

VARIMETER Phase Monitor IK 9169, RK 9169, SK 9169

Translation
of the original instructions



- According to IEC/EN 60255-1
- Detection of phase failure in 3-phase systems
- Single phase connection possible
- Closed circuit operation
- Independent of phase sequence
- LED indicator for each phase
- Output 1 changeover contact
- Devices available in 2 enclosure versions:
 - I- and R-versions, e.g. IK 9169 with depth 61 mm or RK 9169 with depth 71 mm with terminals at the bottom for installation systems and industrial distribution systems according to DIN 43880
 - S-version, e.g. SK 9169: Depth 100 mm, with terminals at the top for cabinets with mounting plate and cable duct
- Width 17.5 mm

Product Description

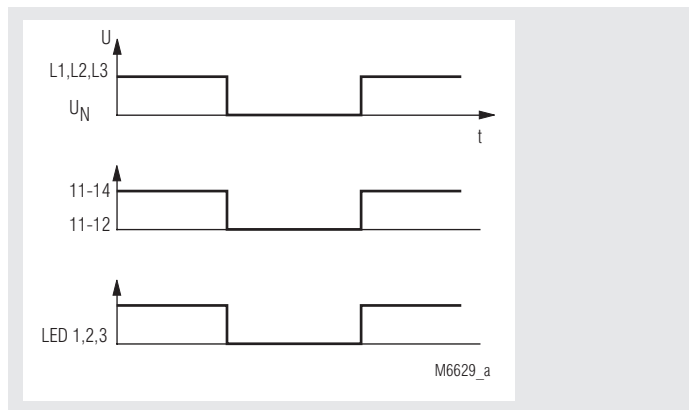
The phase monitor 9169 is available in the 3 housing variants IK, SK and RK. It is used to detect phase failure in three-phase networks.

Approvals and Markings



^{*)} Only IK / SK 9169

Function Diagram



Applications

Detection of phase failure in 3-phase systems

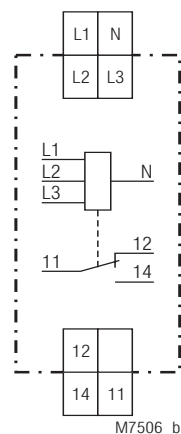
Indicators

LED L1, L2, L3: On, when phase is present

Notes

On broken or disconnected neutral the LEDs are off although the 3 phases are present.
In this case measurement is necessary to prove that no voltage is present.

Circuit Diagram



Connection Terminals

Terminal designation	Signal description
L1, L2, L3, N	Measuring input or. supply voltage
11, 12, 14	Changeover contact

Technical Data

Input

Nominal voltage U_N:	3/N AC 380 ... 415 / 220 ... 240 V
Voltage range:	0.8 ... 1.1 U_N
Nominal frequency:	50 / 60 Hz
Frequency range:	45 ... 65 Hz
Detection of phase failure:	< 120 V

Output

Contact

IK 9169, RK 9169, SK 9169: 1 changeover contact

Thermal current I_{th} : 4 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 IEC/EN 60947-5-1

to AC 15 at 1 A, AC 230 V: Typ. 300000 switching cycles

Short-circuit strength

max. fuse rating: 4 A gG / gL IEC/EN 60947-5-1

Mechanical life: $\geq 30 \times 10^6$ switching cycles

General Data

Operating mode: Continuous operation

Temperature range:

Operation: - 20 ... + 60 °C

Storage: - 25 ... + 60 °C

Altitude: ≤ 2000 m

Clearance and creepage distances

Rated impulse voltage /
pollution degree

(between L1-L2-L3-N): 4 kV / 2 IEC 60664-1

input / output: 4 kV / 2 IEC 60664-1

EMC

Electrostatic discharge: 8 kV (air) IEC/EN 61000-4-2

HF irradiation

80 MHz ... 2.7 GHz: 10 V/m IEC/EN 61000-4-3

Fast transients: 4 kV IEC/EN 61000-4-4

Surge voltages
between

wires for power supply: 2 kV IEC/EN 61000-4-5

Between wire and ground: 4 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

The 1 MHz slow damped oscillator test according to IEC/EN 60255-1
has not been made.

Climate resistance: 20 / 060 / 04 IEC/EN 60068-1

Terminal designation: EN 50005

Wire connection: DIN 46228-1/-2/-3/-4

Technical Data

IK 9169, SK 9169

Cross section: 2 x 0,6 ... 2,5 mm² solid or
2 x 0,28 ... 1,5 mm² stranded wire with
and without ferrules

Stripping length: 10 mm

Wire fixing: Plus-Minus-terminal screws M3,5 with
self-lifting clamping piece

RK 9169

Cross section: 0,5 ... 10 mm² solid or
0,5 ... 6 mm² mm² stranded wire with
and without ferrules

Stripping length: 10 mm

Wire fixing: Captive slotted screw / M3,5

Fixing torque: 0.8 Nm

Mounting: DIN rail IEC/EN 60715

Weight

IK 9169: 60 g

RK 9169: 75 g

SK 9169: 80 g

Dimensions

Width x height x depth:

IK 9169: 17.5 x 90 x 59 mm

RK 9169: 17.5 x 90 x 71 mm

SK 9169: 17.5 x 90 x 98 mm

Standard Types

IK 9169.11 3/N AC 380 ... 415 / 220 ... 240 V 50/60 Hz

Article number: 0049177

RK 9169.11 3/N AC 380 ... 415 / 220 ... 240 V 50/60 Hz

Article number: 0060316

SK 9169.11 3/N AC 380 ... 415 / 220 ... 240 V 50/60 Hz

Article number: 0054713

- Output: 1 changeover contact
- Nominal voltage U_N : 3/N AC 380 ... 415 / 220 ... 240 V
- Width: 17.5 mm