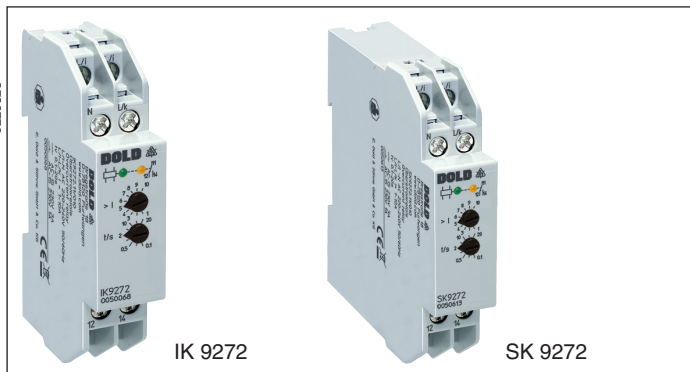


## VARIMETER Overcurrent Relay IK 9272, SK 9272

Translation  
of the original instructions



### Your advantages

- Adjustable switching delay
- Closed circuit operation (output relay not activated in case of error)
- Optionally open circuit operation (output relay activated in case of error)
- Optionally manual reset, reset button on the front

### Features

- According to IEC/EN 60255
- Single phase
- 1 changeover contact
- Measuring ranges from 0.05 ... 10 A
- Fixed hysteresis approx. 4 %
- Hysteresis function (auto reset)
- LED indication for auxiliary voltage and contact position
- Devices available in 2 enclosure versions:
  - IK 9272: Depth 59 mm, with terminals at the bottom for installation systems and industrial distribution systems according to DIN 43880
  - SK 9272: Depth 98 mm, with terminals at the top for cabinets with mounting plate and cable duct
- Width 17.5 mm

### Product Description

The IK 9272 and SK 9272 overcurrent relays are suitable for monitoring currents in three-phase and alternating current networks. If the switching point is exceeded, the relays change state after the time has elapsed. The relays can be used universally thanks to the adjustable switching point. Using the adjustable time delay, current peaks can be taken into account or faded out if required. The operational readiness and switching status of the output relay are signalled via an LED.

