

## 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

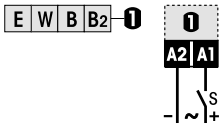


### Type: CS1/UC 12-240V R

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 $\Omega$  (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	$\pm 0.1$ % or DC: 2 ms / AC: 10 ms
Reset time	$\leq 30$ 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)	<b>UC 12 ... 240 V</b>
Operating voltage range	10.2 ... 265 V
Power consumption	$\leq 1.4$ 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

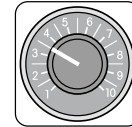
Ambient temperature storage /operation	-40 ... 85 $^{\circ}$ C / -25 ... 60 $^{\circ}$ C
Mechanical life of contacts	$\geq 30 \times 10^6$ operations
Ingress protection degree	IP 40 when plugged in
Housing material / Weight	Lexan / 75 g

### Standard types

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

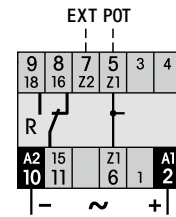
### Accessories

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

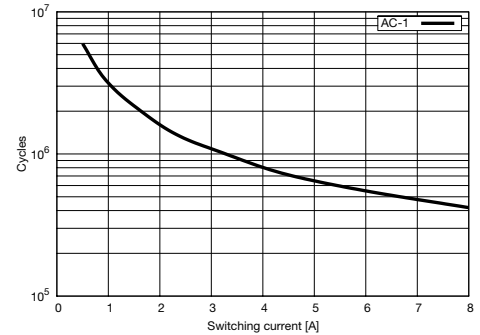


Option:  
External  
Pot.-Meter  
SP-01/1M

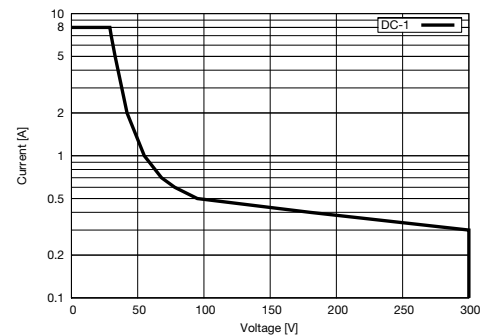
### Connection diagram



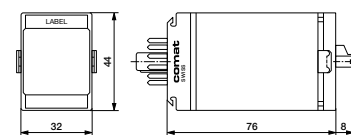
**Fig.1 AC electrical endurance**



**Fig. 2 DC load limit curve**



### Dimensions [mm]



### Technical approvals, conformities



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# CS2

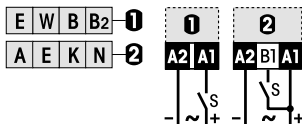
## 11 pin plug-in time relay according to IEC 67-I-18a, 50 ms ... 60 h for wide band 12 ... 240 V operating voltage, internal or external potentiometer operation

### 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  $\pm 0.1$  % or DC: 2 ms / AC: 10 ms  
 Min. trigger impulse on B1  $\geq 30$  ms  
 Reset time  $\leq 30$  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  $\leq 1.4$  W  
 Frequency range 45 ... 63 Hz  
 Allowed residual current into B1 AC / DC  $\leq 2.3$  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

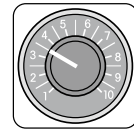
Ambient temperature storage /operation -40 ... 85 °C / -25 ... 60 °C  
 Mechanical life of contacts  $\geq 30 \times 10^6$  operations  
 Ingress protection degree IP 40 when plugged in  
 Housing material / Weight Lexan / 75 g

### Standard types

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

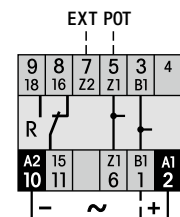
### Accessories

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)

