2.2 Multifunction Time Relays

Application	Types	Functions	Min. time	Max. time	Contact rating	Design
Universal time relay, 8 time functions & stepping function, ON/OFF switch, service function	CIM1	E, B, W, A, K, N, B1, S, LS	50 ms	60 h	16 A / 250 V	17.5 mm
Universal time relay, 8 time functions & stepping function, ON/OFF switch, AC solid state output	CIM12	E, B, W, A, K, N, B1, S, LS	50 ms	60 h	2 A / 250 V	17.5 mm
Universal time relay, 8 time functions & stepping function, ON/OFF switch, DC solid state output	CIM13	E, B, W, A, K, N, B1, S, LS	50 ms	60 h	5 A / 24 V DC	17.5 mm
Universal time relay for high inrush currents 8 time functions & stepping function, ON/OFF switch, service function	CIM14	E, B, W, A, K, N, B1, S, LS	50 ms	60 h	16 A / 250 V	17.5 mm
Universal time relay, 7 time functions, ON/OFF switch, service function	CIM2	E, A, L, M, G, B2, H	50 ms	60 h	16 A / 250 V	17.5 mm
Universal time relay, 7 time functions, ON/OFF switch, service function, AC solid state output	CIM22	E, A, L, M, G, B2, H	50 ms	60 h	2 A / 250 V	17.5 mm
Universal time relay, 7 time functions, ON/OFF switch, service function, DC solid state output	CIM23	E, A, L, M, G, B2, H	50 ms	60 h	5 A / 24 V DC	17.5 mm
Universal time relay, 6 time functions, ON/OFF switch, service function	CIM3	F, Q, G, H, I, P	50 ms	60 h	16 A / 250 V	17.5 mm
Universal time relay, 6 time functions, ON/OFF switch, service function, AC solid state output	CIM32	F, Q, G, H, I, P	50 ms	60 h	2 A / 250 V	17.5 mm
Universal time relay, 6 time functions, ON/OFF switch, service function, DC solid state output	CIM33	F, Q, G, H, I, P	50 ms	60 h	5 A / 24 V DC	17.5 mm
Universal timer, ON-OFF switch, 2 CO contacts	CM3	E, A, K, N, B1, B, W	50 ms	60 h	5 A / 250 V	17.5 mm
Multi function time relay, 16 time functions	CRV4	E1, W, B, B2, H, E2, K, A L, N, M, B1, G, F, Q, LS, S	0.6 s	60 h	6 A / 250 V	13 mm
Multi function time relay, 16 time functions	CSV4	E1, W, B, B2, H, E2, K, A L, N, M, B1, G, F, Q, LS, S	8 ms	10 h	1.5 A / 30 V	13 mm
Pulse shaper	CPF11	K, L, A	5 ms	600 ms	0.8 A / 24 V	17.5 mm

(Function diagrams: refer to page 152)

CIM1, CIM1R (Railway)

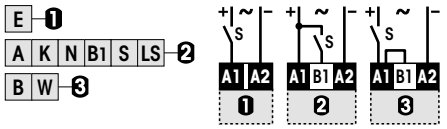
Time relay with mechanical changeover output contact
8 time functions + stepping function, ON-OFF switch, 50 ms ... 60 h, DIN Rail mounting according to DIN 43 880

Type: CIM1/UC24-240V

Sophisticated multifunction time relay, 1 changeover power contact with zero crossing switching (50/60 Hz), 8 time functions, stepping function and service function ON/OFF, time ranges: 50 ms … 60 h, multifunction LED state indicator, suitable for any time-control application and also staircase lighting, Light-switch neon lamp current absorption on input B1, Manual switching function for maintenance, emergency, etc., 16.6 Hz power supply applications. Railway version available.

Maximum contact load	**16 A / 250 V AC-1 384 W DC-1**
Recommended minimum contact load	**10 mA / 10 V**

Time functions and related connection diagrams (Function diagrams: refer to page 152)
The functions are selectable by rotary switch



LED function table:

LED	Relay	Time run
OFF	OFF	NO
Continuous ON	ON	NO
Short blinking	OFF	YES
Long blinking	ON	YES

Time data

7 partial time ranges, t_{max} (rotary switch)	0.6, 6, 60 s / 6, 60 min / 6, 60 h
Fine adjustment range (rotary knob)	t_{min} … t_{max}, 0.5 … 6
Time range tolerance	t_{min}: -5 % … +0 % / t_{max}: -0 % … +5 %
Repetition accuracy	± 0.1 % or DC: 2 ms / AC: 10 ms
Response time, power on, on A1	≤ 45 ms
Min. trigger pulse on B1	20 ms (AC / DC)
Reset time B1 (AC/DC)	≤ 30 ms
Voltage failure buffering (50 / 60 Hz)	≥ 20 ms

Contacts

Material CIM1 / CIM1R / Type	AgNi / 1 CO, micro disconnection
Rated operational current at 40 °C / 60 °C	16 A / 13 A
Max. inrush current	30 A
Max. switching voltage AC-1	250 V
Max. AC load AC-1 (Fig.1)	4 kVA
Max. DC load DC-1 30 V / 250 V (Fig.2)	240 W / 85 W

Power supply- and control input

Nominal voltage (A1, B1)	**UC 24-240 V (UC = AC / DC)**
Operating voltage range	UC 19 … 250 V
Power consumption	approx. 1 W
Frequency range	15 … 60 Hz
Allowed DC residual current into B1	≤ 0.5 mA
AC Neon lamp residual current into B1	≤ 10 mA
Trigger threshold voltage on B1, AC / DC	15 / 17 V

Insulation

Test voltage open contact	1 kVrms 1 minute
Test voltage between contacts and control input	2.5 kVrms 1 minute

General Specifications

Ambient temperature storage /operation	-40 … 85 °C / -40 …60 °C (Railway: -46 °C)
Mechanical life of contact	30 x 10^6 operations
Conductor cross section	Stranded wire 2.5 mm^2, 2 x 1.5 mm^2
Ingress protection degree	IP 20
Max. Screw torque	0.4 Nm
Housing material / weight	Lexan / 70 g

Standard types

UC (AC/DC) 15...60 Hz	**CIM1/UC24-240V**
Railway	**CIM1R/UC24-240V**

Connection diagram

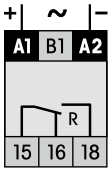


Fig.1 AC voltage endurance

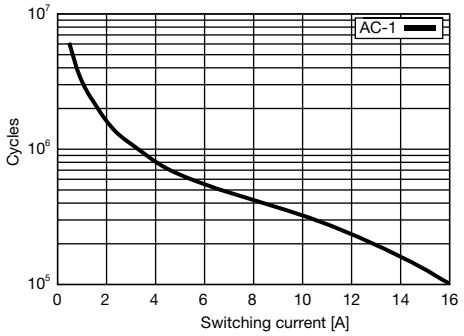
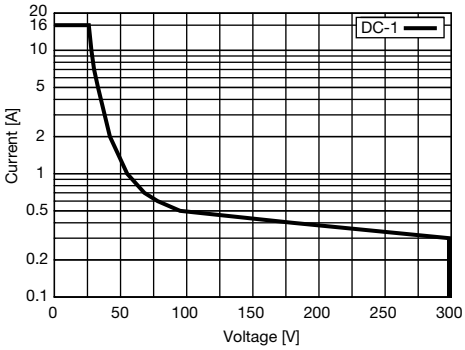
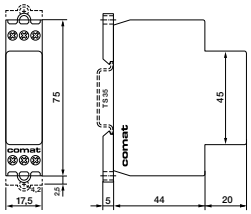


Fig. 2 DC load limit curve



Dimensions [mm]



Technical approvals, conformities

EN 50155, EN 60730

CIM12, CIM12R (Railway)

Time relay with AC solid-state output
8 time functions and stepping function, ON-OFF switch, 50 ms ... 60 h, DIN Rail mounting according to DIN 43 880

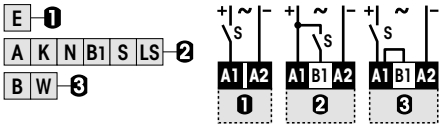
Type: CIM12/UC24-240V

Sophisticated multifunction time relay, 1 triac output, suitable for high frequency of operations and inductive loads, 8 time functions, stepping function and service function ON/OFF, time ranges: 50 ms … 60 h, multifunction LED state indicator, suitable for any time-control application and also staircase lighting, Light-switch neon lamp current absorption on input B1, manual switching function for maintenance, emergency, etc., 16.6 Hz applications. Railway version available.

