RZ7-FS Electronic Timing Relays

Precision DIN-rail mounted timing relays for any industrial application

The new multifunction RZ7-FSM Electronic Timing Relay provides eight different timing functions and ten different timing ranges.

Sprecher + Schuh's new RZ7-FS precision electronic timing relays offer 19 different output functions applicable to all types of industrial control. In addition to standard ON-Delay and OFF-Delay relays, the series also includes many specials such as an OFF-Delay that operates without supply voltage. Various timing ranges from 0.05 seconds to 60 hours are available, with many relays offering multi-time setting capability in the same device.

Solid state accuracy and reliability

Except for their hard silver contacts, all RZ7-FS timing relays are built with solid state electronics and controlled by a microprocessor. They are accurate to within 0.2 percent. Their ruggedness and high level of accuracy is due to the thorough testing of function, timing characteristics and surge voltage strength performed on each device prior to shipment.

In addition, RZ7-FS relays function reliably from 15% under rated operating voltage to 10% over rated voltage (AC). Voltage tolerance is even greater in DC applications.

Eliminates additional relays

The standard RZ7-FS is supplied with one single pole double throw (SPDT) contact within a compact case only 22.5mm wide. If more contacts are required, several relays are available that provide two separate, electrically isolated SPDT contacts within the same narrow footprint. Output two is selectable as an instantaneous contact, which can eliminate the need for auxiliary relays in complex installations. These two pole relays can also be used with an external potentiometer for remote time setting.

Multiple functions and timing ranges in one relay

The RZ7-FSM combines *eight* separate timing functions (plus ON and OFF functions) into one device. In addition, ten timing ranges are individually selectable from 0.05 seconds to 60 hours. These special relays reduce inventories and are ideal for maintaining remote installations where stocking several different timing relays would not be practical.

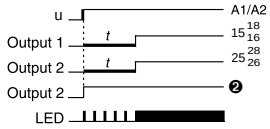
Many safety and convenience features

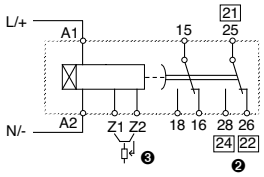
- Every RZ7 accepts a broad range of AC and DC supply voltages without special ordering.
- Each relay is equipped with an LED that indicates four output status conditions.
- Finger and back of hand protection to IP40.
- Terminals are captive and supplied in the open position.
- All RZ7's can be surface mounted, rail mounted, or mounted directly on our family of CA7/CS7 or CA4/CS4 devices.
- RZ7 relays can be mounted in any plane.
- Terminals, setting knob and LED's are all accessible from the front of the unit.
- RZ7 Timing Relays are very compact, measuring approximately 1" x 3" x 4".
- Hazardous location timing relays also available.

RZ7-FS Timing Relays – Multi-Function, One and Two Pole

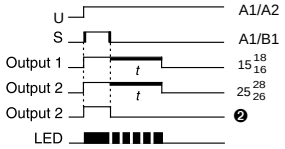
RZ7-FSM Multi-Function Relay	Functional Description	Type	Catalog Number	
	**Multi-Function Relay (M)** The RZ7-FSM multifunction relay combines *eight* timing functions plus ON and OFF functions (for installation and maintenance). Each timing function and timing range is selectable from the face of the relay with a screwdriver actuated knob. The RZ7-FSM offers the following timing functions: On-Delay On and Off-Delay Fleeting Off-Delay On-Delay Pulse Generator ON Function (see below) OFF Function (see below) Off-Delay One Shot / Watchdog Impulse Converter Symmetric Flasher Starting With a Pulse The two pole RZ7-FSM4 offers two separate, electrically isolated single pole double throw (SPDT) contacts which allow applications in complex installations without additional auxiliary relays. This series may also be operated remotely via an external potentiometer.	• One SPDT contact • Multifunction, multi-timing range relay (from 0.05s to 60h) ❹	**RZ7-FSM3UU23**	
		• Two SPDT contacts ❷ • Multifunction, multi-timing range relay (from 0.05s to 60h) ❹	**RZ7-FSM4UU23**	

