

# Timers

## Pulse Continuity Relay

### Type S 114



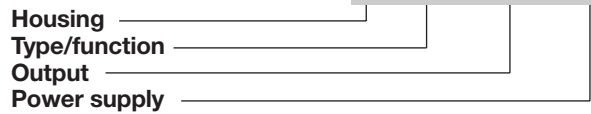
- 4 selectable time ranges: 0.15 s to 800 s
- Knob-adjustable time within range
- Oscillator-controlled time circuit
- Repeatability deviation:  $\leq 1\%$
- Direct connection for Namur sensor
- Output: 10 A SPDT or 8 A DPDT relay
- Plug-in type module
- S -housing
- LED-indication for relay and power supply on
- AC or DC power supply

### Product Description

Pulse continuity, plug-in control relay for monitoring e.g. movements of pistons or objects on a conveyor belt. Contacts or Namur sensors from our extensive selection of proximity switches may detect objects. 4 selectable time ranges and 2 selectable modes of operation.

### Ordering Key

**S 114 156 024**



### Type Selection

Plug	Output	Time range	Supply: 24 VAC	Supply: 115 VAC	Supply: 230 VAC	Supply: 24 VDC
Circular	SPDT	0.15 -800 s	<b>S 114 156 024</b>	<b>S 114 156 115</b>	<b>S 114 156 230</b>	<b>S 114 156 724</b>
	DPDT	0.15 -800 s	<b>S 114 166 024</b>	<b>S 114 166 115</b>	<b>S 114 166 230</b>	<b>S 114 166 724</b>

### Time Specifications

<b>Time ranges</b> Selected by DIP-switch	0.15 - 3 s 0.6 - 12 s 5 - 100 s 40 - 800 s	<b>Time variation</b> Within rated power supply and ambient temperature	$\leq 0.05\%/V$ $\leq 0.2\%/^{\circ}C$
<b>Time range accuracy</b>	0 to +10% on max. min. actual time $\leq$ min. set time	<b>Reset</b> Time and relay	Intercon. pins 5 & 7 pin 5 pos., 10 VDC, 2.5 mA $\geq 10$ ms
<b>Repeatability deviation</b>	$\leq 1\%$	Pulse duration Power supply interruption Namur sensor connection	Min. 200 ms 8.2 VDC, 1 k $\Omega$ pin 6 & 7 pin 6 pos.

## Output Specifications

	S 114 156	S 114 166
<b>Output</b>	SPDT relay	DPDT relay
Basic electrical insulation	250 VAC (rms) (contact/electronics)	250 VAC (rms) (contacts/elec., contact/contact)
<b>Contact ratings (AgCdO)</b>	μ (micro gap)	μ (micro gap)
Resistive loads	AC 1 10 A/250 VAC (2500 VA) DC 1 1 A/250 VDC (250 W) or 10 A/25 VDC (250 W)	8 A/250 VAC (2000 VA) 0.4 A/250 VDC (100 W) 4 A/25 VDC (100 W)
Small inductive loads	AC 15 2.5 A/230 VAC DC 13 5 A/24 VDC	2.5 A/230 VAC 5 A/24 VDC
<b>Mechanical life</b>	≥ 30 x 10 <sup>6</sup> operations	≥ 30 x 10 <sup>6</sup> operations
<b>Electrical life</b>	AC 1 ≥ 2.5 x 10 <sup>5</sup> operations (at max. load)	≥ 2.5 x 10 <sup>5</sup> operations (at max. load)
<b>Operating frequency</b>	≤ 7200 operations/h	≤ 7200 operations/h
<b>Insulation voltages</b>		
Rated insulation voltage	≥ 2.0 kVAC (rms) (contact/electronics)	≥ 2.0 kVAC (rms) (contact/electronics)
Rated transient protection volt.	4 kV (1.2/50 μs) (contact/electronics) (IEC 60664)	4 kV (1.2/50 μs) (contact/electronics) (IEC 60664)