Maximum contact load	**2 A / 250 V**
Minimum contact load	**50 mA**

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

The functions are selectable by rotary switch



LED function table:

LED	Relay	Time run
OFF	OFF	NO
Continuous ON	ON	NO
Short blinking	OFF	YES
Long blinking	ON	YES

Time data

7 partial time ranges, t_{max} (rotary switch)	0.6, 6, 60 s / 6, 60 min / 6, 60 h
Fine adjustment range (rotary knob)	t_{min} … t_{max}, 0.5 … 6
Time range tolerance	t_{min}: -5 % … +0 % / t_{max}: -0 % … +5 %
Repetition accuracy	± 0.1 % or DC: 2 ms / AC: 10 ms
Response time, power on, on A1	≤ 45 ms
Min. trigger pulse on B1	20 ms (AC / DC)
Reset time B1 (AC/DC)	≤ 30 ms
Voltage failure buffering (50 / 60 Hz)	≥ 20 ms

Output

Type	Triac, zero crossing
Rated operational current at 40 °C (Fig.1)	2 A
Max. inrush current (10 ms)	100 A
Max. switching voltage	250 V
Max. AC load AC-1	300 VA
I^2t value	78 A^2s
Leakage current	< 1 mA

Power supply- and control input

Nominal voltage	**UC 24-240 V (UC = AC / DC)**
Operating voltage range	UC 19 … 250 V
Power consumption	approx. 1 W
Frequency range	15 … 60 Hz
Allowed DC residual current into B1	≤ 0.5 mA
AC Neon lamp residual current into B1	≤ 10 mA
Trigger threshold voltage on B1, AC / DC	15 / 17 V

Insulation

Test voltage between output and control input	2.5 kVrms 1 minute

General Specifications

Ambient temperature storage /operation	-40 … 85 °C / -40 …60 °C (Railway: -70 °C)
Conductor cross section	Stranded wire 2.5 mm^2, 2 x 1.5 mm^2
Ingress protection degree	IP 20
Max. Screw torque	0.4 Nm
Housing material / weight	Lexan / 70 g

Standard types

UC (AC/DC), 15...60 Hz	**CIM12/UC24-240V**
Railway	**CIM12R/UC24-240V**

Connection diagram

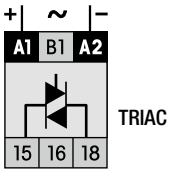
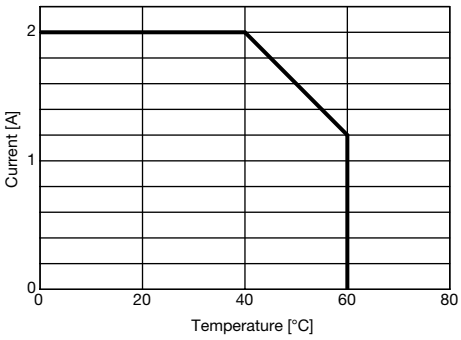
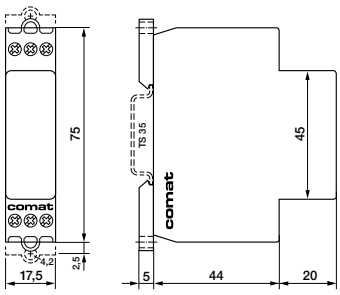


Fig. 1 Output derating curve



Dimensions [mm]



Technical approvals, conformities

EN 50155, EN 60730

CIM13, CIM13R (Railway)

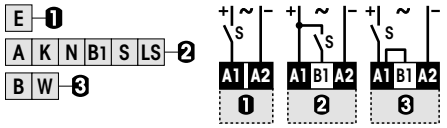
Time relay with DC solid-state output
8 time functions and stepping function, ON-OFF switch, 50 ms ... 60 h
DIN Rail mounting according to DIN 43 880

Type: CIM13/UC24-240V

Sophisticated multifunction time relay, 1 transistor output, 8 time functions, stepping function and service function ON/OFF, time ranges from 50 ms … 60 h, multifunction LED state indicator, suitable for any time-control application and also staircase-light control, light-switch neon lamp current absorption on input B1, manual switching function for maintenance, emergency, etc., 16.6 Hz applications. Railway version available.

Maximum contact load	**4 A / 30 V**
Recommended minimum contact load	**1 mA**

Time functions and related connection diagrams (Function diagrams: refer to page 152)
The functions are selectable by rotary switch



LED function table:

LED	Relay	Time run
OFF	OFF	NO
Continuous ON	ON	NO
Short blinking	OFF	YES
Long blinking	ON	YES

Time data

7 partial time ranges, t_{max} (rotary switch)	0.6, 6, 60 s / 6, 60 min / 6, 60 h
Fine adjustment range (rotary knob)	t_{min} … t_{max}, 0.5 … 6
Time range tolerance	t_{min}: -5 % … +0 % / t_{max}: -0 % … +5 %
Repetition accuracy	± 0.1 % or DC: 2 ms / AC: 10 ms
Response time, power on, on A1	≤ 45 ms
Min. trigger pulse on B1	20 ms (AC / DC)
Reset time B1 (AC/DC)	≤ 30 ms
Voltage failure buffering (50 / 60 Hz)	≥ 20 ms

Output

Type	MOS FET
Rated operational current (Fig. 1)	4 A
Max. inrush current (10 µs)	40 A
Max. switching voltage	30 V
Leakage current	< 10 µA

Power supply- and control input

Nominal voltage (UC = AC / DC)	**UC 24-240 V (UC = AC / DC)**
Operating voltage range	UC 19 … 250 V
Power consumption	approx. 1 W
Frequency range	15 … 60 Hz
Allowed DC residual current into B1	≤ 0.5 mA
AC Neon lamp residual current into B1	≤ 10 mA
Trigger threshold voltage on B1, AC / DC	15 / 17 V

Insulation

Test voltage between output and control input	2.5 kVrms 1 minute

General Specifications

Ambient temperature storage /operation	-40 … 85 °C / -40 …60 °C (Railway: -70 °C)
Conductor cross section	Stranded wire 2.5 mm², 2 x 1.5 mm²
Ingress protection degree	IP 20
Max. Screw torque	0.4 Nm
Housing material / Weight	Lexan / 70 g

Standard types

UC (AC/DC), 15...60 Hz	**CIM13/UC24-240V**
Railway	**CIM13R/UC24-240V**

Connection diagram

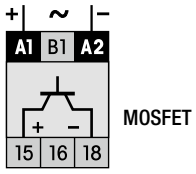
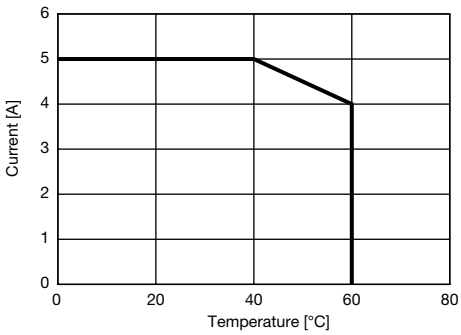
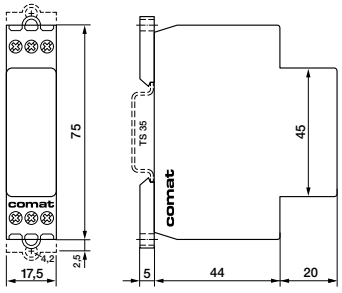


