

# 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.

**Quick Selection Guide**

| Single Function Timing Relays |   |  |                      |   |
|-------------------------------|---|--|----------------------|---|
| RZ7-FS                        | A                                       | 3  | A                    | U23   |
| Type                          | Function                                | Contacts   | Time Ranges          | Supply Voltages   |
| A                             | On-Delay                                | <i>All functions:</i><br><b>3</b> One single pole double throw contact<br><br><i>Functions A &amp; B only:</i><br><b>4</b> Two single pole double throw contacts ②<br><br><i>(Available with Time Range "U" only. Not available with "U18" supply voltage)</i> | A 0.05...1 second    | <i>Standard:</i><br><b>U23</b> 24...48VDC<br>24...240V 50/60Hz<br><br><i>Special Order:</i><br><b>U18*</b> 24...240VAC or DC<br><b>A40</b> 346...440V 50/60Hz ③<br><b>Z12</b> 12VDC<br><br><i>* Not available with Time Range "U"</i> |
| B                             | Off-Delay                               |  | B 0.15...3 seconds   |   |
| C                             | On and Off-Delay                        |  | C 0.5...10 seconds   |   |
| D                             | One Shot / Watchdog                     |  | D 1.5...30 seconds   |   |
| E                             | Fleeting Off-Delay                      |  | E 0.05...1 minute    |   |
| F                             | Symmetric flasher starting with a pulse |  | F 0.15...3 minutes   |   |
| G                             | Symmetric flasher starting with a pause |  | G 0.5...10 minutes   |   |
| H                             | On-Delay pulse generator                |  | H 1.5...30 minutes   |   |
| I                             | On-Delay (pulse controlled)             |  | I 0.05...1 hour      |   |
| J                             | One Shot / Watch Dog (pulse controlled) |  | J 0.15...3 hours     |   |
| K                             | Impulse Converter                       |  | K 0.5...10 hours     |   |
| L                             |   |  | L 3.0...60 hours     |   |
|                               |   |  | U 0.05s...60 hours ① |   |

| RZ7-FS | Q                                | 3   | Q                      | U18                   |
|--------|----------------------------------|---|------------------------|-----------------------|
| Type   | Function                         | Contacts  | Time Ranges            | Supply Voltages       |
| Q      | Off-Delay Without Supply Voltage | <b>3</b> One single pole double throw contact<br><b>4</b> Two single pole double throw contacts ② | Q 0.15s...10 minutes ① | U18 24...240VAC or DC |

| Multi-Function Timing Relay |  |   |                     |  |
|-----------------------------|--|---|---------------------|--|
| RZ7-FS                      | M  | 3   | U                   | U23  |
| Type                        | Function   | Contacts  | Time Ranges         | Supply Voltages  |
| M                           | Multi-Function<br><i>Eight single functions plus ON &amp; OFF function (for installation/maintenance)</i><br>- On-Delay<br>- Off-Delay<br>- On and Off-Delay<br>- One Shot / Watchdog<br>- Fleeting Off-Delay<br>- Symmetric flasher starting with a pulse | <b>3</b> One single pole double throw contact<br><b>4</b> Two single pole double throw contacts ② | U 0.05...60 hours ① | <i>Standard:</i><br><b>U23</b> 24...48VDC<br>24...240V 50/60Hz<br><br><i>Special Order:</i><br><b>U18</b> 24...240VAC or DC<br><b>A40</b> 346...440V 50/60Hz ③<br><b>Z12</b> 12VDC |

| Special Function Timing Relays |   |  |   |  |
|--------------------------------|---|--|---|--|
| RZ7-FS                         | H   | 3  | U   | U23  |
| Type                           | Function  | Contacts   | Time Ranges   | Supply Voltages  |
| H                              | Repeat Cycle Timer (Flasher)<br><i>Includes four separate functions</i><br>- Supply voltage controlled, output starts with a pause<br>- Supply voltage controlled, output starts with a pulse<br>- Pulse controlled, output starts with a pause<br>- Pulse controlled, output starts with a pulse | <i>All functions:</i><br><b>3</b> One single pole double throw contact | <i>For equal timing of pulse and pause</i><br>U 0.05s...60 hours ①<br><br><i>For separate timing of pulse and pause</i><br>V 2 x 0.05s...60 hours ① | <i>Standard:</i><br><b>U23</b> 24...48VDC<br>24...240V 50/60Hz<br><br><i>Special Order:</i><br><b>A40</b> 346...440V 50/60Hz ③<br><b>Z12</b> 12VDC |

| RZ7-FS | Y                      | 2                                   | C   | U23  |
|--------|------------------------|-------------------------------------|---|--|
| Type   | Function               | Contacts                            | Time Ranges   | Supply Voltages  |
| Y      | Wye Delta Timing Relay | <b>2</b> Two normally open contacts | C 0.5...10 seconds<br>D 1.5...30 seconds<br>E 0.05...1 minute<br>F 0.15...3 minutes<br>G 0.5...10 minutes | <i>Standard:</i><br><b>U23</b> 24...48VDC<br>24...240V 50/60Hz<br><br><i>Special Order:</i><br><b>A40</b> 346...440V 50/60Hz ③ |

