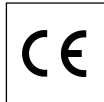


0224 263



- According to IEC 255, EN 60 255, VDE 0435 part 303
- Devices available in 2 enclosure versions:
 - I-model, e.g. IK ____, depth 61 mm
with terminals at the bottom for installations systems and industrial distribution systems according to DIN 43 880
 - S-model, e.g. SK ____, depth 100 mm
with terminals at the top for cabinets with mounting plate and cable duct
- IP 9271, SP 9271: 3-phase
IK 9271, IL 9271, SK 9271, SL 9271: single phase
- Measuring ranges from 0,1 ... 50 A
- IK 9271, SK 9271:
with 4 ranges settable by rotational switch, 1 changeover contact
- IL 9271, SL 9271:
with 4 programmable ranges, 2 changeover contacts
- IP 9271, SP 9271: with 1 range, 2 changeover contacts
- Settable response value
- Fixed hysteresis
- Settable time delay
- Closed circuit operation
- Optionally open circuit operation
- LED indicators
- With auxiliary voltage
- Auxiliary supply and measuring input galvanic separated
- Width IK 9271, SK 9271: 17,5 mm
IL 9271, SL 9271: 35 mm
IP 9271, SP 9271: 70 mm

Approvals and marking



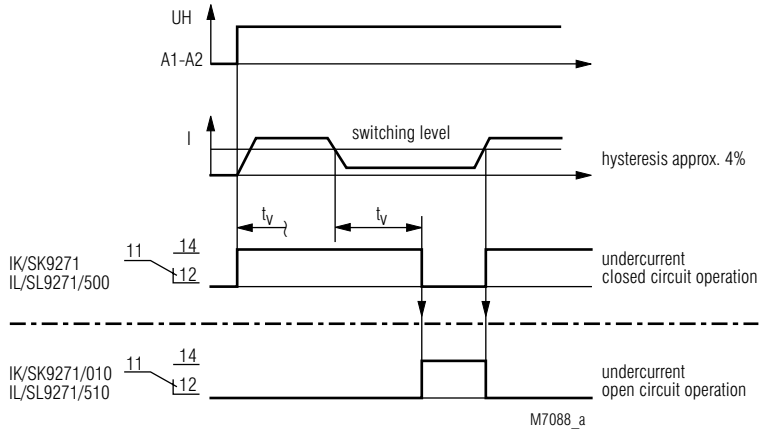
Applications

Undercurrent detection in single phase or 3-phase voltage systems

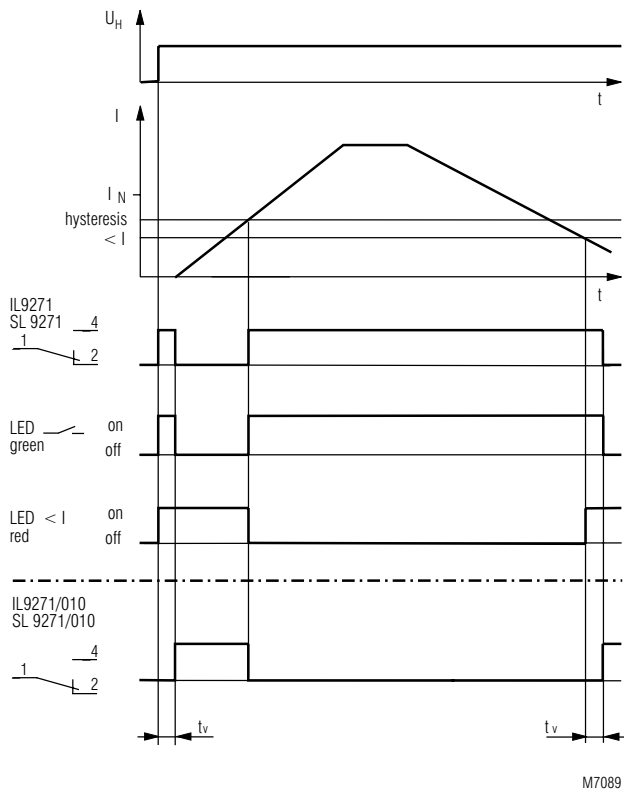
Indicators

- IK 9271.11, SK 9271.11
IL 9271.11/5_ _
SL 9271.11/5_ _:
- | | |
|-------------|----------------------------------|
| green LED: | on when aux. supply connected |
| yellow LED: | on when output contacts switched |
-
- IL 9271, SL 9271,
IP 9271, SP 9271:
- | | |
|---------------------|-------------------------------|
| green LED: | on when current within limits |
| red LED I_{max} : | on when undercurrent |

