltage	24 VAC (50/60 Hz); 12, 24 VDC	
Pin type	Plug-in	
Operating mode	ON-delay, interval, flicker OFF-start, or flicker-ON start selectable by DIP switch	
Operating voltage range	85% to 110% of rated supply voltage (12 VDC: 90% to 110% of rated supply voltage) (see note)	
Reset voltage	10% max. of rated supply voltage	
Power consumption	24 VAC: Relay ON: approx. 0.8 VA (0.6 W) at 24 VAC, 60 Hz Relay OFF: approx. 0.6 VA (0.4 W) at 24 VAC, 60 Hz 12 VDC: Relay ON: approx. 0.5 W at 12 VDC Relay OFF: approx. 0.2 W at 12 VDC 24 VDC: Relay ON: approx. 0.6 W at 24 VDC Relay OFF: approx. 0.3 W at 24 VDC	
Control outputs	3 A at 250 VAC, resistive load ( $\cos\phi = 1$ ) (G6B-2□14P-FD-US used) The minimum applicable load is 10 mA at 5 VDC (P reference value).	

**Note:** When using the H3RN in any place where the ambient temperature is more than 50°C, supply 90% to 110% of the rated voltages (12 VDC: 95% to 110% of the rated voltage).

## ■ Characteristics

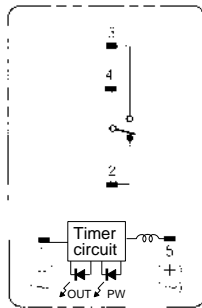
Item	H3RN-1/H3RN-2	H3RN-11/H3RN-21
Accuracy of operating time	±1% FS max. (1 s range: ±1%±10 ms max.)	
Setting error	±15%±50 ms FS max.	
Reset time	Min. power-opening time: 12, 24 VDC: 0.1 s max. (including halfway reset) 24 VAC: 0.5 s max. (including halfway reset)	
Influence of voltage	±2% FS max.	
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 operating circuit and control output, or contacts of different poles) 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: 300 m/s <sup>2</sup> Malfunction: 100 m/s <sup>2</sup>	
Ambient temperature	Operating: -10°C to 55°C (with no icing) Storage: -25°C to 65°C (with no icing)	
Ambient humidity	Operating: 35% to 85%	
Life expectancy	Mechanical: 10,000,000 operations min. (under no load at 1,800 operations/h) Electrical: 100,000 operations min. (3 A at 250 VAC, resistive load at 1,800 operations/h)	
Impulse withstand voltage	Between power terminals: 1 kV	
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 (Terminal screw sections are excluded.)	
Weight	Approx. 18 g	

Item	H3RN-1/H3RN-2	H3RN-11/H3RN-21
<b>EMC</b>	(EMI) Emission Enclosure: Emission AC Mains: (EMS) Immunity ESD:  Immunity RF-interference from AM Radio Waves: Immunity Burst:  Immunity Surge:	EN61812-1 EN55011 Group 1 class A EN55011 Group 1 class A EN61812-1 EN61000-4-2: 6 kV contact discharge (level 3) 8 kV air discharge (level 3) IEC61000-4-3:10 V/m (80 MHz to 1 GHz) (level 3) EN61000-4-4: 2 kV power-line (level 3) 2 kV I/O signal-line (level 4) IEC51000-4-5: 1 kV line to line (level 3) 2 kV line to ground (level 3)
<b>Approved standards</b>	UL508, CSA C22.2 No. 14 Conforms to EN61812-1, IEC60664-1 4 kV/2. Output category according to IEC60947-5-1.	

## Connections

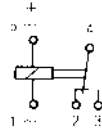
### ■ Connection

#### H3RN-1/H3RN-11

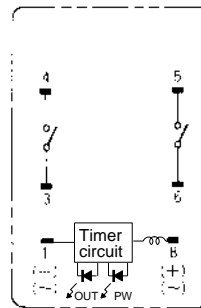


Bottom View

#### DIN Indication

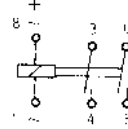


#### H3RN-2/H3RN-21



Bottom View

#### DIN Indication

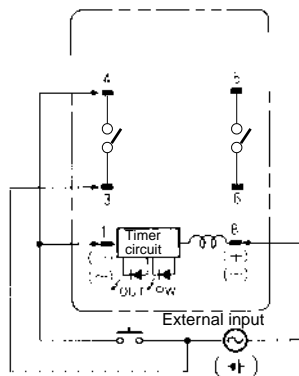


### Pulse Operation

A pulse output for a certain period can be obtained with a random external input signal.

Use the H3RN in interval mode as shown in the following timing charts.