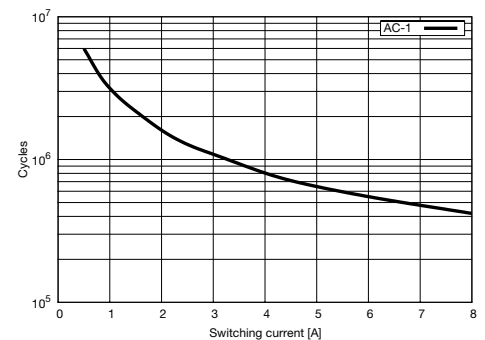


Option:  
 External  
 Pot.-Meter  
 SP-01/1M

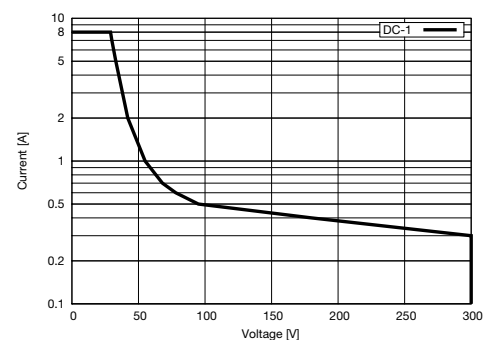
### Connection diagram



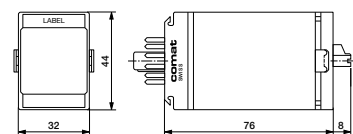
**Fig.1 AC electrical endurance**



**Fig. 2 DC load limit curve**



### Dimensions [mm]



### Technical approvals, conformities



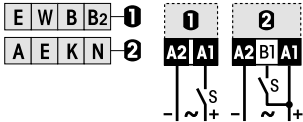
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**Type: CS3/UC 12-240V R**

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

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

**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)	<b>UC 12 ... 240 V</b>
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	≥ 30 x 10 <sup>6</sup> operations
Ingress protection degree	IP 40 when plugged in
Housing material / Weight	Lexan / 75 g

**Standard types**

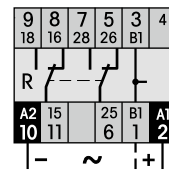
<b>UC (AC/DC)</b>	<b>CS3/UC12-240V R</b>
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**Accessories**

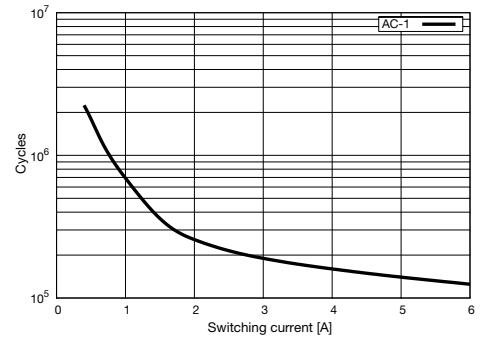
Socket:	<b>S3-xx</b>
Retaining clip	<b>HF-50</b>
Transparent front cover	<b>FA-50</b>
Front panel mounting set	<b>FZ-50L</b> (Frame + retaining clip + socket with soldering connections)



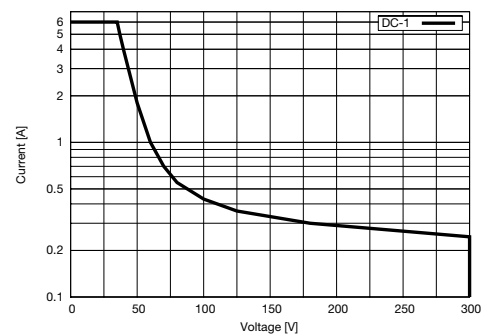
**Connection diagram**



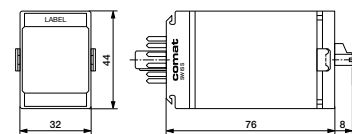
**Fig.1 AC electrical endurance**



**Fig. 2 DC load limit curve**



**Dimensions [mm]**



**Technical approvals, conformities**



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