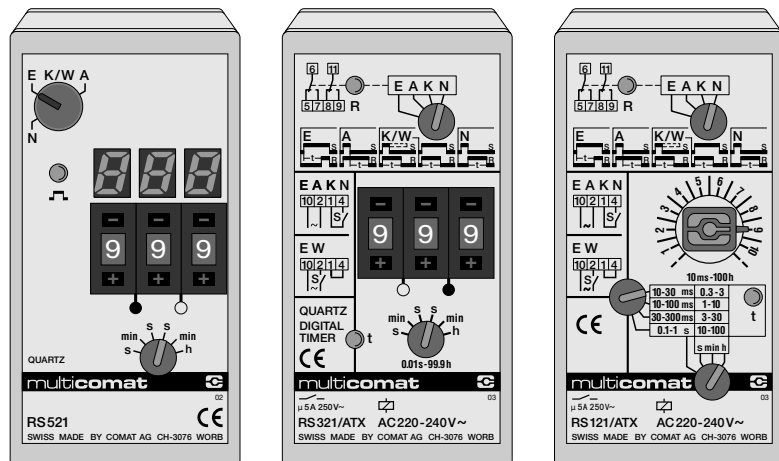


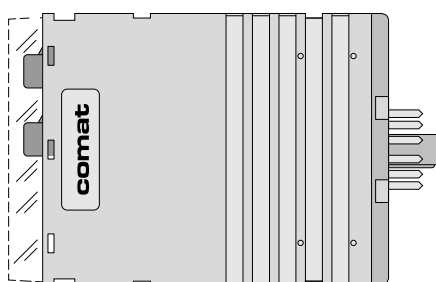
# Programmable time delay relays RS-20



- 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.



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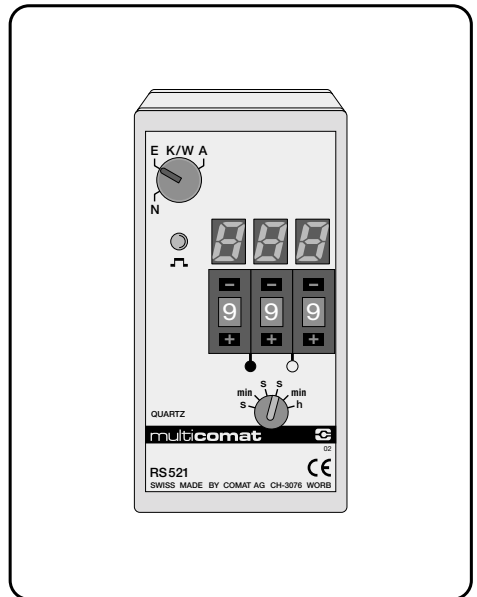


Type	Time range	Partial range		
		sec	min	h
RS 521	0,01 s – 99,9 h	0,01 – 9,99 s	0,1 – 99,9 min	0,1 – 99,9 h
		0,1 – 99,9 s	1 – 999 min	
		1 – 999 s		

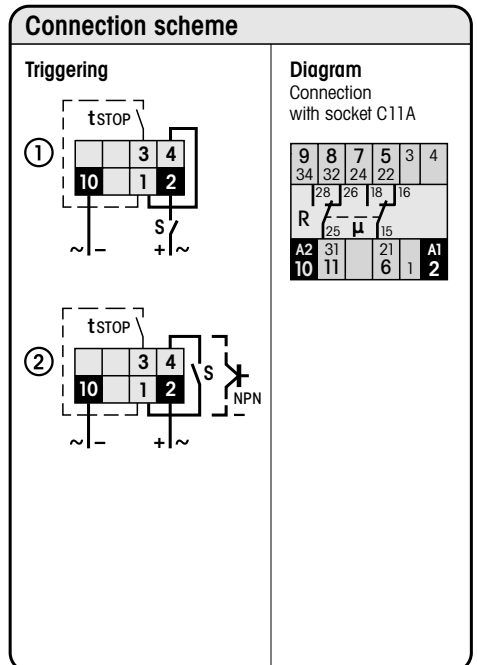
The partial ranges are programmable at the range switch