### Approvals and Markings



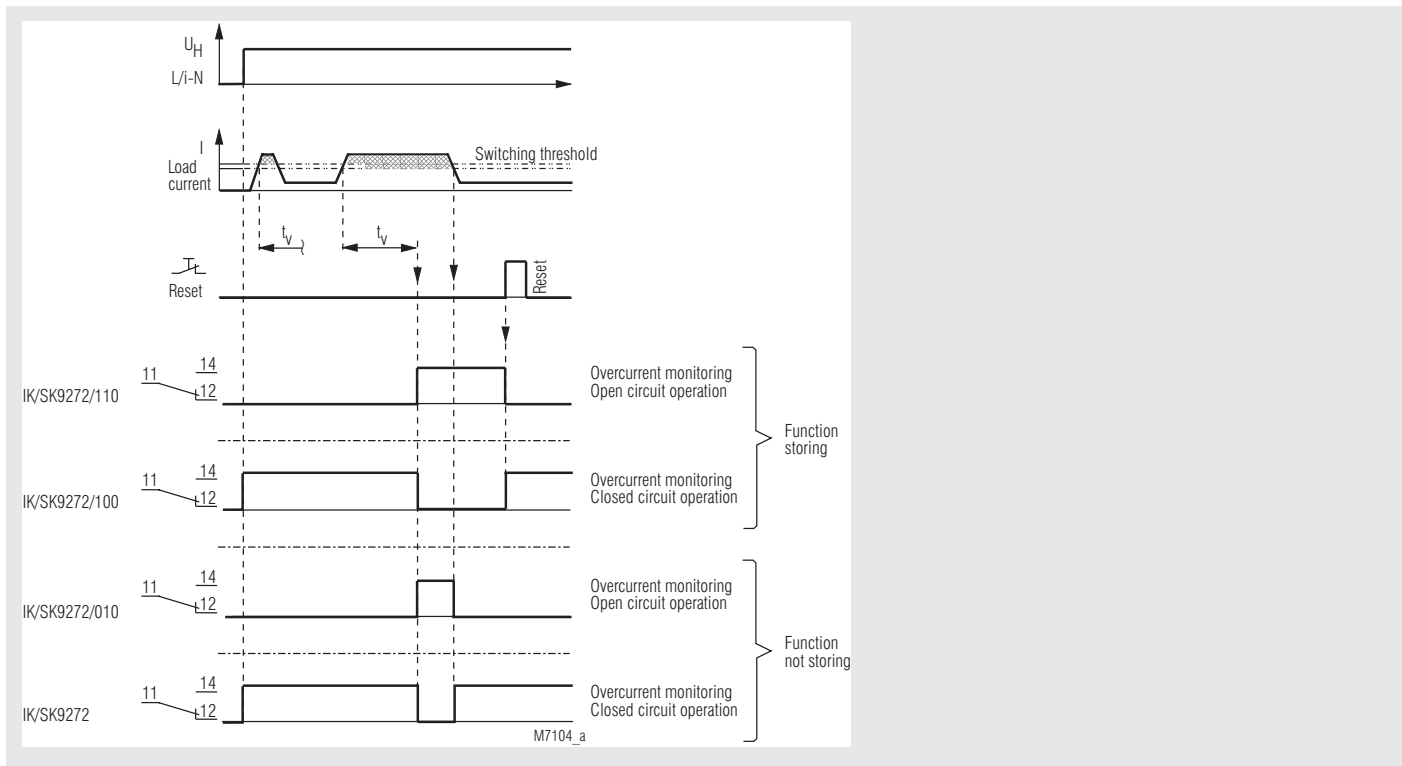
### Application

Overcurrent detection in AC power supplies

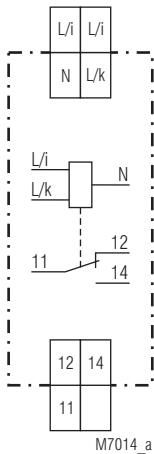
### Indication

Green LED: On when auxiliary supply connected  
Yellow LED: On when output contacts switched

### Function Diagram



## Circuit Diagram



## Connection Terminals

| Terminal designation | Signal description  |
|----------------------|---|
| L/i, L/k, N          | AC Current measuring circuit (i - k), Auxiliary voltage (L - N) |
| 11, 12, 14           | Fault signal relay  |

## Notes

Auxiliary voltage and measuring circuit are not galvanically separated. Thus they need the same reference potential "N", if there is no external separation, e.g. through a current transformer see Application Examples.

## Technical Data

### Input

**Measuring range:** AC 50 ... 500 mA  
 AC 0.1 ... 1 A  
 AC 0.5 ... 5 A  
 AC 1 ... 10 A  
 higher currents via external current transformer (2.5 VA)

**Nominal frequency of measuring current:** 50 / 60 Hz  
**Maximum continuous measuring current:**  
 At AC 50 ... 500 mA: 2.5 A, at 50 °C ambient temperature  
 At AC 0.1 ... 1 A: 5 A, at 50 °C ambient temperature  
 At AC 0.5 ... 5 A: 11 A, at 50 °C ambient temperature  
 At AC 1 ... 10 A: 15 A, at 50 °C ambient temperature

**Maximum overload:**  
 At AC 50 ... 500 mA: 8 A, max. 3 s  
 At AC 0.1 ... 1 A: 10 A, max. 3 s  
 At AC 0.5 ... 5 A: 20 A, max. 3 s  
 At AC 1 ... 10 A: 20 A, max. 3 s  
**Temperature influence:** ≤ 0.2 % / K  
**Reaction time:** See characteristic switching delay

### Setting Ranges

**Response value:** Infinite variable within measuring range  
**Hysteresis:** Approx. 0.96 of setting value, fixed approx. 4 % hysteresis  
**Setting accuracy:** ≤ ± 10 % of setting value  
**Repeat accuracy:** ≤ ± 1 %  
**Time delay  $t_v$ :** 0.1 ... 20 s adjustable

## Technical Data

### Auxiliary Circuit

**Auxiliary voltage  $U_H$ :** AC 115 ... 127 V, AC 220 ... 240 V  
**Voltage range:** 0.8 ... 1.1  $U_H$   
**Nominal consumption**  
 at AC 230 V: 5.5 VA  
**Nominal frequency:** 50 / 60 Hz  
**Frequency range:** ± 5 %