① Multi-time setting range. See Technical Section for specific time settings.  
 ② Second output selectable as timed or instantaneous.

③ Timers with supply voltage code A40 (346...440VAC) are not UL listed. RZ7-FSx4 models are not available with supply voltage code A40.

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

| Functional Description   | Functional Diagram | Terminal Arrangement | Type  | Catalog Number      | Price      |
|--|--------------------|----------------------|---|---------------------|------------|
| <b>ON-Delay Timing Relay (A)</b><br>When supply voltage is applied, output contact(s) change state after time delay $t$ .  |                    |                      | • One SPDT contact<br>• Single timing range                         | <b>RZ7-FSA3*U23</b> | <b>102</b> |
|  |                    |                      | • One SPDT contact<br>• Multi-timing range (from 0.05s to 60h) ④    | <b>RZ7-FSA3UU23</b> | <b>107</b> |
|  |                    |                      | • Two SPDT contacts ②<br>• Multi-timing range (from 0.05s to 60h) ④ | <b>RZ7-FSA4UU23</b> | <b>141</b> |
| <b>OFF-Delay Timing Relay (B)</b><br>When control contact "S" closes, output contact(s) change state immediately. When control contact S opens, output contact(s) change state after time delay $t$ . Constant supply voltage required on terminals A1/A2.<br><br><b>Note:</b> Control pulse duration minimum 50ms (AC) - 30ms (DC). |                    |                      | • One SPDT contact<br>• Single timing range                         | <b>RZ7-FSB3*U23</b> | <b>102</b> |
|  |                    |                      | • One SPDT contact<br>• Multi-timing range (from 0.05s to 60h) ④    | <b>RZ7-FSB3UU23</b> | <b>107</b> |
|  |                    |                      | • Two SPDT contacts ②<br>• Multi-timing range (from 0.05s to 60h) ④ | <b>RZ7-FSB4UU23</b> | <b>141</b> |
| <b>Off-Delay Without Supply Voltage (Q) ⑥</b><br>When supply voltage is applied, output contact(s) change state immediately. When supply voltage is removed, output contact(s) change state after time delay $t$ .   |                    |                      | • One SPDT contact<br>• Multi-timing range (from 0.15s to 10min) ⑤  | <b>RZ7-FSQ3QU18</b> | <b>203</b> |
|  |                    |                      | • Two SPDT contacts<br>• Multi-timing range (from 0.15s to 10min) ⑤ | <b>RZ7-FSQ4QU18</b> | <b>237</b> |

### Supply Voltage

Single Function RZ7-FS...U23 timers (except RZ7-FSQ) accept supply voltages of 24...48VDC and 24...240VAC (RZ7-FSQ accepts 24...240VAC or DC). Other voltages are available by special order. See Quick Selection Guide on page G37 for details or contact your Sprecher + Schuh representative for information.

- ① For timing control, a voltage other than the supply voltage can also be used.
- ② Output two is selectable as an instantaneous contact by sliding a switch on the faceplate.
- ③ Bridge or potentiometer 10kΩ, min. 0.25W (low voltage) for external time setting.
- ④ Timing range is screwdriver selectable from the faceplate. Timing range selections include those found in the Timing Range Code chart.
- ⑤ Timing range is screwdriver selectable from the faceplate. Exact timing ranges can be found in the Technical Section.
- ⑥ Due to shock during shipment, the state of the contacts should be verified before initial use.