Fig. 1 Output derating curve



Dimensions [mm]



Technical approvals, conformities

EN 50155; EN 60730

CIM14

Time relay with NO contact for high inrush currents up to 800 A
8 time functions + stepping function, ON-OFF switch, 50 ms ... 60 h, DIN Rail mounting according to DIN 43 880

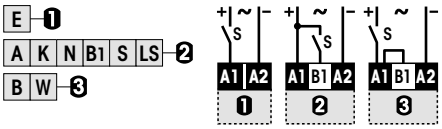
Type: CIM14/UC24-240V

Sophisticated multifunction time relay, 1 NO power contact for high inrush currents up to 800 A with zero crossing switching (50/60 Hz), 8 time functions, stepping function and service function ON/OFF, time ranges: 50 ms ... 60 h, multifunction LED state indicator, suitable for any time-control application and also staircase lighting, Light-switch neon lamp current absorption on input B1, Manual switching function for maintenance, emergency, etc., 16.6 Hz power supply applications. Railway version available.

Maximum contact load	**16 A / 250 V AC-1 384 W DC-1**
Recommended minimum contact load	**100 mA / 12 V**

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

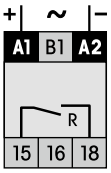
The functions are selectable by rotary switch



LED function table:

LED	Relay	Time run
OFF	OFF	NO
Continuous ON	ON	NO
Short blinking	OFF	YES
Long blinking	ON	YES

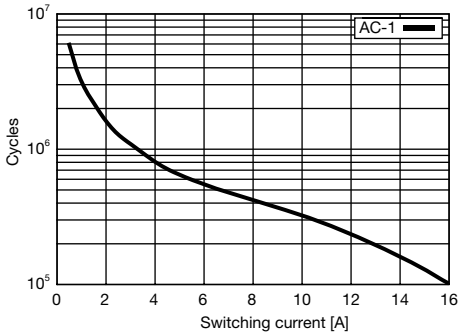
Connection diagram



Time data

7 partial time ranges, t_{max} (rotary switch)	0.6, 6, 60 s / 6, 60 min / 6, 60 h
Fine adjustment range (rotary knob)	t_{min} ... t_{max}, 0.5 ... 6
Time range tolerance	t_{min}: -5 % ... +0 % / t_{max}: -0 % ... +5 %
Repetition accuracy	± 0.1 % or DC: 2 ms / AC: 10 ms
Response time, power on, on A1	≤ 45 ms
Min. trigger pulse on B1	20 ms (AC / DC)
Reset time B1 (AC/DC)	≤ 30 ms
Voltage failure buffering (50 / 60 Hz)	≥ 20 ms

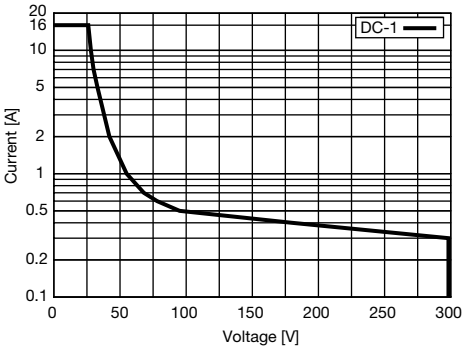
Fig.1 AC voltage endurance



Contacts

Material	W / $AgSnO_2$
Rated operational current at 40 °C / 60 °C	16 A / 13 A
Max. inrush current	165 A / 20 ms
	800 A / 200 µs
Max. switching voltage AC-1	250 V
Max. AC load AC-1 (Fig.1)	4 kVA
Max. DC load DC-1 24 V	384 W

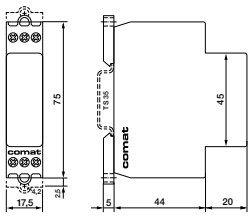
Fig. 2 DC load limit curve



Power supply- and control input

Nominal voltage (A1, B1)	**UC 24-240 V (UC = AC / DC)**
Operating voltage range	16.8 ... 250 V
Power consumption	1.2 VA / 0.43 W
Frequency range	16 ... 60 Hz
Allowed DC residual current into B1	≤ 0.5 mA
AC Neon lamp residual current into B1	≤ 10 mA
Trigger threshold voltage on B1, AC / DC	15 / 17 V

Dimensions [mm]



Insulation

Test voltage open contact	1 kVrms 1 minute
Test voltage between contacts and control input	2.5 kVrms 1 minute

General Specifications

Ambient temperature storage /operation	-40 ... 85 °C / -40 ...60 °C
Mechanical life of contact	5 x 10^6 operations
Conductor cross section	Stranded wire 2.5 mm^2, 2 x 1.5 mm^2
Ingress protection degree	IP 20
Max. Screw torque	0.4 Nm
Housing material / weight	Lexan / 70 g

Technical approvals, conformities

EN 50155, EN 60730

Standard types

UC (AC/DC) 15...60 Hz	**CIM14/UC24-240V**

CIM2, CIM2R (Railway)

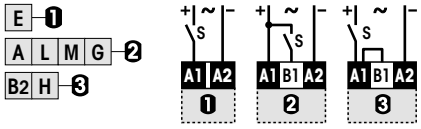
Time relay with mechanical changeover output contact 7 time functions and 7 time ranges from 50 ms ... 60 h, DIN Rail mounting according to DIN 43 880

Type: CIM2/UC24-240V

Sophisticated multifunction time relay, 1 changeover power contact switching in zero crossing (50/60 Hz), 7 time functions and service function ON/OFF, 7 time ranges from 50 ms to 60 h, multifunction LED state indicator, suitable for any time-control application, light-switch neon lamp current absorption on input B1, manual switching function for maintenance, emergency, etc., 16.6 Hz power supply applications. Railway version available.

Maximum contact load	**16 A / 250 V AC-1 384 W DC-1**
Recommended minimum contact load	**10 mA / 10 V**

Time functions and related connection diagrams (Function diagrams: refer to page 152)
The functions are selectable by rotary switch



LED function table:

LED	Relay	Time run
OFF	OFF	NO
Continuous ON	ON	NO
Short blinking	OFF	YES
Long blinking	ON	YES

Time data

7 partial time ranges, t_{max} (rotary switch)	0.6, 6, 60 s / 6, 60 min / 6, 60 h
Fine adjustment range (rotary knob)	t_{min} ... t_{max}, 0.5 ... 6
Time range tolerance	t_{min}: -5 % ... +0 % / t_{max}: -0 % ... +5 %
Repetition accuracy	± 0.1 % or DC: 2 ms / AC: 10 ms
Response time, power on, on A1	≤ 45 ms
Min. trigger pulse on B1	20 ms (AC / DC)
Reset time B1 (AC/DC)	≤ 30 ms
Voltage failure buffering (50 / 60 Hz)	≥ 20 ms

Contacts

Material CIM2 / CIM2R / Type	AgNi / 1 CO, micro disconnection
Rated operational current at 40 °C / 60 °C	16 A / 13 A
Max. inrush current	30 A
Max. switching voltage AC-1	250 V
Max. AC load AC-1 (Fig.1)	4 kVA
Max. DC load DC-1 30 V / 250 V (Fig.2)	240 W / 85 W

Power supply- and control input

Nominal voltage (A1, B1)	**UC 24-240 V (UC = AC / DC)**
Operating voltage range	UC 19 ... 250 V
Power consumption	approx. 1 W
Frequency range	15 ... 60 Hz
Allowed DC residual current into B1	≤ 0.5 mA
AC Neon lamp residual current into B1	≤ 10 mA
Trigger threshold voltage on B1, AC / DC	15 / 17 V