### Output

**Contacts**  
 IK 9272.11, SK 9272.11: 1 changeover contact  
**Thermal current  $I_{th}$ :** 5 A  
**Switching capacity**  
 to AC 15  
 NO contact: 3 A / AC 230 V IEC/EN 60947-5-1  
 NC contact: 1 A / AC 230 V IEC/EN 60947-5-1  
**Electrical life**  
 to AC 15 at 1 A, AC 230 V IEC/EN 60947-5-1  
 NO contact: 3 x 10<sup>5</sup> switching cycles  
**Short circuit strength**  
**max. fuse rating:** 4 A gG / gL IEC/EN 60947-5-1  
**Mechanical life:** > 10<sup>8</sup> switching cycles

### General Data

**Operating mode:** Continuous operation  
**Temperature range:** - 20 ... + 60 °C  
**Clearance and creepage distances**  
 Rated impulse voltage / pollution degree: 4 kV / 2 IEC 60664-1  
**EMC**  
 Electrostatic discharge: 8 kV (air) IEC/EN 61000-4-2  
 HF irradiation: 10 V/m IEC/EN 61000-4-3  
 Fast transients: 4 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 suppression: Limit value class B EN 55011  
**Degree of protection:** Housing: IP 40 IEC/EN 60529  
 Terminals: IP 20 IEC/EN 60529  
**Housing:** Thermoplastic with V0 behaviour according to UL subject 94  
**Vibration resistance:** Amplitude 0.35 mm frequency 10 ... 55 Hz IEC/EN 60068-2-6  
**Climate resistance:** 20 / 060 / 04 IEC/EN 60068-1  
**Terminal designation:** EN 50 005  
**Wire connection:** 2 x 2.5 mm<sup>2</sup> solid or 2 x 1.5 mm<sup>2</sup> stranded ferruled DIN 46228-1/-2/-3/-4  
**Wire fixing:** Flat terminals with self-lifting clamping piece IEC/EN 60999-1  
 0.8 Nm IEC/EN 60999-1  
**Mounting:** DIN rail IEC/EN 60715  
**Weight:**  
 IK 9272: 65 g  
 SK 9272: 80 g

### Dimensions

**Width x height x depth:**  
 IK 9272: 17.5 x 90 x 59 mm  
 SK 9272: 17.5 x 90 x 98 mm

## Classification to DIN EN 50155 for IK 9272

**Vibration and shock resistance:** Category 1, Class B IEC/EN 61373  
**Protective coating of the PCB:** No

## Standard Types

IK 9272.11/010 AC 220 ... 240 V 50/60 Hz 10 A

Article number: 0050068

- Auto reset
- Open circuit operation
- Output: 1 changeover contact
- Nominal voltage  $U_N$ : AC 220 ... 240 V
- Measuring range: 1 ... 10 A
- Width: 17.5 mm

SK 9272.11/010 AC 220 ... 240 V 50/60 Hz 10 A

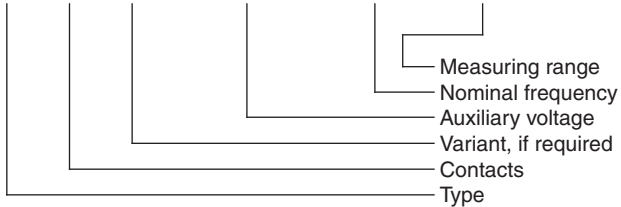
Article number: 0050613

- Auto reset
- Open circuit operation
- Output: 1 changeover contact
- Nominal voltage  $U_N$ : AC 220 ... 240 V
- Measuring range: 1 ... 10 A
- Width: 17.5 mm

## Variants

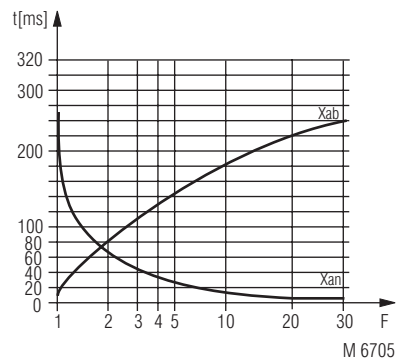
### Ordering example for variants

IK 9272 .11 / \_ \_ \_ AC 220 ... 240 V 50 / 60 Hz 10 A



IK 9272: Auto reset, closed circuit operation  
 IK 9272.11/011: Auto reset, open circuit operation, fixed response value, without time delay  
 IK 9272.11/100: Manual reset, closed circuit operation  
 IK 9272.11/110: Manual reset, open circuit operation