#### H3RN-2/H3RN-21



Power (3-8)

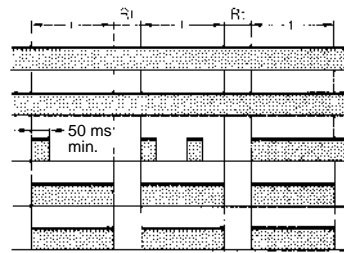
External short circuit (1-4)

External input (1-3)

Time limit contact NO (6-5)

Run/Power indicator (PW)

Output indicator (OUT)



**Note:** t: Set time  
Rt: Reset time



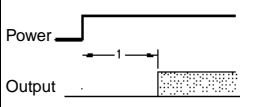
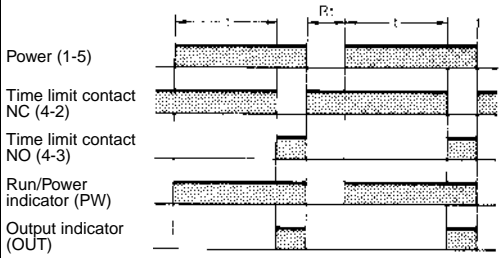
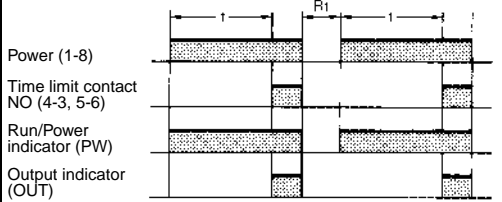
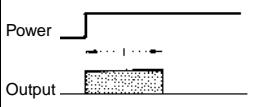
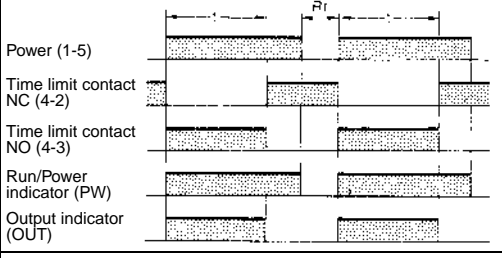
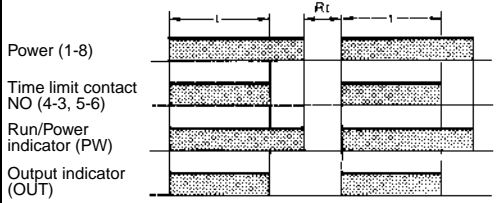
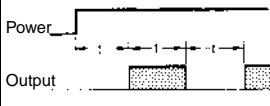
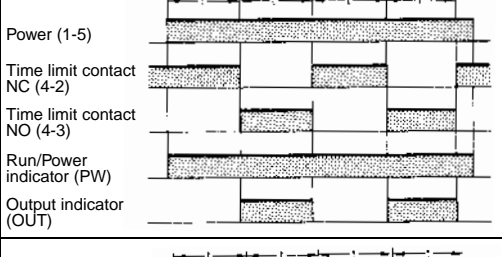
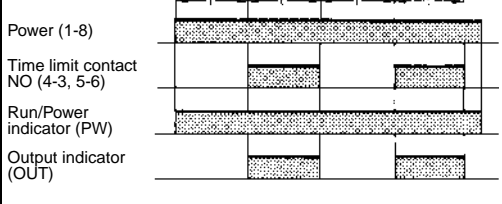
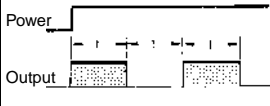
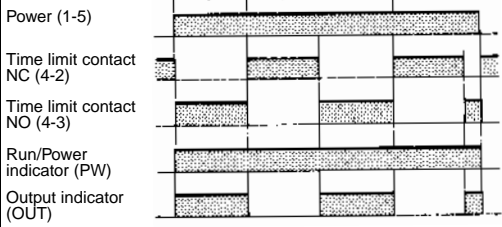
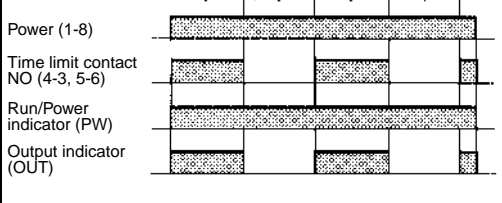
#### Caution

Be careful when connecting wires.

Mode	Terminals
<b>Pulse operation</b>	Power supply between 3 and 8 Short-circuit between 4 and 1 Input signal between 3 and 1
<b>Operating mode; interval and all other modes</b>	Power supply between 1 and 8

# Operation

## ■ Timing Chart

Operating mode	Timing chart	
	H3RN-1/H3RN-11	H3RN-2/H3RN-21
<b>ON-delay</b> 		
<b>Interval</b> 		
<b>Flicker OFF-start</b> 		
<b>Flicker ON-start</b> 		

**Note:** t: Set time  
 Rt: Reset time

## DIP Switch Settings

The 1-s range and ON-delay mode for H3RN-1/-2, 1-min range and ON-delay mode for H3RN-11/-21 are factory-set before shipping.

