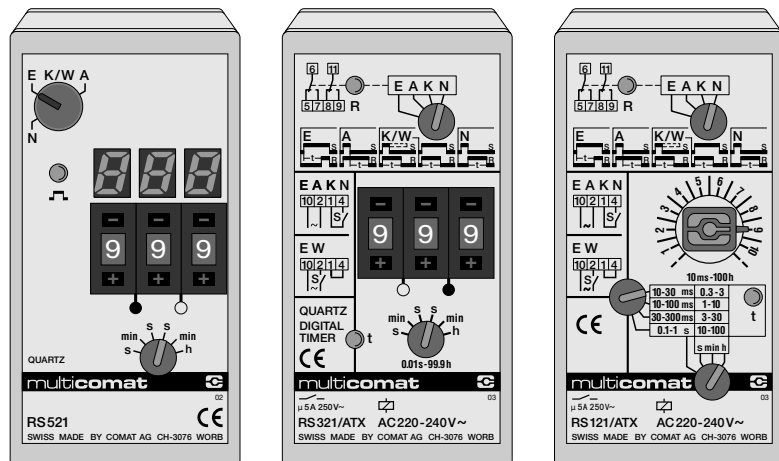


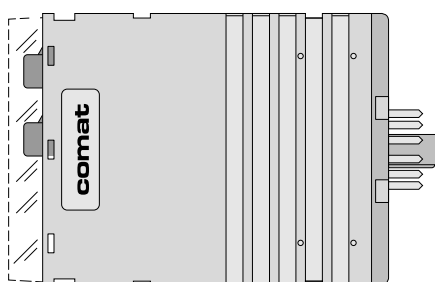
Programmable time delay relays RS-20



- This leaflet describes the RS-20 series of electronic time delay relays.
- As a separate product group within the multiCOMAT time delay relay programme, they meet the most demanding requirements of flexibility, quality and reliability.
- Due to the fact that programmes can be drawn up to fully match the conditions of the task in hand, the series RS-20 offers the user maximum flexibility and a wide range of application possibilities coupled with a high degree of ease of operation.
- The unusually broad spectrum of functions, time delay ranges and voltages is concentrated into a limited number of types only.
- Arising out of this development, stocks can be held to a minimum, giving numerous servicing advantages. In addition, the best possible opportunity exists to match the particular end use to the most suitable type of apparatus.



Kühn Controls AG
 Vertriebsbüro Deutschland
 Gräfenhäuser Str. 14
 D-75305 Neuenbürg
 Tel.: +49- (0)7082-940000
 Fax: +49- (0)7082-940001
 eMail: sales@kuehn-controls.de
 www.multicomat.net





Data at $T_{amb} = 25^{\circ}C$ and V_{nom}

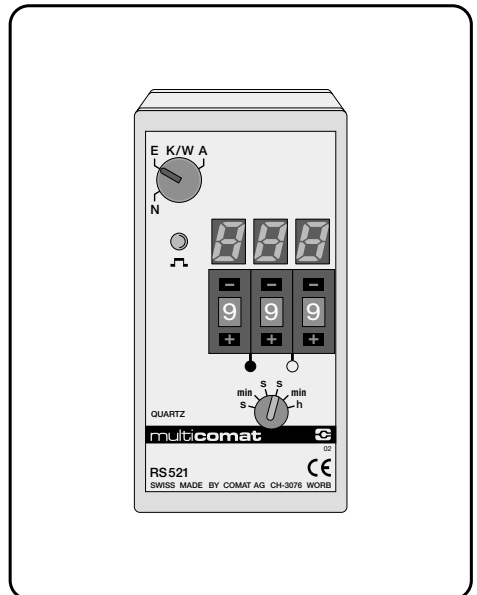
RS 521

| Type | Time range | Partial range | | |
|--------|-----------------|---------------|----------------|--------------|
| | | sec | min | h |
| RS 521 | 0,01 s – 99,9 h | 0,01 – 9,99 s | 0,1 – 99,9 min | 0,1 – 99,9 h |
| | | 0,1 – 99,9 s | 1 – 999 min | |
| | | 1 – 999 s | | |

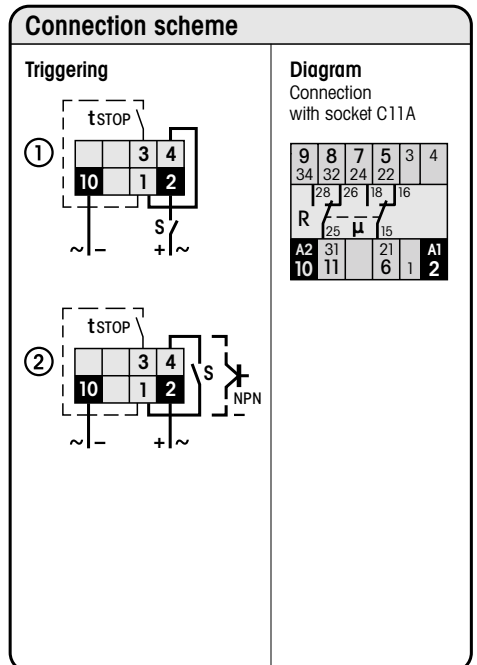
The partial ranges are programmable at the range switch

| Voltages, current consumption, type | | | |
|-------------------------------------|------------------|--------|--------------|
| | AC 50/60 Hz / DC | | |
| | U min – U max | I max | Ordering no. |
| AC 110–240V~ | 90–265V | 30 mA | RS 521/ANX |
| UC 24–48V≈ | 19–60V | 160 mA | RS 521/UFK |
| DC 110–240V= | 19–60V | 250 mA | RS 521/DNX |