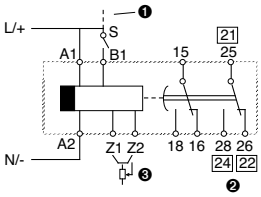
On-Delay (A)



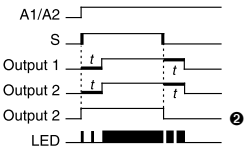


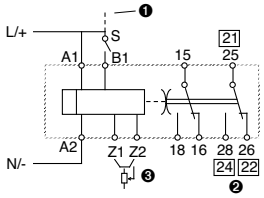
Off-Delay (B)



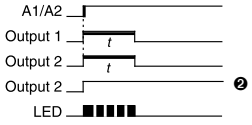


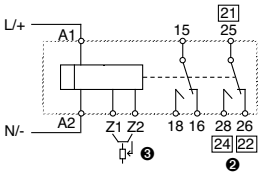
On and Off-Delay (C)



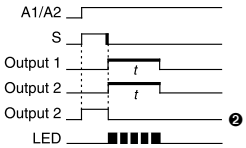


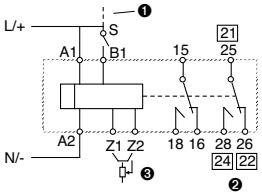
One Shot / Watchdog (D)



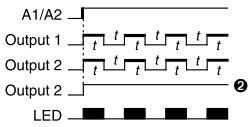


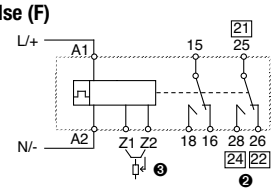
Fleeting Off-Delay (E)



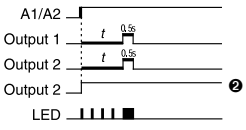


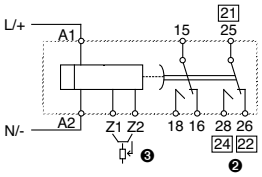
Symmetric Flasher Starting With a Pulse (F)



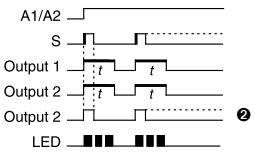


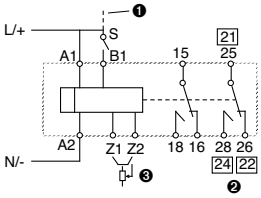
On-Delay Pulse Generator (I)





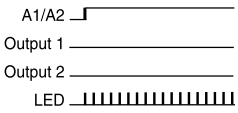
Impulse Converter (L)



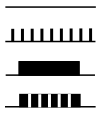


ON-Function

OFF-Function



Function display LED (Green)



Output in rest position, no timing
Output in rest position, time running
Output in operation position, no timing
Output in operation position, time running

Supply Voltage

The RZ7-FSM timer accepts supply voltages of 24…48VDC and 24…240VAC. Other supply voltages are available by special order. See Quick Selection Guide on page G37 for details or contact your Sprecher + Schuh representative for information.

❶ For timing control, a voltage other than the supply voltage can also be used.
❷ Output two is selectable as an instantaneous contact by sliding a switch on the faceplate.
❸ Bridge or potentiometer 10kΩ, min. 0.25W (low voltage) for external time setting.
❹ Function selection and timing range is screwdriver selectable from the faceplate. Exact timing range selections can be found in Technical Information.

