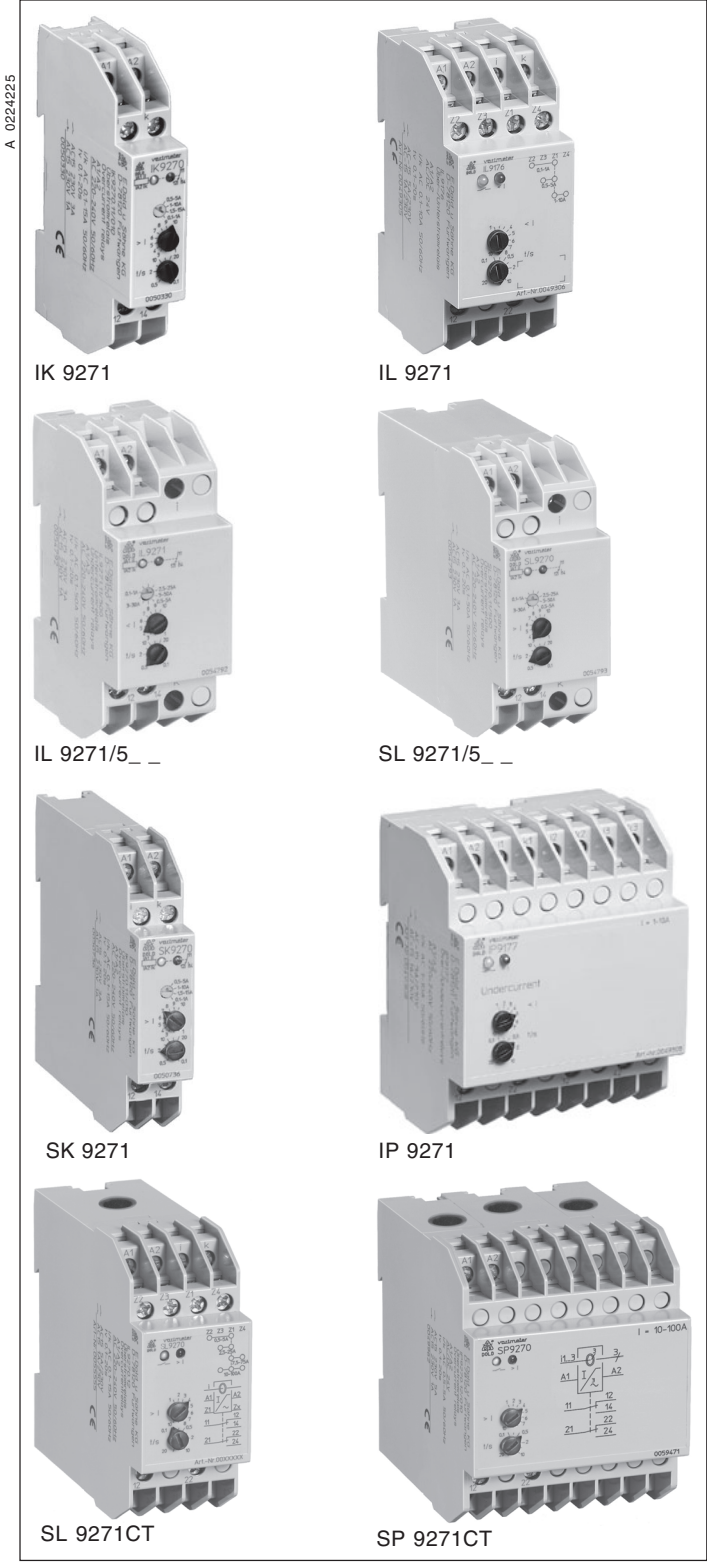


Now available with
ranges up to 100 A !