Example of order: 1 time delay relay RS 521/ANX



| Timing modes | Diagram | Description | Scheme |
|------------------------|---------|--|--------|
| On delay | | S ⇒ R on with delay SOFF ⇒ R off | ① ② |
| Off delay | | S ⇒ R on SOFF ⇒ R off with delay | ② |
| Pulse shaping | | S (pulse or continuous contact) ⇒ R on for t S --- does not influence R and t | ② |
| One shot leading edge | | S ⇒ R on for t SOFF ⇒ R off (pulse clipping) | ① |
| One shot trailing edge | | SOFF ⇒ R on for t S on for t ⇒ R off | ② |
| Time stop | | Sstop interrupts t (t-addition) | |

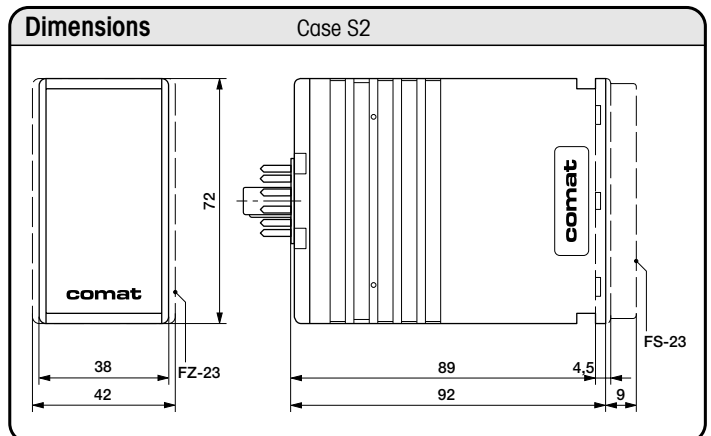


| Technical data | General |
|-------------------------------|-----------------------------|
| Repeat accuracy ¹⁾ | ±0,01 % or ±1,5 % (10)ms |
| Voltage stability | ±1,5ms/10 % ΔTamb |
| Temperature stability | 0,1 ppm/°C ΔTamb |
| Time range tolerance max. | ±0,05 % |
| Setting accuracy | ±0,05 % |
| Reset time during time expiry | 10 (50)ms |
| Reset time after time expiry | 5 (25)ms |
| Triggering time | ≥ 10ms |
| Triggering delay time | 5... 10ms |
| Load of control contact S | 12V~, 6mA |
| Control line max. | 200Ω, 0,1μF/1 Volt |
| Operating temperature range | -20... +60°C |
| Storage temperature range | -20... +80°C |
| Transient voltage protection | IEC 255.4, app. E, Kl. III |
| Specifications/Standards | VDE 0435/0110 Gr.C, CE |
| Protection/Case material | IP 40/Noryl SE1 to UL 94V-1 |
| Weight incl. packing | approx. 200g |

¹⁾ referred to the set time () = with voltage control operation as scheme 1
Data at $T_{amb} = 25^{\circ}C$ and V_{nom}

| Technical data | Output circuit |
|------------------------|------------------------------|
| Switching current max. | 5A |
| Switching voltage max. | 250V~ AC 1 |
| Breaking capacity | AC: 1200VA; DC: 35-250W |
| Mechanical life | 3x10 ⁷ operations |
| Contact material | Ag Ni |

These values are valid for ohmic load or for inductive loading with spark arrest.