Insulation

Test voltage open contact	1 kVrms 1 minute
Test voltage between contacts and control input	2.5 kVrms 1 minute

General Specifications

Ambient temperature storage /operation	-40 ... 85 °C / -40 ...60 °C (Railway: -46 °C)
Mechanical life of contact	30 x 10^6 operations
Conductor cross section	Stranded wire 2.5 mm^2, 2 x 1.5 mm^2
Ingress protection degree	IP 20
Max. Screw torque	0.4 Nm
Housing material / weight	Lexan / 70 g

Standard types

UC (AC/DC) 15...60 Hz	**CIM2/UC24-240V**
Railway	**CIM2R/UC24-240V**

Connection diagram

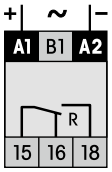


Fig.1 AC voltage endurance

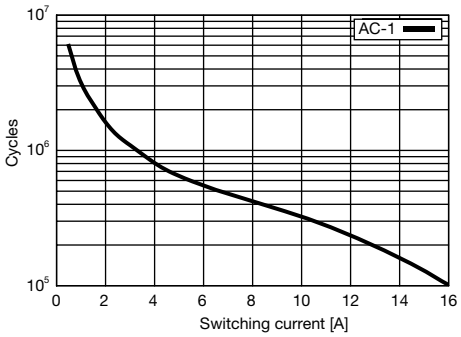
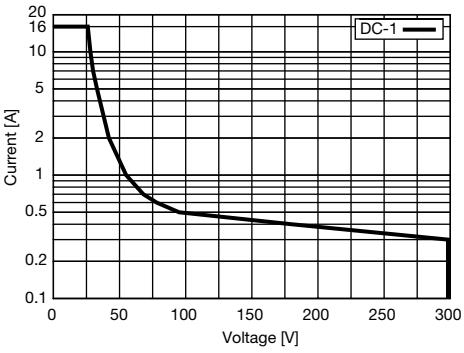
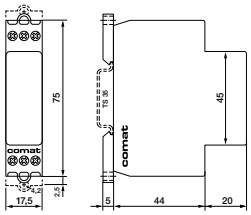


Fig. 2 DC load limit curve



Dimensions [mm]



Technical approvals, conformities

EN 50155, EN 60730

CIM22, CIM22R (Railway)

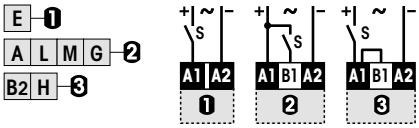
Time relay with AC solid-state output
7 time functions and 7 time ranges 50 ms ... 60 h,
DIN Rail mounting according to DIN 43 880

Type: CIM22/UC24-240V

Sophisticated multifunction time relay, 1 triac output, suitable for high frequency of operations and inductive loads, 7 time functions and service function ON/OFF, 7 time ranges from 50 ms … 60 h, multifunction LED state indicator, suitable for any time-control application light-switch neon lamp current absorption on input B1, manual switching function for maintenance, emergency, etc., 16.6 Hz applications. Railway version available.

Maximum contact load	**2 A / 250 V**
Minimum contact load	**50 mA**

Time functions and related connection diagrams (Function diagrams: refer to page 152)
The functions are selectable by rotary switch



LED function table:

LED	Relay	Time run
OFF	OFF	NO
Continuous ON	ON	NO
Short blinking	OFF	YES
Long blinking	ON	YES

Time data

7 partial time ranges, t_{max} (rotary switch)	0.6, 6, 60 s / 6, 60 min / 6, 60 h
Fine adjustment range (rotary knob)	t_{min} … t_{max}, 0.5 … 6
Time range tolerance	t_{min}: -5 % … +0 % / t_{max}: -0 % … +5 %
Repetition accuracy	± 0.1 % or DC: 2 ms / AC: 10 ms
Response time, power on, on A1	≤ 45 ms
Min. trigger pulse on B1	20 ms (AC / DC)
Reset time B1 (AC/DC)	≤ 30 ms
Voltage failure buffering (50 / 60 Hz)	≥ 20 ms

Output

Type	Triac, zero crossing
Rated operational current at 40 °C (Fig.1)	2 A
Max. inrush current (10 ms)	100 A
Max. switching voltage	250 V
Max. AC load AC-1	300 VA
I^2t value	78 A^2s
Leakage current	< 1 mA

Power supply- and control input

Nominal voltage	**UC 24-240 V (UC = AC / DC)**
Operating voltage range	UC 19 … 250 V
Power consumption	approx. 1 W
Frequency range	15 … 60 Hz
Allowed DC residual current into B1	≤ 0.5 mA
AC Neon lamp residual current into B1	≤ 10 mA
Trigger threshold voltage on B1, AC / DC	15 / 17 V

Insulation

Test voltage between output and control input	2.5 kVrms 1 minute

General Specifications

Ambient temperature storage /operation	-40 … 85 °C / -40 …60 °C (Railway: -70 °C)
Conductor cross section	Stranded wire 2.5 mm^2, 2 x 1.5 mm^2
Ingress protection degree	IP 20
Max. Screw torque	0.4 Nm
Housing material / weight	Lexan / 70 g

Standard types

UC (AC/DC), 15...60 Hz	**CIM22/UC24-240V**
Railway	**CIM22R/UC24-240V**

Connection diagram

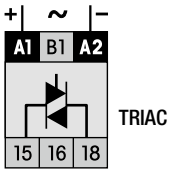
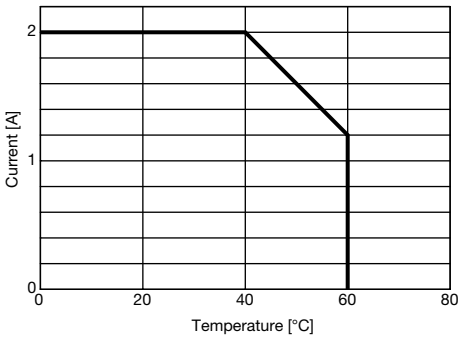
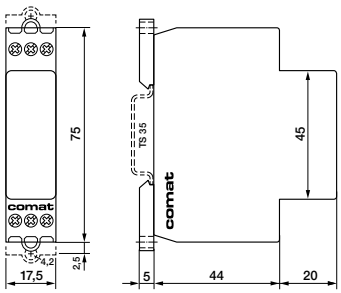


Fig. 1 Output derating curve



Dimensions [mm]



Technical approvals, conformities

EN 50155, EN 60730

CIM23, CIM23R (Railway)

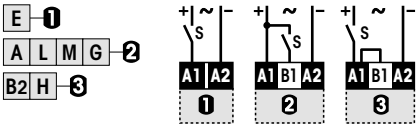
Time relay with DC solid-state output
7 time functions and 7 time ranges from 50 ms ... 60 h
DIN Rail mounting according to DIN 43 880

Type: CIM23/UC24-240V

Sophisticated multifunction time relay, 1 transistor output, 7 time functions and service function ON/OFF, 7 time ranges from 50 ms … 60 h, multifunction LED state indicator suitable for any time-control application, light-switch neon lamp current absorption on input B1, manual switching function for maintenance, emergency, etc., 16.6 Hz applications. Railway version available.

