

2.3 Plug-in Time Relays



Application	Types	Functions*	Min. time	Max. time	contact rating	Socket
Timing and blinking relay	CS1	E, W, B, B2	50 ms	60 min	8 A / 250 V	S3-xx
Timing and blinking relay with external potentiometer option	CS2	E, W, B, B2, A, K, N	50 ms	60 h	8 A / 250 V	S3-xx
Universal timer with 2 CO contacts	CS3	E, W, B, B2, A, K, N	50 ms	60 h	6 A / 250 V	S3-xx

*(Function diagrams: refer to page 152)

CS1

11 pin plug-in time relay according to IEC 67-I-18a, 50 ms ... 60 minutes for wide band 12 ... 240 V operating voltage, internal or external potentiometer operation

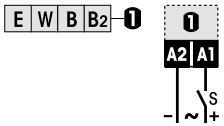


Type: CS1/UC 12-240V R

Plug-in time relay
1 change over contact
UC 12-240 V operating voltage
4 time functions, time ranges: 50 ms ... 60 min
LED for output state indication
Option for external fine adjustment time range potentiometer

Maximum contact load 8 A / 250 V AC-1
Recommended minimum contact load 10 mA / 10 V

Time functions and related connection diagrams (Function diagrams: refer to page 152)



External potentiometer (Pins 5, 7)
1 M Ω (see accessories)
Max. potentiometer cable length
50 m, shielded, GND on pin 5 (Z1)

Time data

5 partial time ranges, t_{max} (DIP switch)	0.6, 6, 60 s / 6, 60 min
Fine adjustment range (rotary knob)	$t_{min} \dots t_{max}$, 5 ... 60
Time range tolerance	t_{min} : -5 % ... +0 % / t_{max} : -0 % ... +5 %
Repetition accuracy	± 0.1 % or DC: 2 ms / AC: 10 ms
Reset time	≤ 30 ms
Voltage failure buffering	20 ms

Contacts

Type	1 CO, micro disconnection
Material	AgNi
Rated operational current	8 A
Max. switching voltage AC-1	250 V
Max. AC load AC-1 (Fig.1)	2000 VA
Max. DC load DC-1, 30 V / 250 V (Fig.2)	220 W / 75 W

Power supply- and control input (UC = AC / DC)

Nominal voltage (A1)	UC 12 ... 240 V
Operating voltage range	10.2 ... 265 V
Power consumption	≤ 1.4 W
Frequency range	45 ... 63 Hz

Insulation

Test voltage open contact	1 kVrms 1 minute
Test voltage between contacts and control input	2 kVrms 1 minute

General Specifications

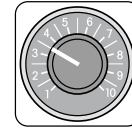
Ambient temperature storage /operation	-40 ... 85 $^{\circ}$ C / -25 ... 60 $^{\circ}$ C
Mechanical life of contacts	$\geq 30 \times 10^6$ operations
Ingress protection degree	IP 40 when plugged in
Housing material / Weight	Lexan / 75 g

Standard types

UC (AC/DC) **CS1/UC12-240V R**

Accessories

External potentiometer 1 M (Panel mounting + scale)	SP-01/1M
Socket	S3-xx
Retaining clip	HF-50
Transparent front cover	FA-50
Front panel mounting set	FZ-50L (Frame + retaining clip + socket with soldering connections)



Option:
External
Pot.-Meter
SP-01/1M

Connection diagram

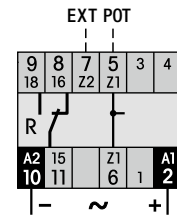


Fig.1 AC electrical endurance

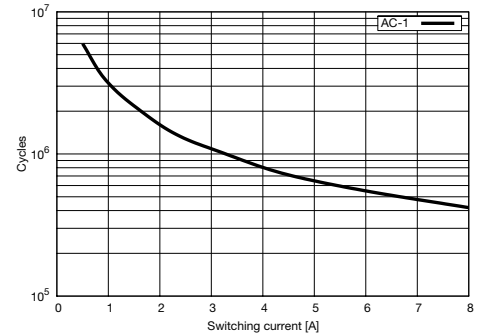
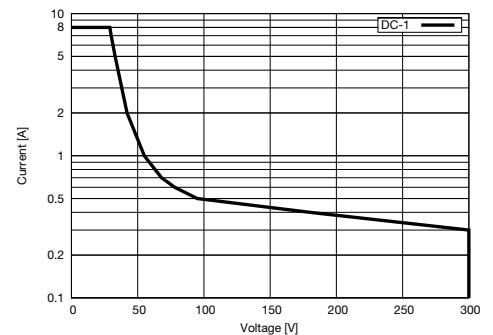
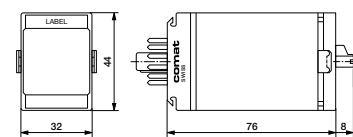


