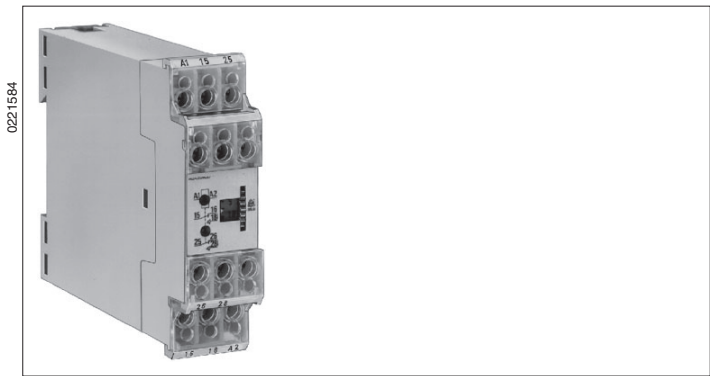
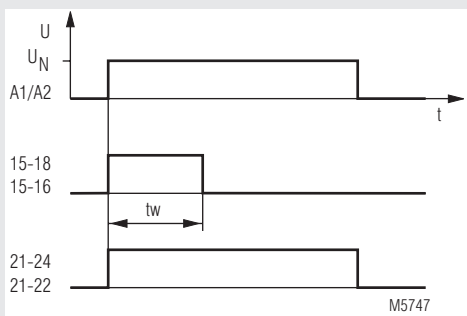


## MINITIMER Fleeting Action Relay, adjustable MK 9989



- 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



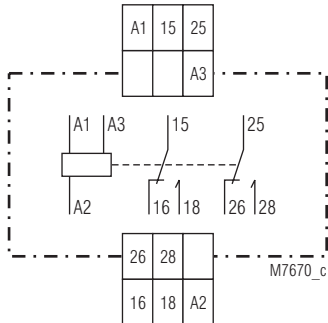
### Applications

Time-dependent circuits

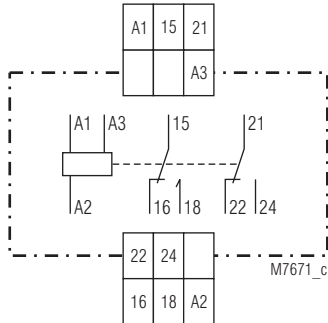
### Indicators

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                           |                                                                                                                                                                 |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Time circuit</b>                      |                                                                                                                                                                 |
| <b>Time ranges:</b>                      | 0.05 ... 1 s      1.5 ... 30 s<br>0.15 ... 3 s      5 ... 100 s<br>0.5 ... 10 s      15 ... 300 s<br>Other time ranges on request<br>Stepless on absolute scale |
| <b>Time setting:</b>                     |                                                                                                                                                                 |
| <b>Recovery time</b><br>tw 50 / 100:     | < 40 ms                                                                                                                                                         |
| <b>Repeat accuracy:</b>                  | < ± 0.5 % of full-scale value                                                                                                                                   |
| <b>Voltage influence:</b>                | ≤ 1 %                                                                                                                                                           |
| <b>Temperature influence:</b>            | ± 0.1 % / K                                                                                                                                                     |
| <b>Input</b>                             |                                                                                                                                                                 |
| <b>Nominal voltage <math>U_N</math>:</b> | AC/DC 24 V <sup>1)</sup> + AC 220 ... 240 V <sup>2)</sup><br><sup>1)</sup> at terminals A3 - A2<br><sup>2)</sup> at terminals A1 - A2                           |
| <b>Voltage range:</b>                    | AC 0.8 ... 1.1 $U_N$<br>DC 0.9 ... 1.25 $U_N$                                                                                                                   |
| <b>Release voltage:</b>                  | 15 % $U_N$                                                                                                                                                      |
| <b>Nominal power consumption:</b>        | AC 230 V    DC 24 V<br>8.5 VA    1 W                                                                                                                            |
| <b>Nominal frequency:</b>                | 50 / 60 Hz                                                                                                                                                      |
| <b>Frequency range:</b>                  | ± 5 % $f_N$                                                                                                                                                     |
| <b>Permissible residual current:</b>     | 5 mA                                                                                                                                                            |

