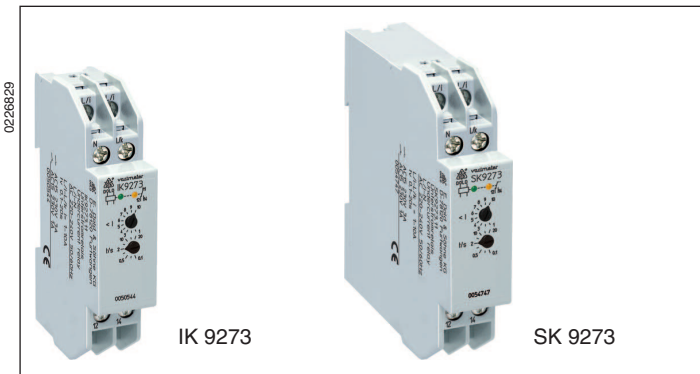
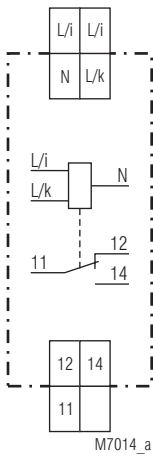


## VARIMETER Undercurrent Relay IK 9273, SK 9273



- According to IEC/EN 60 255
- Single phase
- Measuring ranges from 0.05 ... 10 A
- Setting value adjustable from 0.1 ... 1 I<sub>N</sub>
- Fixed hysteresis approx. 4 %
- Settable switching delay
- Closed circuit operation
- Optionally open circuit operation
- Automatic reset
- Optionally manual reset, reset button on the front
- LED indication for auxiliary voltage and contact position
- 1 changeover contact
- Devices available in 2 enclosure versions:
  - IK 9273: depth 59 mm, with terminals at the bottom for installation systems and industrial distribution systems according to DIN 43 880
  - SK 9273: depth 98 mm, with terminals at the top for cabinets with mounting plate and cable duct
- Width 17.5 mm

### Circuit Diagram



IK 9273.11, SK 9273.11

M7014\_a

### Approvals and Markings



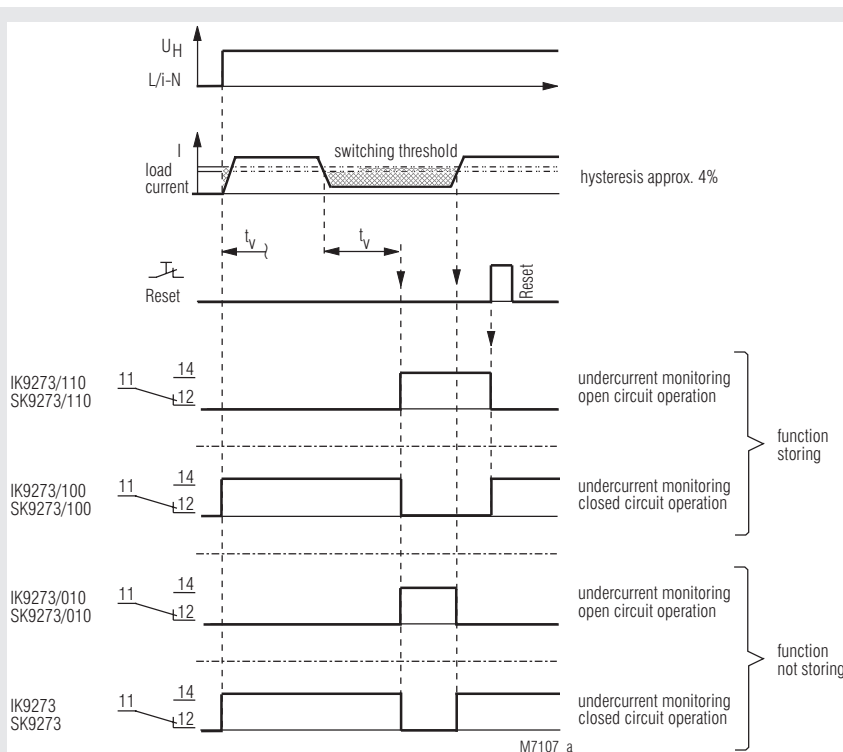
### Application

Undercurrent monitoring in AC voltage power supplies

### Indication

green LED: on when auxiliary supply connected  
yellow LED: on when output contacts switched