Fig. 2 DC load limit curve



Dimensions [mm]



Technical approvals, conformities



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CS2

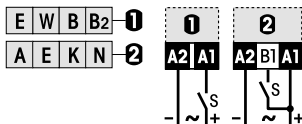
11 pin plug-in time relay according to IEC 67-I-18a, 50 ms ... 60 h for wide band 12 ... 240 V operating voltage, internal or external potentiometer operation

Type: CS2/UC 12-240V R

Plug-in time relay
 1 change over contact
 UC 12-240 V operating voltage
 7 time functions, time ranges: 50 ms ... 60 h
 LED for output state indication
 Option for external fine adjustment time range potentiometer

Maximum contact load 8 A / 250 V AC-1
Recommended minimum contact load 10 mA / 10 V

Time functions and related connection diagram (Function diagrams: refer to page 152)



External potentiometer pins 5, 7
 1 MΩ (see accessories)
Max. potentiometer cable length
 50 m, shielded, GND on pin5 (Z1)

Time data

7 partial time ranges, t_{max} (DIP switch) 0.6, 6, 60 s / 6, 60 min / 6, 60 h
 Fine adjustment range (rotary knob) $t_{min} \dots t_{max}$, 5 ... 60
 Time range tolerance t_{min} : -5 % ... +0 % / t_{max} : -0 % ... +5 %
 Repetition accuracy ± 0.1 % or DC: 2 ms / AC: 10 ms
 Min. trigger impulse on B1 ≥ 30 ms
 Reset time ≤ 30 ms
 Voltage failure buffering 20 ms

Contacts

Type 1 CO, micro disconnection
 Material AgNi
 Rated operational current 8 A
 Max. switching voltage AC-1 250 V
 Max. AC load AC-1 (Fig.1) 2000 VA
 Max. DC load DC-1, 30 V / 250 V (Fig.2) 220 W / 75 W

Power supply- and control input (UC = AC / DC)

Nominal voltage (A1, B1) **UC 12 ... 240 V**
 Operating voltage range 10.2 ... 265 V
 Power consumption ≤ 1.4 W
 Frequency range 45 ... 63 Hz
 Allowed residual current into B1 AC / DC ≤ 2.3 mA / 1.2 mA
 Trigger threshold voltage on B1, AC / DC 6.5 V / 7 V

Insulation

Test voltage open contact 1 kVrms 1 minute
 Test voltage between contacts and control input 2 kVrms 1 minute

General Specifications

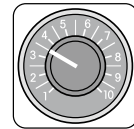
Ambient temperature storage /operation -40 ... 85 °C / -25 ... 60 °C
 Mechanical life of contacts $\geq 30 \times 10^6$ operations
 Ingress protection degree IP 40 when plugged in
 Housing material / Weight Lexan / 75 g

Standard types

UC (AC/DC) **CS2/UC12-240V R**

Accessories

External potentiometer 1 M (Panel mounting + scale) **SP-01/1M**
 Socket **S3-xx**
 Retaining clip **HF-50**
 Transparent front cover **FA-50**
 Front panel mounting set **FZ-50L** (Frame + retaining clip + socket with soldering connections)



Option:
 External
 Pot.-Meter
 SP-01/1M

Connection diagram

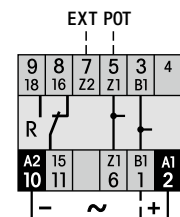


Fig.1 AC electrical endurance

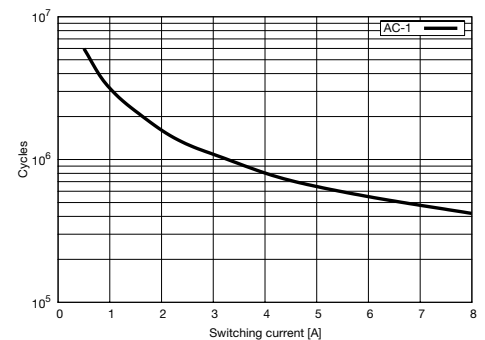
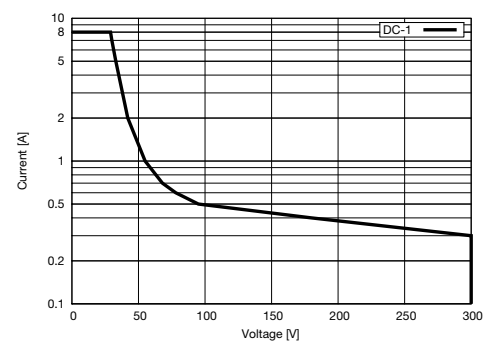
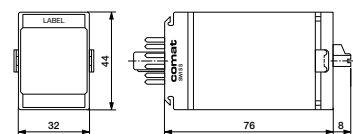