## Supply Specifications

<b>Power supply AC types</b>	Installation cat. III (IEC 60664)
Rated operational voltage through pins 2 & 10	230 230 VAC ± 15%, 45 to 65 Hz 115 115 VAC ± 15%, 45 to 65 Hz 024 24 VAC ± 15%, 45 to 65 Hz
Drop-out tolerance	≥ 40 ms
Rated insulation voltage	≥ 2.0 kVAC (rms)
Rated transient protection volt.	4 kV (1.2/50 μs) (line/neutral)
<b>Power supply DC type</b>	Installation cat. III (IEC 60664)
Rated operational voltage 724	24 VDC ± 15% (pin 2 pos.)
Rated insulation voltage	None
Rated transient protection volt.	800 V (1.2/50 μs)
<b>Consumption</b>	
AC supply	2.5 VA
DC supply	1.5 W

## General Specifications

<b>Power ON delay</b>	≤ 200 ms
<b>Power OFF delay</b>	≥ 200 ms
<b>Indication for</b>	
Power supply ON	LED, green
Output ON	LED, red
<b>Environment</b>	
Degree of protection	IP 20 B
Pollution degree	2 (IEC 60664)
Operating temperature	-20° to +50°C (-4° to +122°F)
Storage temperature	-50° to +85°C (-58° to +185°F)
<b>Weight</b>	
AC supply	200 g
DC supply	125 g
<b>Approvals</b>	UL, CSA

## Accessories

Sockets◇	S 411
Hold down spring◇	HF
Mounting rack	SM 13
Socket covers	BB 4
Potentiometer lock	PL 3
Front mounting bezel	FRS2
Capacitive or inductive Namur sensors.	

For further information refer to "Accessories".  
For other AC/DC voltages refer to "General Information".

## Function/Time Setting

Selection of function	Selection of time ranges
DIP-switch selector (1).	DIP-switch selector (2 & 3).
1. Aut. start with relay ON	0.15 - 3 s
2. Start with relay OFF. Relay on at first input pulse	0.6 - 12 s
	5 - 100 s
	40 - 800 s

### Time setting

Knob-adjustable on scale in per cent of max. time.

DIP-switches for selecting function and time are placed behind a small removable front plate on the time relay.

## Mode of Operation

### Aut. start with relay ON

The relay operates and the time period starts when power supply is applied.

If an input pulse is received before the end of the set time period, the relay continues

operating for a full new time period starting at the leading edge of the input pulse.

If the set time period expires before a new input pulse is received, the relay releases.

### Start with relay OFF

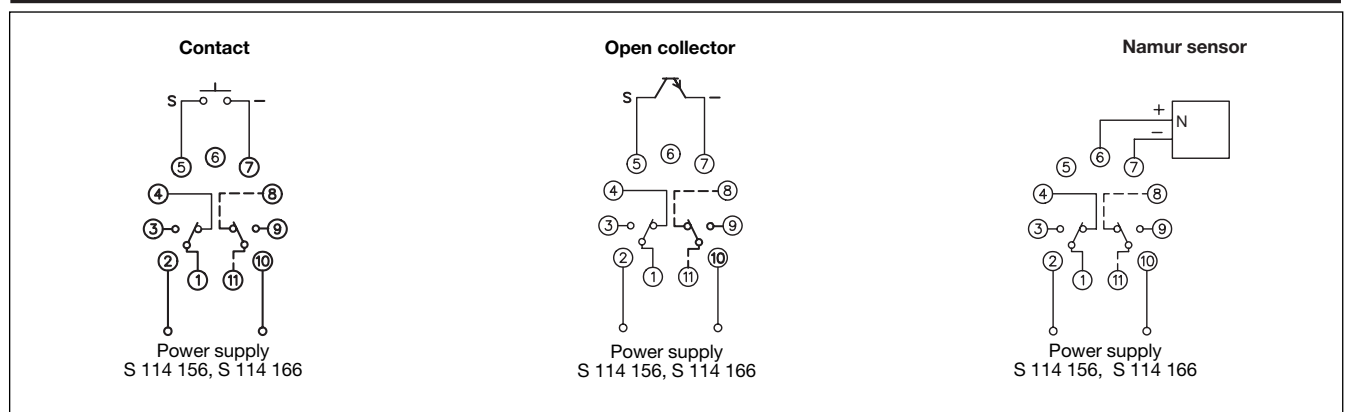
The relay operates and the time period starts at the leading edge of the first input pulse.

If a new input pulse is received before the end of the set time period, the relay con-

tinues operating for a full new time period starting at the leading edge of the new input pulse.

If the set time expires before a new input pulse is received, the relay releases.

## Wiring Diagrams



## Mode of Operation

