

## VARIMETER Voltage Monitor MK 9046N



### 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 60 255-1
- 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

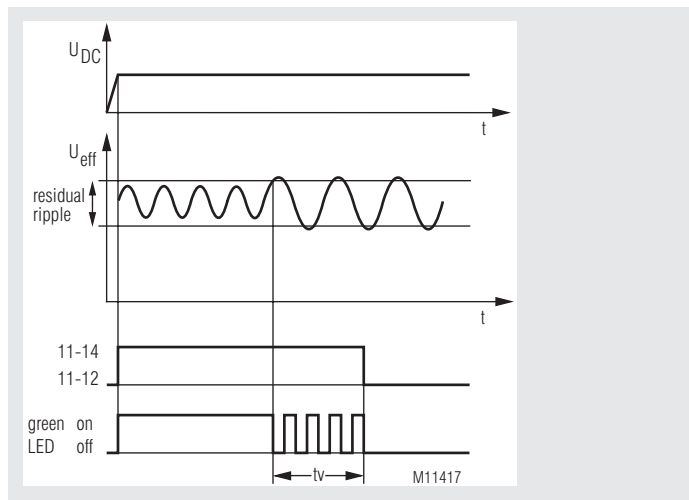
### Product Description

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

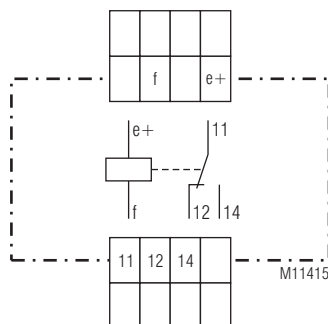
green LED  $U_N$ : permanently on: DC-measuring voltage is present  
 green LED Rel: flashes: during time delay  
 permanently on: Outputrelais active

### 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 designation
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 60 947-5-1

NC contact: 1 A / AC 230 V IEC/EN 60 947-5-1

to DC 13: 1 A / DC 24 V IEC/EN 60 947-5-1

Electrical life:

to AC 15 at 3 A, AC 230 V: 2 x 10<sup>5</sup> switch. cycl. IEC/EN 60 947-5-1

Short-circuit strength

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

Mechanical life: 30 x 10<sup>6</sup> switching cycles

### General Data

Operating mode: Continuous operation

Temperature range

Operation: - 20... + 60 °C

Storage: - 40... + 80 °C

Altitude: < 2.000 m

Clearance and creepage distances

rated impuls voltage /

pollution degree: 4 kV / 2 IEC 60 664-1

EMC

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

HF-irradiation

80 MHz ... 6 GHz 10 V / m IEC/EN 61 000-4-3

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

Surge voltages

between

wires for power supply: 1 kV IEC/EN 61 000-4-5

between wire and ground: 2 kV IEC/EN 61 000-4-5

HF wire guided: 20 V IEC/EN 61 000-4-6

Interference suppression

Radio irradiation: Limit value class B IEC/EN 61 000-6-3

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 60 529

Terminals: IP 20 IEC/EN 60 529

Housing: Thermoplastic with VO behaviour 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

## Technical Data

Wire connection DIN 46 228-1/-2/-3/-4

Screw terminal

(fixed):

1 x 4 mm<sup>2</sup> solid or  
2 x 2.5 mm<sup>2</sup> solid or  
1 x 2.5 mm<sup>2</sup> stranded ferruled (isolated) or  
2 x 1.5 mm<sup>2</sup> 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 60 715

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