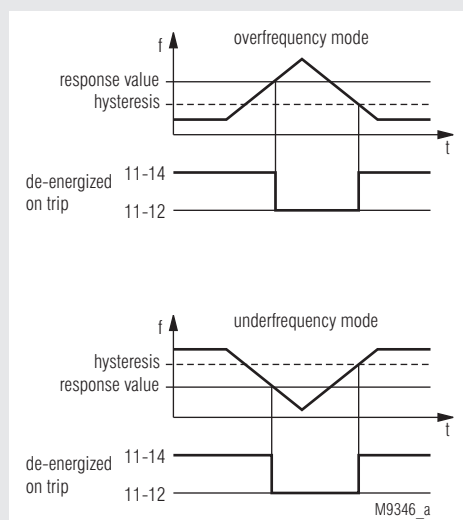


VARIMETER Frequency Relay IK 9143, SK 9143

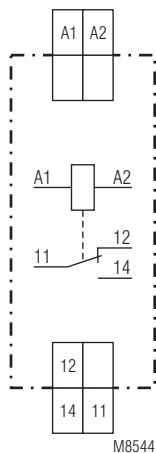


- According to IEC/EN 60 255, DIN VDE 0435-303
- Monitoring of overfrequency and underfrequency (selectable) in A.C. power systems
- Without auxiliary voltage
- Selection of frequency range for 50 or 60 Hz systems
- Adjustable response value
- Adjustable hysteresis
- De-energized on trip (output relay not activated in case of error)
- LED indicators for measuring voltage and contact position
- 1 changeover contact
- As option energized on trip (output relay activated in case of error)
- **Devices available in 2 enclosure versions:**
 - IK 9143:** depth 58 mm, with terminals at the bottom for installation systems and industrial distribution systems according to DIN 43 880
 - SK 9143:** depth 98 mm, with terminals at the top for cabinets with mounting plate and cable duct
- 17.5 mm width

Function Diagram



Circuit Diagram



IK 9143, SK 9143

Approvals and Marking



Application

Frequency monitoring function in in-plant generation units and local power supply systems

Function

The system to be monitored is connected to the terminals A1-A2. Its internal supply voltage is also taken from these terminals. The input frequency is compared to response value to be set at the unit.

In overfrequency mode, the output relay switches into alarm position when the preset response value is exceeded. When the system frequency once more falls below the response value minus the preset hysteresis, the output relay will switch back into normal position.

In underfrequency mode, the output relay switches into alarm position when the actual value falls below the preset response value. When the system frequency once more exceeds the response value plus hysteresis, the output relay will switch back into normal position.

If de-energized on trip is selected, the output relay is energized (11-14 closed) in normal status. If energized on trip is selected, the output relay is energized (11-14 closed) in alarm status.

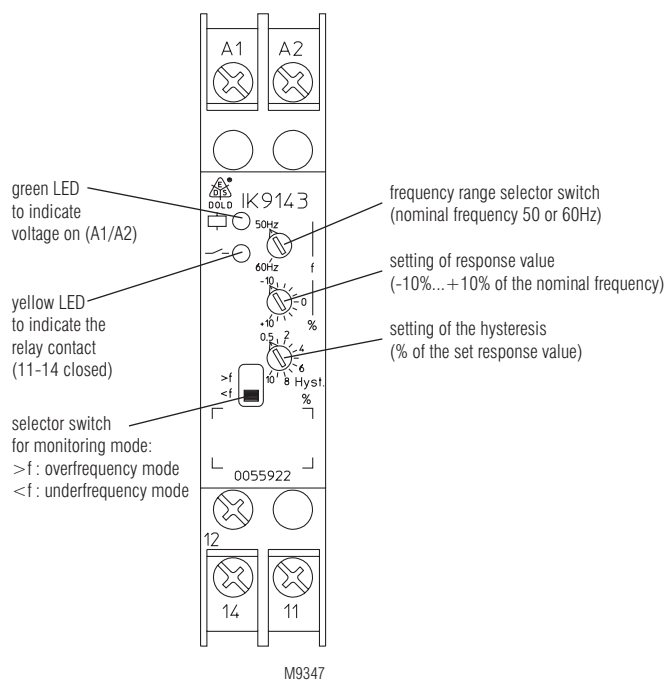
Indicators

- | | |
|--------------|--|
| Green LED: | On, when measuring voltage is connected to A1 - A2 |
| Yellow LEDs: | On, when the output relay is energized (contacts 11-14 closed) |

Notes

Monitoring mode underfrequency or overfrequency
The mode can be selected by means of the slide switch at the front of the unit. The operating mode de-energized or energized on trip as well as the response value do not change.

Setting



Technical Data

Input

Nominal voltage U_n : AC 110, 230, 400 V

Voltage range: 0.8 ... 1.1 U_n

Nominal consumption:

AC 110 V: approx. 3 VA

AC 230 V: approx. 5 VA

AC 400 V: approx. 8 VA

Frequency range: 50/60 Hz, selectable with rotary switch

Response value

infinitely adjustable: -10 ... +10% of the selected frequency range

Hysteresis

infinitely adjustable: 0.5 ... 10% of the set response value

Output

Contacts: 1 changeover contact

Thermal current I_n : 4 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

to DC 13

NO contact: 1 A / DC 24 V IEC/EN 60 947-5-1

NC contact: 1 A / DC 24 V IEC/EN 60 947-5-1

Contact life:

to AC 15 with 1 A, AC 230V: > 1.5 x 10⁵ operating cycles

IEC/EN 60 947-5-1

Short circuit strength

max. fuse rating: 4 A gL IEC/EN 60 947-5-1

Mechanical life: ≥ 30 x 10⁶ operating cycles

General Data

Nominal operation:

Continuous

Temperature range:

-20 ... +60°C

Clearance and creepage distances

Rated impulse voltage /

Pollution degree:

4 kV / 2

IEC 60 664-1

Technical Data

EMC

Electrostatic discharge (ESD): 8 kV (air discharge) IEC/EN 61 000-4-2

Fast transients: 2 kV IEC/EN 61 000-4-4

Surge between

supply lines: 1 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:

Thermoplast with V0 behavior according to UL Subject 94

Amplitude 0.35 mm

Frequency 10 ... 55 Hz, IEC/EN 60 068-2-6

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

EN 50 005

Terminal designation:

Wire connection:

2 x 2.5 mm² massive, or

2 x 1.5 mm² stranded ferruled

DIN 46 228-1/-2/-3

Screw terminals with self-lifting

clamping piece IEC/EN 60 999-1

DIN rail IEC/EN 60 715

Mounting:

Net weight

IK 9143:

approx. 65 g

SK 9143:

approx. 83 g

Dimensions

Width x height x depth

IK 9143:

17.5 x 90 x 58 mm

SK 9143:

17.5 x 90 x 98 mm

Standard Type

IK 9143.11 50 / 60 Hz ± 10 % AC 230 V Hyst. 0.5 ... 10 %

Article number:

0055922

• De-energized on trip

• Selection of overvoltage or undervoltage

• Selectable frequency range: 50 or 60 Hz

• Response value: ± 10 % adjustable

• Nominal voltage U_n : AC 230 V

• Hysteresis: 0.5 ... ± 10 % adjustable

• Width: 17.5 mm

Variants:

IK 9143.11/001,

SK 9143.11/001: energized on trip

Ordering example for variants

IK 9143 .11 / _ _ 50 / 60 Hz ± 10 % AC 230 V 0.5 ... 10 %

Legend:

- Hysteresis
- Nominal voltage
- Response value
- Frequency range
- Variant, if required
- Contacts
- Type