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		S <sub>STOP</sub> interrupts t (t-addition)	

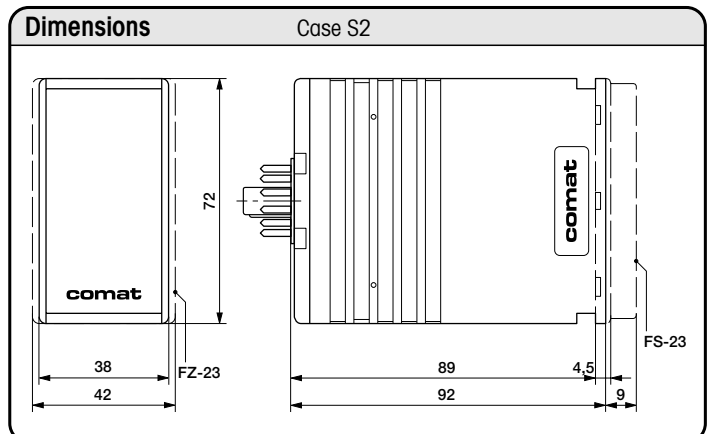


Technical data	General
Repeat accuracy <sup>1)</sup>	±0,01 % or ±1,5 % (10)ms
Voltage stability	±1,5ms/10 % ΔTamb
Temperature stability	0,1 ppm/°C ΔTamb
Time range tolerance max.	±0,05 %
Setting accuracy	±0,05 %
Reset time during time expiry	10 (50)ms
Reset time after time expiry	5 (25)ms
Triggering 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

<sup>1)</sup> 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 <sup>7</sup> operations
Contact material	Ag Ni

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



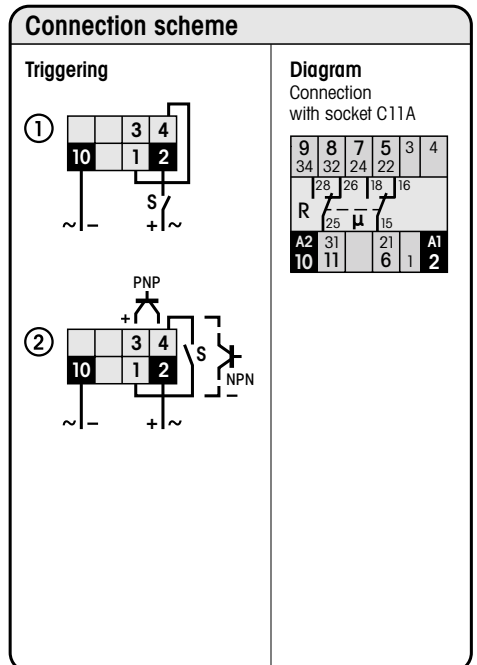
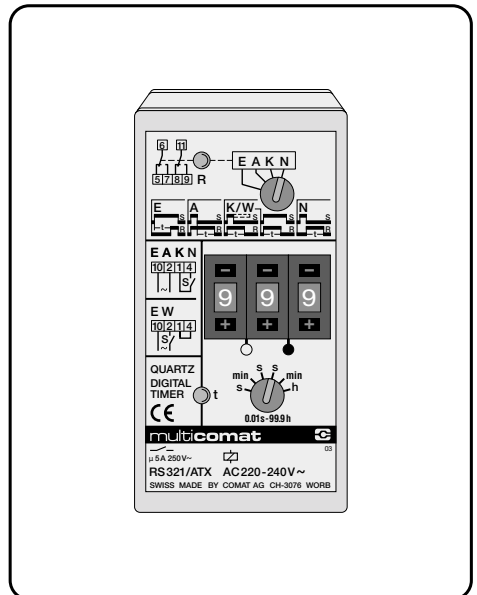
Type	Time range	Partial range		
		sec	min	h
RS 321	0,01 s – 99,9 h	0,01 – 9,99 s	0,1 – 99,9 min	0,1 – 99,9 h
		0,1 – 99,9 s	1 – 999 min	
		1 – 999 s		