### Timing Range Codes

Replace (\*) with Timing Range Code

| Timing Range  | Code     |
|---------------|----------|
| 0.05...1 sec  | <b>A</b> |
| 0.15...3 sec  | <b>B</b> |
| 0.5...10 sec  | <b>C</b> |
| 1.5...30 sec  | <b>D</b> |
| 0.05...1 min  | <b>E</b> |
| 0.15...3 min  | <b>F</b> |
| 0.5...10 min  | <b>G</b> |
| 1.5...30 min  | <b>H</b> |
| 0.05...1 hour | <b>I</b> |
| 0.15...3 hour | <b>J</b> |
| 0.5...10 hour | <b>K</b> |
| 3.0...60 hour | <b>L</b> |



RZ7-FS two pole timing relay

**RZ7-FS Timing Relays – Single Function, One Pole**

| Functional Description   | Functional Diagram | Terminal Arrangement | Type  | Catalog Number      | Price      |
|--|--------------------|----------------------|---|---------------------|------------|
| <p><b>ON and OFF-Delay Timing Relay (C)</b><br/>                     When control contact "S" closes, output contact changes state after time delay <i>t</i>.<br/>                     When control contact S opens, output contact changes state again after time delay <i>t</i>.<br/>                     Constant supply voltage required on terminals A1/A2.</p> <p><i>Note: Closure duration of S must be greater than t.</i></p> |                    |                      | <ul style="list-style-type: none"> <li>• One SPDT contact</li> <li>• Single timing range</li> </ul> | <b>RZ7-FSC3*U23</b> | <b>114</b> |
| <p><b>One Shot / Watchdog Relay (D)</b><br/>                     When supply voltage is applied, the output contact changes state for time period <i>t</i>.</p>  |                    |                      | <ul style="list-style-type: none"> <li>• One SPDT contact</li> <li>• Single timing range</li> </ul> | <b>RZ7-FSD3*U23</b> | <b>114</b> |
| <p><b>Fleeting OFF-Delay Timing Relay (E)</b><br/>                     When control contact "S" is pulsed, output contact changes state for time period <i>t</i>.</p> <p><i>Note: Control pulse duration minimum 50ms (AC) - 30ms (DC).</i></p>  |                    |                      | <ul style="list-style-type: none"> <li>• One SPDT contact</li> <li>• Single timing range</li> </ul> | <b>RZ7-FSE3*U23</b> | <b>114</b> |
| <p><b>Symmetric Flasher Starting With A Pulse (F)</b><br/>                     When supply voltage is applied, output contact changes state immediately and then repeatedly changes after every time period <i>t</i>, continuing until supply voltage is removed.</p>  |                    |                      | <ul style="list-style-type: none"> <li>• One SPDT contact</li> <li>• Single timing range</li> </ul> | <b>RZ7-FSF3*U23</b> | <b>114</b> |

Control & Timing Relays  
RZ7-FS

**Supply Voltage**

Single Function RZ7-FS...U23 timers accept supply voltages of 24...48VDC and 24...240VAC. Other voltages are available by special order. See Quick Selection Guide on page G37 for details or contact your Sprecher + Schuh representative for information.

**Timing Range Codes**

Replace (\*) with Timing Range Code

| Timing Range  | Code     |
|---------------|----------|
| 0.05...1 sec  | <b>A</b> |
| 0.15...3 sec  | <b>B</b> |
| 0.5...10 sec  | <b>C</b> |
| 1.5...30 sec  | <b>D</b> |
| 0.05...1 min  | <b>E</b> |
| 0.15...3 min  | <b>F</b> |
| 0.5...10 min  | <b>G</b> |
| 1.5...30 min  | <b>H</b> |
| 0.05...1 hour | <b>I</b> |
| 0.15...3 hour | <b>J</b> |
| 0.5...10 hour | <b>K</b> |
| 3.0...60 hour | <b>L</b> |



RZ7-FS one pole timing relay

① For timing control, a voltage other than the supply voltage can also be used.

