VARIMETER
Voltage Monitor
MK 9046N

Translation of the original instructions

DOLD

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

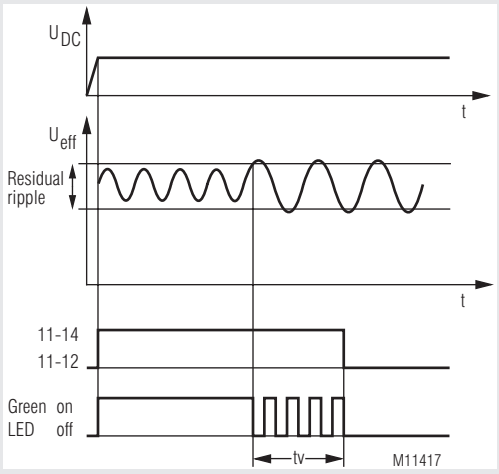
Product Description

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

CE

Function Diagram



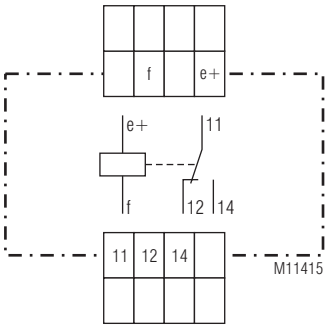
Application

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

Circuit Diagram



Setting

Response value for residual ripple Ueff

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

Example

Range selection (lower value) + fine adjustment

Response value for residual ripple: **250 mV + 10 mV = 260 mV (eff)**

Fine adjustment (Upper rotary switch): 10 mV

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

Connection Terminals

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

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 10^5 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 10^6 switching cycles	

General Data

Operating mode:	Continuous operation	
Temperature range		
Operation:	- 20... + 60 °C	
Storage:	- 40... + 60 °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 mm^2 solid or 2 x 2.5 mm^2 solid or 1 x 2.5 mm^2 stranded ferruled (isolated) or 2 x 1.5 mm^2 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