### Function Diagram



M7107\_a

## Notes

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

## Technical Data

### Input

<b>Measuring ranges:</b>	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: 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

### Max. 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:

<b>Reaction time:</b>	see characteristics, switching delay
-----------------------	--------------------------------------

### Setting Ranges

<b>Response value:</b>	infinite variable within measuring range
<b>Hysteresis:</b>	approx. 0.96 of setting value, fixed approx. 4 % hysteresis
<b>Setting accuracy:</b>	≤ ± 10 % of setting value
<b>Repeat accuracy:</b>	≤ ± 1 %
<b>Switching delay tv:</b>	0.1 ... 20 s adjustable

### Auxiliary Circuit

<b>Auxiliary voltage U<sub>H</sub>:</b>	AC 115 ... 127 V, AC 220 ... 240 V
<b>Voltage range:</b>	0.8 ... 1.1 U <sub>H</sub>

### Nominal consumption

at AC 230 V:	5.5 VA
<b>Nominal frequency:</b>	50 / 60 Hz
<b>Frequency range:</b>	± 5 %

### Output

#### Contacts

IK 9273.11, SK 9273.11:	1 changeover contact
<b>Thermal current I<sub>th</sub>:</b>	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

to AC 15 at 1 A, AC 230 V	
NO contact:	3 x 10 <sup>5</sup> switching cycles

#### Short circuit strength

<b>max. fuse rating:</b>	4 A gL IEC/EN 60 947-5-1
<b>Mechanical life:</b>	> 10 <sup>8</sup> Schaltspiele

### General Data

<b>Operating mode:</b>	Continuous operation
<b>Temperature range:</b>	- 20 ... + 60°C

#### Clearance and creepage distances

rated impulse voltage / pollution degree:	4 kV / 2 IEC 60 664-1
---	-----------------------

## Technical Data

### 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:	4 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:	2 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>Degree of protection:</b>	Housing: IP 40 IEC/EN 60 529
	Terminals: IP 20 IEC/EN 60 529

### Housing:

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

### Climate resistance:

### Terminal designation:

### Wire connection:

	EN 50 005
	2 x 2.5 mm <sup>2</sup> solid or 2 x 1.5 mm <sup>2</sup> stranded ferruled
	DIN 46 228-1/-2/-3/-4
<b>Wire fixing:</b>	Flat terminals with self-lifting clamping piece IEC/EN 60 999-1
	0.8 Nm IEC/EN 60 999-1
<b>Fixing torque:</b>	
<b>Mounting:</b>	DIN rail IEC/EN 60 715

### Weight

IK 9273:	65 g
SK 9273:	84 g

### Dimensions

#### Width x height x depth

IK 9273:	17.5 x 90 x 59 mm
SK 9273:	17.5 x 90 x 98 mm

### Standard Types

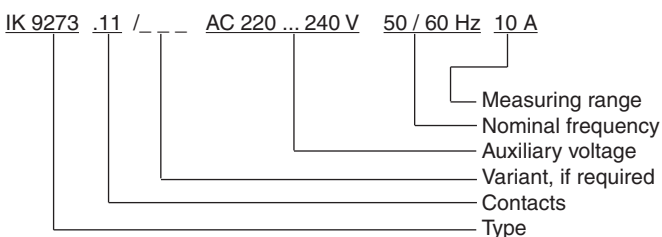
IK 9273.11 AC 220 ... 240 V	50/60 Hz	10 A
Article number:	0050544	
• Closed circuit operation		
• Output:	1 changeover contact	
• Nominal voltage U <sub>N</sub> :	AC 220 ... 240 V	
• Measuring range:	1 ... 10 A	
• Width:	17.5 mm	

SK 9273.11 AC 220 ... 240 V	50/60 Hz	10 A
Article number:	0054747	
• Closed circuit operation		
• Output:	1 changeover contact	
• Nominal voltage U <sub>N</sub> :	AC 220 ... 240 V	
• Measuring range:	1 ... 10 A	
• Width:	17.5 mm	