### RZ7-FS Timing Relays – Single Function, One Pole

| Functional Description  | Functional Diagram | Terminal Arrangement | Type  | Catalog Number      | Price      |
|---|--------------------|----------------------|---|---------------------|------------|
| <b>Symmetric Flasher Starting With A Pause (G)</b><br>When supply voltage is applied, output contact changes state after time period $t$ and then repeatedly changes again after every period $t$ , continuing until supply voltage is removed.   |                    |                      | <ul style="list-style-type: none"> <li>• One SPDT contact</li> <li>• Single timing range</li> </ul> | <b>RZ7-FSG3*U23</b> | <b>114</b> |
| <b>On-Delay Pulse Generator (I)</b><br>When supply voltage is applied, output contact changes state after time period $t$ . Output contact changes state again after 0.5 seconds.   |                    |                      | <ul style="list-style-type: none"> <li>• One SPDT contact</li> <li>• Single timing range</li> </ul> | <b>RZ7-FSI3*U23</b> | <b>114</b> |
| <b>On-Delay (pulse controlled) (J)</b><br>When control contact "S" is pulsed, the output contact changes state after time period $t$ .  |                    |                      | <ul style="list-style-type: none"> <li>• One SPDT contact</li> <li>• Single timing range</li> </ul> | <b>RZ7-FSJ3*U23</b> | <b>114</b> |
| <b>One Shot / Watchdog (pulse controlled) (K)</b><br>When control contact "S" closes, the output contact changes state immediately. After the last pulse of contact S, the output contact changes state after time delay $t$ .  |                    |                      | <ul style="list-style-type: none"> <li>• One SPDT contact</li> <li>• Single timing range</li> </ul> | <b>RZ7-FSK3*U23</b> | <b>114</b> |
| <b>Impulse Converter (L)</b><br>When a pulse is applied to control contact "S", the output contact changes state immediately for time period $t$ . Pulses received during timing period $t$ have no further effect.<br><b>Note:</b> The period $t$ is not dependent on the length of the control pulse. Control pulse duration minimum 50ms (AC) - 30ms (DC). |                    |                      | <ul style="list-style-type: none"> <li>• One SPDT contact</li> <li>• Single timing range</li> </ul> | <b>RZ7-FSL3*U23</b> | <b>114</b> |

### Supply Voltage

Single Function RZ7-FS..U23 timers accept supply voltages of 24...48VDC and 24...240VAC. Other voltages are available by special order. See Quick Selection Guide on page G37 for details or contact your Sprecher + Schuh representative for information.

### Timing Range Codes

Replace (\*) with Timing Range Code


| Timing Range  | Code     |
|---------------|----------|
| 0.05...1 sec  | <b>A</b> |
| 0.15...3 sec  | <b>B</b> |
| 0.5...10 sec  | <b>C</b> |
| 1.5...30 sec  | <b>D</b> |
| 0.05...1 min  | <b>E</b> |
| 0.15...3 min  | <b>F</b> |
| 0.5...10 min  | <b>G</b> |
| 1.5...30 min  | <b>H</b> |
| 0.05...1 hour | <b>I</b> |
| 0.15...3 hour | <b>J</b> |
| 0.5...10 hour | <b>K</b> |
| 3.0...60 hour | <b>L</b> |



RZ7-FS one pole timing relay

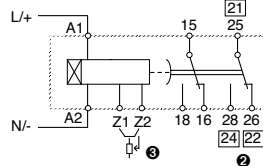
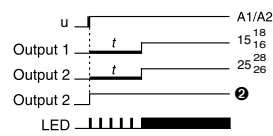
① For timing control, a voltage other than the supply voltage can also be used.

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

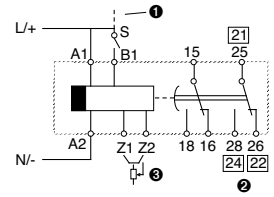
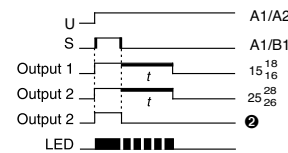
| RZ7-FSM Multi-Function Relay   | Functional Description  | Type       | Catalog Number | Price            |                     |                    |                   |                          |   |                         |  |                          |  |   |                     |            |
|--|---|------------|----------------|------------------|---------------------|--------------------|-------------------|--------------------------|---|-------------------------|--|--------------------------|--|---|---------------------|------------|
|   | <p><b>Multi-Function Relay (M)</b><br/>The RZ7-FSM multifunction relay combines <i>eight</i> 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:</p> <table border="0"> <tr> <td>On-Delay</td> <td>Off-Delay</td> </tr> <tr> <td>On and Off-Delay</td> <td>One Shot / Watchdog</td> </tr> <tr> <td>Fleeting Off-Delay</td> <td>Impulse Converter</td> </tr> <tr> <td>On-Delay Pulse Generator</td> <td>Symmetric Flasher Starting With a Pulse</td> </tr> <tr> <td>ON Function (see below)</td> <td></td> </tr> <tr> <td>OFF Function (see below)</td> <td></td> </tr> </table> <p>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.</p> | On-Delay   | Off-Delay      | On and Off-Delay | One Shot / Watchdog | Fleeting Off-Delay | Impulse Converter | On-Delay Pulse Generator | Symmetric Flasher Starting With a Pulse | ON Function (see below) |  | OFF Function (see below) |  | <ul style="list-style-type: none"> <li>One SPDT contact</li> <li>Multifunction, multi-timing range relay (from 0.05s to 60h) ❶</li> </ul> | <b>RZ7-FSM3UU23</b> | <b>170</b> |
|  |   | On-Delay   | Off-Delay      |                  |                     |                    |                   |                          |   |                         |  |                          |  |   |                     |            |
| On and Off-Delay   | One Shot / Watchdog   |            |                |                  |                     |                    |                   |                          |   |                         |  |                          |  |   |                     |            |
| Fleeting Off-Delay   | Impulse Converter   |            |                |                  |                     |                    |                   |                          |   |                         |  |                          |  |   |                     |            |
| On-Delay Pulse Generator   | Symmetric Flasher Starting With a Pulse   |            |                |                  |                     |                    |                   |                          |   |                         |  |                          |  |   |                     |            |
| ON Function (see below)  |   |            |                |                  |                     |                    |                   |                          |   |                         |  |                          |  |   |                     |            |
| OFF Function (see below)   |   |            |                |                  |                     |                    |                   |                          |   |                         |  |                          |  |   |                     |            |
| <ul style="list-style-type: none"> <li>Two SPDT contacts ❷</li> <li>Multifunction, multi-timing range relay (from 0.05s to 60h) ❶</li> </ul> | <b>RZ7-FSM4UU23</b>   | <b>203</b> |                |                  |                     |                    |                   |                          |   |                         |  |                          |  |   |                     |            |