- According to IEC/EN 60 255, DIN VDE 0435-303
- IP 9271, SP 9271, SP 9271CT: 3-phase
IK 9271, IL 9271, SK 9271, SL 9271, SL 9271CT: single phase
- Measuring ranges from 0,1 ... 100 A
- IK 9271, SK 9271:
with 4 ranges settable by rotational switch, 1 changeover contact
- IL 9271, SL 9271:
with 5 ranges settable by rotational switch, 1 changeover contact
with 4 ranges programmable by bridges, 2 changeover contacts
- IP 9271, SP 9271: with 1 range, 2 changeover contacts
- Settable response value
- Fixed hysteresis
- Settable time delay
- de-energised on trip
- LED indicators
- With auxiliary voltage
- Auxiliary supply and measuring input galvanic separated
- Optionally energised on trip
- **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
- Width IK 9271, SK 9271: 17,5 mm
IL 9271, SL 9271, SL 9271CT: 35 mm
IP 9271, SP 9271, SP 9271CT: 70 mm

Approvals and marking



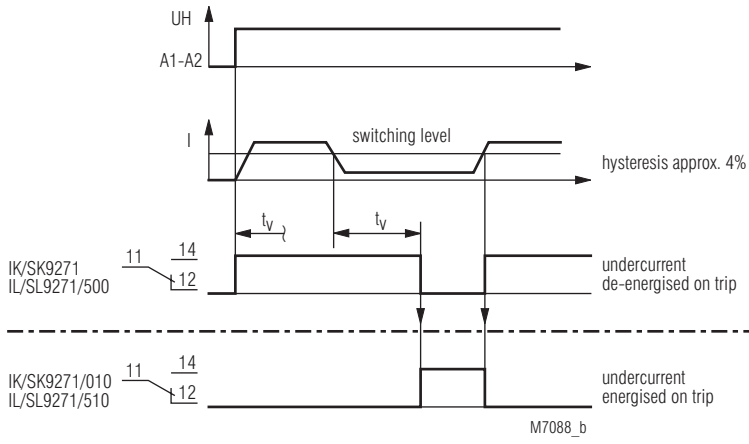
Applications

Undercurrent detection in single phase or 3-phase voltage systems

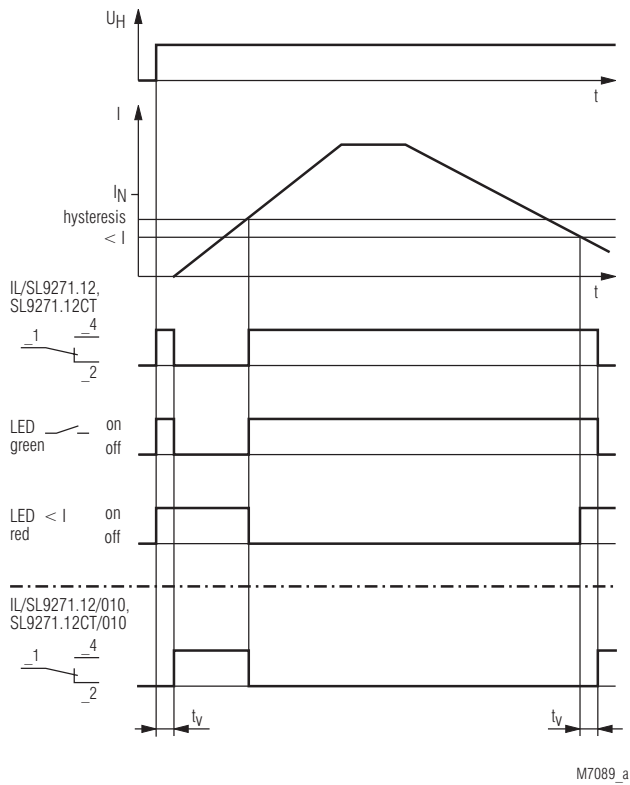
Indicators

- 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 |

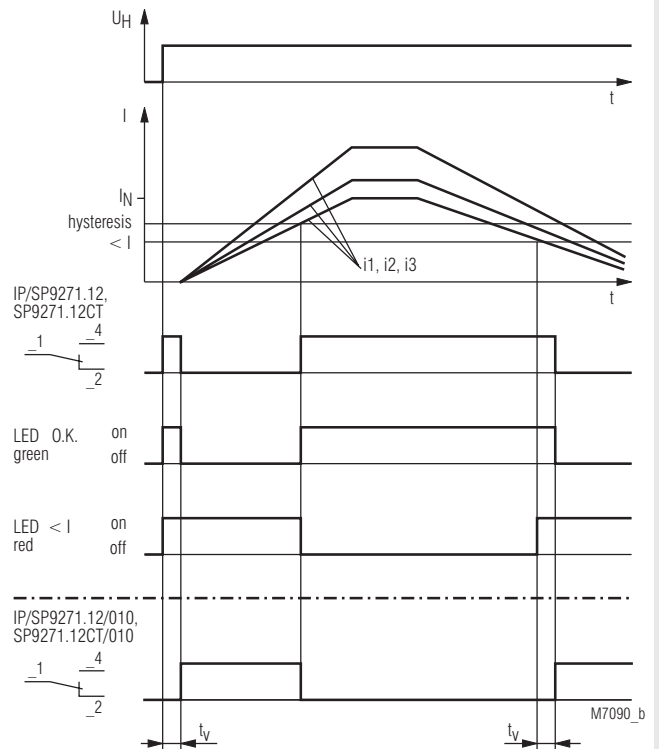
Function diagram IK/SK 9271, IL/SL 9271.11/500