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

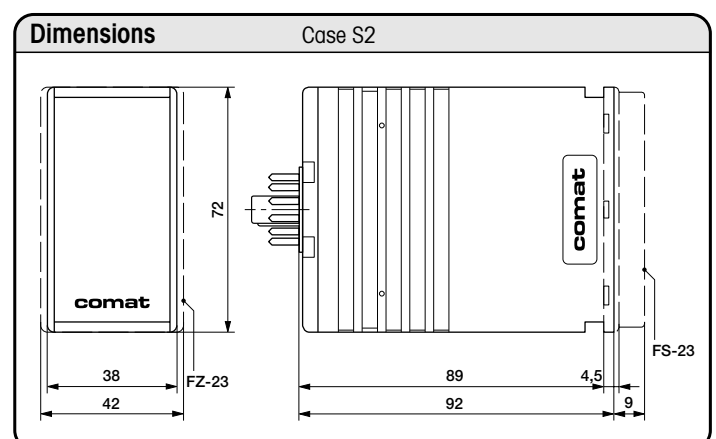


Technical data	General
Repeat accuracy <sup>1)</sup>	±0,01% or ±1,5% (10) ms
Voltage stability	±1,5% ms/10% ΔTamb
Temperature stability	0,1 ppm/°C ΔTamb
Time range tolerance max.	±0,5%
Setting accuracy	±0,5%
Reset time during time expiry	10 (50) ms
Reset time after time expiry	5 (25) ms
Triggering time	≥ 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 <sup>2)</sup>
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

<sup>1)</sup> 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 <sup>7</sup> operations
Contact material	Ag Ni

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

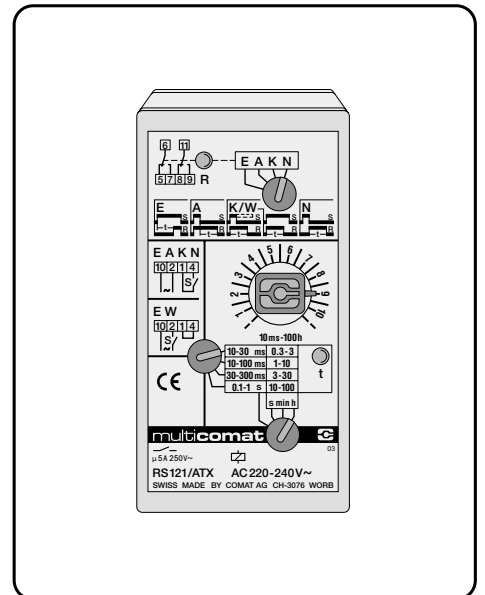


Type	Time range	Partial range			
RS 121 RS 121.P	10 ms – 100 h	10 – 30 ms	0,3 – 3 s	0,3 – 3 min	0,3 – 3 h
		10 – 100 ms	1 – 10 s	1 – 10 min	1 – 10 h
		30 – 300 ms	3 – 30 s	3 – 30 min	3 – 30 h
		100 – 1000 ms	10 – 100 s	10 – 100 min	10 – 100 h