Control & Timing Relays  
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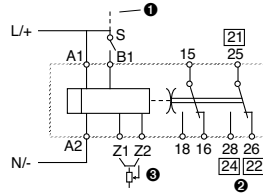
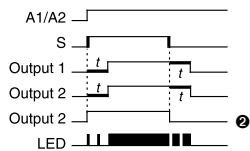
#### On-Delay (A)



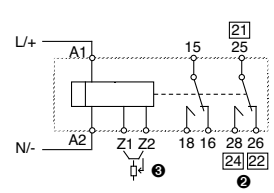
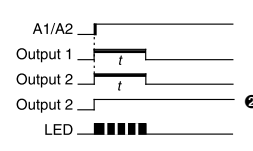
#### Off-Delay (B)



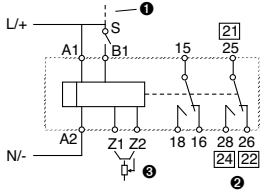
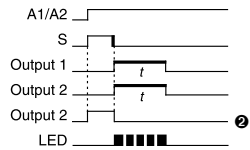
#### On and Off-Delay (C)



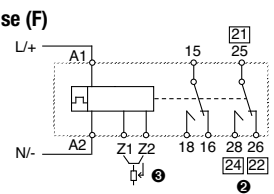
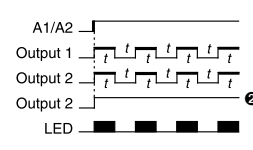
#### One Shot / Watchdog (D)



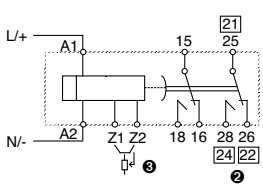
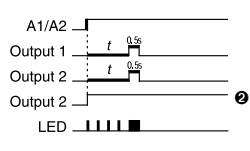
#### Fleeting Off-Delay (E)



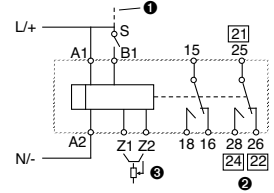
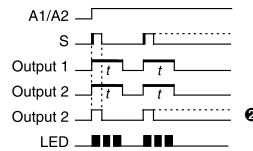
#### Symmetric Flasher Starting With a Pulse (F)



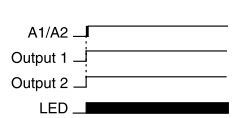
#### On-Delay Pulse Generator (I)



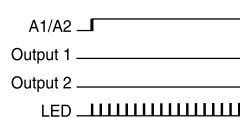
#### Impulse Converter (L)



