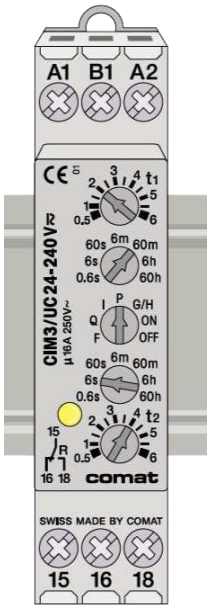
Multifunction Devices CIM3, CIM32, CIM33



1 Features

- **Power supply AC and DC 24 ... 240 V, 16 ... 63 Hz**
- **1 Change-over contact 16 A or Semiconductor output 1.2 A AC or 4 A DC**
- **6 timer functions: F, Q, I, P, G, H**
- **7 time ranges from 50 ms to 60 h**
- **Service functions ON/OFF**
- **LED output status display**
- **Railway versions available**
- **Relay contact in AC-mode: commutation at zero crossing (50/60 Hz)**

2 General description

The CIM3, CIM32, CIM33 are compact and multifunctional timer relays with 6 functions and 7 time ranges from 50 ms to 60 hours. They are developed for a voltage range of UC 24-240V and are able to switch nominal current up to 16 A at a nominal voltage of 240 V. Solid-state outputs for 1.2 A, 250 V AC (CIM32) and 4 A, 24 V DC (CIM33) are available.

The CIM3 complies with the applicable DIN standards 43880 at an installation dimension of 17.5 mm.

Due to its wide range of application, the product reduces the inventory requirement of various different types.

Technical specification is subject to change without previous notice

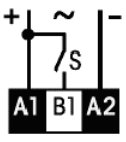
3 Order designation

Comat Multifunction Device	CIM3/UC24-240V	(Relay Output)
	CIM3R/UC24-240V	(Relay Output, Railway)
	CIM32/UC24-240V	(Solid-State AC Output)
	CIM32R/UC24-240V	(Solid-State AC Output, Railway)
	CIM33/UC24-240V	(Solid-State DC Output)
	CIM33R/UC-24-240V	(Solid-State DC Output, Railway)

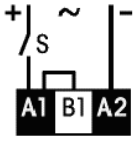
4 Connection diagram

Input - Function:

F, Q, G

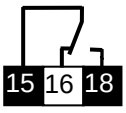


I, P, H

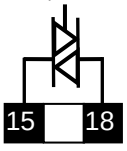


Output - Type:

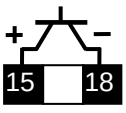
CIM3, CIM3R



CIM32, CIM32R

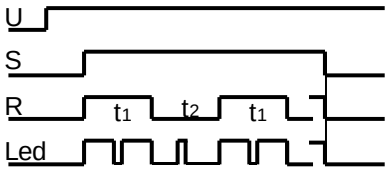


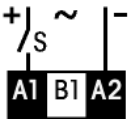
CIM33, CIM33R



5 Function descriptions

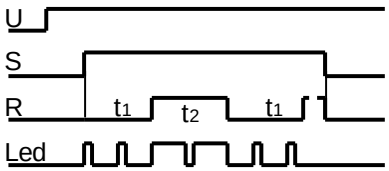
5.1 Impulse generator (I), pulse start

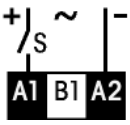




By triggering(S)↑, the output R is switched ON and OFF alternatively according to the set times t_1 (ON-time) and t_2 (OFF-time). The output pulse will be stopped at the same time as (S)↓.

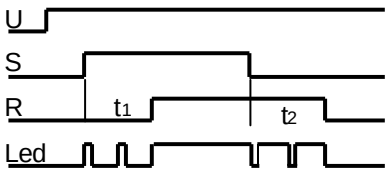
5.2 Impulse generator (P), interval start

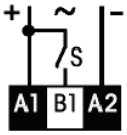




By triggering(S)↑, the output R is switched OFF and ON alternatively according to the set times t_1 (OFF-time) and t_2 (ON-time). The output pulse will be stopped at the same time as (S)↓.