The partial ranges are programmable at the range switch

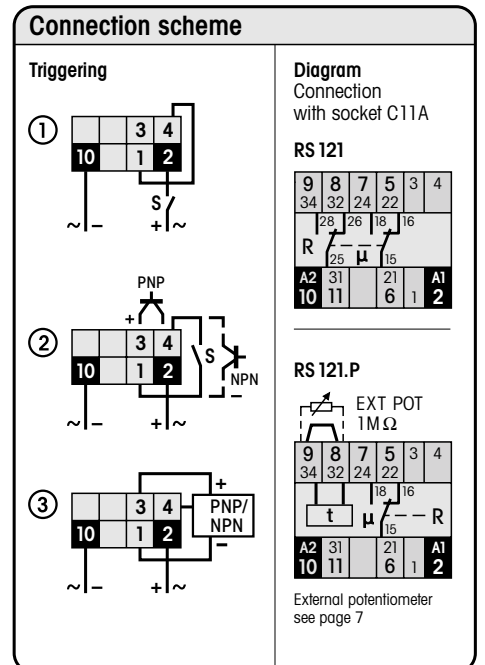
Voltages, current consumption, type				
Symbol	AC 50/60 Hz / DC		Ordering no.	Ordering no.
	U min – U max	I max		
AC 220–240V~	-15% – +10%	15 mA	RS 121/ATX	RS 121.P/ATX
AC 110–120V~	-15% – +10%	30 mA	RS 121/ANP	RS 121.P/ANP
UC 24–48V≈	-15% – +20%	90 mA	RS 121/UFK	RS 121.P/UFK
UC 12V≈	-15% – +20%	270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

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

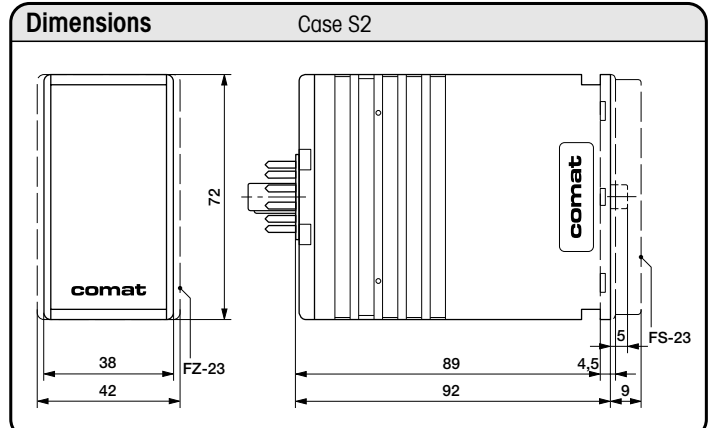


Technical data	General
Repeat accuracy <sup>1)</sup>	±0,1% or 2(10)ms
Voltage stability	0,5%/10% ΔTamb
Temperature stability	0,05%/°C ΔTamb
Time range tolerance max.	t max – 0 + 10%, t min – 10% + 0%
Remote potentiometer	1 MΩ, lin.
Remote circuit capacity max.	0,1 μF
Reset time during time expiry	10 (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 <sup>2)</sup>
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

<sup>1)</sup> referred to the set time ( ) = with voltage control operation as scheme 1  
<sup>2)</sup> 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 <sup>7</sup> operations
Contact material	Ag Ni

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

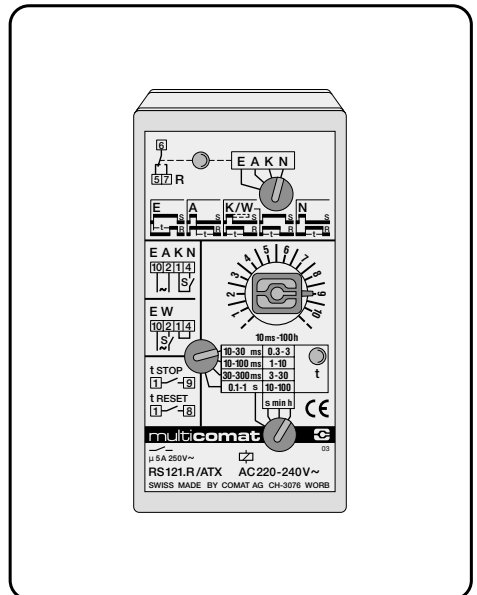


Type	Time range	Partial range			
RS 121.R	10 ms – 100 h	10 – 30 ms	0,3 – 3 s	0,3 – 3 min	0,3 – 3 h
		10 – 100 ms	1 – 10 s	1 – 10 min	1 – 10 h
		30 – 300 ms	3 – 30 s	3 – 30 min	3 – 30 h
		100 – 1000 ms	10 – 100 s	10 – 100 min	10 – 100 h