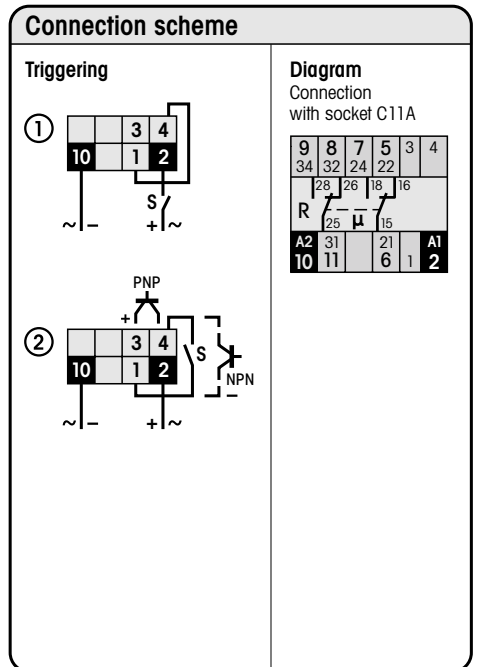
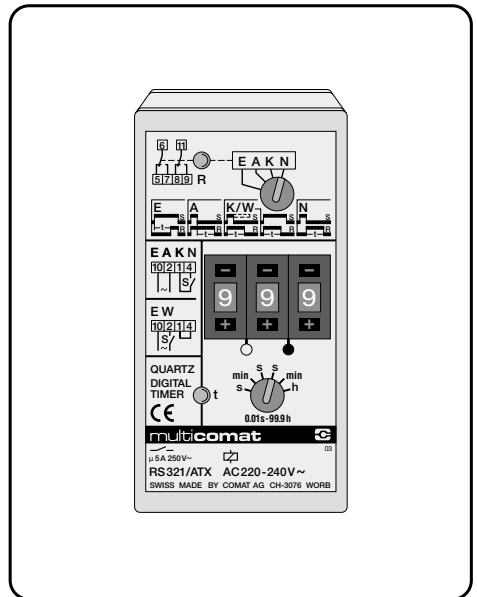
| Type | Time range | Partial range | | |
|--------|-----------------|---------------|----------------|--------------|
| | | sec | min | h |
| RS 321 | 0,01 s – 99,9 h | 0,01 – 9,99 s | 0,1 – 99,9 min | 0,1 – 99,9 h |
| | | 0,1 – 99,9 s | 1 – 999 min | |
| | | 1 – 999 s | | |

The partial ranges are programmable at the range switch

| Voltages, current consumption, type | | | |
|-------------------------------------|------------------|--------|--------------|
| | AC 50/60 Hz / DC | | |
| | U min – U max | I max | Ordering no. |
| AC 220–240V~ | -15% – +10% | 17 mA | RS 321/ATX |
| AC 110–120V~ | -15% – +10% | 30 mA | RS 321/ANP |
| UC 24–48V~ | -15% – +20% | 160 mA | RS 321/UFK |
| UC 12V~ | -15% – +20% | 300 mA | RS 321/UCB |
| DC 110–240V= | -15% – +10% | 20 mA | RS 321/DNX |

Example of order: 1 time delay relay RS 321/ATX

| Timing modes | Diagram | Description | Scheme |
|------------------------|---------|--|--------|
| On delay | | S ⇒ R on with delay SOFF ⇒ R off | ① ② |
| Off delay | | S ⇒ R on SOFF ⇒ R off with delay | ② |
| Pulse shaping | | S (pulse or continuous contact) ⇒ R on for t S --- does not influence R and t | ② |
| One shot leading edge | | S ⇒ R on for t SOFF ⇒ R off (pulse clipping) | ① |
| One shot trailing edge | | SOFF ⇒ R on for t S on for t ⇒ R off | ② |

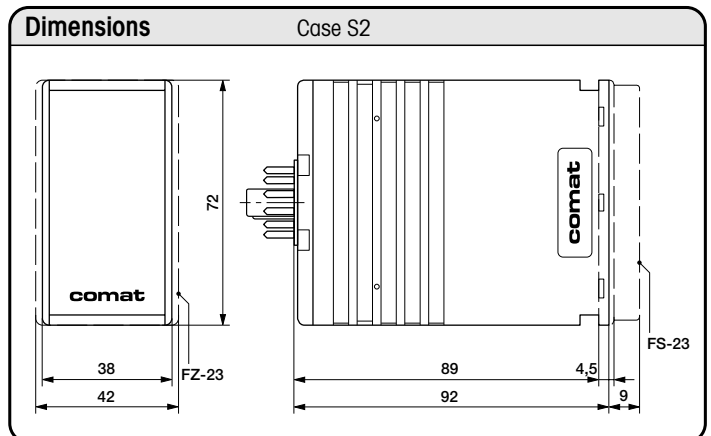


| Technical data | General |
|-------------------------------|-----------------------------------|
| Repeat accuracy ¹⁾ | ±0,01% or ±1,5% (10) ms |
| Voltage stability | ±1,5% ms/10% ΔTamb |
| Temperature stability | 0,1 ppm/°C ΔTamb |
| Time range tolerance max. | ±0,5% |
| Setting accuracy | ±0,5% |
| Reset time during time expiry | 10 (50) ms |
| Reset time after time expiry | 5 (25) ms |
| Triggering time | ≥ 10 ms |
| Triggering delay time | 5...10 ms |
| Load of control contact S | 20V~, 10 mA/300 mA/1 ms |
| Control line max. | 100Ω, 0,1μF |
| Operating temperature range | -20... +60°C ²⁾ |
| Storage temperature range | -20... +80°C |
| Transient voltage protection | 2 kV, 50μs |
| Specifications/Standards | VDE 0435/0110 Gr. C, CE |
| Protection/Case material | IP 40/Noryl SE1 to UL 94 V-1 |
| Weight incl. packing | approx. 155 g, ATX and ANP: 240 g |

¹⁾ referred to the set time () = with voltage control operation as scheme 1
Data at Tamb = 25°C and Vnom

| Technical data | Output circuit |
|------------------------|------------------------------|
| Switching current max. | 5A |
| Switching voltage max. | 250V~ AC 1 |
| Breaking capacity | AC: 1200VA; DC: 35-250W |
| Mechanical life | 3x10 ⁷ operations |
| Contact material | Ag Ni |

These values are valid for ohmic load or for inductive loading with spark arrest.