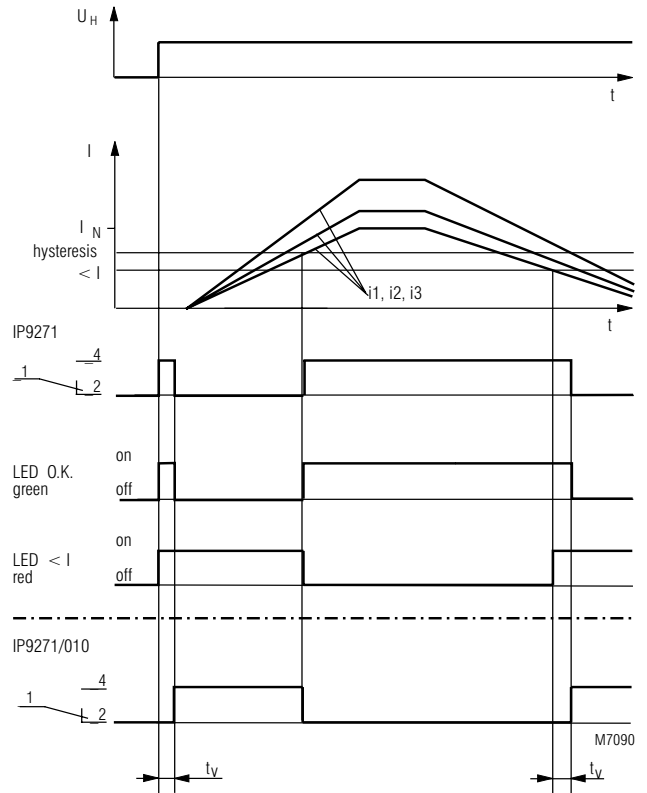
Function diagram IK/SK 9271, IL/SL 9271.11/500