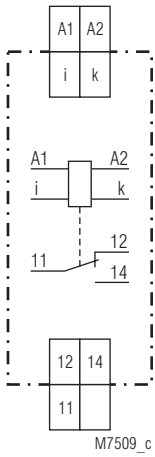
Function diagram IL 9271.12, SL 9271.12



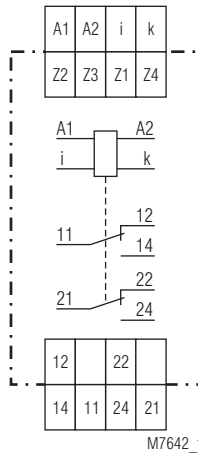
Function diagram IP 9271, SP 9271



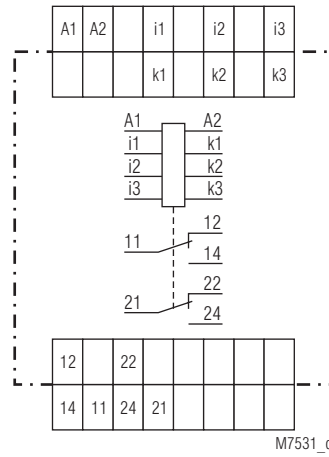
Circuit diagrams



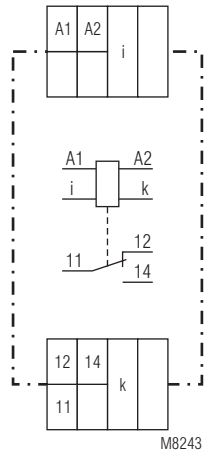
IK 9271.11, SK 9271.11



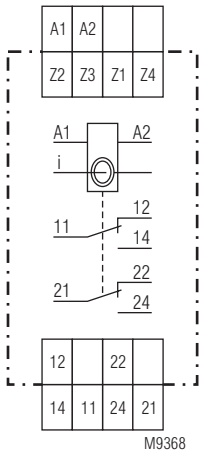
IL 9271.12, SL 9271.12



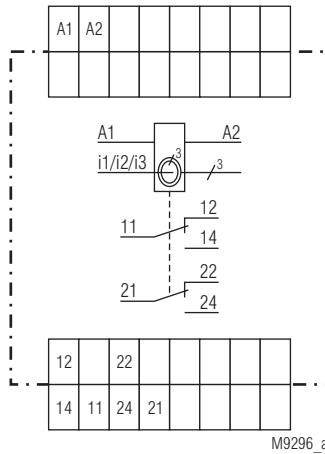
IP 9271.12, SP 9271.12



IL 9271.11/5_ _






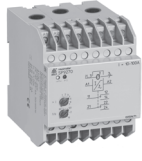


SL 9271.12CT



SP 9271.12CT

Technical Data

Type	 IK 9271	 SL 9271/5_ _	 IL 9271	 SL 9271CT	 IP 9271	 SP 9271CT
Depth 61 mm	IK 9271.11	IL 9271.11/5_ _	IL 9271.12		IP 9271.12	
Depth 100 mm	SK 9271.11	SL 9271.11/5_ _	SL 9271.12	SL 9271.12CT	SP 9271.12	SP 9271.12CT
Width	17,5 mm	35 mm	35 mm	35 mm	70 mm	70 mm
Measuring input	single phase	single phase	single phase	single phase	3-phase	3-phase
Measuring range	0,1 ... 15 A settable with switch:	0,1 ... 50 A settable with switch:	0,5 ... 15 A settable with bridges range / bridge	0,5 ... 100 A settable with bridges range / bridge	1 Meas. range per unit	1 Meas. range per unit
Nominal frequency 50 ... 400 Hz	0,1 ... 1 A 0,5 ... 5 A 1 ... 10 A 1,5 ... 15 A	0,1 ... 1 A 0,5 ... 5 A 2,5 ... 25 A 3 ... 30 A 5 ... 50 A	0,1 ... 1 A / Z1-Z2 0,5 ... 5 A / Z1-Z3 1 ... 10 A / Z1-Z4 1,5 ... 15 A / Z3-Z1-Z4 not programmable: 50 ... 500 mA	0,5 ... 5 A / Z1-/Z2 2,5 ... 25 A / Z1-Z3 7,5 ... 75 A / Z1-Z4 10 ... 100 A / Z3-Z1-Z4	0,1 ... 1 A 0,5 ... 5 A 1 ... 10 A 1,5 ... 15 A	0,5 ... 5 A 2,5 ... 25 A 5 ... 50 A 7,5 ... 75 A 10 ... 100 A
