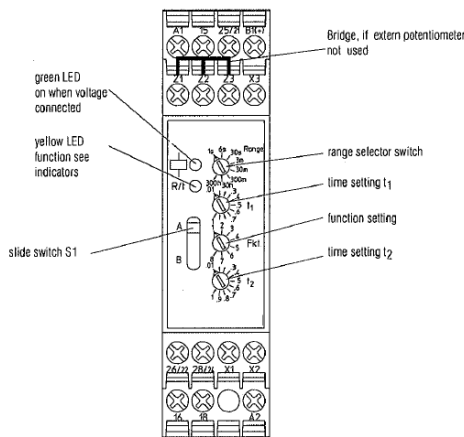


Multifunction Relays ZM 99



Your Advantages

- Up to 10 functions in one unit
- Simplified storage
- Increased flexibility
- Quick setting of long time values

Features

- According to IEC/EN 61 812-1
- 8 functions settable via rotational switch:
 - Delay on energisation (AV)
 - Fleeting on make (EW)
 - Delayed pulse (IE)
 - Flasher, start with pulse (BI)
 - Delay on de-energisation (RV)
 - Pulse forming function (IF)
 - Fleeting on break (AW)
 - Delay on energisation and de-energisation (AV / RV)
- 8 time ranges from 0.02 s to 300 h selectable via rotational switches
- Voltage range AC/DC 12 ... 240 V
- With time interruption / time adding input for all functions
- Suitable for 2-wire proximity sensor control
- 2 changeover contacts, one programmable as instantaneous contact
- LED indicators for operation, contact position and time delay
- Wire connection: also 2 x 1.5 mm² stranded ferruled, or 2 x 2.5 mm² solid DIN 46 228-1/-2/-3/-4
- as option with pluggable terminal blocks for easy exchange of devices
- with screw terminals
- or with cage clamp terminals
- 22.5 mm width

Technical Data

Time circuit

Time ranges:	8 time ranges in one unit, settable via rotational switch	
	0.02 ... 1 s	0.3 ... 30 min
	0.06 ... 6 s	3 ... 300 min
	0.3 ... 30 s	0.3 ... 30 h
	0.03 ... 3 min	3 ... 300 h
Time setting t1, t2:	continuous, 1:100 on relative scale	

Recovery time:

at DC 24 V:	approx. 15 ms
at DC 240 V:	approx. 50 ms
at AC 230 V:	approx. 80 ms
Repeat accuracy:	± 0.5 % of selected end of scale value + 20 ms

Voltage and

temperature influence: < 1 % with the complete operating range

Input

Nominal voltage	U _N : AC/DC 12 ... 240 V
Voltage range:	0.8 ... 1.1 U _N
Release voltage (A1/A2)	

AC 50 Hz:	Delayed contact approx. 7.5 V
DC:	approx. 7 V
	Instantaneous contact approx. 3 V
AC 50 Hz:	approx. 3 V
DC:	approx. 3.3 V

Technical Data

General Data

Operating mode:	Continuous operation	
Temperature range:	- 40 ... + 60 ° C	
Clearance and creepage distances		
rated impuls voltage / pollution degree:	4 kV / 2	IEC 60 664-1
EMC		
Electrostatic discharge:	8 kV (air)	IEC/EN 61 000-4-2
HF-irradiation:	30 V / m	IEC/EN 61 000-4-3
Fast transients:	2 kV	IEC/EN 61 000-4-4
Surge voltages between wires for power supply:	2 kV	IEC/EN 61 000-4-5
between wire and ground:	4 kV	IEC/EN 61 000-4-5
HF-wire guided:	10 V	IEC/EN 61 000-4-6
Interference suppression:	Limit value class B EN 55 011	
Degree of protection		
Housing:	IP 40	IEC/EN 60 529
Terminals:	IP 20	IEC/EN 60 529
Housing:	Thermoplastic with V0 behaviour according to UL subject 94	
Vibration resistance:	Amplitude 0.35 mm, frequency 10 ... 55 Hz, IEC/EN 60 068-2-6	
Climate resistance:	40 / 060 / 04 IEC/EN 60 068-1	
Terminal designation:	EN 50 005	

Technical Data

Max. permitted residual current with 2-wire proximity sensor control (A1-A2)

up to AC/DC 150 V: AC resp. DC 5 mA
 up to AC/DC 264 V: AC resp. DC 3 mA
Control current B1: approx. 1mA, over complete voltage range

Min. on/off time of control input B1(+):

AC 50 Hz: approx. 15 ms / approx. 60 ms
 DC: approx. 5 ms / approx. 60 ms

Release voltage (B1/A2)

AC 50 Hz: approx. 3.5 V
 DC: approx. 3 V

Nominal power consumption

AC 12 V: approx. 1.5 VA
 AC 24 V: approx. 2 VA
 AC 240 V: approx. 3 VA
 DC 12 V: approx. 1 W
 DC 24 V: approx. 1 W
 DC 240 V: approx. 1 W

Nominal frequency: 45 ... 400 Hz

Output

Contacts

ZM 99: 2 changeover contacts, one programmable as instantaneous contact
 without bridge X1-X2: 25-26-28 delayed changeover contact
 with bridge X1-X2: 21-22-24 instantaneous contact at U_n on A1-A2

Thermal current I_{th} : see quadratic total current limit curve (max. 4 A per contact)

Switching capacity

to AC 15
 NO contact: 3 A / AC 230 V IEC/EN 60 947-5-1
 NC contact: 1 A / AC 230 V IEC/EN 60 947-5-1
 to DC 13: 1 A / DC 24 V IEC/EN 60 947-5-1

Electrical life IEC/EN 60 947-5-1

to AC 15 at 1 A, AC 230 V: 1.5 x 10⁵ switching cycles

Short circuit strength

max. fuse rating: 4 A gL IEC/EN 60 947-5-1

Mechanical life: ≥ 30 x 1.000.000 switching cycles

Technical Data

Wire connection Screw terminals (integrated):

DIN 46 228-1/-2/-3/-4
 1 x 4 mm² solid or
 1 x 2.5 mm² stranded ferruled or
 2 x 1.5 mm² stranded ferruled or
 2 x 2.5 mm² solid

Insulation of wires or sleeve length: 8 mm
Plug in with screw terminals

max. cross section for connection: 1 x 2.5 mm² solid or 1 x 2.5 mm² stranded ferruled

Insulation of wires or sleeve length: 8 mm
Plug in with cage clamp terminals

max. cross section for connection: 1 x 4 mm² solid or 1 x 2.5 mm² stranded ferruled

min. cross section for connection: 0.5 mm²

Insulation of wires or sleeve length: 12 +/-0,5mm

Wire fixing: Plus-minus terminal screws M 3.5 box terminals with wire protection or cage clamp terminals
Mounting: Box terminals with wire protection
 DIN rail IEC/EN 60 715

Weight: approx. 150 g

Dimensions

Width x height x depth

Standard 22.5 x 90 x 97 mm
 Spring force clamps 22.5 x 111 x 97 mm
 Solderless lugs: 22.5 x 104 x 97 mm