## Characteristics

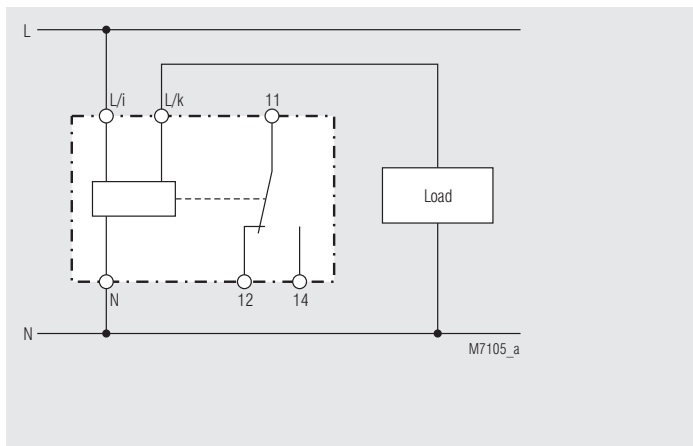


### Switching delay

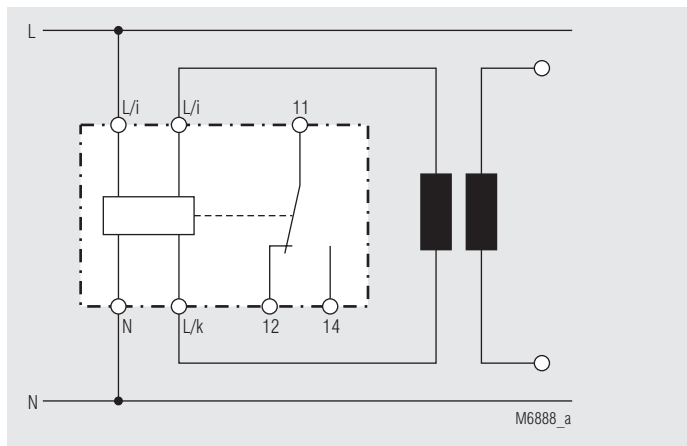
The characteristic shows the switching delay depending on the values of  $X_{an}$  -  $X_{ab}$  when switching the current on or off. A slow current change reduces the delay

$$F = \frac{I_{\text{applied}}}{I_{\text{setting}}}$$

## Connection Examples

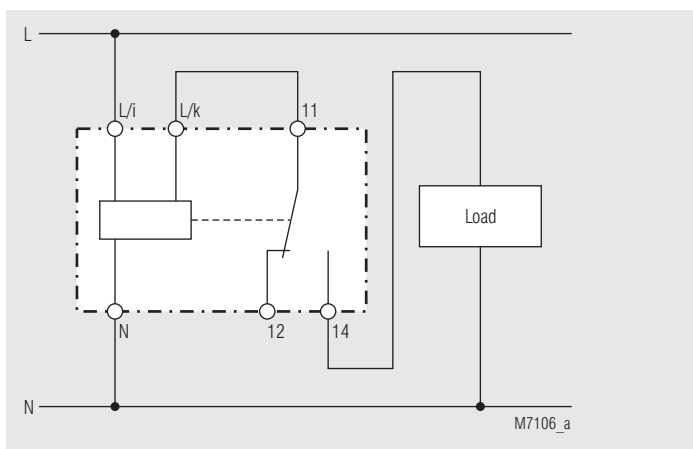


L/i - N Auxiliary voltage  
L/i - L/k Current input



Connection Example with external galvanical separation, e.g. via current transformer.

**Attention:** On the secondary side of the current transformer is the potential L.  
L/i is allowed to be changed, so that the secondary side of the current transformer has the potential N.



Connection Example for IK 9272/100

Load in series to the contact. When overcurrent the load is turned off.  
The fault is stored. New start by pressing reset button or auxiliary voltage off, on. Max. measured current  $I_{me\beta} = I_{th} = 5 \text{ A}$