Technical Data

Timing Characteristics (according to VDE 0435, Part 2021)		
Timing ranges for		
RZ7-FSM-A, B, C, D, E, F, I, & L	(1s)	0.05…1 sec
RZ7-FSH	(3s)	0.15…3 sec
	(10s)	0.5…10 sec
	(1mn)	0.05…1 min
	(3mn)	0.15…3 min
	(10mn)	0.5…10 min
	(1h)	0.05…1 hour
	(3h)	0.15…3 hours
	(10h)	0.5…10 hours
	(60h)	3…60 hours
RZ7-FSQ	(2.5s)	0.15…2.5 sec
	(10s)	0.5…10 sec
	(80s)	4…80 sec
	(10mn)	0.5…10 min
Setting accuracy	±5% of full scale value	
Repeatability	±0.2% of the setting values	
Tolerance	Voltage: ±0.001%/%ΔU	
	Temperature: ±0.025%/°C	
Power Supply		
Supply voltages	24…48VDC and 24…240VAC, 50/60Hz	
	(multi voltage)	
	12VDC	
	24…240V AC or DC (universal voltage)	
	346…440VAC, 50/60Hz	
Voltage tolerance	AC: -15%... +10%	
	DC: -20%... +20%	
Power consumption	AC: 5VA at 240V	
	DC: 0.5W at 24V	
Time energized	100%	
Reset time	50ms	
Voltage interruption	≤20ms without reset (supply voltage)	
Input Impedance	Relay On: 3k-13k ohms Relay Off: 0.7k-4k ohms	
Cable length (supply voltage control)	250 meters (800 ft.) max.	
Pulse Control (B1)		
Impulse duration	≥50ms (AC), ≥30ms (DC)	
Input voltage	Supply voltage range	
Input current	1 mA	
Max. Leakage Current	400 micro Amps	
Cable length	max. 250 m (800 ft.) without parallel load between B1 & A2	
	max. 50 m (160 ft.) with load (<3kΩ) between B1 & A2	
Outputs		
Type of outputs	Relay contacts: hard silver	
Maximum admissible operating voltage	Alternating current: 440VAC	
Dielectric Coil to contact Withstand Voltage	5,000 V	
Switching capacity		
Current I_{th}: (AC1)	8A (5A for RZ7-FSQ)	
Power:	2000VA	
	according to IEC947-5-1:	
	3A/440VAC (inductive load, AC14)	
	3A/250VAC (inductive load, AC15)	
	1A/24VDC (inductive load, DC13)	
	according to UL 508:	
	1.5A/250VAC (B300)	
	3A/120VAC (B300)	
Short circuit resistance	10 A gL (fast blow fuse)	