Maximum contact load	**4 A / 30 V**
Recommended minimum contact load	**1 mA**

Time functions and related connection diagrams (Function diagrams: refer to page 152)
The functions are selectable by rotary switch



LED function table:

LED	Relay	Time run
OFF	OFF	NO
Continuous ON	ON	NO
Short blinking	OFF	YES
Long blinking	ON	YES

Time data

7 partial time ranges, t_{max} (rotary switch)	0.6, 6, 60 s / 6, 60 min / 6, 60 h
Fine adjustment range (rotary knob)	t_{min} … t_{max}, 0.5 … 6
Time range tolerance	t_{min}: -5 % … +0 % / t_{max}: -0 % … +5 %
Repetition accuracy	± 0.1 % or DC: 2 ms / AC: 10 ms
Response time, power on, on A1	≤ 45 ms
Min. trigger pulse on B1	20 ms (AC / DC)
Reset time B1 (AC/DC)	≤ 30 ms
Voltage failure buffering (50 / 60 Hz)	≥ 20 ms

Output

Type	MOS FET
Rated operational current (Fig. 1)	4 A
Max. inrush current (10 µs)	40 A
Max. switching voltage	30 V
Leakage current	< 10 µA

Power supply- and control input

Nominal voltage (UC = AC / DC)	**UC 24-240 V (UC = AC / DC)**
Operating voltage range	UC 19 … 250 V
Power consumption	approx. 1 W
Frequency range	15 … 60 Hz
Allowed DC residual current into B1	≤ 0.5 mA
AC Neon lamp residual current into B1	≤ 10 mA
Trigger threshold voltage on B1, AC / DC	15 / 17 V

Insulation

Test voltage between output and control input	2.5 kVrms 1 minute

General Specifications

Ambient temperature storage /operation	-40 … 85 °C / -40 …60 °C (Railway: -70 °C)
Conductor cross section	Stranded wire 2.5 mm², 2 x 1.5 mm²
Ingress protection degree	IP 20
Max. Screw torque	0.4 Nm
Housing material / Weight	Lexan / 70 g

Standard types

UC (AC/DC), 15…60 Hz	**CIM23/UC24-240V**
Railway	**CIM23R/UC24-240V**

Connection diagram

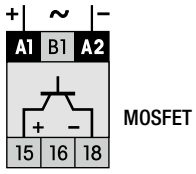
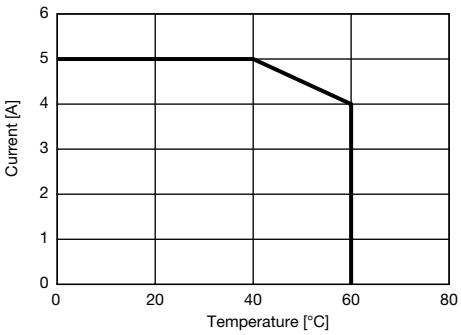
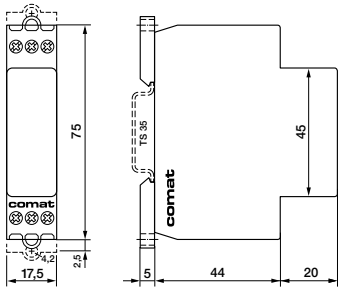


Fig. 1 Output derating curve



Dimensions [mm]



Technical approvals, conformities

EN 50155; EN 60730

CIM3, CIM3R (Railway)

Time relay with mechanical changeover output contact
6 time functions and service function, 7 time ranges from 50 ms...60 h, DIN Rail mounting according to DIN 43 880

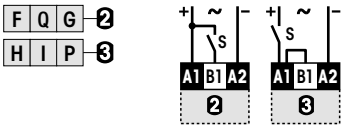
Type: CIM3/UC24-240V

Sophisticated multifunction time relay, 1 changeover power contact switching in zero crossing (50/60 Hz), 6 time functions and service function ON/OFF, 7 time ranges from 50 ms to 60 h, multifunction LED state indicator, suitable for any time-control application, light-switch neon lamp current absorption on input B1, manual switching function for maintenance, emergency, etc., 16.6 Hz power supply applications. Railway version available.

Maximum contact load	**16 A / 250 V AC-1 384 W DC-1**
Recommended minimum contact load	**10 mA / 10 V**

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

The functions are selectable by rotary switch



LED function table:

LED	Relay	Time run
OFF	OFF	NO
Continuous ON	ON	NO
Short blinking	OFF	YES
Long blinking	ON	YES

Time data

7 partial time ranges, t_{max} (rotary switch)	0.6, 6, 60 s / 6, 60 min / 6, 60 h
Fine adjustment range (rotary knob)	t_{min} ... t_{max}, 0.5 ... 6
Time range tolerance	t_{min}: -5 % ... +0 % / t_{max}: -0 % ... +5 %
Repetition accuracy	± 0.1 % or DC: 2 ms / AC: 10 ms
Response time, power on, on A1	≤ 45 ms
Min. trigger pulse on B1	20 ms (AC / DC)
Reset time B1 (AC/DC)	≤ 30 ms
Voltage failure buffering (50 / 60 Hz)	≥ 20 ms

Contacts

Material CIM3 / CIM3R / Type	AgNi / 1 CO, micro disconnection
Rated operational current at 40 °C / 60 °C	16 A / 13 A
Max. inrush current	30 A
Max. switching voltage AC-1	250 V
Max. AC load AC-1 (Fig.1)	4 kVA
Max. DC load DC-1 30 V / 250 V (Fig.2)	240 W / 85 W

Power supply- and control input

Nominal voltage (A1, B1)	**UC 24-240 V (UC = AC / DC)**
Operating voltage range	UC 19 ... 250 V
Power consumption	approx. 1 W
Frequency range	15 ... 60 Hz
Allowed DC residual current into B1	≤ 0.5 mA
AC Neon lamp residual current into B1	≤ 10 mA
Trigger threshold voltage on B1, AC / DC	15 / 17 V

Insulation

Test voltage open contact	1 kVrms 1 minute
Test voltage between contacts and control input	2.5 kVrms 1 minute

General Specifications

Ambient temperature storage /operation	-40 ... 85 °C / -40 ...60 °C (Railway: -46 °C)
Mechanical life of contact	30 x 10^6 operations
Conductor cross section	Stranded wire 2.5 mm^2, 2 x 1.5 mm^2
Ingress protection degree	IP 20
Max. Screw torque	0.4 Nm
Housing material / weight	Lexan / 70 g

Standard types

UC (AC/DC) 15...60 Hz	**CIM3/UC24-240V**
Railway	**CIM3R/UC24-240V**

Connection diagram

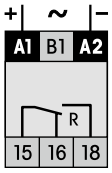


Fig.1 AC voltage endurance

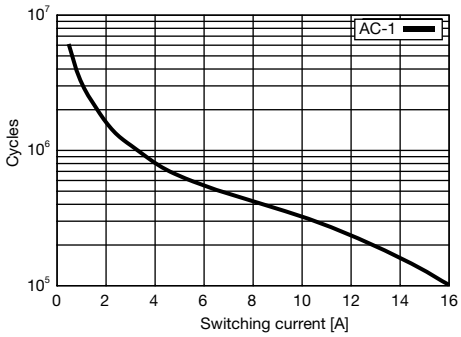
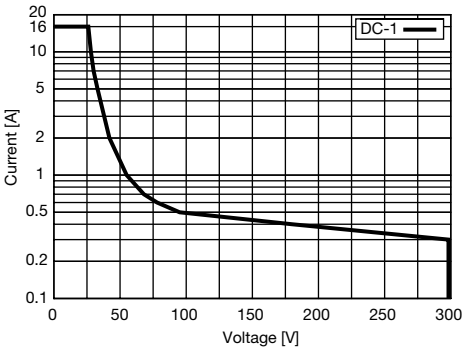
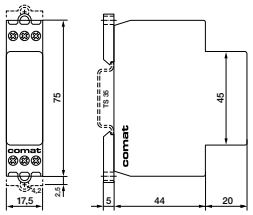


Fig. 2 DC load limit curve



Dimensions [mm]



Technical approvals, conformities

EN 50155, EN 60730

CIM32, CIM32R (Railway)

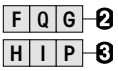
Time relay with AC solid-state output
6 time functions and service function, 7 time ranges from 50 ms...60 h, DIN Rail mounting according to DIN 43 880

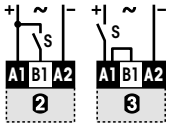
Type: CIM32/UC24-240V

Sophisticated multifunction time relay, 1 triac output, suitable for high frequency of operations and inductive loads, 6 time functions and service function ON/OFF, 7 time ranges from 50 ms … 60 h, multifunction LED state indicator, suitable for any time-control application light-switch neon lamp current absorption on input B1, manual switching function for maintenance, emergency, etc., 16.6 Hz applications. Railway version available.