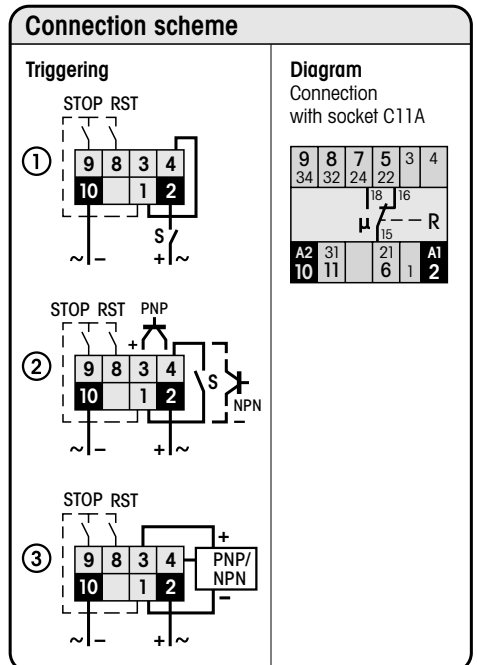
The partial ranges are programmable at the range switch

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 <sub>OFF</sub> ⇒ R off	① ② ③
Off delay		S ⇒ R on S <sub>OFF</sub> ⇒ R off with delay	② ③
Pulse shaping		S (pulse or continuous contact) ⇒ R for t S <sub>OFF</sub> does not influence R and t	② ③
One shot leading edge		S ⇒ R on for t S <sub>OFF</sub> ⇒ R off (pulse clipping)	①
One shot trailing edge		S <sub>OFF</sub> ⇒ R on for t S on for t ⇒ R off	② ③
Time reset		S <sub>RESET</sub> resets t t restarts immediately	
Time stop		S <sub>STOP</sub> interrupts t (t-addition)	

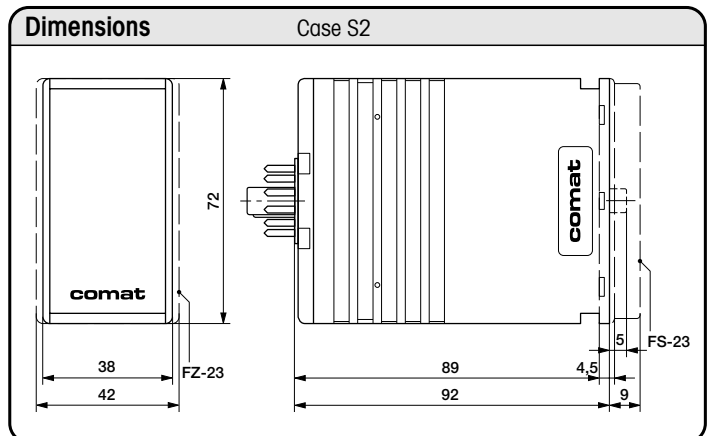


Technical data	General
Repeat accuracy <sup>1)</sup>	±0,1% or 2(10)ms
Voltage stability	0,5%/10% ΔTamb
Temperature stability	0,05%/°C ΔTamb
Time range tolerance max.	t max -0 +10%, t min -10% +0%
Reset time during time expiry	10(50)ms
Reset time after time expiry	5(25)ms
Triggering time	≥ 10ms
Triggering 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 <sup>2)</sup>
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

<sup>1)</sup> referred to the set time      ( ) = with voltage control operation as scheme 1  
<sup>2)</sup> 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 <sup>7</sup> 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