Max. continuous measuring current	20 A / 50°C 15 A / 60°C	50 A / 50°C 60 A / 40°C	20 A / 50°C 15 A / 60°C	limited only by diameter of cable 25 mm ²	3x15 A / 50°C 3x20 A / 45°C	limited only by diameter of cable 25 mm ²
Max. current at 50°C		all ranges 80 A / 3 s				
Wire current path				CT diameter = 10mm		ICT diameter = 10mm
Solid	2 x 2,5 mm ²	1 x 10 mm ²	2 x 2,5 mm ²	25 mm ²	2 x 2,5 mm ²	25 mm ²
Stranded ferruled	2 x 1,5 mm ²	1 x 6 mm ²	2 x 1,5 mm ²		2 x 1,5 mm ²	
Contacts	1 changeover	1 changeover	2 changeover	2 changeover	2 changeover	2 changeover
Weight	IK 9271: 70 g SK 9271: 90 g	IL 9271: 125 g SL 9271: 150 g	IL 9271: 125 g SL 9271: 150 g	ca. 230 g	IP 9271: 200 g SP 9271: 250 g	approx. 470 g

Technical Data

Max. overload: see table
Temperature influence: $\leq 0,05\% / K$
Reaction time: see characteristic switching delay

Setting ranges

Response value: infinite variable within measuring range
Hysteresis: approx. 4 % of setting value, fixed
Repeat accuracy: $\leq \pm 1\%$
Switching delay: 0,1 ... 20 sec settable

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:
 IL/SL 9271, IP/SP 9271: 3,2 VA
 IK/SK 9271, IL/SL 9271/500: 2,3 VA
 at DC 24 V:
 IL/SL 9271, IP/SP 9271: 0,8 W
 IK/SK 9271, IL/SL 9271/500: 0,4 W

Nominal frequency: 50 / 60 Hz
Frequency range: $\pm 5\%$

Output

Contacts

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

Thermal current I_{th} : 5 A

Switching capacity

to AC 15

NO contact:

