Timers Digital Multi-function Type S 1331

CARLO GAVAZZI



Product Description

Plug-in, µP-based, multifunction time relay with 10 selectable modes of operation and time ranges from 10 ms to 99 h. Function and time range setting by 3 rotary switches in the front. Time setting by two digital thumb-wheel switches in the front. Time controlled by contact, open collector output (NPN) or power supply.

- µP-based digital multi-function timer
- 10 functions within delay on operate, interval timer, symmetrical recycler, recycler with fixed ON time, time period multiplier
- Time ranges: 0.01 s to 99 h
- Digital trigger input for time start and reset
- Time stop input
- Four yellow LEDs each indicating 25% of remaining time
- Connection for NPN sensor
- Plug-in module, S-housing
- Output: 5 A SPDT relay
- LED-indication for relay and power supply ON
- AC or DC power supply
- Ordering Key S 1331 156 230
 Housing
 Type/function
 Output
 Power supply

Type Selection

Plug	Output	Supply: 24 VAC	Supply: 115 VAC	Supply: 230 VAC	Supply: 24 VDC	
Circular	SPDT	S 1331 156 024	S 1331 156 115	S 1331 156 230	S 1331 156 724	

Time Specifications

Time ranges Selectable by rotary switches	0.01 - 0.99 s 0.1 - 9.9 s 1 - 99 s 0.01 - 0.99 m 0.1 - 9.9 m 1 - 99 m 0.01 - 0.99 h 0.01 - 0.99 h 0.1 - 9.9 h 1 - 99 h	
Accuracy	\leq 0.5%, ±20 ms	
Repeatability deviation	≤ 0.01%	
Time variation within rated ambient temp.	0.008%/°C	
Reset Time and/or relay Time stop Input interruption Sensor supply output	nterconnect pins 5 & 7 4 VDC, 5 mA nterconnect pins 7 & 8 4 VDC, 5 mA 10 ms 210 ms 210 ms 210 ms 210 c, 10 mA	

Output Specifications

Output	SPDT	
Rated insulation voltage	250 VAC (rms) (cont./elect.)	
Contact ratings (AgCdO) Resistive loads AC 1	μ (micro gap) (IEC 60947-5-1/IEC 60337 5 Δ 250 VΔC	
DC 1 Small inductive loads AC 15 DC 13	5 A, 24 VDC 2 A, 250 VAC 3 A, 24 VDC	
Mechanical life	\geq 40 x 10 ⁶ operations	
Electrical life	10 ⁵ operations (at max. load)	
Operating frequency Operating time Release time (at nom. supply)	≤ typ. 50 Hz < 10 ms < 6 ms	
Dielectric strength Dielectric (AC rms) test voltage Rated impulse withstand voltage	≥ 2.0 kVAC (rms) (cont./elect.) 4 kV (1.2/50 µs) (cont./elect.) (IEC 60664)	



Supply Specifications

Power supply AC types Rated operational voltage through pins 2 & 10 230 115 024	Overvoltage cat. III (IEC 60664) 230 VAC ±15%, 45 to 65 Hz 115 VAC ±15%, 45 to 65 Hz 24 VAC ±15%, 45 to 65 Hz
Voltage interruption	≤ 40 ms
Rated insulation voltage	≥ 250 VAC (rms)
Rated operational power	3.0 VA
Rated impulse withstand voltag	e 4 kV (1.2/50 μs) (line/neutral)
Power supply DC type	Overvoltage cat. III (IEC 60664)
Rated operational volt. 724	24 VDC ±15% (pin 2 pos.)
Rated insulation voltage	None
Rated operational power	1.5 W
Rated impulse withstand voltag	e 800 V (1.2/50 μs)

General Specifications

Power ON delay		≤ 150 ms	
Power OFF de	lay	≥ 200 ms	
Indication for			
Power supply	ON	LED, green	
Output ON		LED, yellow	
Remaining time to elapse		4 LEDs, yellow, 25% each	
Environment			
Degree of protection		IP 20 B	
Pollution degree		2 (IEC 60664)	
Operating temperature		0° to +50°C (+34° to +122°F)	
Storage temperature		-50° to +85°C (-58° to +185°F	
Weight	AC supply	200 g	
Ū	DC supply	125 g	
Approvals		UL, CSA	
CE Marking		Yes	

Mode of Operation

In connection with all functions automatic start is possible by permanent interconnection of pins 5 & 7.

Function 0: Delay on operate, leading edge, man. start, man. restart, man. time reset.

Function 1: Interval timer, leading edge, man. start, man. restart, man. time reset.

Function 2: Symmetrical recycler, OFF-time first, leading edge, man. start, man. restart, no time reset. **Function 3:** Symmetrical recycler, ON-time first, leading edge, man. start, man. restart, no time reset.

Function 4: Delay on operate, trailing edge, man. start, man. restart, man. time reset.

Function 5: Interval timer, trailing edge, man. start, man. restart, man. time reset.

Note: The output relay only operates when the time period is running.

Function 6: Interval timer, trailing edge, man. start, man. restart, man. time reset.

Function 7: Delay on operate, leading edge, man. start, man. restart, man. time reset. Note: The relay releases on trailing edge, which means the trigger pulse must be of longer duration than the time period.

Function 8: Recycler with fixed ON-time, leading edge, man. start, man. restart, no time reset. Fixed ON-time: approx. 0.5 sec.

Function 9: Time period multiplier, leading edge, man. start, man. restart, man. time reset.

Note: Each pulse input adds the set time the total timing period. Max. time period memory is 256 pulses.

Time stop function: By interconnection of pins 7 & 8 the time function stops, and the output relay remains either released or operated. By disconnection of pins 7 & 8 the remaining time continues to elapse.

Function and Time Setting

Adjustable time setting by two digital thumb-wheel switches (1-99)

Upper knob: Time period multiplier x 0.01, x 0.1 and x 1.0.

Centre knob:

Selection of time range (seconds, minutes and hours).

Lower knob: Selection of function.

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Wiring Diagrams



Operation Diagrams

Power supply				
Pulse input (5-7)				
F 0 Relay ON	⊢⊤⊣_			
F 1 Relay ON				
F 2 Relay ON	⊢_T+T_	-+T		
F 3 Relay ON	┝ <u></u> _Ţ_ <u></u> 	-+T	┝ <u></u> _T_+_T_+_T	
F 4 Relay ON		HT4		

Power supply			
Pulse input (5-7	́)		
F 5 Relay ON		⊢—T—I	
F 6 Relay ON		⊢	
F 7 Relay ON	⊢T-I		⊢т⊣
F 8 Relay ON			
Pulse/time multiplier (5-7)			
F 9 Relay ON		<u>⊢т</u>	+T_+T+T_