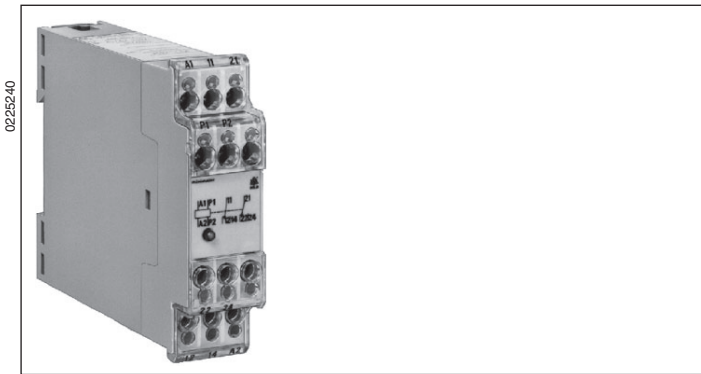
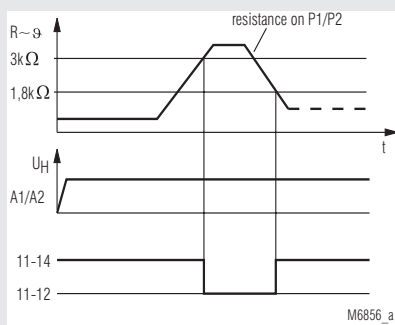


## VARIMETER Thermistor Motor Protection Relay MK 9052



- According to IEC/EN 60947-8
- 1 input for PTC-resistors or bimetal contacts
- Broken wire detection in sensor circuit
- Optionally with no voltage reclosing interlock to VDE 0113 § 5.4.2
- Closed circuit operation
- 1 or 2 changeover contacts
- Width 22.5 mm

### Function Diagram



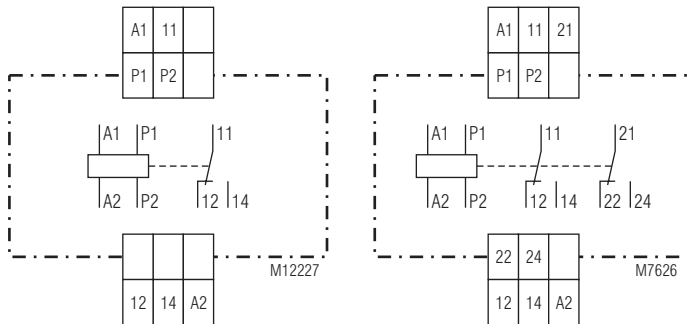
### Approvals and Markings



### Applications

To protect against thermal overload of motors caused by high switching frequency, heavy duty starting, phase failure on one phase, bad cooling, high ambient temperature.

### Circuit Diagrams



MK 9052.11

MK 9052.12

### Function

The motor protection relay MK 9052 is used to detect thermal overload. Special PTC-resistors are used as sensors for motor protection. Up to 6 sensors can be connected in series. When reaching a certain resistance the output relay of the MK 9052 is switched off.

An LED indicates the contact state. The motor protection relay works with open circuit operation and also detects broken wire in the sensor circuit.

### Connection Terminals

Terminal designation	Signal description
A1, A2	Operating voltage
P1, P2	Thermistor input
11, 12, 14; 21, 22, 24	Change over contacts

## Technical Data

### Input

<b>Response value:</b>	≥ 3 kΩ
<b>Release value:</b>	≤ 1.8 kΩ
<b>Number of sensors:</b>	1 ... 6 pcs
<b>Loading of measuring circuit:</b>	approx. 1 mW (at R = 1.5 kΩ)
<b>Measuring voltage:</b>	approx. 1.2 V (at R = 1.5 kΩ)

### Auxiliary Circuit

<b>Auxiliary voltage <math>U_H</math>:</b>	AC 24, 42, 48, 110, 127, 230, 240 V
<b>Voltage range of <math>U_H</math>:</b>	0.9 ... 1.1 $U_H$
<b>Nominal consumption:</b>	1.8 VA
<b>Nominal frequency of <math>U_H</math>:</b>	50 / 60 Hz

### Output

#### Contacts

MK 9052.11:	1 changeover contact	
MK 9052.12:	2 changeover contacts	
<b>Operate delay:</b>	< 20 ms	
<b>Release delay:</b>	< 15 ms	
<b>Thermal current <math>I_{th}</math>:</b>	5 A	
<b>Switching capacity to AC 15</b>		
NO contact:	3 A / AC 230 V	IEC/EN 60947-5-1
NC contact:	1 A / AC 230 V	IEC/EN 60947-5-1
<b>Electrical life to AC 15 at 3 A, AC 230 V:</b>	8 x 10 <sup>5</sup> switching cycles	IEC/EN 60947-5-1
<b>Short-circuit strength max. fuse rating:</b>	4 A gG / gL	
<b>Mechanical life:</b>	> 20 x 10 <sup>6</sup> switching cycles	

### General Data

<b>Operating mode:</b>	Continuous operation	
<b>Temperature range</b>		
Operation:	- 20 ... + 60 °C	
Storage:	- 20 ... + 60 °C	
<b>Altitude:</b>	< 2000 m	
<b>Clearance and creepage distances</b>		
Rated impulse voltage / pollution degree:	4 kV / 2	IEC 60664-1
<b>EMC</b>		
Electrostatic discharge:	8 kV (air)	IEC/EN 61000-4-2
HF irradiation		
80 MHz ... 1.0 GHz:	10 V / m	IEC/EN 61 000-4-3
1.0 GHz ... 2.0 GHz:	3 V / m	IEC/EN 61 000-4-3
2.0 GHz ... 2.7 GHz:	1 V / m	IEC/EN 61 000-4-3
Fast transients:	2 kV	IEC/EN 61000-4-4
Surge voltages between		
wires for power supply:	1 kV	IEC/EN 61000-4-5
between wire and ground:	2 kV	IEC/EN 61000-4-5
HF wire guided:	10 V	IEC/EN 61000-4-6
Interference suppressions:	Limit value class B	EN 55011
<b>Degree of protection</b>		
Housing:	IP 40	IEC/EN 60529
Terminals:	IP 20	IEC/EN 60529
<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 60068-2-6	
<b>Climate resistance:</b>	20 / 060 / 04 IEC/EN 60068-1	
<b>Terminal designation:</b>	EN 50005	
<b>Wire connection:</b>	2 x 2.5 mm <sup>2</sup> solid or 2 x 1.5 mm <sup>2</sup> stranded wire with sleeve DIN 46228-1/-2/-3/-4	
<b>Wire fixing:</b>	Flat terminals with self-lifting clamping piece IEC/EN 60999-1	
<b>Fixing torque:</b>	0.4 Nm	
<b>Mounting:</b>	DIN rail IEC/EN 60715	
<b>Weight:</b>	145 g	

### Dimensions

<b>Width x height x depth:</b>	22.5 x 82 x 99 mm
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## Standard Type

MK 9052.11	AC 230 V	50 / 60 Hz
Article number:	0023171	
• Output:	1 changeover contact	
• Auxiliary Voltage $U_H$ :	AC 230 V	
• Width:	22.5 mm	

## Variant

MK 9052. __ /100:	with electro-magnetic reclosing interlock (manual reset function). When the response temperature is reached the output relay deenergizes and the push button on the relay front comes out immediately.
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## Ordering example for variant

MK 9052 .11 / _ _ _	AC 230 V	50 / 60 Hz	
			Nominal frequency
			Auxiliary voltage
			Variant, if required
			Contacts
			Type

## Application Examples

