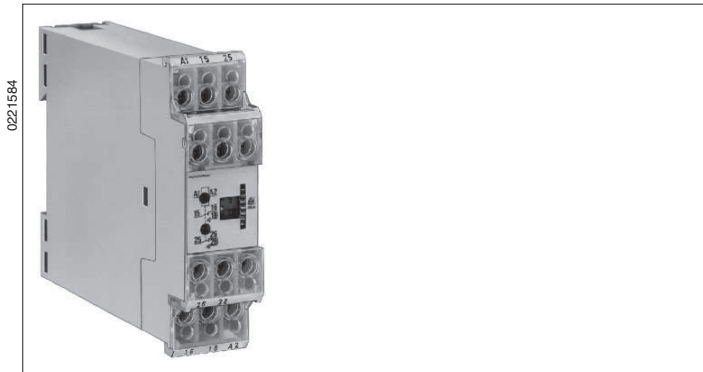


Time Control Technique

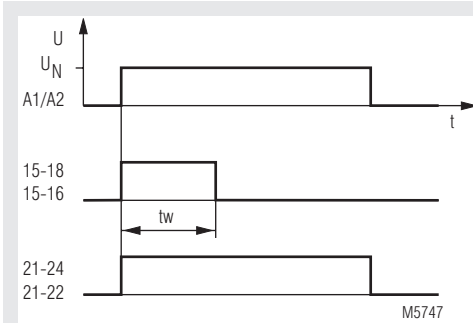
MINITIMER

Fleeting Action Relay, adjustable MK 9989



- According to IEC/EN 61 812-1
- Fleeting make
- Fleeting time up to 300 s or on request
- Repeat accuracy $< \pm 0,5 \%$
- Setting on absolute scale
- Available as 2-voltage version
- LED displays for availability and contact position
- 2 fleeting make or
1 fleeting make and 1 non-delayed changeover contact
- Also available with instantaneous contact
- Also available with CSA approval
- Width 22.5 mm

Function Diagram



Approvals and Markings



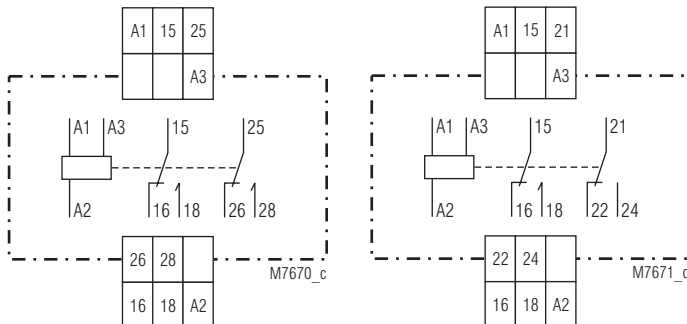
Applications

Time-dependent circuits

Indicators

upper LED: on, when supply connected
lower LED: on, when output relay active

Circuit Diagrams



MK 9989

MK 9989.77

Connection Terminals

Terminal designation	Signal designation
A1, A3(+), A2	operating voltage
15, 16, 18	1. fleeting (changeover contact)
25, 26, 28	2. fleeting (changeover contact)
21, 22, 24	Instantaneous contact (changeover contact) at MK 9989.77

Technical Data

Time circuit

Time ranges:	0.05 ... 1 s	1.5 ... 30 s
	0.15 ... 3 s	5 ... 100 s
	0.5 ... 10 s	15 ... 300 s
	Other time ranges on request Stepless on absolute scale	

Time setting:

Recovery time

tw 50 / 100:

< 40 ms

Repeat accuracy:

< ± 0.5 % of full-scale value

Voltage influence:

≤ 1 %

Temperature influence:

± 0.1 % / K

Input

Nominal voltage U_N : AC/DC 24 V¹⁾ + AC 220 ... 240 V²⁾

¹⁾ at terminals A3 - A2

²⁾ at terminals A1 - A2

Voltage range:

AC 0.8 ... 1.1 U_N

DC 0.9 ... 1.25 U_N

Release voltage:

15 % U_N

Nominal power consumption: AC 230 V DC 24 V

8.5 VA 1 W

Nominal frequency:

50 / 60 Hz

Frequency range:

± 5 % f_N

Permissible residual current: 5 mA

Output

Contacts

MK 9989: 2 fleeting make (changeover contacts)

MK 9989.77: 1 fleeting make (changeover contact)

1 non-delayed changeover contact

Contact material:

AgSnO₂

Measured nominal voltage: AC 250 V

Thermal current I_{th} :

5 A

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

Electrical life IEC/EN 60 947-5-1

to AC 15 at 3 A, AC 230 V:

5 x 10⁵ switching cycles

Permissible switching

frequency:

6 000 switching cycles / h

Short-circuit strength

max. fuse rating: 6 A gG / gL IEC/EN 60 947-5-1

Mechanical life:

> 30 x 10⁶ switching cycles

General Data

Operating mode:

Continuous operating

Temperature range

Operation:

- 20 ... + 60 °C

Storage:

- 25 ... + 70 °C

Relative air humidity

93 % at 40 °C

Altitude:

< 2,000 m

Clearance and creepage distances

rated impulse voltage /

pollution degree: 4 kV / 2 (basis insulation) IEC 60 664-1

Overvoltage category:

III

Insulation test voltage,

type test:

2.5 kV; 1 min

EMC

Electrostatic discharge: 8 kV (air) IEC/EN 61 000-4-2

HF irradiation

80 MHz ... 1 GHz: 12 V / m IEC/EN 61 000-4-3

1 GHz ... 2.7 GHz: 10 V / m IEC/EN 61 000-4-3

Fast transients: 4 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

Technical Data

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:

20 / 060 / 04 IEC/EN 60 068-1

Terminal designation:

EN 50 005

Wire connection:

2 x 1.5 mm² solid or
2 x 1.0 mm² stranded wire with sleeve
DIN 46 228-1/-2/-3/-4

Insulation of wires

or sleeve length:

8 mm

Wire fixing:

Flat terminals with self-lifting

clamping piece IEC/EN 60 999-1

Fixing torque:

0.4 Nm

Mounting:

DIN rail

IEC/EN 60 715

Weight:

140 g

Dimensions

Width x height x depth: 22.5 x 82 x 99 mm

Standard Type

MK 9989 AC/DC 24 V + AC 220 ... 240 V 50/60Hz 10 s

Article number: 0044947

• Output: 2 fleeting make (changeover contacts)

• Nominal voltage U_N : AC/DC 24 V + AC 220 ... 240 V

• Time range: 0.5 ... 10 s

• Width: 22.5 mm

Ordering Example

MK 9989 .77 AC/DC 24 V + AC 230 ... 240 V 50 / 60 Hz 30 s