Data at Tamb = 25°C and Vnom

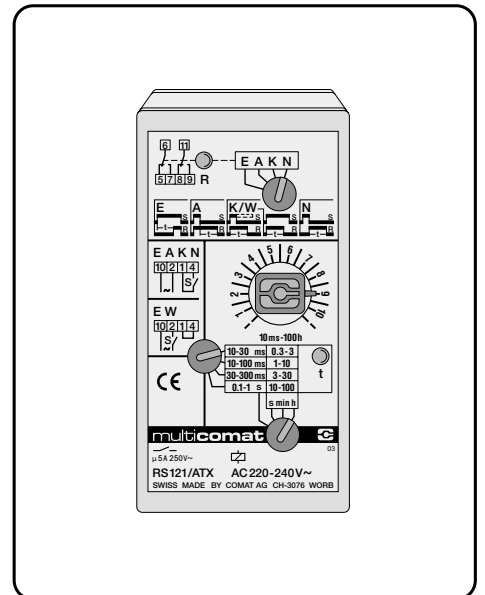
RS 121.P RS 121

| Type | Time range | Partial range | | | |
|--------------------|---------------|---------------|------------|--------------|------------|
| RS 121 RS 121.P | 10 ms – 100 h | 10 – 30 ms | 0,3 – 3 s | 0,3 – 3 min | 0,3 – 3 h |
| | | 10 – 100 ms | 1 – 10 s | 1 – 10 min | 1 – 10 h |
| | | 30 – 300 ms | 3 – 30 s | 3 – 30 min | 3 – 30 h |
| | | 100 – 1000 ms | 10 – 100 s | 10 – 100 min | 10 – 100 h |

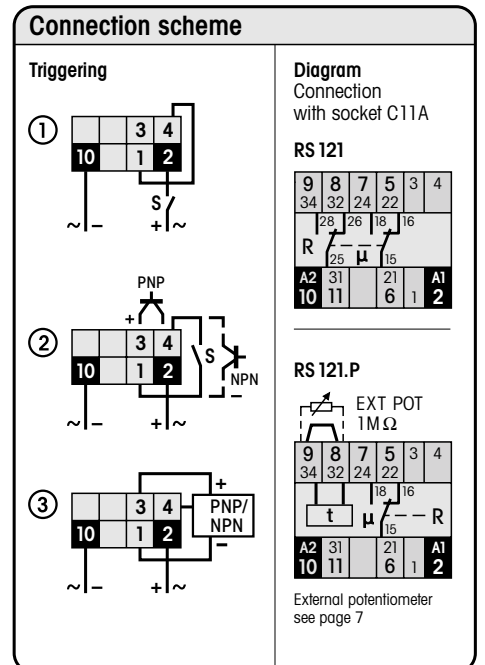
The partial ranges are programmable at the range switch

| Voltages, current consumption, type | | | | |
|-------------------------------------|------------------|--------|--------------|--------------|
| | AC 50/60 Hz / DC | | Ordering no. | Ordering no. |
| | U min – U max | I max | | |
| AC 220–240V~ | -15% – +10% | 15 mA | RS 121/ATX | RS 121.P/ATX |
| AC 110–120V~ | -15% – +10% | 30 mA | RS 121/ANP | RS 121.P/ANP |
| UC 24–48V≈ | -15% – +20% | 90 mA | RS 121/UFK | RS 121.P/UFK |
| UC 12V≈ | -15% – +20% | 270 mA | RS 121/UCB | --- |
| DC 110–240V= | -15% – +10% | 35 mA | RS 121/DNX | --- |

Example of order: 1 time delay relay RS 121/ATX



| Timing modes | Diagram | Description | Scheme |
|------------------------|---------|--|----------|
| On delay | | S ⇒ R on with delay SOFF ⇒ R off | ① ② ③ |
| Off delay | | S ⇒ R on SOFF ⇒ R off with delay | ② ③ |
| Pulse shaping | | S (pulse or continuous contact) ⇒ R on for t S --- does not influence R and t | ② ③ |
| One shot leading edge | | S ⇒ R on for t SOFF ⇒ R off (pulse clipping) | ① |
| One shot trailing edge | | SOFF ⇒ R on for t S on for t ⇒ R off | ② ③ |