Maximum contact load	**2 A / 250 V**
Minimum contact load	**50 mA**

Time functions and related connection diagrams (Function diagrams: refer to page 152)
The functions are selectable by rotary switch





LED function table:

LED	Relay	Time run
OFF	OFF	NO
Continuous ON	ON	NO
Short blinking	OFF	YES
Long blinking	ON	YES

Time data

7 partial time ranges, t_{max} (rotary switch)	0.6, 6, 60 s / 6, 60 min / 6, 60 h
Fine adjustment range (rotary knob)	t_{min} … t_{max}, 0.5 … 6
Time range tolerance	t_{min}: -5 % … +0 % / t_{max}: -0 % … +5 %
Repetition accuracy	± 0.1 % or DC: 2 ms / AC: 10 ms
Response time, power on, on A1	≤ 45 ms
Min. trigger pulse on B1	20 ms (AC / DC)
Reset time B1 (AC/DC)	≤ 30 ms
Voltage failure buffering (50 / 60 Hz)	≥ 20 ms

Output

Type	Triac, zero crossing
Rated operational current at 40 °C (Fig.1)	2 A
Max. inrush current (10 ms)	100 A
Max. switching voltage	250 V
Max. AC load AC-1	300 VA
I^2t value	78 A^2s
Leakage current	< 1 mA

Power supply- and control input

Nominal voltage	**UC 24-240 V (UC = AC / DC)**
Operating voltage range	UC 19 … 250 V
Power consumption	approx. 1 W
Frequency range	15 … 60 Hz
Allowed DC residual current into B1	≤ 0.5 mA
AC Neon lamp residual current into B1	≤ 10 mA
Trigger threshold voltage on B1, AC / DC	15 / 17 V

Insulation

Test voltage between output and control input	2.5 kVrms 1 minute

General Specifications

Ambient temperature storage /operation	-40 … 85 °C / -40 …60 °C (Railway: -70 °C)
Conductor cross section	Stranded wire 2.5 mm^2, 2 x 1.5 mm^2
Ingress protection degree	IP 20
Max. Screw torque	0.4 Nm
Housing material / weight	Lexan / 70 g

Standard types

UC (AC/DC), 15...60 Hz	**CIM32/UC24-240V**
Railway	**CIM32R/UC24-240V**

Connection diagram

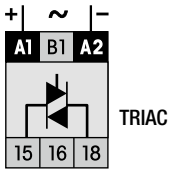
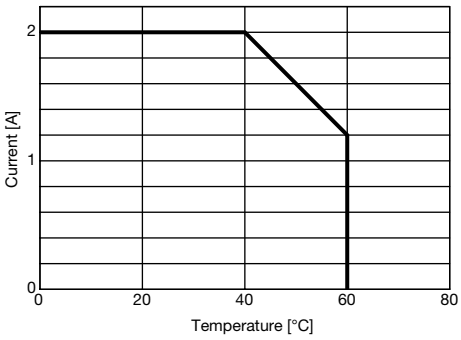
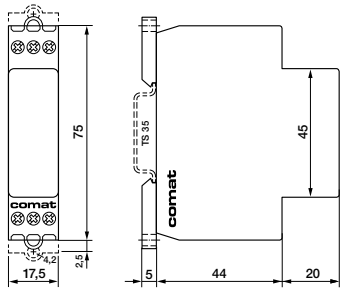


Fig. 1 Output derating curve



Dimensions [mm]



Technical approvals, conformities

EN 50155, EN 60730

CIM33, CIM33R (Railway)

Time relay with DC solid-state output
6 time functions and service function, 7 time ranges from 50 ms…60 h, DIN Rail mounting according to DIN 43 880

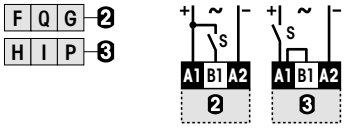
Type: CIM33/UC24-240V

Sophisticated multifunction time relay, 1 transistor output, 6 time functions and service function ON/OFF, 7 time ranges from 50 ms … 60 h, Multifunction LED state indicator, suitable for any time-control application, light-switch neon lamp current absorption on input B1, manual switching function for maintenance emergency, etc., 16.6 Hz applications. Railway version available.

Maximum contact load	**4 A / 30 V**
Recommended minimum contact load	**1 mA**

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

The functions are selectable by rotary switch



LED function table:

LED	Relay	Time run
OFF	OFF	NO
Continuous ON	ON	NO
Short blinking	OFF	YES
Long blinking	ON	YES

Time data

7 partial time ranges, t_{max} (rotary switch)	0.6, 6, 60 s / 6, 60 min / 6, 60 h
Fine adjustment range (rotary knob)	t_{min} … t_{max}, 0.5 … 6
Time range tolerance	t_{min}: -5 % … +0 % / t_{max}: -0 % … +5 %
Repetition accuracy	± 0.1 % or DC: 2 ms / AC: 10 ms
Response time, power on, on A1	≤ 45 ms
Min. trigger pulse on B1	20 ms (AC / DC)
Reset time B1 (AC/DC)	≤ 30 ms
Voltage failure buffering (50 / 60 Hz)	≥ 20 ms

Output

Type	MOS FET
Rated operational current (Fig. 1)	4 A
Max. inrush current (10 µs)	40 A
Max. switching voltage	30 V
Leakage current	< 10 µA

Power supply- and control input

Nominal voltage (UC = AC / DC)	**UC 24-240 V (UC = AC / DC)**
Operating voltage range	UC 19 … 250 V
Power consumption	approx. 1 W
Frequency range	15 … 60 Hz
Allowed DC residual current into B1	≤ 0.5 mA
AC Neon lamp residual current into B1	≤ 10 mA
Trigger threshold voltage on B1, AC / DC	15 / 17 V

Insulation

Test voltage between output and control input	2.5 kVrms 1 minute

General Specifications

Ambient temperature storage / operation	-40 … 85 °C / -40 …60 °C (Railway: -70 °C)
Conductor cross section	Stranded wire 2.5 mm², 2 x 1.5 mm²
Ingress protection degree	IP 20
Max. Screw torque	0.4 Nm
Housing material / Weight	Lexan / 70 g

Standard types

UC (AC/DC), 15…60 Hz	**CIM33/UC24-240V**
Railway	**CIM33R/UC24-240V**

Connection diagram

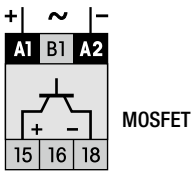
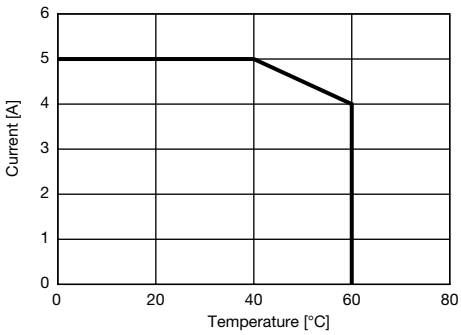
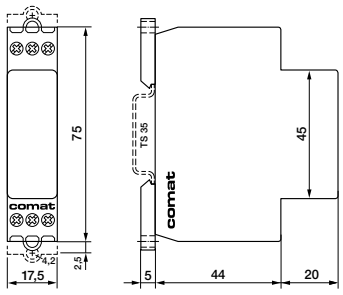


Fig. 1 Output derating curve



Dimensions [mm]



Technical approvals, conformities

EN 50155; EN 60730

CM3

Time relay with two mechanical changeover output contacts
7 time functions, ON-OFF function, 50 ms … 60 h
DIN Rail mounting according to DIN 43 880