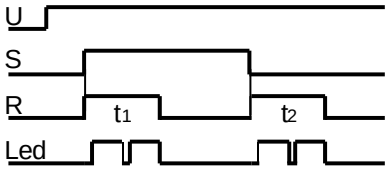
5.3 On and off delay (F)

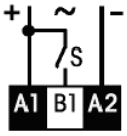




By triggering (S)↑, the output R is switched ON after the set time t_1. After falling edge (S)↓, the output R is switched OFF after the set time t_2.

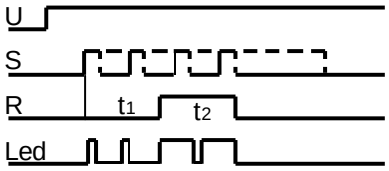
5.4 One shot leading and trailing edge (Q)

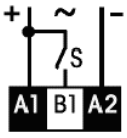




By triggering (S)↑, the output R is switched ON for the set pulse length t_1. After falling edge (S)↓, the output R is again switched ON for the set pulse length t_2.

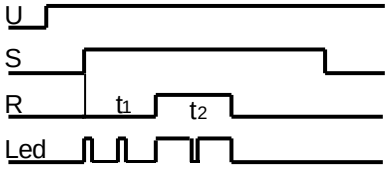
5.5 On delay single shot (G), pulse command

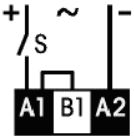




By triggering (S)↑, the output R is switched on for a pulse length of t_2 after expiry of set time t_1.
The output impulse is independent of the duration of the trigger.

5.6 On delay single shot (H), continuous command





By triggering (S)↑, the output R is switched on for a pulse length of t_2 after expiry of set time t_1.
The output impulse stops with the falling edge (S)↓.

6 Specifications

6.1 General Data

6.1.1 Mechanical Data

Outside dimension	System DIN, W x H x D: 17.5 x 75 x 64 mm
Connector	Screw terminal 2.5 mm^2
Max. screw tightening torque	0.4 Nm
Protection	IP20
Case material	Lexan EXL9330
Weight	approx. 70 g
Fastening	TS35 DIN/EN 60715 or screw fastening M4

6.1.2 Ambient conditions

Storage temperature	-40 °C ... +85 °C
Operating temperature	-40 °C ... +60 °C (Railway: -40 °C ... +70 °C)
Relative humidity	10 % ... + 95 % (not condensed)

6.1.3 Life cycle

Life cycle	> 100 000 h (at 25 °C)

(Relay contacts: see Point 6.4 Output circuit)

6.2 Electrical Data

6.2.1 Supply U_B (A1 – A2)

Nominal operating voltage (AC/DC)	24 ... 240 V
Operating voltage (AC/DC)	16.8 ... 250 V
Frequency range	16 ... 63 Hz
Power consumption	≤ 23 mA
Inrush current	≤ 2.5 A, τ = 100 µs
Power consumption	AC: ≤ 1.2 VA; DC: ≤ 430 mW

6.2.2 Input control, U_S (B1)

Control voltage range (AC/DC)	16.8 ... 250 V
Response level (AC/DC)	13 V / 15 V
Power consumption	≤ 22 mA
Cut off current (DC)	≤ 0.5 mA
Glow lamp current (AC)	<10 mA
Hysteresis	approx. 1 V

6.3 Time response

6.3.1 Time ranges

The time ranges should be adjusted by the tuning button in the ratio 0.5 ....6.