### Time Ranges

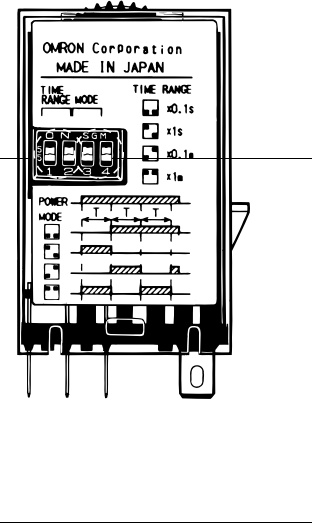
Model	Time range	Time setting range	Setting	Factory-set
H3RN-1, H3RN-2	1 s	0.1 to 1 s		Yes
	10 s	1 to 10 s		No
	1 min	0.1 to 1 min		No
	10 min	1 to 10 min		No
H3RN-11, H3RN-21	1 min	0.1 to 1 min		Yes
	10 min	1 to 10 min		No
	1 h	0.1 to 1 h		No
	10 h	1 to 10 h		No

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

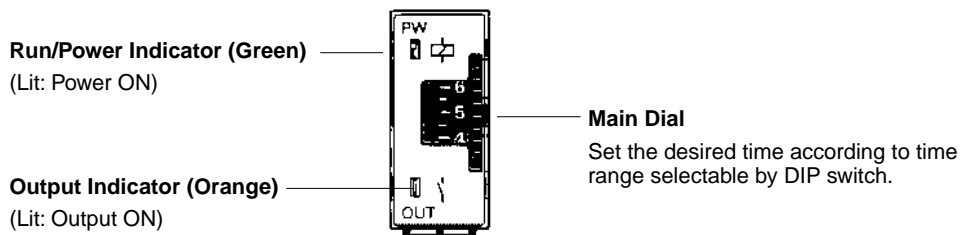
### Operating Modes

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

**Note:** The right two DIP switch pins are used to select the operating modes.



## Nomenclature

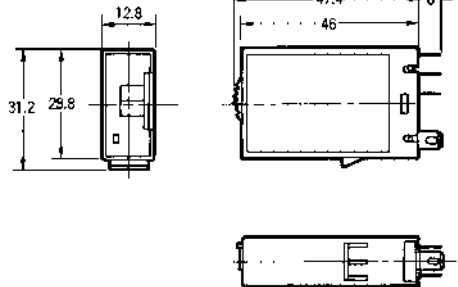
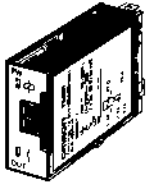


# Dimensions

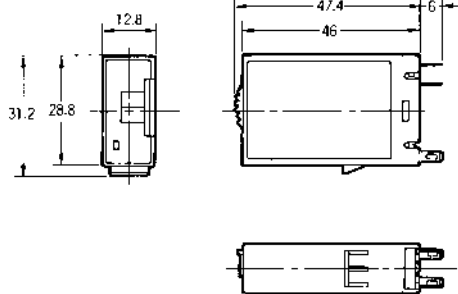
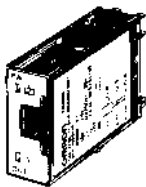
Note: All units are in millimeters unless otherwise indicated.

## Timers

### H3RN-1/H3RN-11 Front Mounting



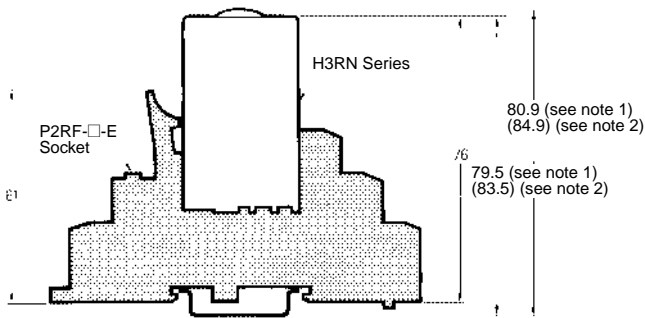
### H3RN-2/H3RN-21 Front Mounting



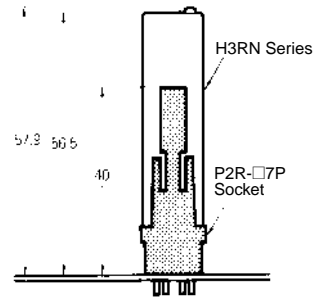
### Mounting Height

Use the P2RF-□-E or P2R-□7P to mount the H3RN. When ordering any one of these sockets, replace "□" with "05" for SPDT or "08" for DPST-NO. The P2RF-□ cannot be used because the hook is a different shape.

#### P2RF-□-E



#### P2R-□7P



- Note:**
1. The value shown indicates the dimension for the P2RF-05-E with the PFP-□N Mounting Rail. The value is 71.5 mm when using the PFP-N□2.
  2. The value shown in parentheses indicates the dimension for the P2RF-08-E with the PFP-□N Mounting Rail. The value is 75.5 mm when using the PFP-N□2.