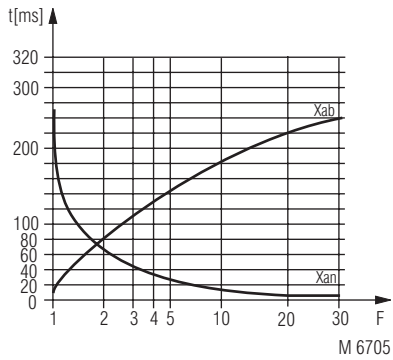
### Variants

IK 9273.11/010:	Open circuit operation
IK 9273.11/100:	Manual reset, closed circuit operation
IK 9273.11/110:	Manual reset, open circuit operation

### Ordering example for variants



## Characteristics

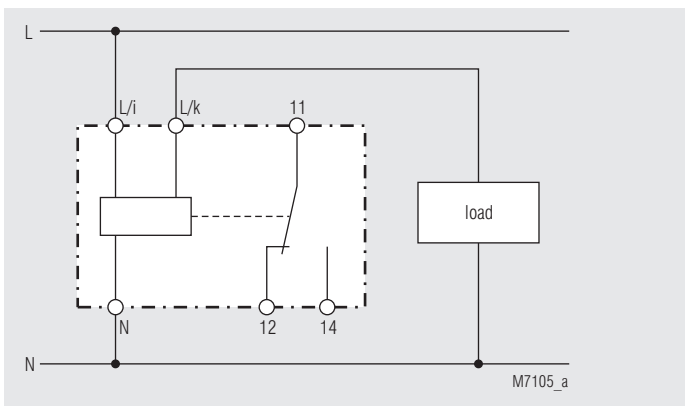


### Switching delay

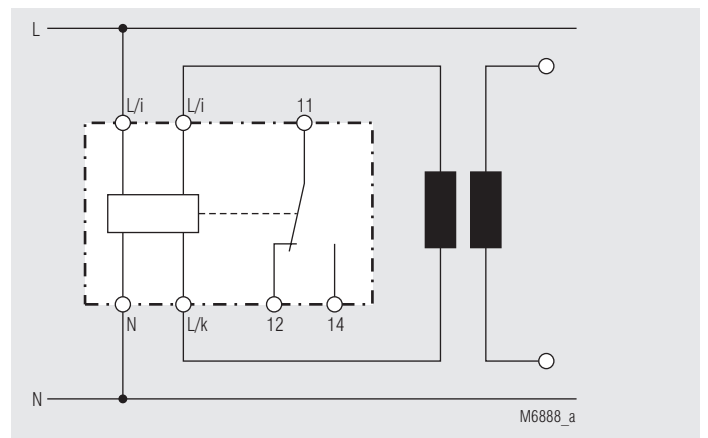
The characteristic shows the switching delay depending on the values of  $X_{an}$  -  $X_{ab}$  when switching the current on or off. A slow current change reduces the delay.

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

## Application Examples

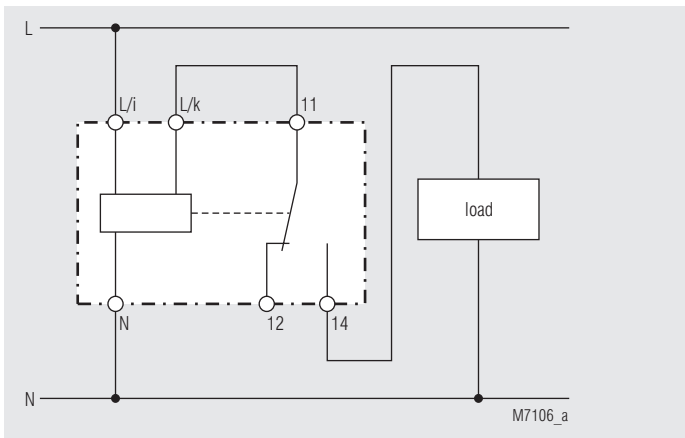


L/i - N auxiliary voltage  
L/i - L/k current input



Connection Example with external galvanic separation, e.g. by current transformer

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



### Connection Example for IK 9273/100 + IK 9273

Load in series to the contact. When undercurrent the load is turned on. The fault is stored. New start by pressing reset button or auxiliary voltage off, on. Maximum continuous measuring current for this application is 5 A.

