

VARIMETER Voltage Monitor MK 9046N

Translation
of the original instructions



Your Advantages

- Protects plants and electronic systems by detecting reliably the increased residual ripple
- Optimised adaption to the application by simple setting of the response value
- No separately auxiliary voltage necessary

Features

- According to IEC/EN 60255-1
- For monitoring direct current voltage supply systems to detect residual ripple
- For DC 48 V
- With adjustable residual ripple
- LED indication for operation and contact position
- Time delay 10 s
- 1 changeover contact
- Width: 22,5 mm

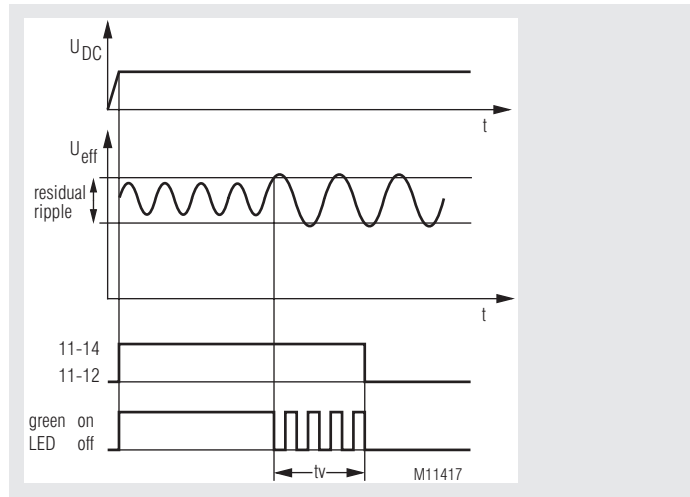
Product Description

The voltage monitor MK 9046N of the VARIMETER family monitors the residual ripple of a DC voltage system. When exceeding an adjustable limit value a green flashing LED indicates the failure. After a time delay of approx. 10 s the LED goes off and the output relay de-energises. This allows a reliable protection of plants and electronic systems against increased residual ripple in DC voltage systems.

Approvals and Markings



Function Diagram



Application

For monitoring the residual ripple of direct current voltage supply systems, e. g. in telecommunication applications.

Indication

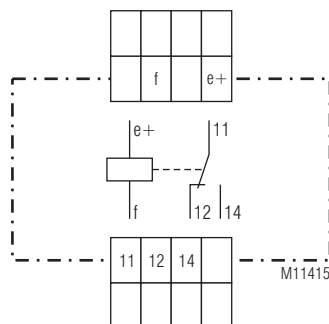
Green LED U_N : Permanently on: DC-measuring voltage is present
 Green LED Rel: Flashes: During time delay
 Permanently on: Outputrelais active

Setting

Response value for residual ripple U_{eff}

Rotary switch 1: Fine adjustment
 Rotary switch 2: 8 ranges adjustable:
 0 ... 50 mV; 50 ... 100 mV;
 100 ... 150 mV; 150 ... 200 mV;
 200 ... 250 mV; 250 ... 300 mV;
 300 ... 350 mV; 350 ... 400 mV

Circuit Diagram



Connection Terminals

Terminal designation	Signal description
e+	Measuring voltage +
f	Measuring voltage -
11, 12, 14	Changeover contact

Example

Range selection (lower value) + fine adjustment

Response value for residual ripple: $250 \text{ mV} + 10 \text{ mV} = 260 \text{ mV (eff)}$

Fine adjustment (Upper rotary switch): 10 mV



Range selection (Lower rotary switch): 250 ... 300 mV



Technical Data

Measuring values residual ripple

Nominal measuring value: 400 mV eff.

Measuring input / auxiliary voltage e+ / f

Nominal voltage U_N : DC 48 V (other on request)

Voltage range: 0,85 ... 1,1 U_N

Residual ripple: Adjustable
0 ... 400 mV eff.

Frequency range: 200 ... 600 Hz

Input current: 17 mA

Setting range for residual ripple on absolute scale:

Fine adjustment
8 ranges 0 ... 400 mV eff.

Time delay t_v : Approx. 10 s

Output Rel. 11 / 12 / 14

Contacts: 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

To DC 13: 1 A / DC 24 V IEC/EN 60947-5-1

Electrical life:

To AC 15 at 3 A, AC 230 V: 2 x 10⁵ switch. cycl. IEC/EN 60947-5-1

Short-circuit strength

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

Mechanical life: 30 x 10⁶ switching cycles

General Data

Operating mode: Continuous operation

Temperature range

Operation: - 20... + 60 °C

Storage: - 40... + 80 °C

Altitude: < 2000 m

Clearance and creepage distances

Rated impuls voltage / pollution degree: 4 kV / 2 IEC 60664-1

EMC

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

HF-irradiation

80 MHz ... 6 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: 1 kV IEC/EN 61000-4-5

Between wire and ground: 2 kV IEC/EN 61000-4-5

HF wire guided: 20 V IEC/EN 61000-4-6

Interference suppression

Radio irradiation: Limit value class B IEC/EN 61000-6-3

Wire guided: Limit value class A*)

*) The device is designed for the usage under industrial conditions (Class A, EN 55011). When connected to a low voltage public system (Class B, EN 55011) radio interference can be generated. To avoid this, appropriate measures have to be taken.

Degree of protection

Housing: IP 40 IEC/EN 60529

Terminals: IP 20 IEC/EN 60529

Housing: Thermoplastic with VO behaviour according to UL Subject 94

Vibration resistance: Amplitude 0.35 mm

frequency 10 ... 55 Hz, IEC/EN 60068-2-6

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

Terminal designation: EN 50005

Technical Data

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

Screw terminal

(fixed):

1 x 4 mm² solid or
2 x 2.5 mm² solid or
1 x 2.5 mm² stranded ferruled (isolated) or
2 x 1.5 mm² stranded ferruled (isolated)

Insulation of wires or

sleeve length: 8 mm

Wire fixing: Plus-minus terminal screws M3,5
box terminals with wire protection

Fixing torque: 0.8 Nm

Mounting: DIN rail IEC/EN 60715

Weight: 67 g

Dimensions

Width x height x depth: 22.5 x 90 x 97 mm

Standard Type

MK 9046N.11 DC 48 V 400 mV 10 s

Article number: 0066911

• Nominal voltage U_N : DC 48 V

• Max. residual ripple: 400 mV

• On delay t_v : 10 s

• Width: 22.5 mm