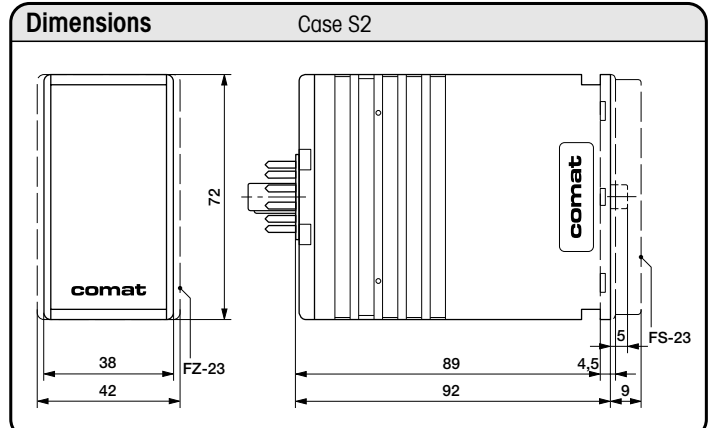


| Technical data | General |
|-------------------------------|---------------------------------|
| Repeat accuracy ¹⁾ | ±0,1% or 2(10)ms |
| Voltage stability | 0,5%/10% ΔTamb |
| Temperature stability | 0,05%/°C ΔTamb |
| Time range tolerance max. | t max –0 +10%, t min –10% +0% |
| Remote potentiometer | 1 MΩ, lin. |
| Remote circuit capacity max. | 0,1 μF |
| Reset time during time expiry | 10(50)ms |
| Reset time after time expiry | 5(25)ms |
| Triggering time | ≥10ms |
| Triggering delay time | 5...10ms |
| Load of control contact S | 30V~, 15mA |
| Control line max. | 100Ω, 0,1 μF |
| Supply for sensors 1–3 | 24V – not stabilized, max. 15mA |
| Operating temperature range | –20... +60°C ²⁾ |
| Storage temperature range | –20... +80°C |
| Transient voltage protection | 2kV, 50μs |
| Specifications/Standards | VDE 0435/0110 Gr.C, CE |
| Protection/Case material | IP 40/Noryl SE 1 to UL 94 V-1 |
| Weight incl. packing | approx. 150g, ATX and ANP: 235g |

¹⁾ referred to the set time () = with voltage control operation as scheme 1
²⁾ max. +50°C on scheme 3 Data at Tamb = 25°C and Vnom

| Technical data | Output circuit |
|------------------------|------------------------------|
| Switching current max. | 5A |
| Switching voltage max. | 250V~AC 1 |
| Breaking capacity | AC: 1200VA; DC: 35-250W |
| Mechanical life | 3x10 ⁷ operations |
| Contact material | Ag Ni |

These values are valid for ohmic load or for inductive loading with spark arrest.

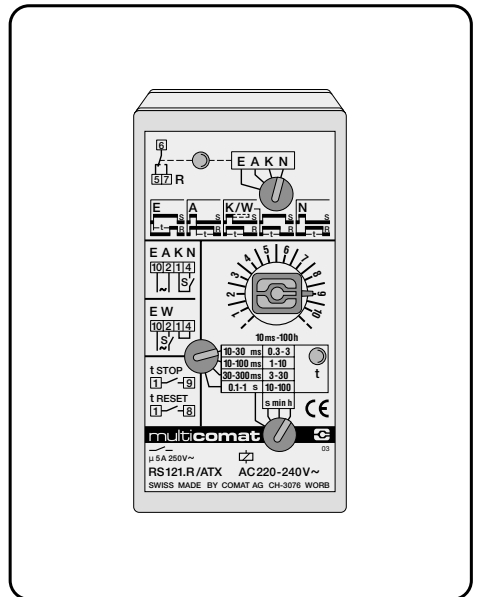


| Type | Time range | Partial range | | | |
|----------|---------------|---------------|------------|--------------|------------|
| RS 121.R | 10 ms – 100 h | 10 – 30 ms | 0,3 – 3 s | 0,3 – 3 min | 0,3 – 3 h |
| | | 10 – 100 ms | 1 – 10 s | 1 – 10 min | 1 – 10 h |
| | | 30 – 300 ms | 3 – 30 s | 3 – 30 min | 3 – 30 h |
| | | 100 – 1000 ms | 10 – 100 s | 10 – 100 min | 10 – 100 h |