Time ranges	50 ms ... 0.6 s
	0.5 s ... 6 s
	5 s ... 60 s
	0.5 min ... 6 min
	5 min ... 60 min
	0.5 h ... 6 h
	5 h ... 60 h

Time range tolerance	t min	-5% ... +0%
	t max	-0% ... +5%

6.3.2 Time constraint

Voltage stability	≤ 1% over the whole range
Temperature stability	≤ 2% over the whole range
Maximal variation under interferences described in chapter 9.	≤ 5%

6.3.3 Other time data

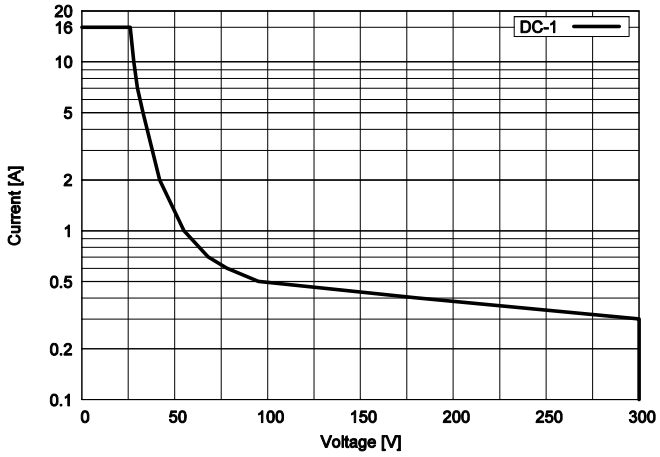
Supply trigger time (Start-up time)	≤ 45 ms
Min. trigger time (AC/DC)	≥ 20 ms
Reset time control input (AC/DC)	≤ 40 ms
Reset time power supply (AC/DC)	≤ 45 ms
Power supply protection 50/60 Hz	≥ 20 ms
Response delay (B1)	≤ 30 ms
Repetition accuracy	± 0.1%
or	DC: 2 ms AC: ± 10 ms

6.4 Output circuit

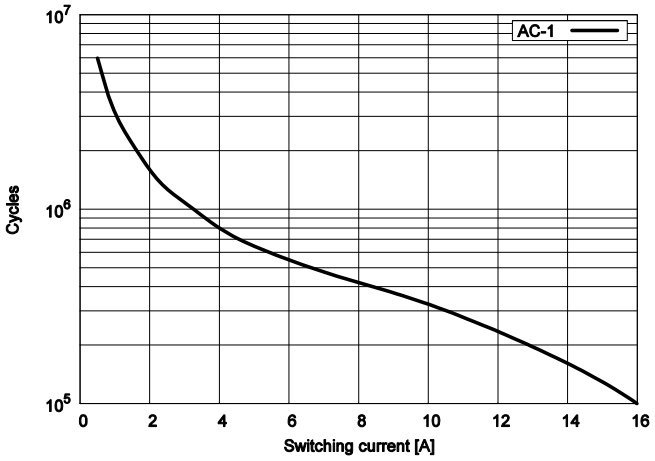
	Relay	**Solid-state AC**	**Solid-state DC**
Type	CIM3 / CIM3R	CIM32 / CIM32R	CIM33 / CIM33R
Output	C.O.	N.O.	N.O.
	(For AC: commutation at zero crossing)		-
Nominal current at 40 °C	16 A	2 A	5 A
Nominal current at 60 °C	13 A	1.2 A	4 A
Inrush current	30 A / 10 ms	100 A / 10 ms	40 A / 10 µs
Nominal voltage	250 V	250 V AC	250 V DC
Switching power AC	4000 VA AC-1	300 VA AC-1	-
Switching power DC	384 W DC-1	-	96 W DC-1
Contact material	AgNi 90/10	Triac	MOSFET
Recommended minimal load	10 mA	50 mA	1 mA
Leakage current	-	1 mA	10 µA
Voltage drop	-	1.1 V	300 mV
I^2t	-	78 A^2s	-
Short-circuit strength	-	no	no
Life time of contacts	> 50 x 10^3	∞	∞
Mechanical life time	> 30 x 10^6	-	-
Voltage stability			
Input – Contact		2.5 kV (RMS, 1 min.)	