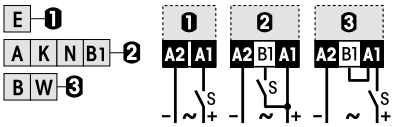
Type: CM3/… V R

Multifunction time relay, 7 time functions, time ranges: 50 ms … 60 h, multifunction LED state indicator, ON / OFF switching function for maintenance, emergency, etc., suitable for railway applications

Maximum contact load	**5 A / 250 V AC-1 150 W DC-1**
Recommended minimum contact load	**10 mA / 10 V**

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

The functions are selectable by rotary switch



LED function table:

LED	Relay	Time run
OFF	OFF	NO
Continuous ON	ON	NO
Short blinking	OFF	YES
Long blinking	ON	YES

Time data

7 partial time ranges, t_{max} (rotary switch)	0.6, 6, 60 s / 6, 60 min / 6, 60 h
Fine adjustment range (rotary knob)	t_{min} … t_{max}, 0.5 … 6
Time range tolerance	t_{min}: -5 % … +0 % / t_{max}: -0 % … +5 %
Repetition accuracy	± 0.1 % or DC: 2 ms / AC: 10 ms
Response time, power on, on A1	≤ 25 ms
Min. trigger pulse on B1	35 ms (AC / DC)
Reset time B1 (AC/DC)	≤ 40 ms
Voltage failure buffering	≥ 15 ms

Contacts

Type	2 CO, micro disconnection
Material	AgNi
Rated operational current	5 A
Max. inrush current	25 A
Max. switching voltage AC-1	250 V
Max. AC load AC-1 (Fig.1)	1250 VA
Max. DC load DC-1, 30 V / 250 V (Fig.2)	150 W / 75 W

Power supply and control input

Nominal voltage	**DC 12-24 V**	**DC 24-48 V / AC 24-240 V**	
Operating voltage range	9.6 … 28.8 V	DC 19 … 60 V	AC 19 … 250 V
Power consumption	approx. 1.3 W	approx. 1.3 W	
Frequency range	-	-	45 … 63 Hz
Control current into B1	≤ 13.8 mA	≤ 6 mA	
Allowed residual current into B1	≤ 4.5 mA	≤ 1.5 mA	
Trigger threshold voltage on B1	5.8 … 6.5 V	DC 13 … 18 V	AC 11 … 15 V
Inrush current B1, τ = 0.4 ms	≤ 2.6 A	-	≤ 2.6 A

Insulation

Test voltage open contact	1 kVrms 1 minute
Test voltage between poles	2.5 kVrms 1 minute
Test voltage between contacts and control input	2.5 kVrms 1 minute

General Specifications

Ambient temperature storage /operation	-40 … 80 °C / -25 …60 °C
Mechanical life of contacts	15 x 10^6 operations
Conductor cross section	Stranded wire 2.5 mm^2, 2 x 1.5 mm^2
Ingress protection degree	IP 20
Max. Screw torque	0.4 Nm
Housing material / weight	Lexan / 72 g

Standard types

DC	**CM3/DC12-24V R**
DC, AC 45…63 Hz	**CM3/DC24 -48V/AC24-240V R**

Connection diagram

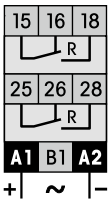


Fig.1 AC voltage endurance

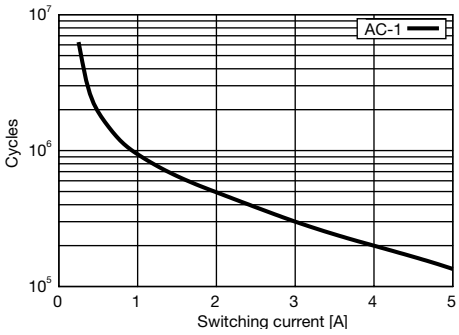
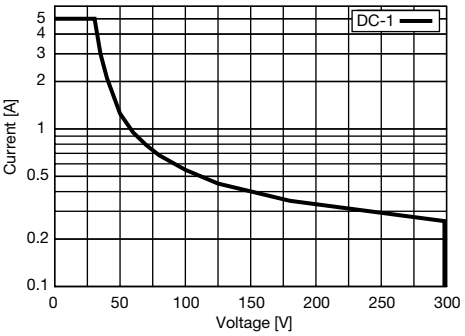
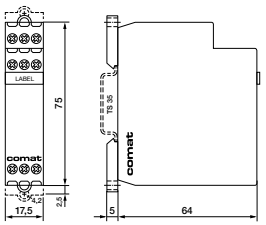


Fig. 2 DC load limit curve



Dimensions [mm]



Technical approvals, conformities

EN 50155, EN 60730

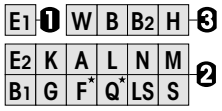
CRV4

Multifunction time relay with 16 functions and 7 time ranges 50 ms ... 60 h
DIN Rail mounting according to DIN 43 880

Type: CRV4/UC24-240V
16 timing functions
6 A C.O. relay output
Power supply UC 24 ... 240 V
Option for external fine adjustment time range potentiometer
LED state indicators for output and control input

Maximum output load	**6 A / 250 V**

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



Time data

7 partial time ranges, t_{max} (rotary switch)	0,6 s / 6 s / 60 s / 6 m / 60 m / 6 h / 60 h
Time range tolerance	t_{min}: -5 % … +0 % / t_{max}: -0 % … +5 %
Repetition accuracy	± 0.1 % or 2 ms
Response time, power on, on A1	20 ms
Min. trigger pulse on B1	25 ms
Reset time B1 (AC/DC)	30 ms
Voltage failure buffering	10 ms

Output

Type	1 CO, micro disconnection
Material	AgNi
Rated operational current	6 A
Max. inrush current (10 ms)	15 A
Max. switching voltage AC-1	250 V
Max. AC load AC-1	1500 VA
Max. DC load DC-1 30 V / 250 V	180 W / 75 W

Power supply and control input

Nominal voltage	**UC 24 – 240 V**
Operating voltage range	19,2 ... 250 V
Power consumption max.	550 mW
Control current into B1 max.	7 mA
Allowed residual current into B1 max.	1,2 mA
Trigger threshold voltage on B1 typ. AC / DC	14,5 V / 17,5 V

General Specifications

Ambient temperature storage /operation	-40 … 85 °C / -40 …70 °C
Conductor cross section	Stranded wire 2.5 mm², 2 x 1 mm²
Ingress Protection degree	IP 20
Max. Screw torque	0.6 Nm
Housing material / Weight	Lexan / 50 g

Standard types	**CRV4/UC24-240V**

Accessories

External potentiometer 100k (Panel mounting + scale):		**SP-01/100k**
Marking strip:	Large	**BS-13G**
	Small	**BS-13K**

Option: External Pot.-Meter SP-01/100k

Connection diagram

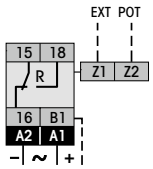


Fig.1 AC electrical endurance

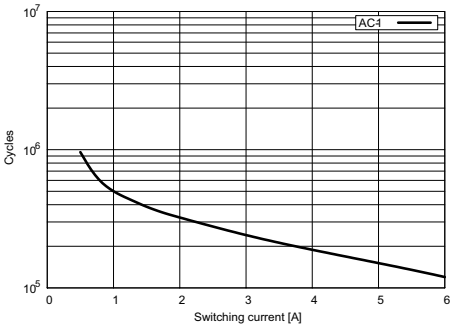
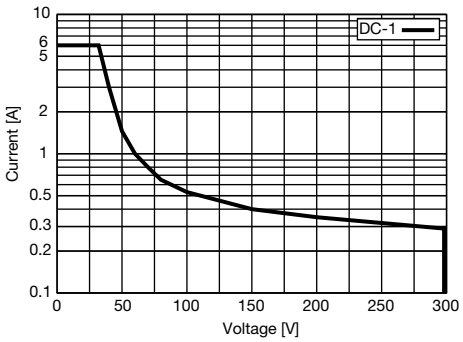
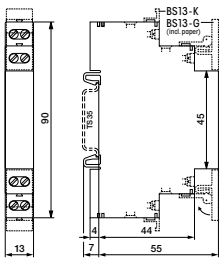