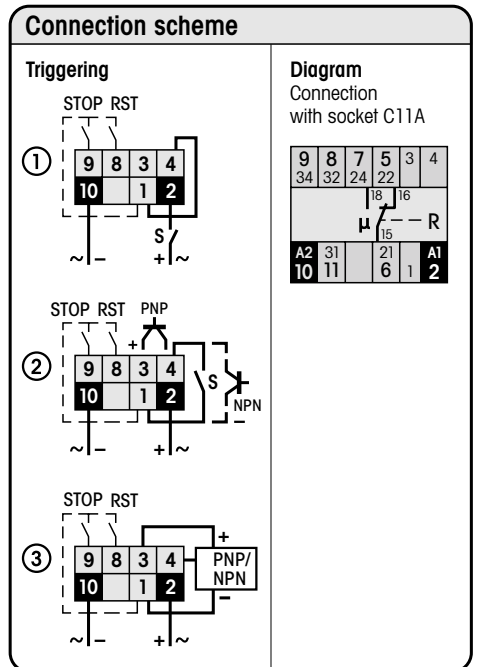
The partial ranges are programmable at the range switch

| Voltages, current consumption, type | | | |
|-------------------------------------|------------------|-------|--------------|
| | AC 50/60 Hz / DC | | |
| | U min – U max | I max | Ordering no. |
| AC 220–240V~ | -15% – +10% | 15 mA | RS 121.R/ATX |
| AC 110–120V~ | -15% – +10% | 30 mA | RS 121.R/ANP |
| UC 24–48V≈ | -15% – +20% | 90 mA | RS 121.R/UFK |

Example of order: 1 time delay relay RS 121.R/ATX



| Timing modes | Diagram | Description | Scheme |
|------------------------|---------|--|----------|
| On delay | | S ⇒ R on with delay S _{OFF} ⇒ R off | ① ② ③ |
| Off delay | | S ⇒ R on S _{OFF} ⇒ R off with delay | ② ③ |
| Pulse shaping | | S (pulse or continuous contact) ⇒ R for t S _{OFF} does not influence R and t | ② ③ |
| One shot leading edge | | S ⇒ R on for t S _{OFF} ⇒ R off (pulse clipping) | ① |
| One shot trailing edge | | S _{OFF} ⇒ R on for t S on for t ⇒ R off | ② ③ |
| Time reset | | S _{RESET} resets t t restarts immediately | |
| Time stop | | S _{STOP} interrupts t (t-addition) | |

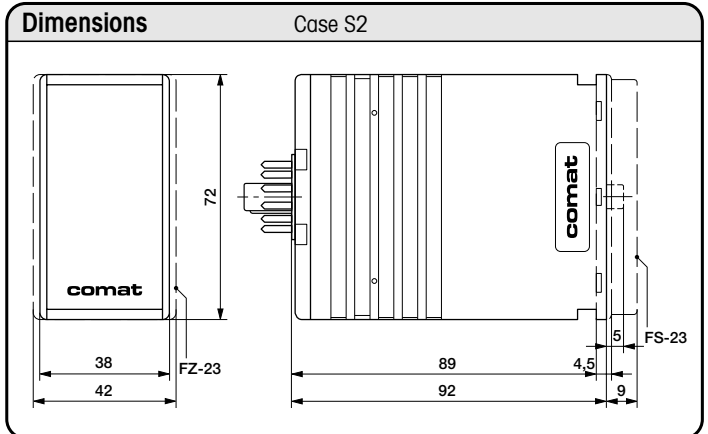


| Technical data | General |
|-------------------------------|---------------------------------|
| Repeat accuracy ¹⁾ | ±0,1% or 2(10)ms |
| Voltage stability | 0,5%/10% ΔTamb |
| Temperature stability | 0,05%/°C ΔTamb |
| Time range tolerance max. | t max –0 +10%, t min –10% +0% |
| Reset time during time expiry | 10(50)ms |
| Reset time after time expiry | 5(25)ms |
| Triggering time | ≥ 10ms |
| Triggering delay time | 5...10ms |
| Load of control contact S | 30V–, 15mA |
| Control line max. | 100Ω, 0,1μF |
| Supply for sensors 1–3 | 24V – not stabilized, max. 15mA |
| Operating temperature range | –20... +60°C ²⁾ |
| Storage temperature range | –20... +80°C |
| Transient voltage protection | 2 kV, 50μs |
| Specifications/Standards | VDE 0435/0110 Gr. C, CE |
| Protection/Case material | IP 40/Noryl SE1 to UL 94 V-1 |
| Weight incl. packing | approx. 150g, ATX and ANP: 235g |

¹⁾ referred to the set time () = with voltage control operation as scheme 1
²⁾ max. +50°C on scheme 3 Data at Tamb = 25°C and Vnom

| Technical data | Output circuit |
|------------------------|------------------------------|
| Switching current max. | 5A |
| Switching voltage max. | 250V~ AC 1 |
| Breaking capacity | AC: 1200VA; DC: 35-250W |
| Mechanical life | 3x10 ⁷ operations |
| Contact material | Ag Ni |

These values are valid for ohmic load or for inductive loading with spark arrest.