IK 9271, IL 9271/5_ _ : 3 A / AC 230 V IEC/EN 60 947-5-1
 NC contact: 1 A / AC 230 V IEC/EN 60 947-5-1

IL/SL 9271, IP/SP 9271,
 SL 9271CT, SP 9271CT: 5 A / AC 230 V IEC/EN 60 947-5-1
 NC contact: 1 A / AC 230 V IEC/EN 60 947-5-1
 IEC/EN 60 947-5-1

Electrical life

to AC 15 bei 1 A, AC 230 V

NO contact

IK/SK 9271, IL/SL 9271/5_ _ : 3 x 10⁶ switching cycles IEC/EN 60 947-5-1
 to AC 15 at 2 A, AC 230 V
 IL/SL 9271, IP/SP 9271,
 SL 9271CT, SP 9271CT: 2 x 10⁶ switching cycles IEC/EN 60 947-5-1

Short-circuit strength

max. fuse rating:

IK/SK 9271, IL/SL 9271/5_ _ : 4 A gL IEC/EN 60 947-5-1
 IL/SL 9271, IP/SP 9271
 SL 9271CT, SP 9271CT: 10 A gL IEC/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/

pollution degree: 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) 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

IK/SK 9271, IL/SL 9271/5_ _ : 2 kV IEC/EN 61 000-4-5

IL/SL 9271, IP/SP 9271,
 SL/SP 9271CT: 1 kV IEC/EN 61 000-4-5

between wire and ground:
 IK/SK 9271, IL/SL 9271/5_ _ : 4 kV IEC/EN 61 000-4-5

IL/SL 9271, IP/SP 9271,
 SL/SP 9271CT: 2 kV IEC/EN 61 000-4-5

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

Vibration resistance: 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 mm² solid or

2 x 1,5 mm² stranded ferruled

DIN 46 228-1/-2/-3/-4

Wire fixing: Flat terminals with self-lifting

clamping piece IEC/EN 60 999-1

Mounting: DIN rail IEC/EN 60 715

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, SL 9271CT: 35 x 90 x 100 mm
 IP 9271: 70 x 90 x 61 mm
 SP 9271, SP 9271CT: 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
- energised on trip
- 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

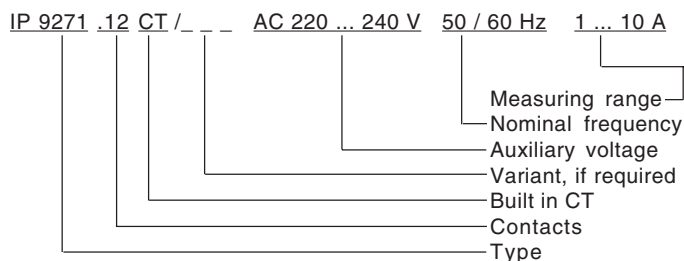
Article number: 0050648

- 3-phase
- Range 0,5 ... 5 A
- de-energised on trip
- Auxiliary voltage U_H : AC 220 ... 240 V
- 2 changeover contacts
- Width 70 mm

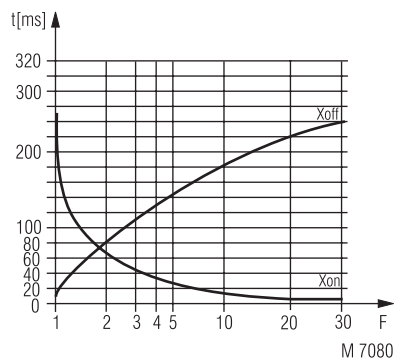
Variants

IK 9271.11/010, SK 9271.11/010:	single phase current relay energised on trip, 1 changeover contact
IK 9271.11/800:	single phase current relay energised on trip, except with 1 measuring ranges from 10 ... 100 mA, 1 changeover contact
IL 9271.12/010, SL 9271.12/010:	single phase current relay energised on trip, 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 energised on trip, 2 changeover contacts
SL 9271.12CT:	single phase current relay with built in CT
SP 9271.12CT:	3-phase current relay with built in CT

Ordering example for variants



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.

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