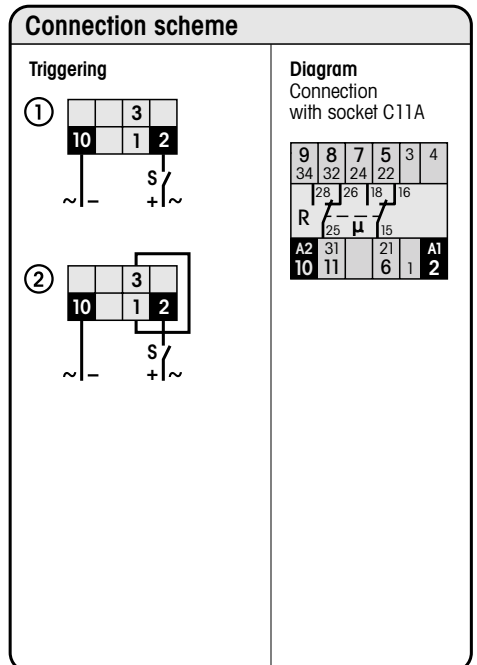
Voltages, current consumption, type			
	AC 50/60 Hz / DC		Ordering no.
	U min – U max	I max	
AC 220–240V~	-15% – +10%	15 mA	RS 122-.../ATX
AC 110–120V~	-15% – +10%	30 mA	RS 122-.../ANP
UC 24–48V~	-15% – +20%	90 mA	RS 122-.../U FK
UC 12V~	-15% – +20%	270 mA	RS 122-.../UCB
DC 110–240V=	-15% – +10%	35 mA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

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



Timing modes	Diagram	Description	Scheme
<b>Repeat cycle timer pulse start</b>		S ⇒ R on/off periodically according to t1 and t2 S OFF ⇒ R off	①
<b>Repeat cycle timer interval start</b>		S ⇒ R after t1 on/off periodically according to t2 and t1 S OFF ⇒ R off	②

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

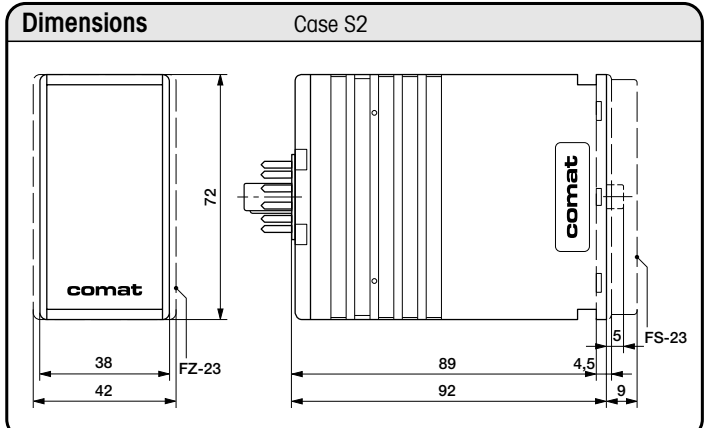


Technical data	General
Repeat accuracy <sup>1)</sup>	±0,2% or ±10ms
Voltage stability	0,5%/10% Δ Tamb
Temperature stability	0,1%/°C Δ Tamb
Time range tolerance max.	t max – 0 +10%, t min –10% +0%
Reset time during interval time	150ms
Reset time during pulse time	120ms
Triggering delay time	50ms
Load 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

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

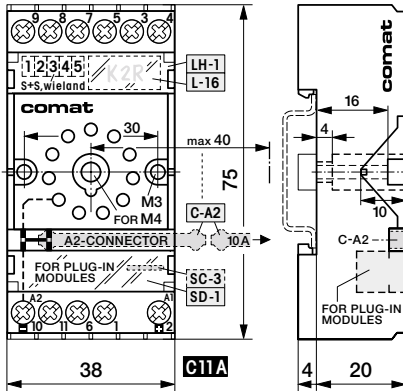
Technical data	Output circuit
Switching current max.	6A
Switching voltage max.	250V~ AC 1
Breaking capacity	AC: 1200VA; DC: 35-250W
Mechanical life	2x10 <sup>7</sup> operations
Contact material	Ag Ni