Fig. 2 DC load limit curve



Dimensions [mm]



Technical approvals, conformities

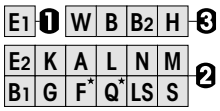
CSV4

Multifunction time relay with 16 functions and 8 time ranges 0.8 ms ... 60 h
DIN Rail mounting according to DIN 43 880

Type: CSV4/DC12-36V
16 timing functions
6 A C.O. relay output
Power supply DC 12 ... 36 V
Option for external fine adjustment time range potentiometer
LED state indicators for output and control input

Maximum output load	**1.5 A / 24 V**

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



Time data

8 partial time ranges, t_{max} (rotary switch)	10 ms / 0,1 s / 1 s / 10 s / 1 m / 10 m / 1 h / 10 h
Time range tolerance	t_{min}: -5 % … +0 % / t_{max}: -0 % … +5 %
Repetition accuracy	± 0.1 % or 0,2 ms
Response time, power on, on A1	0,7 ms
Min. trigger pulse on B1	0,15 ms
Reset time B1 (AC/DC)	0,05 ms
Voltage failure buffering	10 ms

Output

Type	MOSFET, PNP
Rated operational current	1.5 A
Max. inrush current (100 ms)	4 A
Max. switching voltage	30 V
Leakage current	10 µA
Inductive switch-off voltage protection	Yes

Power supply and control input

Nominal voltage	**DC 12 – 36 V**
Operating voltage range	10,2 ... 45 V
Power consumption	200 mW
Control current into B1	4 mA
Allowed residual current into B1	1 mA
Trigger threshold voltage on B1 typ.	7,3 V

General Specifications

Ambient temperature storage /operation	-40 … 85 °C / -40 …70 °C
Conductor cross section	Stranded wire 2.5 mm², 2 x 1 mm²
Ingress Protection degree	IP 20
Max. Screw torque	0.6 Nm
Housing material / Weight	Lexan / 50 g

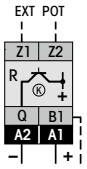
Standard types	**CSV4/DC12-36V**

Accessories

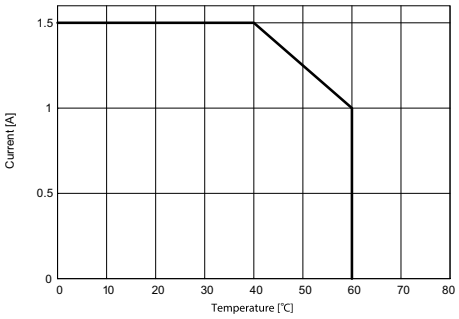
External potentiometer 100k (Panel mounting + scale):		**SP-01/100k**
Marking strip:	Large	**BS-13G**
	Small	**BS-13K**

Option:
External
Pot.-Meter
SP-01/100k

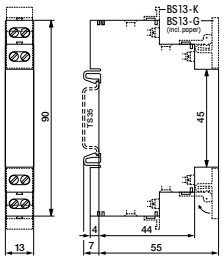
Connection diagram



Output current



Dimensions [mm]



Technical approvals, conformities

CPF11

Versatile time relay with DC solid state output, 3 time functions for pulse shaping applications, 5 … 600 ms DIN Rail mounting according to DIN 43 880

Type: CPF11/DC24V R

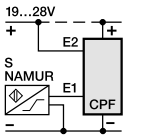
Pulse shaper. DC solid state output, short circuit proof. DC 24 V operating voltage.
Very suitable as PLC-interface for contact- and sensor signals (NAMUR, 3 – wire)
but also for inductive- or lamp loads. Selectable free wheeling diode built in.
Adjustable input filter time. LED state indicators for output and control input.
Also suitable for panel mounting 2 x M4

Maximum output load	**2 A / 32 V**

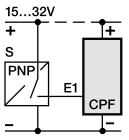
Time functions and related connection diagrams (Function diagrams: refer to page 152)

K L A

NAMUR sensor



Three-wire sensor



Logical input setting E, Ē: With Ē the output becomes high when the input is low.

When set the shortest time and function A, the device can be used as a switching amplifier.

Time data

2 partial time ranges, t_{max} (DIP switch)	60 , 600 ms
Fine adjustment range (rotary knob)	t_{min} … t_{max}, 0.5 … 6
Time range tolerance	t_{min}: -30 % … +0 % / t_{max}: -0 % … +30 %
Repetition accuracy	± 0.5 % or 2 ms
Min. trigger pulse width on input B1	1 ms / 5 ms selectable
Reset time B1	≤ 5 ms / ≤ 25 ms

Output

Type: Power MOS FET	High side switch
Rated operational current, Ta = 60 °C	0.7 A 100% duty cycle
Rated operational current, Ta = 50 °C	0.8 A 100% duty cycle
Operational pulse current	2 A when tON ≤ tOFF , tON ≤ 5 s
Short circuit current	≤ 7 A
Max. switching voltage	32 V
Leakage current (without free wheeling diode)	≤ 1 µA
Inductive switch-off voltage protection	Selectable free wheeling diode

Power supply and control input

Nominal voltage	**DC 24 V**
Operating voltage range normal operation	15 … 32 V
Operating voltage range NAMUR operation (DIN 19234)	19 … 28 V
Power consumption	≤ 0.6 W
Trigger threshold voltage E1	≤ 10 V
Trigger threshold voltage E2	≤ 15 V

General Specifications

Ambient temperature storage /operation	-40 … 80 °C / -25 …60 °C
Conductor cross section	Stranded wire 2.5 mm², 2 x 1 mm²
Ingress Protection degree	Housing: IP 40, terminals: IP 20
Max. Screw torque	0.4 Nm
Housing material / Weight	Lexan / 60 g

Standard types	**CPF11/DC24V R**

Accessories

Label plate: (replacement)	**BZS-DIN 17.5**

Connection diagram

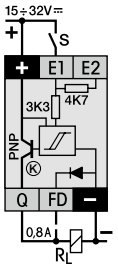


Fig. 1 Derating Curve

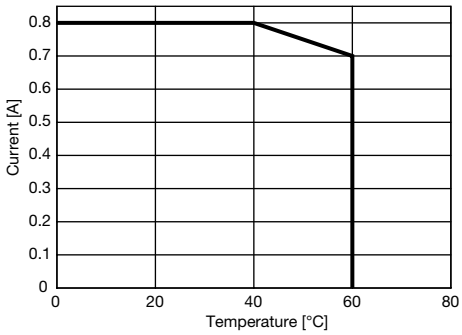
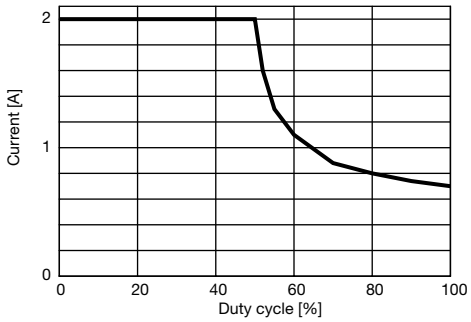
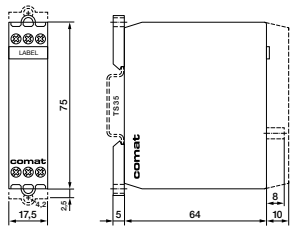


Fig. 2 Current vs. duty cycle



Dimensions [mm]



Technical approvals, conformities

Notes

Notes