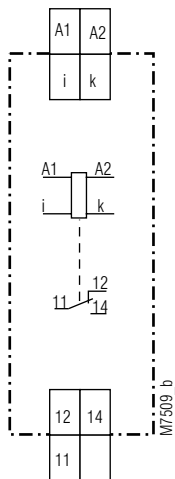
Function diagram IL 9271.12, SL 9271.12



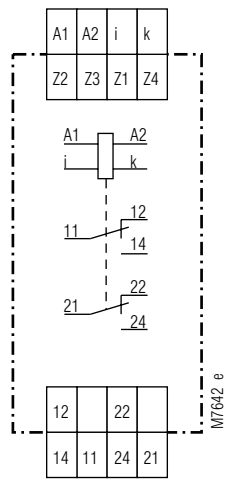
Function diagram IP 9271, SP 9271



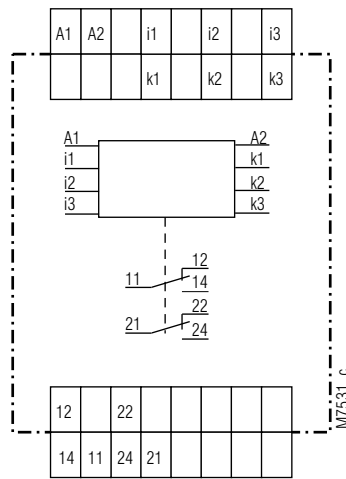
Circuit diagrams



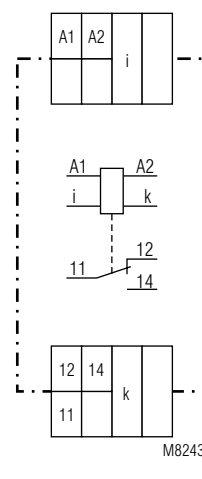
IK 9271.11, SK 9271.11



IL 9271.12, SL 9271.12



IP 9271.12, SP 9271.12



IL 9271.11/5_

Technical data

Input

Measuring ranges: IK 9271, SK 9271:	4 measuring ranges settable with switch: AC 0,1 ... 1 A AC 0,5 ... 5 A AC 1 ... 10 A AC 1,5 ... 15 A or optionally 1 measuring range: AC 0,1 ... 1 A; 0,5 ... 5 A; 1 ... 10 A; 1,5 ... 15 A
IL 9271, SL 9271:	4 measuring ranges settable with bridges: AC 0,1 ... 1 A (bridge Z1-Z2) AC 0,5 ... 5 A (bridge Z1-Z3) AC 1 ... 10 A (bridge Z1-Z4) AC 1,5 ... 15 A (bridge Z1-Z3-Z4)
IL9271/5_-, SL 9271/5_-:	5 measuring ranges settable with switch: AC 0,1 ... 1 A AC 0,5 ... 5 A AC 2,5 ... 25 A AC 3 ... 30 A AC 5 ... 50 A
IP 9271, SP 9271:	only single range: AC 0,1 ... 1 A; 0,5 ... 5 A; 1 ... 10 A; 1,5 ... 15 A

Measuring circuit

Nominal frequency of measuring current:	50 / 60 Hz at IL/SL 9271/500: 50 / 400 Hz
Maximum continuous measuring current IK 9271, SK 9271:	20 A at 50°C ambient temperature 15 A at 60°C ambient temperature
IL 9271, SL 9271:	20 A at 50°C ambient temperature
IL 9271/5_-, SL 9271/5_-:	60 A at 40°C ambient temperature 50 A at 50°C ambient temperature
IP 9271, SP 9271:	20 A at 45°C ambient temperature 15 A at 50°C ambient temperature
Max. overload: at IL/SL 9271/5_-:	30 A, max. 3 s 80 A, max. 3 s
Temperature influence:	≤ 0,05 % / K
Reaction time:	see characteristic switching delay
Setting ranges	
Response value:	infinite variable within measuring range
Hysteresis:	approx. 4 % of setting value, fixed
Setting accuracy:	≤ ± 10 % of setting value
Repeat accuracy:	≤ ± 1 %
Switching delay:	0,1 ... 20 s settable

Technical data

Auxiliary circuit

Auxiliary voltage U_H:	AC/DC 24 V, AC 220 ... 240 V other voltages on request
Voltage range at AC:	0,8 ... 1,1 U _H
at DC:	0,8 ... 1,25 U _H
Nominal consumption at AC 230 V:	3,2 VA
at DC 24 V:	0,8 W
Nominal frequency:	50 / 60 Hz
Frequency range:	± 5 %

Output

Contacts

IK 9271.11, SK 9271.11:	1 changeover contact
IL/SL 9271/5_-:	2 changeover contacts
IL 9271.12, SL 9271.12:	2 changeover contacts
IP 9271.12, SP 9271.12:	2 changeover contacts
	5 A

Thermal current I_{th}:

Switching capacity

to AC 15		
NO contact:		
IK 9271, IL 9271/5_-:	3 A / AC 230 V	EN 60 947-5-1
IL 9271, IP 9271:	5 A / AC 230 V	EN 60 947-5-1
NC contact:	1 A / AC 230 V	EN 60 947-5-1
		EN 60 947-5-1

Electrical life

to AC 15 at 1 A, AC 230 V	
NO contact:	
IK 9271, IL 9271/5_-:	3 x 10 ⁵ switching cycles
to AC 15 at 2 A, AC 230 V	
IL 9271, IP 9271:	2 x 10 ⁵ switching cycles

Short circuit strength

max. fuse rating

IK 9271, IL 9271/5_-:	4 A gL	EN 60 947-5-1
IL 9271, IP 9271:	10 A gL	EN 60 947-5-1

Mechanical life:

> 50 x 10⁶ switching cycles

General data

Operating mode:	Continuous operation
Temperature range:	- 20 ... + 60°C

Clearance and creepage distances

overvoltage category /
contamination level:

IEC 60 664-1

	IP/SP	IK/SK IL/SL devices /5_	IL/SL
supply - contacts	4 kV / 2	4 kV / 2	4 kV / 2
supply - measuring circuit	6 kV / 2	6 kV / 2	4 kV / 2
measuring circuit - contacts	6 kV / 2	6 kV / 2	4 kV / 2
measuring circuit - measuring circuit	6 kV / 2	-	-

The contacts are not designed for voltage systems with 400 / 690 V.