RS 122 -M/-MH/-H

SWISS MADE BY COMAT AG



Data at Tamb = 25°C and Vnom

| Type | Time range | | Partial range | | | |
|-----------|----------------|----------------|--------------------------------|-------------|-------------|------------|
| | I | P | Time range → 0,1 s – 30 min | 0,1 – 1 s | 0,6 – 6 s | 3 – 30 s |
| RS 122-M | 0,1 s – 30 min | 0,1 s – 30 min | 0,1 s – 30 min | 0,1 – 1 min | 0,6 – 6 min | 3 – 30 min |
| RS 122-MH | 0,1 s – 30 min | 0,1 min – 30 h | 0,1 min – 30 h | 0,1 – 1 min | 0,6 – 6 min | 3 – 30 min |
| RS 122-H | 0,1 min – 30 h | 0,1 min – 30 h | 0,1 min – 30 h | 0,1 – 1 h | 0,6 – 6 h | 3 – 30 h |

Impulse (I) and interval (P) are programmable separately. Example (RS 122-M): I = 0,1 – 1 s, P = 3 – 30 min

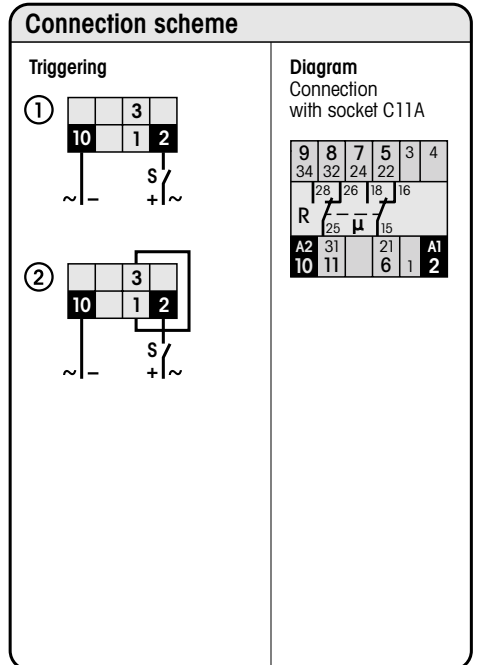
| Voltages, current consumption, type | | | |
|-------------------------------------|------------------|--------|-----------------|
| | AC 50/60 Hz / DC | | Ordering no. |
| | U min – U max | I max | |
| AC 220–240V~ | -15% – +10% | 15 mA | RS 122-.../ATX |
| AC 110–120V~ | -15% – +10% | 30 mA | RS 122-.../ANP |
| UC 24–48V~ | -15% – +20% | 90 mA | RS 122-.../U FK |
| UC 12V~ | -15% – +20% | 270 mA | RS 122-.../UCB |
| DC 110–240V= | -15% – +10% | 35 mA | RS 122-.../DNX |

Example of order: 1 time delay relay RS 122-M/ATX



| Timing modes | Diagram | Description | Scheme |
|-----------------------------------|---------|---|--------|
| Repeat cycle timer pulse start | | S ⇒ R on/off periodically according to t1 and t2 SOFF ⇒ R off | ① |
| Repeat cycle timer interval start | | S ⇒ R after t1 on/off periodically according to t2 and t1 SOFF ⇒ R off | ② |

ON OFF S = triggering ⇒ = switches... R = output circuit

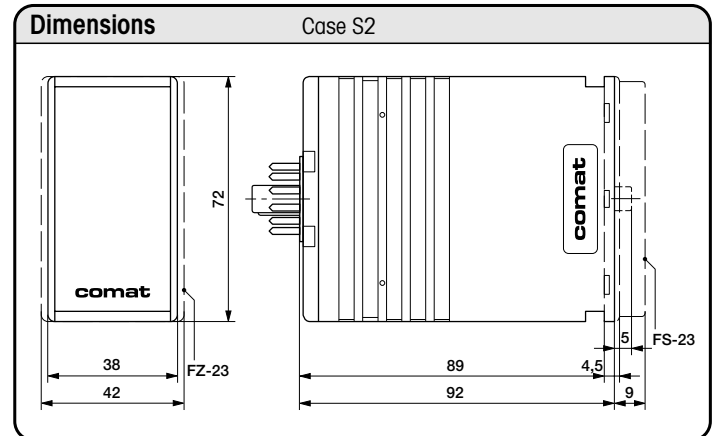


| Technical data | General |
|---------------------------------|---------------------------------|
| Repeat accuracy ¹⁾ | ±0,2% or ±10ms |
| Voltage stability | 0,5%/10% Δ Tamb |
| Temperature stability | 0,1%/°C Δ Tamb |
| Time range tolerance max. | t max – 0 +10%, t min –10% +0% |
| Reset time during interval time | 150ms |
| Reset time during pulse time | 120ms |
| Triggering delay time | 50ms |
| Load of control contact S | see voltage table |
| Operating temperature range | -20... +60°C |
| Storage temperature range | -20... +80°C |
| Transient voltage protection | 2kV, 50μs |
| Specifications/Standards | VDE 0435/0110 Gr.C, CE |
| Protection/Case material | IP 40/Noryl SE1 to UL 94 V-1 |
| Weight incl. packing | approx. 145g, ATX and ANP: 230g |

¹⁾ referred to the set time Data at Tamb = 25°C and Vnom

| Technical data | Output circuit |
|------------------------|------------------------------|
| Switching current max. | 6A |
| Switching voltage max. | 250V~ AC 1 |
| Breaking capacity | AC: 1200VA; DC: 35-250W |
| Mechanical life | 2x10 ⁷ operations |
| Contact material | Ag Ni |

These values are valid for ohmic load or for inductive loading with spark arrest.





