

Timers

Delay on Operate Multi-function

Type S 111

CARLO GAVAZZI



- 4 selectable delay on operate functions
- 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 NPN 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

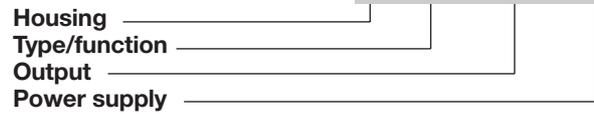
Product Description

Multi delay on operate, plug-in time relays up to 800 s covering 4 selectable time ranges and 4 selectable modes

of operation. Often used where a signal from a contact or sensor, etc., starts a conveyor belt after a given time period.

Ordering Key

S 111 156 024



Type Selection

Plug	Output	Time range	Supply: 24 VAC	Supply: 115 VAC	Supply: 230 VAC	Supply: 24 VDC
Circular	SPDT	0.15 - 800 s	S 111 156 024	S 111 156 115	S 111 156 230	S 111 156 724
	DPDT	0.15 - 800 s	S 111 166 024	S 111 166 115	S 111 166 230	S 111 166 724

Time Specifications

Time ranges Selectable by DIP-switch	0.15 - 3 s 0.6 - 12 s 5 - 100 s 40 - 800 s	Time variation Within rated power supply and ambient temperature	$\leq 0.05\%/V$ $\leq 0.2\%/^{\circ}C$
Time range accuracy	0 to +10% on max. min. actual time \leq min. set time	Reset Time and relay	Intercon. pins 5 & 7 pin 5 pos., 24 VDC, 6 mA ≥ 10 ms
Repeatability deviation	$\leq 1\%$	Pulse duration Power supply interruption Sensor supply output	Min. 200 ms 24 VDC, 15 mA pin 6 & 7 pin 6 pos.

Output Specifications

	S 111 156	S 111 166
Output Basic electrical insulation	SPDT relay 250 VAC (rms) (contact/electronics)	DPDT relay 250 VAC (rms) (contacts/elec., contact/contact)
Contact ratings (Ag-CdO) Resistive loads	μ (micro gap) AC 1 10 A/250 VAC (2500 VA) DC 1 1 A/250 VDC (250 W) or 10 A/25 VDC (250 W)	μ (micro gap) 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
Mechanical life	$\geq 30 \times 10^6$ operations	$\geq 30 \times 10^6$ operations
Electrical life	AC 1 $\geq 2.5 \times 10^5$ operations (at max. load)	$\geq 2.5 \times 10^5$ operations (at max. load)
Operating frequency	≤ 7200 operations/h	≤ 7200 operations/h
Insulation voltages Rated insulation voltage Rated transient protection volt.	≥ 2.0 kVAC (rms) (contact/electronics) 4 kV (1.2/50 μ s) (contact/electronics) (IEC 664)	≥ 2.0 kVAC (rms) (contact/electronics) 4 kV (1.2/50 μ s) (contact/electronics) (IEC 664)



Supply Specifications

Power supply AC types	Installation cat. III (IEC 664)	
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) (supply/elec.)
Rated transient protection volt.		4 kV (1.2/50 μs) (line/neutral)
Power supply DC type	Installation cat. III (IEC 664)	
Rated operational voltage	724	24 VDC ± 15% (pin 2 pos.)
Rated insulation voltage		None
Rated transient protection volt.		4 kV (1.2/50 μs)
Consumption	AC supply	2.5 VA
	DC supply	1.5 W

General Specifications

Power ON delay	≤ 200 ms
Power OFF delay	≥ 200 ms
Indication for	
Power supply ON	LED, green
Output ON	LED, red
Environment	IP 20 B
Pollution degree	2 (IEC 664)
Operating temperature	-20° to +50°C (-4° to +122°F)
Storage temperature	-50° to +85°C (-58° to +185°F)
Weight	
AC types	200 g
DC types	125 g
Approvals	UL, CSA

Mode of Operation

Aut. start - man. restart

The time period starts when power supply is applied. At the end of the set time period, the relay operates. When interconnecting pins 5 and 7 after expiration of the time period, the relay releases and a new time period starts.

Aut. start - man. restart and time reset

The time period starts when power supply is applied. At the end of the set time period, the relay operates. When interconnecting pins 5 and 7 for at least 10 ms during the time period, the time is reset. When interconnecting 5 and 7 after expiration of the time period, the relay releases and a new time period starts when pins 5 and 7 are disconnected.

Man. start and restart

The time period starts when pins 5 and 7 are interconnected for at least 10 ms. At the end of the set time period, the relay operates regardless of the connection between pins 5 and 7. Renewed connection between pins 5 and 7 after expiration of the time period will release relay and a new time period will start.

Man. start - man. restart and time reset

The time period starts when pins 5 and 7 are disconnected. At the end of the first set time period, the relay operates. When interconnecting pins 5 and 7 for at least 10 ms during the time period, the time is reset. When interconnecting pins 5 and 7 after expiration of the time period, the relay releases and a new time period starts, when pins 5 and 7 are disconnected.

Function/Time Setting

Selection of function

DIP-switch selector (1 & 2).

1. Aut. start - man. restart

2. Aut. start - man. restart and time reset

3. Man. start and restart

4. Man. start - man. restart and time reset.

Selection of time ranges

DIP-switch selector (3 & 4).

0.15 - 3 s

0.6 - 12 s

5 - 100 s

40 - 800 s

Time setting

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

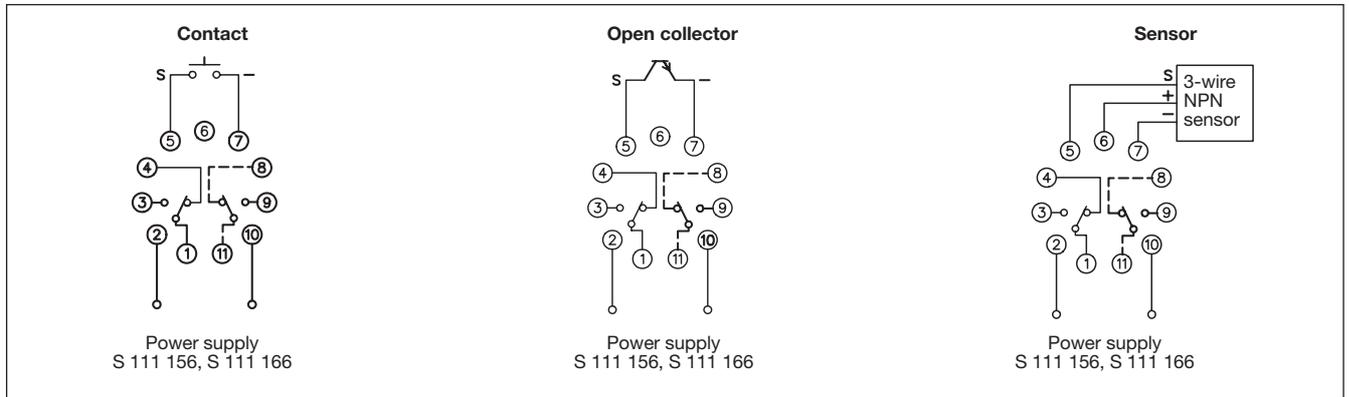
DIP-switches for selecting function and time are placed behind a small removable front plate on the time relay.

Accessories

Sockets◇	S 411
Hold down spring◇	HF
Mounting rack	SM 13
Socket covers	BB 4
Potentiometer lock	PL 3
Front mounting bezel	FRS2
3-wire (NPN) inductive, capacitive or photoelectric switches.	

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

Wiring Diagrams



Mode of Operation