Life expectancy (electrical)	4 million ops. at 1A/250VAC, cosφ = 1
	0.2 million ops. at 6A/250VAC, cosφ = 1
	1.5 million ops. at 1A/250VAC, cosφ = 0.3
	0.3 million ops. at 3A/250VAC, cosφ = 0.3
	0.5 million ops. at 6A/24VDC, resistive
	2 million ops. at 4A/24VDC, resistive
	2 million ops. at 0.2A/230VDC, resistive
	1 million ops. at 0.4A/24VDC, L/R = 20ms
	1 million ops. at 0.2A/110VDC, L/R = 20ms
	1 million ops. at 0.1A/230VDC, L/R = 20ms
Life expectancy (mechanical)	30 million operations
General Data Insulation Characteristics	2 kVAC/50 Hz test voltage according to VDE 0435 and 6 kV 1.2/50 µs surge voltage according to IEC 947-1 between all inputs and outputs
EMC/Interference Immunity	Performance of following requirements: - Surge capacity of the supply voltage according to IEC1000-4-5: 4 kV 1.2/50 µs - Burst according to IEC 1000-4-4: 6 kV/ 6/50ns - ESD discharge according to IEC 1000-4-2: - Contact 8 kV, air 8 kV - Electromagnetic HF field according to IEC 801-3 and conducted electromagnetic HF signal according to IEC 801-6: Level 3
EMC/Emission	Electromagnetic fields according to EN 55 022: Class B
Safe isolation	According to VDE 106, part 101
Climatic withstand	56 cycles (24h) at 25…40°C and 95% relative humidity according to IEC 68-2-30 and IEC 68-2-3.
Vibration resistance	4 g in 3 axis at 10…500 Hz, test FC according to IEC 68-2-6
Shock resistance	50 g according to IEC 68-2-27
Protection class	Enclosure: IP40 IP30 (single function) Terminal: IP20 according to IEC 947-1
Weight	100g
Approvals/Standards	UL, C-UL up to 240VAC, CE
Ambient temperature	Open: –25°C…+60°C Enclosed: –25°C…+45°C Storage –25°C…+85°C
Connections Screw terminal -	M3.5 for Pozidrive No.2, Phillips and slotted screws No.2 suitable for power screwdriver.
Rated tightening torque -	0.8 Nm (max. 1.2 Nm) - [8.8 lb-in]
Wire Size -	Dual-chamber system for terminal cross-sections of 1 x 0.5mm² (solid) or 2 x 2.5mm² (flexible with sleeve), AWG 20…14.
Finger Protection -	According to VDE 0106
Mounting Relays	– Snap-on mounting (35mm DIN-rail) – Side mounting on CA7contactors and CS7 with dovetail joint [surface mounting in any position] – Screw fixing by Panel Mount Adapter and two screws (M4) [surface mounting in any position]
Disposal	Synthetic material without dioxin according to EC/EFTA notification No. 93/0141/D. Electrical contacts contain cadmium.
Standards	EN 60947-1, EN 60947-5-1, EN 50081-1, IEC 947, UL 508. CSA 22.2 No. 14

RZ7 Relative Scale Setting Knob

Series RZ7 Timing Relays have a "relative scale" setting knob numbered 0 to 1.0. Think about this as 0 to 100% of the relay's built-in time range. Example: To set an RZ7-FS timing relay (with a 0.05 to 1 minute range) to activate after 25 seconds:

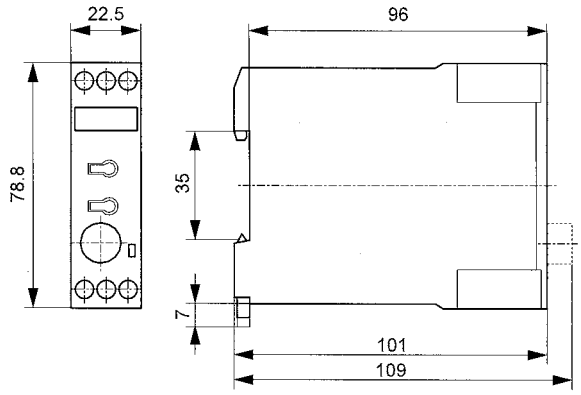
1) Divide the desired activation time (25 seconds) by the maximum time limit of the relay (60 seconds).

   25 ÷ 60 = .416

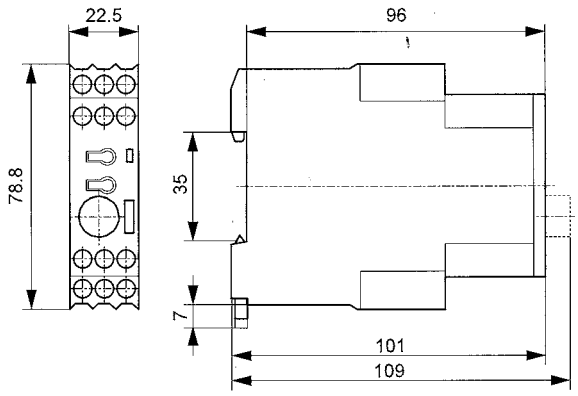
2) Rotate the setting knob to just past the .4 mark.

Series RZ7-FS Timing Relays *(one and two pole)*

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.



RZ7-FS (1 SPDT contact)



RZ7-FS (2 SPDT contacts)

Panel Mount Adaptor (26.506.221-01)