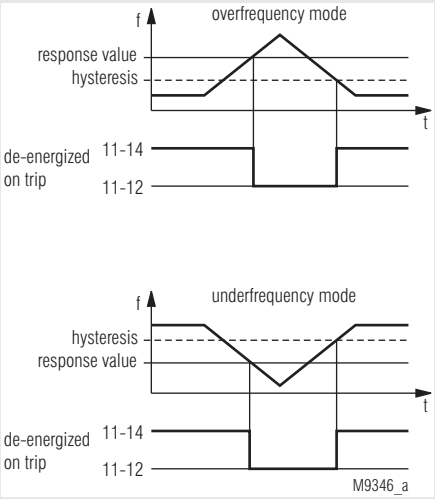
VARIMETER
Frequency Relay
IK 9143, SK 9143

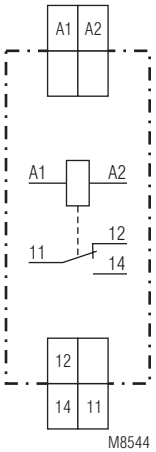
0265346



Function Diagram



Circuit Diagrams



Connection Terminals

Terminal designation	Signal description
A1, A2	Supply voltage / measuring voltage
11, 12, 14	Changeover contact

Your Advantages
- Easy setting
- Without auxiliary voltage

Features
- According to IEC/EN 60 255-1
- Monitoring of overfrequency and underfrequency (selectable) in A.C. power systems
- 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

Approvals and Markings

CE

Applications

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

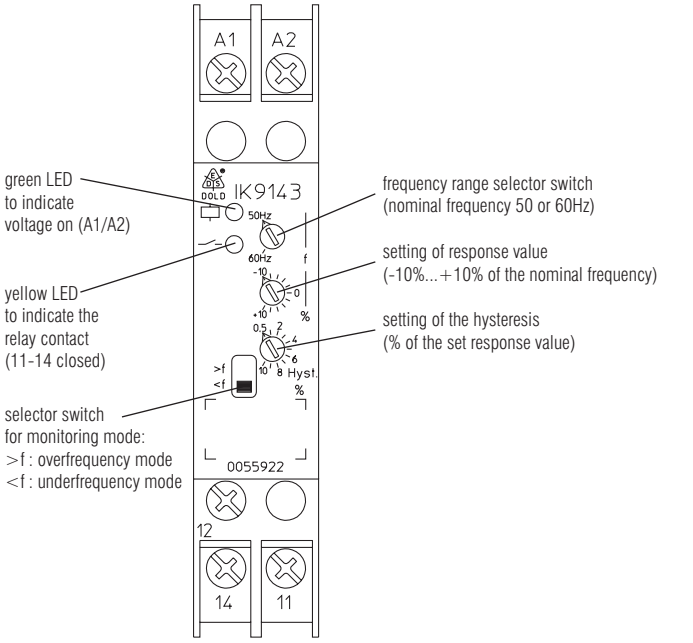
Green LED:	On, when measuring voltage is connected to A1 - A2
Yellow LEDs:	On, when the output relay is energized (contacts 11-14 closed)

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.

All data in this list are in correspondence with the technical equipment used at the time of this version. We reserve the right to implement technical improvements and changes at any time.

Setting



M9347

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_{th}:	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 10^5 switch. cycl.	IEC/EN 60 947-5-1
Short circuit strenght		
max. fuse rating:	4 A gG / gL	IEC/EN 60 947-5-1
Mechanical life:	≥ 30 x 10^6 switching cycles	

General Data

Nominal operation:	Continous	
Temperature range		
Operation:	- 20 ... + 60 °C	
Strorage:	- 20 ... + 60 °C	
Altitude:	< 2.000 m	
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
HF irradiation		
80 MHz ... 1 GHz:	12 V/m	IEC/EN 61000-4-3
1 GHz ... 2.7 GHz:	10 V/m	IEC/EN 61000-4-3
Fast transients:	4 kV	IEC/EN 61 000-4-4
Surge voltage between		
wires for power supply:	1 kV	IEC/EN 61 000-4-5
HF-wire guided:	10 V	IEC/EN 61 000-4-6
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	
Vibration resistance:	Amplitude 0.35 mm Frequency 10 ... 55 Hz,	IEC/EN 60 068-2-6
Climate resistance:	20 / 060 / 04	IEC/EN 60 068-1
Terminal designation:	EN 50 005	
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	
Fixing torque:	0.8 Nm	
Mounting:	DIN rail mounting (IEC/EN60715) or screw mounting M4, 90 mm hole pattern, with additional clip available as accessory	

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