Fig. 2 DC load limit curve



Dimensions [mm]



Technical approvals, conformities



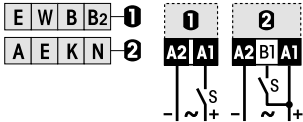
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Type: CS3/UC 12-240V R

Plug-in time relay
2 change over contacts
UC 12-240 V operating voltage
7 time functions, time ranges: 50 ms ... 60 h
LED for output state indication

Maximum contact load	6 A / 250 V AC-1
Recommended minimum contact load	10 mA / 10 V

Time functions and related connection diagrams (Function diagrams: refer to page 152)



Time data

7 partial time ranges, t_{max} (DIP switch)	0.6, 6, 60 s / 6, 60 min / 6, 60 h
Fine adjustment range (rotary knob)	$t_{min} \dots t_{max}$, 5 ... 60
Time range tolerance	t_{min} : -5 % ... +0 % / t_{max} : -0 % ... +5 %
Repetition accuracy	± 0.1 % or DC: 2 ms / AC: 10 ms
Min. trigger start impulse on B1	≥ 30 ms
Reset time	≤ 30 ms
Voltage failure buffering	20 ms

Contacts

Type	2 CO, micro disconnection
Material	AgNi
Rated operational current	6 A
Max. switching voltage AC-1	250 V
Max. AC load AC-1 (Fig.1)	1500 VA
Max. DC load DC-1, 30 V / 250 V (Fig.2)	180 W / 60 W

Power supply- and control input (UC = AC / DC)

Nominal voltage (A1, B1)	UC 12 ... 240 V
Operating voltage range	10.2 ... 265 V
Power consumption	≤ 1.4 W
Frequency range	45 ... 63 Hz
Allowed residual current into B1 AC / DC	≤ 2.3 mA / 1.2 mA
Trigger threshold voltage on B1, AC / DC	6.5 V / 7 V

Insulation

Test voltage open contact	1 kVrms 1 minute
Test voltage between poles	2 kVrms 1 minute
Test voltage between contacts and control input	2 kVrms 1 minute

General Specifications

Ambient temperature storage /operation	-40 ... 85 °C / -25 ... 60 °C
Mechanical life of contacts	$\geq 30 \times 10^6$ operations
Ingress protection degree	IP 40 when plugged in
Housing material / Weight	Lexan / 75 g

Standard types

UC (AC/DC)	CS3/UC12-240V R
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Accessories

Socket:	S3-xx
Retaining clip	HF-50
Transparent front cover	FA-50
Front panel mounting set	FZ-50L (Frame + retaining clip + socket with soldering connections)



Connection diagram

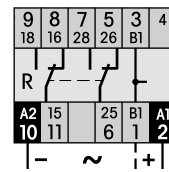


Fig.1 AC electrical endurance

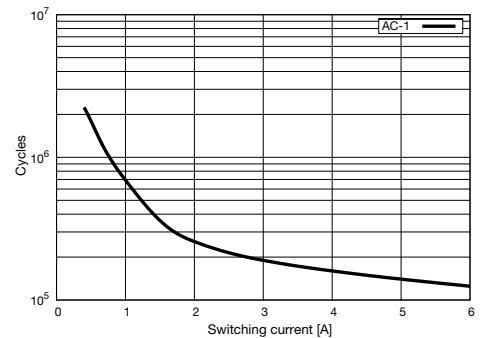
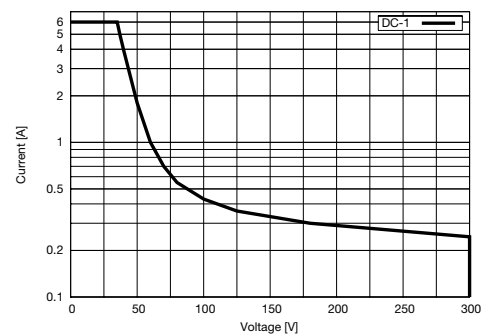
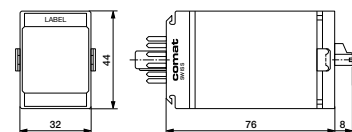


Fig. 2 DC load limit curve



Dimensions [mm]



Technical approvals, conformities



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