C11A Relay socket with screw, connections for panel or DIN mounting-snap fit

Technical drawing of the C11A relay socket. The front view shows a 38mm wide socket with 12 terminals (1-12) and labels LH-1, L-16, M3 FOR M4, C-A2, SC-3, SD-1, and FOR PLUG-IN MODULES. Dimensions include 30mm, max 40mm, 75mm, 16mm, 4mm, 10mm, 20mm, and 38mm. The side view shows a 4mm thick component with a 20mm mounting flange.

EC-11 Relay socket with screw, connections for panel or DIN mounting-snap fit

Technical drawing of the EC-11 relay socket. The front view shows a 38mm wide socket with 12 terminals (1-12) and labels 9, 8, 7, 5, 3, 4, 34, 32, 24, 22, 14, 12, comat, EC-11, 10A 400V, 10A 300V Listed, for M4, 28, 8, 62, 24.2, 38, 4, 22, and for M3, A2, 31, 21, 11, A1, 14, 10, 11, 6, 2, 4. The side view shows a 4mm thick component with a 22mm mounting flange.

CS-11 Relay socket with screw, connections for panel or DIN mounting-snap fit

Technical drawing of the CS-11 relay socket. The front view shows a 38mm wide socket with 12 terminals (1-12) and labels 8, 7, 6, 5, 4, TEST, 32, 24, 21, 22, 12, comat, CS-11, 3.2, 8, 68, 29.5, CODING CA-11, LABEL SL-36, 34, A2, 31, 11, A1, 14, 9, 10, 11, 1, 2, 3. The side view shows a 4mm thick component with a 20mm mounting flange and a 15mm depth.

11 PGF Relay socket for fasten connectors (2xAMP 2,8x0,8 DIN 46247)

Technical drawing of the 11 PGF relay socket. The front view shows a 38mm wide socket with 12 terminals and labels 4,5, 3,5, 1,5, 4, 38, 27, 39, comat, and Faston 2,8x0,8 (2x). The side view shows a 15mm wide component with a 10mm mounting flange.

RG-23 Surface mounting case with built-in relay socket (protected connection terminals)

Technical drawing of the RG-23 surface mounting case. The front view shows a 50mm wide case with 12 terminals and labels 38x72, 12, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, comat, RG-23, 10A 400V, 10A 300V Listed, for M4, 28, 8, 62, 24.2, 50, 125, 24, 67, 97, and for M3, A2, 31, 21, 11, A1, 14, 10, 11, 6, 2, 4. The side view shows a 24mm high component with a 97mm mounting flange.

SP-01 External potentiometer (1 MΩ) for remote adjustment of the delay time

Technical drawing of the SP-01 external potentiometer. The front view shows a 30mm wide potentiometer with a 22.3mm diameter and 2.7mm height. The side view shows a 68mm long component with a 30mm mounting flange and labels SP-01/1M, 1.5...6, IP65, FERNPOTENTIOMETER, REMOTE POTENTIOMETER, 1MΩ, 1, 2, 3, comat, and 6.

11 PGL Relay socket for chassis mounting (solder tags = 3,8x0,8 mm)

Technical drawing of the 11 PGL relay socket. The front view shows a 38mm wide socket with 12 terminals and labels 4,5, 3,5, 1,5, 4, 38, 27, 39, comat, and Faston 3,8x0,8 (2x). The side view shows a 11mm wide component with a 10mm mounting flange.

HF-24 Retaining clip for cases S2, S3, S4 suitable for all relay sockets

Technical drawing of the HF-24 retaining clip. The drawing shows a U-shaped clip with dimensions 14mm, 46mm, 0.6mm, 35mm, and 1...3.

FS-23 Transparent cover (always included with the relay)

Technical drawing of the FS-23 transparent cover. The drawing shows a rectangular cover with dimensions 38.5mm and 70mm, and a 1...3mm thickness.

FZ-23 Front of panel mounting accessory comprising 2 front frame parts ① and 2 retaining clips ②

Technical drawing of the FZ-23 front of panel mounting accessory. The drawing shows two front frame parts (1) and two retaining clips (2) being attached to a panel. Dimensions include 38.5mm, 70mm, and min. 48mm. Labels include Gehäuse case, bötter S2, 1...3, 1, 2, 3, and 2.

FZ-23 Front of panel mounting accessory comprising 2 front frame parts ① and 2 retaining clips ②

Technical drawing of the FZ-23 front of panel mounting accessory. The drawing shows two front frame parts (1) and two retaining clips (2) being attached to a panel. Dimensions include 38.5mm, 70mm, and min. 48mm. Labels include Gehäuse case, bötter S2, 1...3, 1, 2, 3, and 2.