# Timers Delay on Operate Multi-function Type S 111





## **Product Description**

Multi delay on operate, plugin 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
Housing Type/function Output				
Power supply				

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: ≤ 1%
Direct connection for NPN sensor
Output: 10 A SPDT or 8 A DPDT relay

• LED-indication for relay and power supply on

• Plug-in type module

• AC or DC power supply

S -housing

# **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	Time variation Within rated power supply and ambient temperature	≤ 0.05%/V ≤ 0.2%/°C
	40 - 800 s	Reset	
Time range accuracy	0 to $+10\%$ on max. min. actual time $\leq$ min. set time	Time and relay	Intercon. pins 5 & 7 pin 5 pos., 24 VDC, 6 mA
Repeatability deviation	≤ 1%	Pulse duration Power supply interruption Sensor supply output	≥ 10 ms 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 AC 1 DC 1 or Small inductive loads AC 15 DC 13		μ (micro gap) 10 A/250 VAC (2500 VA) 1 A/250 VDC (250 W) 10 A/25 VDC (250 W) 2.5 A/230 VAC 5 A/24 VDC	μ (micro gap) 8 A/250 VAC (2000 VA) 0.4 A/250 VDC (100 W) 4 A/25 VDC (100 W) 2.5 A/230 VAC 5 A/24 VDC
Mechanical life		$\geq$ 30 x 10 <sup>6</sup> operations	$\geq$ 30 x 10 <sup>6</sup> operations
Electrical life	AC 1	$\geq$ 2.5 x 10 <sup>5</sup> operations (at max. load)	$\geq$ 2.5 x 10 <sup>5</sup> operations (at max. load)
Operating frequency		$\leq$ 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 µs) (contact/electronics) (IEC 664)	≥ 2.0 kVAC (rms) (contact/electronics) 4 kV (1.2/50 µs) (contact/electronics) (IEC 664)



## **Supply Specifications**

Power supply AC Rated operation	<b>C types</b> al voltage	Installation cat. III (IEC 664)
through pins 2 8	10 230	230 VAC ± 15%, 45 to 65 Hz
	115	115 VAC ± 15%, 45 to 65 Hz
<b>_</b>	024	$24 \text{ VAC} \pm 15\%$ , 45 to 65 Hz
Drop-out tolerar	ice	≥ 40 ms
Rated insulation	voltage	$\geq$ 2.0 kVAC (RMS)
		(supply/elec.)
Rated transient protection volt.		4 kV (1.2/50 µs)
		(line/neutral)
Power supply DO	C type	Installation cat. III (IEC 664)
Rated operationa	al 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	8 2). 1 2 3 4	Select DIP-s	stion of
1.Aut. start - man. restart		0.15	- 3s
		0.6	- 12 s
2. Aut. start - man.	et	5	- 100 s
		40	- 800 s
3. Man. start and restart		<b>Time</b> Knob	<b>setting</b> -adjusta
4. Man. start - man. restart and time rest	et.	per co	ent of m
	-	DIP-s functi behin	witches on and d a smal

	Selection of DIP-switch set	time ranges elector (3 & 4).
4		1234
3	0.15 - 3 s	
_	0.6 - 12 s	
-	5 - 100 s	
	40 - 800 s	

able on scale in ax. time.

for selecting time are placed I 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".

### **CARLO GAVAZZI**

## Wiring Diagrams



## Mode of Operation