6.5 Typical performance characteristics

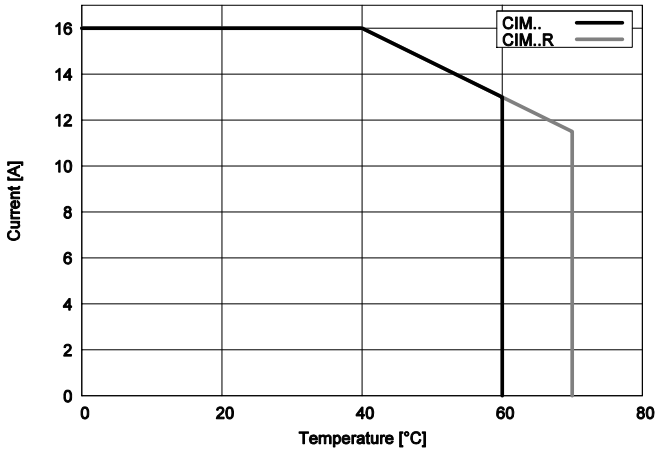
CIM3, CIM3R - Breaking capacity



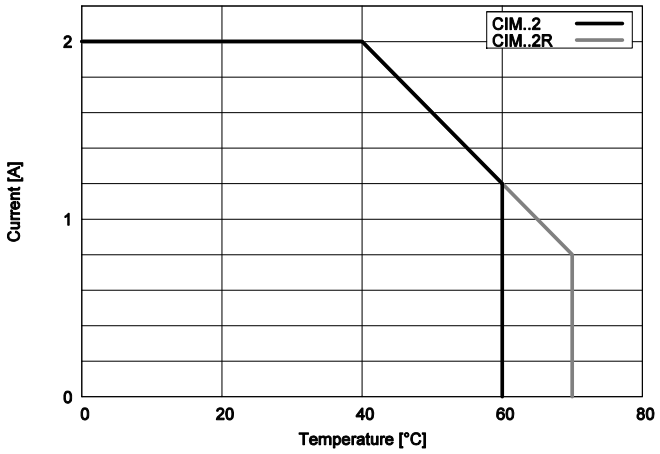
CIM3, CIM3R - Electrical endurance



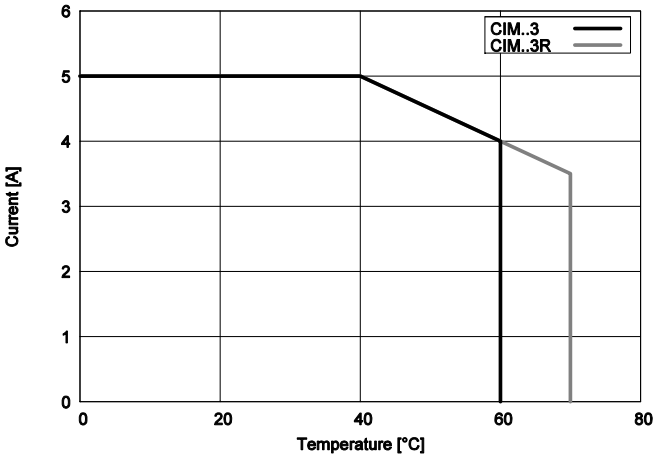
CIM3, CIM3R - Output current



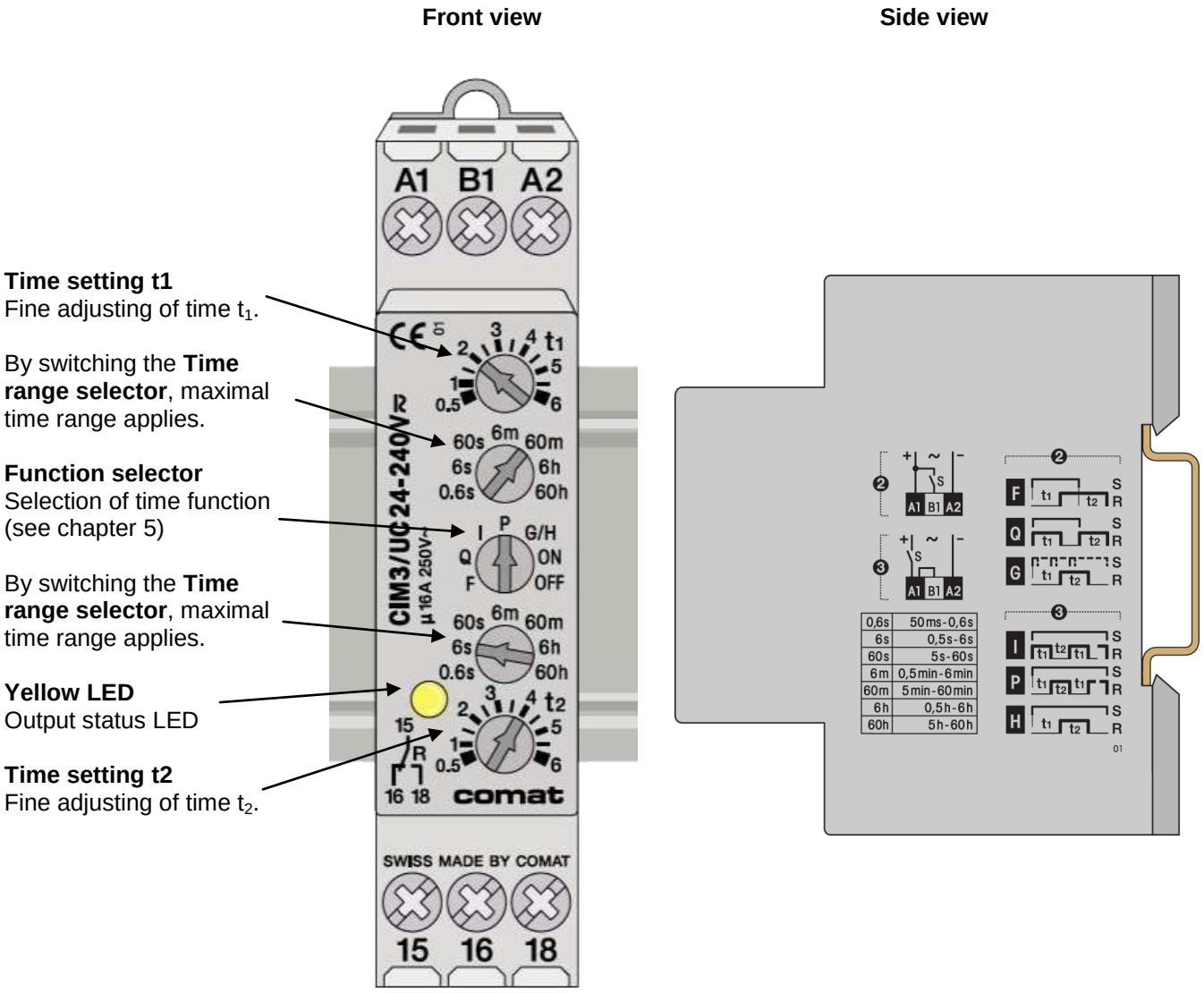
CIM32, CIM32R - Output current



CIM33, CIM33R - Output current



7 Application hints

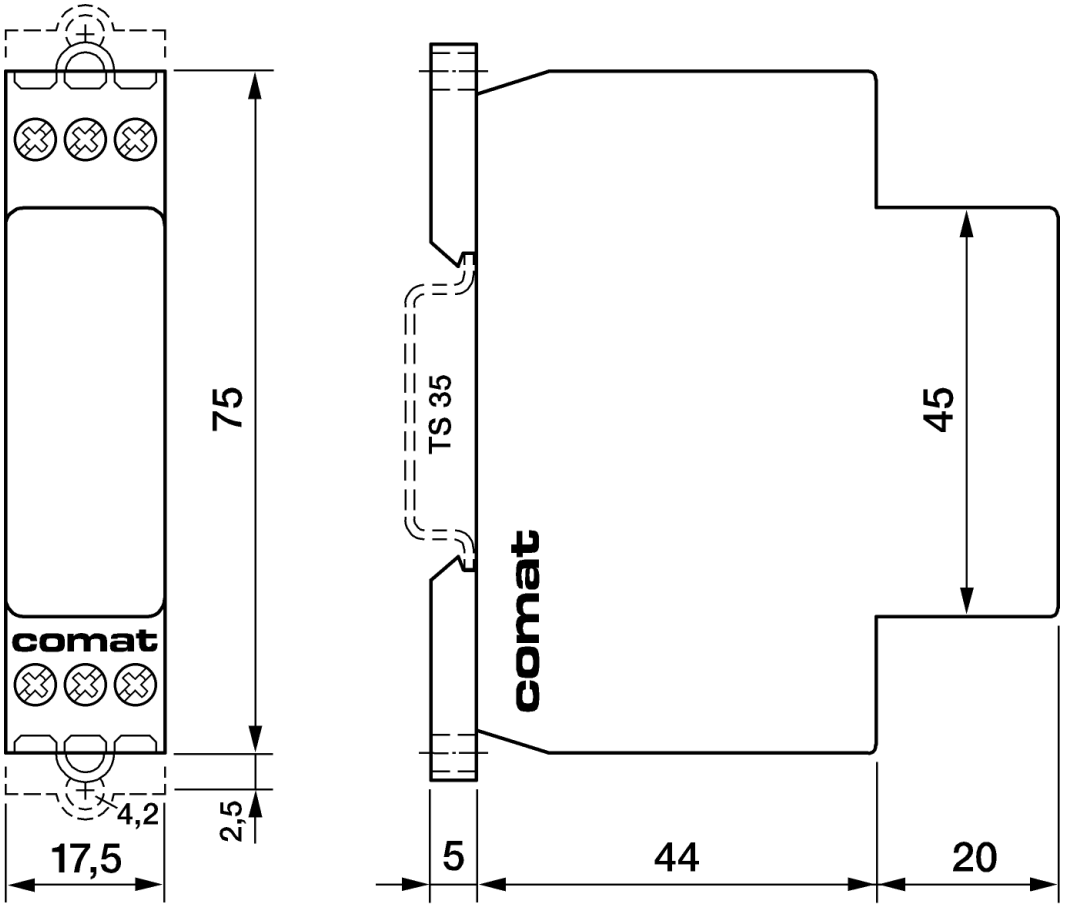


7.1 Switching state display

The state of the output relay and the timer is displayed by the yellow LED. A flashing signalizes a running timer.

LED		Relay	Time expires
Not glowing	▁▁▁▁▁▁▁▁	Off	No
Glowing constantly	▔▔▔▔▔▔▔▔	On	No
Flashing short	▁▁▁▁▁▁▁▁	Off	Yes
Flashing long	▔▔▔▔▔▔▔▔	On	Yes

8 Dimensions



9 Standards

Interference immunity	EN 61000-6-2:2005 EN 61000-4-2:2001 Level 3 (Air: 8 kV) EN 61000-4-4:2004 Level 3 (2 kV) EN 61000-4-5:2006 Level 3 (2 kV)
Interference emission	EN 61000-6-3:2007 EN 55022:2006 Class B
Safety	EN 60730-1:2000 EN 61812-1:1996+A11:1999 EN 50155:2007
Conformities, Identification	CE

10 Revision history

Version	Revision date	Responsible	Modifications
25045-02-57-401	29.06.2011	Sa, Cp	Version 1

Kühn Controls AG

Notes:

You want more information about this product, please call us: tel: +49 (0)7082-940000 or send us a fax: +49 (0)7082-940001, or email: sales@kuehn-controls.de or visit our Website: www.kuehn-controls.de