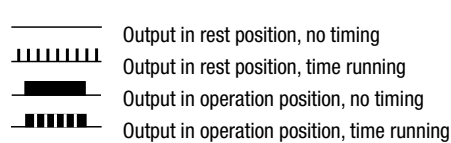
#### ON-Function



#### OFF-Function



#### Function display LED (Green)



### 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.



### RZ7-FS Timing Relays – Special Function, One Pole

| Functional Description   | Functional Diagram  | Terminal Arrangement | Type  | Catalog Number      | Price      |
|--|---|----------------------|---|---------------------|------------|
| <p><b>Wye-Delta Timing Relay (Y)</b></p> <p>When supply voltage is applied, output contact Y closes for time period <math>t</math>. After time period <math>t</math>, plus a fixed time period <math>t_1</math>, (50-65ms) output contact <math>\Delta</math> closes.</p>  |   |                      | <ul style="list-style-type: none"> <li>Two single pole N.O. contacts</li> <li>Single timing range</li> </ul>  | <b>RZ7-FSY2*U23</b> | <b>136</b> |
| <p><b>Repeat Cycle Timer (H) - (Flasher)</b></p> <p>The Repeat Cycle Timer offers four different operating characteristics within the same relay. Depending on how the unit is wired, cycles are initiated either by supply voltage being applied or by a pulse from control contact "S". Regardless of the activation method, each cycle may begin with a pause or a pulse.</p> <p>The RZ7-FSH3U relay sets the pulse and pause durations within one timing range setting. The RZ7-FSH3V allows individual time settings of pulse and pause within two timing range settings. Both relays offer multiple time settings between 0.05s and 60h, selectable in ten increments.</p> | <p>Supply voltage controlled, output starts with a pause Switch is up</p>   |                      | <ul style="list-style-type: none"> <li>One SPDT contact</li> <li>Multi-timing range (from 0.05s to 60h) ②</li> </ul> <p>Provides (1) range setting for <math>t_1</math> and <math>t_2</math></p> <p>Provides (2) range settings for <math>t_1</math> and <math>t_2</math></p> | <b>RZ7-FSH3UU23</b> | <b>136</b> |
|  | <p>Supply voltage controlled, output starts with a pulse Switch is down</p> |                      |   | <b>RZ7-FSH3VU23</b> | <b>136</b> |
|  | <p>Pulse controlled, output starts with a pause Switch is up</p>            |                      |   |                     |            |
|  | <p>Pulse controlled, output starts with a pulse Switch is down</p>          |                      |   |                     |            |

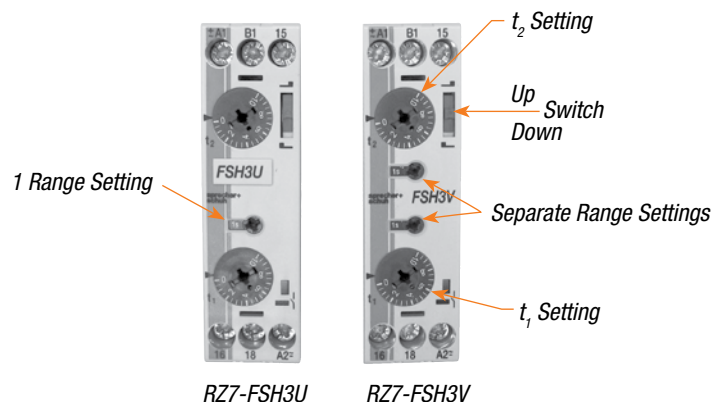
### Supply Voltage

These timers accept supply voltages of 24...48VDC and 24...240VAC. A supply voltage of 346...440VAC is also available by special order. See Quick Selection Guide on page G37 for details or contact your Sprecher + Schuh representative for information.

### Timing Range Codes

Replace (\*) with Timing Range Code

| Timing Range | Code     |
|--------------|----------|
| 0.5...10 sec | <b>C</b> |
| 1.5...30 sec | <b>D</b> |
| 0.05...1 min | <b>E</b> |
| 0.15...3 min | <b>F</b> |
| 0.5...10 min | <b>G</b> |



① For timing control, a voltage other than the supply voltage can also be used.  
 ② Timing range is screwdriver selectable from the faceplate. Exact timing range selections can be found in Technical Information.

# RZ7 Hazardous Location Electronic Timing Relays

Sprecher+Schuh's RZ7 hazardous location relay timers have been designed to meet the stringent requirements of hazardous location applications while maintaining the functionality of the existing RZ7-FS family of timing relays. The RZ7-FSM4...-EX is a multi-function timing relay with 8 single-functions, SPDT or DPDT contact output, and adjustable timing ranges. The -EX models are ideal for control panels installed in hazardous location areas such as in the oil, gas and petrochem industries.



Control & Timing Relays  
RZ7-FS

## Multiple Approvals



- cULus Industrial Control Equipment for Hazardous Location Listed 87SL
- UL Class 1, Div. 2, Groups A,B,C,D  
UL Class 1, Zn 2, Group IIC
- Temperature Code T4A,  
2A 32VDC max.