|                                             |                                                                          |
|---------------------------------------------|--------------------------------------------------------------------------|
| <b>Output</b>                               |                                                                          |
| <b>Contacts</b>                             |                                                                          |
| MK 9989:                                    | 2 fleeting make (changeover contacts)                                    |
| MK 9989.77:                                 | 1 fleeting make (changeover contact)<br>1 non-delayed changeover contact |
| <b>Contact material:</b>                    | AgSnO <sub>2</sub>                                                       |
| <b>Measured nominal voltage:</b>            | AC 250 V                                                                 |
| <b>Thermal current <math>I_{th}</math>:</b> | 5 A                                                                      |
| <b>Switching capacity</b><br>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                                      |
| <b>Electrical life</b>                      | IEC/EN 60 947-5-1                                                        |
| to AC 15 at 3 A, AC 230 V:                  | 5 x 10 <sup>5</sup> switching cycles                                     |
| <b>Permissible switching frequency:</b>     | 6 000 switching cycles / h                                               |
| <b>Short-circuit strength</b>               |                                                                          |
| <b>max. fuse rating:</b>                    | 6 A gG / gL    IEC/EN 60 947-5-1                                         |
| <b>Mechanical life:</b>                     | > 30 x 10 <sup>6</sup> switching cycles                                  |

|                                           |                                          |
|-------------------------------------------|------------------------------------------|
| <b>General Data</b>                       |                                          |
| <b>Operating mode:</b>                    | Continuous operating                     |
| <b>Temperature range</b>                  |                                          |
| Operation:                                | - 20 ... + 60 °C                         |
| Storage:                                  | - 25 ... + 70 °C                         |
| <b>Relative air humidity</b>              | 93 % at 40 °C                            |
| <b>Altitude:</b>                          | < 2,000 m                                |
| <b>Clearance and creepage distances</b>   |                                          |
| 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                            |
| <b>EMC</b>                                |                                          |
| 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         |

|                                       |                                                                                                                |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Technical Data</b>                 |                                                                                                                |
| <b>Degree of protection</b>           |                                                                                                                |
| Housing:                              | IP 40    IEC/EN 60 529                                                                                         |
| Terminals:                            | IP 20    IEC/EN 60 529                                                                                         |
| <b>Housing:</b>                       | Thermoplastic with V0 behaviour according to UL Subject 94                                                     |
| <b>Vibration resistance:</b>          | Amplitude 0.35 mm, frequency 10 ... 55 Hz, IEC/EN 60 068-2-6                                                   |
| <b>Climate resistance:</b>            | 20 / 060 / 04    IEC/EN 60 068-1                                                                               |
| <b>Terminal designation:</b>          | EN 50 005                                                                                                      |
| <b>Wire connection:</b>               | 2 x 1.5 mm <sup>2</sup> solid or<br>2 x 1.0 mm <sup>2</sup> stranded wire with sleeve<br>DIN 46 228-1/-2/-3/-4 |
| Insulation of wires or sleeve length: | 8 mm                                                                                                           |
| <b>Wire fixing:</b>                   | Flat terminals with self-lifting clamping piece    IEC/EN 60 999-1                                             |
| <b>Fixing torque:</b>                 | 0.4 Nm                                                                                                         |
| <b>Mounting:</b>                      | DIN rail    IEC/EN 60 715                                                                                      |
| <b>Weight:</b>                        | 140 g                                                                                                          |

|                                |                   |
|--------------------------------|-------------------|
| <b>Dimensions</b>              |                   |
| <b>Width x height x depth:</b> | 22.5 x 82 x 99 mm |

|                           |                                                  |
|---------------------------|--------------------------------------------------|
| <b>Standard Type</b>      |                                                  |
| 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                                          |

|                         |                                                     |
|-------------------------|-----------------------------------------------------|
| <b>Ordering Example</b> |                                                     |
| MK 9989 .77             | AC/DC 24 V + AC 230 ... 240 V    50 / 60 Hz    30 s |
|                         | Time range end value                                |
|                         | Nominal frequency                                   |
|                         | Nominal voltage                                     |
|                         | Contact                                             |
|                         | Type                                                |