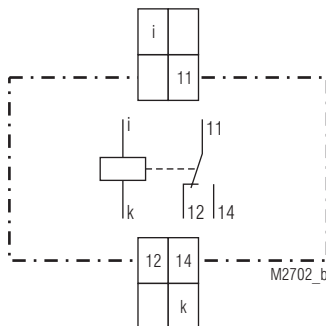


- According IEC/EN 60 255, DIN VDE 0435-303
- Single-phase
- Can be used for under- or overcurrent detection
- Measuring ranges from 0,5 to 16 A
- Settable response value
- Without auxiliary voltage
- Width 22, 5mm

Circuit diagram



Approvals and marking



Applications

Because of the electromechanical construction the ML 9701 is insensitive to high voltage peaks with high energy and radio frequency disturbance. Special interference suppression is not necessary. The relay is used to monitor current in heatings, field current and motorprotection.

Function

The setting ratio is 1 : 2.

Please note when mounting the units without distance to each other:

1. If the relays are connected to DC current please connect all the units with the same polarity
2. If the relays are connected to AC current please connect on all units terminal f to neutral
3. If the relays are connected to a 3-phase system it is possible that the relays influence each other by magnetic fields, so that the response value is increased by approx. 25 %

If the units are mounted with a distance of > 22 mm, the a.m. behaviour does not occur.

Technical data

Input

Measuring range:	0,5 ... 1 0,8 ... 1,6 1,5 ... 3 2,5 ... 5 4 ... 8 6 ... 12 8 ... 16 A
Setting:	AC 50 / 60 Hz, DC 0 ... 48 % RW infinite variable
Setting accuracy:	± 5 %
Hysteresis:	AC approx. 0,85 / DC approx. 0,5
Nominal consumption:	7 VA / 1,4 W
Nominal frequency:	50 / 60 Hz
Frequency range:	± 5 %

Output

Contacts	
ML 9701.11:	1 changeover contact
Thermal current I_{th}:	4 A
Switching capacity	
NO contact:	2 A / AC 230 V IEC/EN 60 947-5-1
NC contact:	1 A / AC 230 V IEC/EN 60 947-5-1

Technical data

Electrical life:	1,2 x 10 ⁶ switching cycles 1 500 switching cycles / h at 30 % of the switching capacity 0,8 x 10 ⁶ switching cycles 1 000 switching cycles / h at 50 % of the switching capacity 0,3 x 10 ⁶ switching cycles 500 switching cycles / h at 100 % of the switching capacity
Permissible switching:	1 000 switching cycles / h
Short-circuit strength	
max. fuse rating:	2 A gL IEC/EN 60 947-5-1
Mechanical life:	1,5 x 10 ⁶ switching cycles

General data

Operating mode:	Continuous operation	
Temperature range:	see nomograph of overload and temperature range	
Clearance and creepage distances		
overvoltage category / contamination level:	4 kV / 3	IEC 60 664-1
EMC		
Electrostatic discharge:	8 kV (air)	IEC/EN 61 000-4-2
HF irradiation:	10 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:	1 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 Amplitude 0,35 mm frequency 10 ... 55 Hz IEC/EN 60 068-2-5	
Vibration resistance:	Humid heat IEC/EN 60 068-2-30	
Climate resistance:	EN 50 005	
Terminal designation:	2 x 2,5 mm ² solid or 2 x 1,5 mm ² stranded wire with sleeve DIN 46 228-1/-2/-3/-4	
Wire connection:	Flat terminals with self-lifting clamping piece IEC/EN 60 999-1	
Wire fixing:	DIN rail IEC/EN 60 715	
Mounting:	250 g	
Weight:		

Dimensions

Width x height x depth: 22,5 x 80 x 102 mm

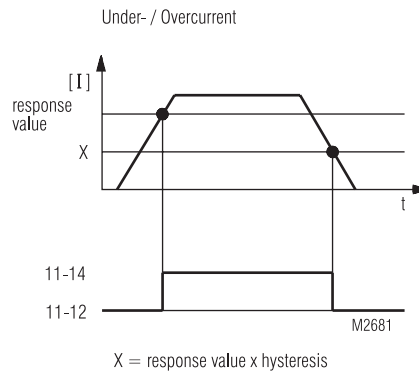
Standard type

ML 9701.11 0,8 ... 1,6 A		
Article number:	0029209	stock item
• Output:	1 changeover contact	
• Measuring range:	0,8 ... 1,6 A	
• Width:	22,5 mm	

Ordering example

ML 9701	.11	4 ... 8 A	
		└───┬───┘	Measuring range
		└───┬───┘	Contact
		└───┬───┘	Type

Characteristics



Undercurrent detection (closed circuit operation)

Example:
required response value: ≤ AC 3 A

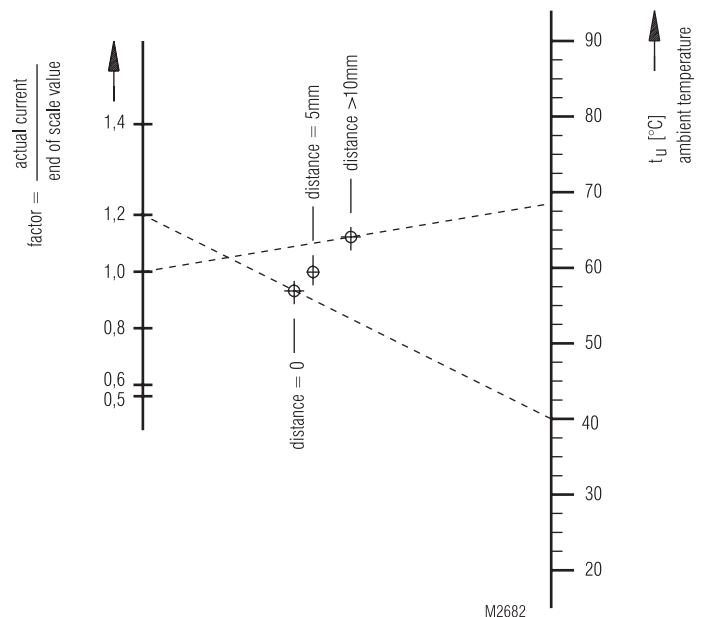
$$\text{setting value} = \frac{\text{required response value}}{\text{Hysteresis}} = \frac{3 \text{ A}}{0,85} = 3,5 \text{ A}$$

If the current exceeds 3,5 A the contact 11-14 closes. If the current drops under 3 A the output contact switches back to 11-12.

Overcurrent detection (open circuit operation)

Example:
required response value: ≥ AC 4 A
= Setting value on ML 9701

If the current exceeds 4 A the contact 11-14 closes. If the current drops under 3,4 A (hysteresis 0,85) the output contact switches back to 11-12.



Overload and ambient temperature:

Nomograph to evaluate the max. continuous overload depending on mounting distance and ambient temperature:

1. select ambient temperature e.g. 40 °C
 2. select mounting distance e.g. 0 mm
- draw a line through the 2 points and extend it to the left scale.
Factor 1,2 means, that the relay can be used with 1,2 times overvoltage having an ambient temperature of 40 degrees and the relay is mounted without distance.