- Ex II 3 G, EEx nL IIC T4  
2A 32VDC max. Ta 70°C

## RZ7-FS Hazardous Location Timing Relay – Single Function, One Pole ②

| Functional Description  | Functional Diagram | Terminal Arrangement | Type  | Catalog Number   | Price             |
|---|--------------------|----------------------|---|--|-------------------|
| <p><b>One Shot / Watchdog (pulse controlled) (K)</b></p> <p>When control contact "S" closes, the output contact changes state immediately. After the last pulse of contact S, the output contact changes state after time delay <i>t</i>.</p> |                    |                      | <ul style="list-style-type: none"> <li>• One SPDT contact</li> <li>• Single timing range<br/>0.05...1 second<br/>0.5...10 second</li> </ul> | <p><b>RZ7-FSK3AU23-EX</b><br/><b>RZ7-FSK3CU23-EX</b></p> | <p><b>124</b></p> |

### Supply Voltage



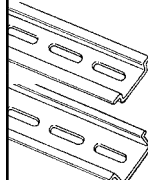
Single Function RZ7-FSK3...-EX timers accept supply voltages of 24...48VDC and 24...240VAC.

① For timing control, a voltage other than the supply voltage can also be used.  
② Technical data and dimensional information for the RZ7-FS...-EX models are the same as the standard RZ7-FS models.









### Accessories

| Accessory   | Description  | Catalog Number | Price        |
|---|--|----------------|--------------|
|  | <b>Setting Knob With Scale -</b><br>For time setting without tools.  | RZ7-FSK        | 8.50         |
|  | <b>Panel Mounting Adaptor -</b><br>For surface mounting RZ7-FS/FE timing relays.   | RZ7-FSA ②      | 6.75         |
|  | <b>DIN-rail - 2 meter lengths (≈ 6' 6")</b><br>Top Hat, low profile (price per rail)<br>Top Hat, high profile (price per rail) | 3F<br>3AF      | See page A54 |

### Marking Systems

| Component   | Description   | Pkg. Qty. | Catalog Number | Price Each   |
|---|---|-----------|----------------|--------------|
|  | <b>Label Sheet -</b><br>1 sheet with 105 self-adhesive paper labels each, 6 x 17mm  | 1         | CA7-FMS        | See page A54 |
|  | <b>Marking Tag Sheet -</b><br>1 sheet with 160 perforated paper labels each, 6 x 17mm. To be used with transparent cover. | 1         | CA7-FMP        |              |
|  | <b>Transparent Cover -</b><br>To be used with Marking Tag Sheets.   | 100<br>①  | CA7-FMC        |              |
|  | <b>Tag Carrier -</b><br>For marking with Series V7 Clip-on Tags.  | 100<br>①  | CA7-FMA2       |              |

① Minimum order quantity is one package of 100. Price each x 100 = total price.  
② Previously catalog number 26.506.221-01.

#### Technical Data

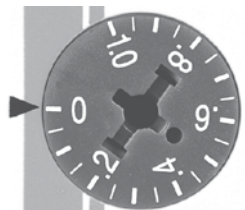
|  |   |                |
|--|---|----------------|
| <b>Timing Characteristics</b> (according to VDE 0435, Part 2021) |   |                |
| Timing ranges for  |   |                |
| RZ7-FSM-A, B, C, D, E, F, I, & L                                 | (1s)  | 0.05...1 sec   |
| RZ7-FSH  | (3s)  | 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<br>Temperature: ±0.025%/°C   |                |
| <b>Power Supply</b>  |   |                |
| Supply voltages  | 24...48VDC and 24...240VAC, 50/60Hz (multi voltage)<br>12VDC<br>24...240V AC or DC (universal voltage)<br>346...440VAC, 50/60Hz   |                |
| Voltage tolerance  | AC: -15%... +10%<br>DC: -20%... +20%  |                |
| Power consumption  | AC: 5VA at 240V<br>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<br>Relay Off: 0.7k-4k ohms  |                |
| Cable length (supply voltage control)                            | 250 meters (800 ft.) max.   |                |
| <b>Pulse Control (B1)</b>  |   |                |
| 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<br>max. 50 m (160 ft.) with load (<3kΩ) between B1 & A2  |                |
| <b>Outputs</b>   |   |                |
| 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 $I_n$ : (AC1)  | 8A (5A for RZ7-FSQ)   |                |
| Power:   | 2000VA<br>according to IEC947-5-1:<br>3A/440VAC (inductive load, AC14)<br>3A/250VAC (inductive load, AC15)<br>1A/24VDC (inductive load, DC13)<br>according to UL 508:<br>1.5A/250VAC (B300)<br>3A/120VAC (B300) |                |
| Short circuit resistance   | 10 A gL (fast blow fuse)  |                |

