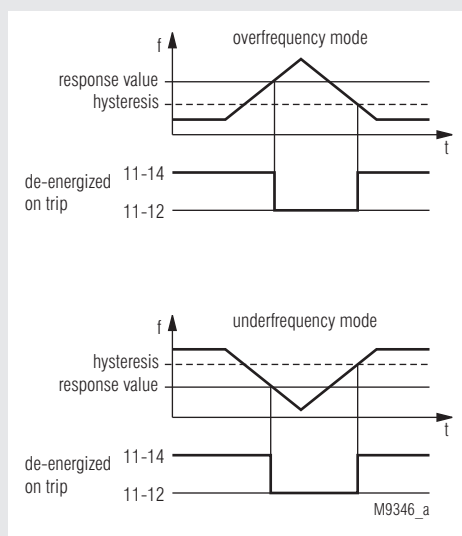


## VARIMETER Frequency Relay IK 9143, SK 9143

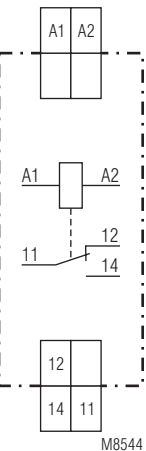


- According to IEC/EN 60 255, DIN VDE 0435-303
- Monitoring of overfrequency and underfrequency (selectable) in A.C. power systems
- Without auxiliary voltage
- Selection of frequency range for 50 or 60 Hz systems
- Adjustable response value
- Adjustable hysteresis
- De-energized on trip (output relay 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.

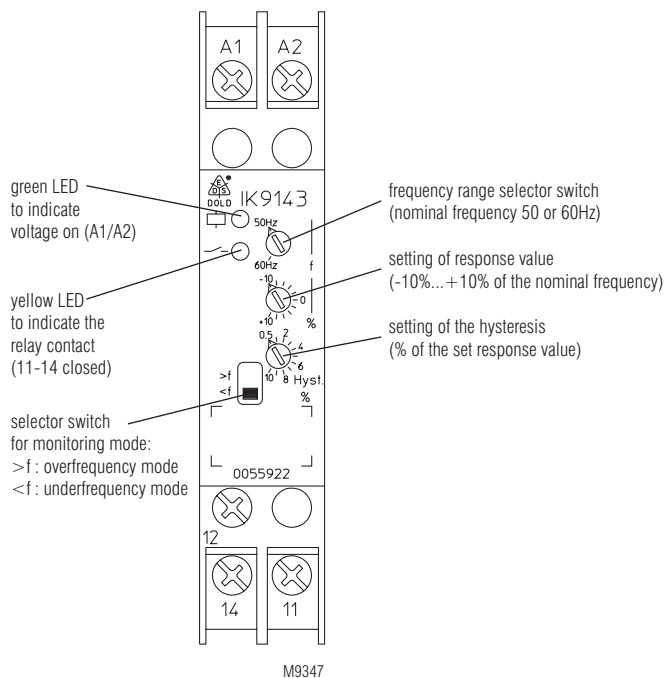
### Indicators

- |              |  |
|--------------|--|
| 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  $I_t$ :** 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 10<sup>5</sup> 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 10<sup>6</sup> operating cycles

### General Data

**Nominal operation:** Continuous  
**Temperature range:** -20 ... +60°C

**Clearance and creepage distances**

Rated impuls 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

### Climate resistance:

### Terminal designation:

### Wire connection:

2 x 2.5 mm<sup>2</sup> massive, or

2 x 1.5 mm<sup>2</sup> 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

### 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 %