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

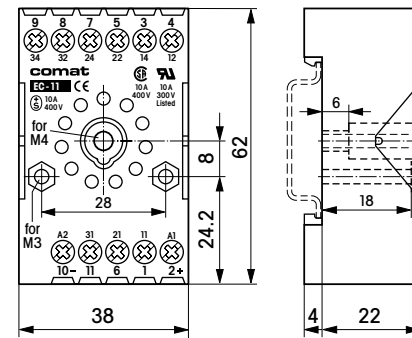




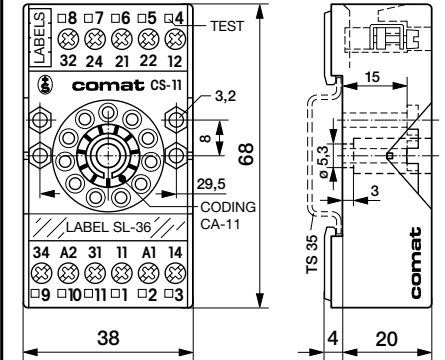
**C11A** Relay socket with screw, connections for panel or DIN mounting-snap fit



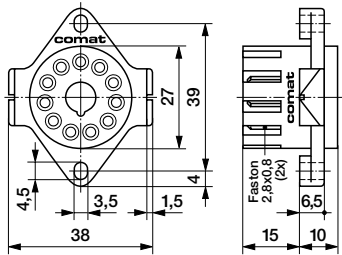
**EC-11** Relay socket with screw, connections for panel or DIN mounting-snap fit



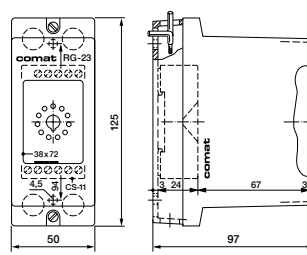
**CS-11** Relay socket with screw, connections for panel or DIN mounting-snap fit



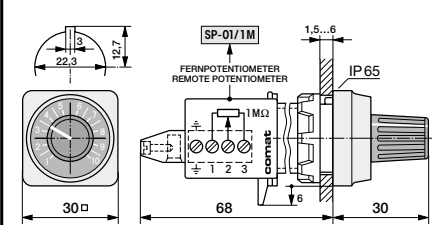
**11 PGF** Relay socket for fasten connectors (2xAMP 2,8x0,8 DIN 46247)



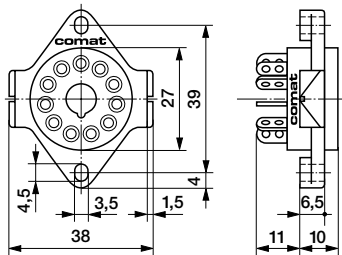
**RG-23** Surface mounting case with built-in relay socket (protected connection terminals)



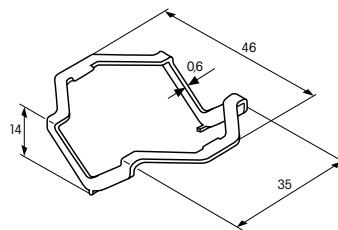
**SP-01** External potentiometer (1 MΩ) for remote adjustment of the delay time



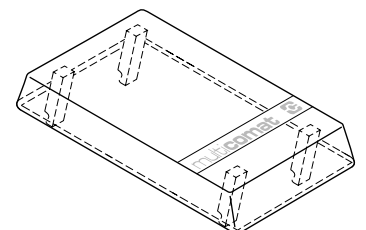
**11 PGL** Relay socket for chassis mounting (solder tags = 3,8x0,8 mm)



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



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



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