|                              |  |
|------------------------------|--|
| Life expectancy (electrical) | 4 million ops. at 1A/250VAC, $\cos\phi = 1$<br>0.2 million ops. at 6A/250VAC, $\cos\phi = 1$<br>1.5 million ops. at 1A/250VAC, $\cos\phi = 0.3$<br>0.3 million ops. at 3A/250VAC, $\cos\phi = 0.3$<br>0.5 million ops. at 6A/24VDC, resistive<br>2 million ops. at 4A/24VDC, resistive<br>2 million ops. at 0.2A/230VDC, resistive<br>1 million ops. at 0.4A/24VDC, L/R = 20ms<br>1 million ops. at 0.2A/110VDC, L/R = 20ms<br>1 million ops. at 0.1A/230VDC, L/R = 20ms |
| Life expectancy (mechanical) | 30 million operations  |
| <b>General Data</b>          |  |
| Insulation Characteristics   | 2 kVAC/50 Hz test voltage according to VDE 0435 and 6 kV<br>1.2/50 μs surge voltage according to IEC 947-1 between all inputs and outputs  |
| EMC/Interference Immunity    | Performance of following requirements:<br>- Surge capacity of the supply voltage according to IEC1000-4-5: 4 kV 1.2/50 μs<br>- Burst according to IEC 1000-4-4: 6 kV/ 6/50ns<br>- ESD discharge according to IEC 1000-4-2:<br>- Contact 8 kV, air 8 kV<br>- 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<br>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<br>Enclosed: -25°C... +45°C<br>Storage: -25°C... +85°C  |
| Connections                  | Screw terminal - M3.5 for Pozidrive No.2, Phillips and slotted screws No.2 suitable for power screwdriver.<br>Rated tightening torque - 0.8 Nm (max. 1.2 Nm) - [8.8 lb-in]<br>Wire Size - Dual-chamber system for terminal cross-sections of 1 x 0.5mm <sup>2</sup> (solid) or 2 x 2.5mm <sup>2</sup> (flexible with sleeve), AWG 20...14.<br>Finger Protection - According to VDE 0106  |
| Mounting                     | - Snap-on mounting (35mm DIN-rail)<br>- Side mounting on CA7 contactors and CS7 with dovetail joint [surface mounting in any position]<br>- Screw fixing by Panel Mount Adapter and two screws (M4) [surface mounting in any position]   |
| Relays                       |  |
| 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

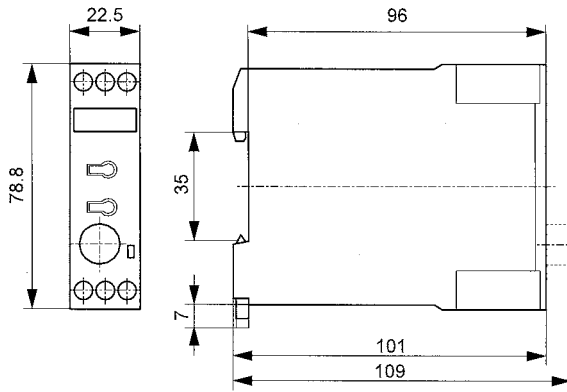
Series RZ7 Timing Relays have a "relative scale" setting knob numbered 0 to 1.0. Think about this as 0 to 100% of the relay's built-in time range. Example: To set an RZ7-FS timing relay (with a 0.05 to 1 minute range) to activate after 25 seconds:

- 1) Divide the desired activation time (25 seconds) by the maximum time limit of the relay (60 seconds).  
 $25 \div 60 = .416$
- 2) Rotate the setting knob to just past the .4 mark.

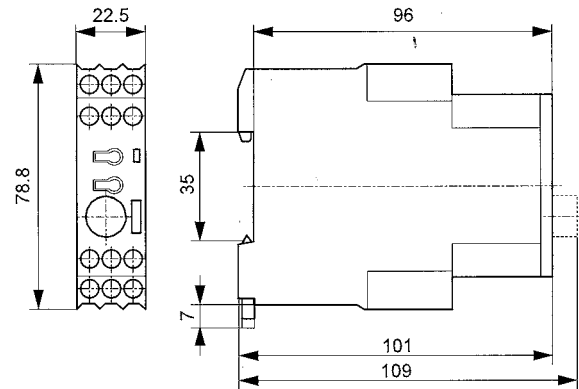


**Series RZ7-FS Timing Relays (one and two pole)**

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)**