Technical data

EMC

Electrostatic discharge:	8 kV (air)	EN 61 000-4-2
HF irradiation:	10 V/m	EN 61 000-4-3
Fast transients:	4 kV	EN 61 000-4-4
Surge voltages between wires for power supply:		
IK 9271, IL 9271/5__:	2 kV	EN 61 000-4-5
IL 9271, IP 9271:	1 kV	EN 61 000-4-5
between wire and ground:		
IK 9271, IL 9271/5__:	4 kV	EN 61 000-4-5
IL 9271, IP 9271:	2 kV	EN 61 000-4-5
HF-wire guided		
IK 9271, IL 9271/5__:	10 V	EN 61 000-4-6
Interference suppression:	Limit value class B	EN 55 011
Degree of protection:	Housing: IP 40	EN 60 529
	Terminals: IP 20	EN 60 529

Housing:

Thermoplastic with V0 behaviour according to UL subject 94

Vibration resistance:

Amplitude 0,35 mm
frequency 10 ... 55 Hz EN 60 068-2-6
20 / 060 / 04 EN 60 068-1

Climate resistance:

Terminal designation:

EN 50 005

Wire connection:

2 x 2,5 mm² solid or
2 x 1,5 mm² stranded ferruled
DIN 46 228-1/-2/-3

Terminals i/k at

IL/SL 9271/5__:
1 x 16 mm² solid or
1 x 10 mm² stranded ferruled
DIN 46 228-1/-2/-3

Wire fixing:

Flat terminals with self-lifting clamping piece EN 60 999
DIN rail EN 50 022

Mounting:

Weight

IK 9271:	70 g
SK 9271:	90 g
IL 9271:	125 g
SL 9271:	150 g
IP 9271:	200 g
SP 9271:	250 g

Dimensions

Width x height x depth

IK 9271:	17,5 x 90 x 61 mm
SK 9271:	17,5 x 90 x 100 mm
IL 9271:	35 x 90 x 61 mm
SL 9271:	35 x 90 x 100 mm
IP 9271:	70 x 90 x 61 mm
SP 9271:	70 x 90 x 100 mm

Standard types

IK 9271.11 AC 220 ... 240 V 50/60 Hz 0,1 ... 15 A
Article number: 0050331
SK 9271.11 AC 220 ... 240 V 50/60 Hz 0,1 ... 15 A
Article number: 0050647

- Single phase
- 4 programmable ranges up to 15 A
- Open circuit operation
- Auxiliary voltage U_H : AC 220 ... 240 V
- 1 changeover contact
- Width 17,5 mm

IP 9271.12 AC 220 ... 240 V 50/60 Hz 0,5 ... 5 A
Article number: 0049961
SP 9271.12 AC 220 ... 240 V 50/60 Hz 0,5 ... 5 A
Article number: 0050648

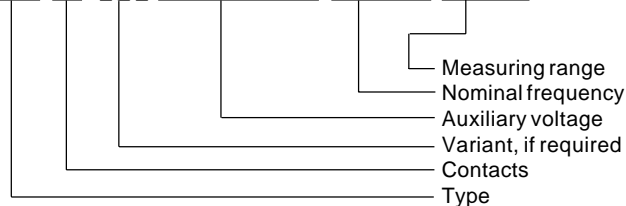
- 3-phase
- Range 0,5 ... 5 A
- Closed circuit operation
- Auxiliary voltage U_H : AC 220 ... 240 V
- 2 changeover contacts
- Width 70 mm

Variants

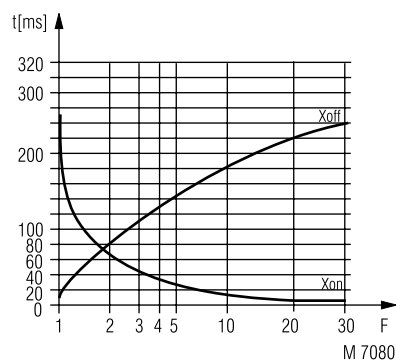
IK 9271.11/010, SK 9271.11/010:	single phase current relay open circuit operation, 1 changeover contact
IL 9271.12/010, SL 9271.12/010:	single phase current relay open circuit operation, 2 changeover contacts
IL 9271.11/500, SL 9271.11/500:	same as IK/SK 9271.11, except with 5 measuring ranges from 0,1 ... 50 A
IL 9271.11/510, SL 9271.11/510:	same as IK/SK 9271.11/010, except with 5 measuring ranges from 0,1 ... 50 A
IP 9271.12/010, SP 9271.12/010:	3-phase current relay open circuit operation 2 changeover contacts

Ordering example for variants

IP 9271 .12 / - AC 220 ... 240 V 50 / 60 Hz 1 ... 10 A



Characteristics



Switching delay

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

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