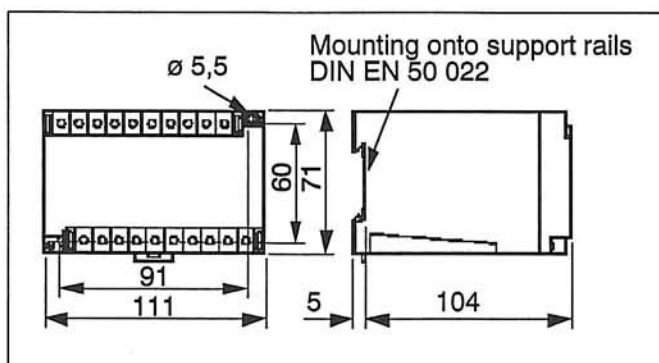


- ⇒ earth fault monitor for unearthed DC networks 220, 110, 60, 48 or 24 V
- ⇒ built-in test and reset button
- ⇒ two built-in measuring buttons to determine the instantaneous insulation resistance
- ⇒ built-in alarm LED
- ⇒ built-in voltmeter
- ⇒ steplessly adjustable response value 5 ... 25 kΩ or 20 ... 100 kΩ
- ⇒ output relay with one change over contact in N/C operation

Dimension diagram (dimensions in mm)



Product description

The UG-ISOMETERS UG207 and UG207V are used for the continuous earth fault monitoring of unearthed DC two-wire systems.

The supply voltage for the device has to be taken from the network to be monitored.

Pure as well as pulsating DC voltages obtained by a rectifier bridge can be monitored.

The devices are not suitable for systems with high voltage variations and systems with extremely low insulation resistances.

Model UG207V is equipped with a built-in voltmeter. UG207 has no built-in voltmeter but a possibility to connect external measuring buttons.

Function

The UG-ISOMETERS UG207 and UG207V use a bridge circuit for automatic fault indication. The voltage shift is measured when an earth fault of a mains conductor is detected and evaluated by an electronic circuitry. The output relay which is energized during normal operation, will deenergize and the built-in red alarm LED will illuminate and signal "earth fault".

For insulation fault calculation the following formula may be used:

$$R_p = R_i \frac{U - (U_p + U_n)}{U_n} \quad R_n = R_i \frac{U - (U_p + U_n)}{U_p}$$

R_i is the internal resistance of the voltage meter. The internal resistance is adjusted in decades. After pressing the corresponding measuring button, the built-in or external voltmeter indicates the values of U_p or U_n .

The formulas are printed on the front plate.

Please note

In order to check the proper connection of the device, it is recommended to carry out a functional test using a genuine earth fault, e.g. via a suitable resistance, before starting the operation.

Please check correct mains voltage !

For reasons of safety, the terminal E of the reference earth is provided double and has to be connected separately to the conductor PE with one lead each. Only one earth fault monitor may be used in each interconnected system.

When insulation and voltage tests are to be carried out, the device must be isolated from the system for the test period.

Each device is supplied with terminal covers for protection against electric shock. If these covers are not used, other suitable protection measures must be observed in accordance with the accident prevention regulations.

Technical data UG207, UG207V**Insulation**

Nominal insulation voltage	300 V
Insulation class acc. to DIN VDE 0110	C
Dielectric test	2000 V
Operation class	permanent operation

Network being monitored

Rated mains voltage U_N	DC 220, 110, 60, 48, 24 V
Operating range	0.9 ... 1.4 U_N

Response values

Response value R_{AN1}	
U_N 60, 48 or 24 V	5 ... 25 k Ω
U_N 220 and 110 V	20 ... 100 k Ω
Response delay	<1 sec
Max. admissible stray DC voltage	1.4 x U_N
Max. mains leakage capacitance C_E	1 μ F

Measuring circuit

Values at U_N DC	220	110	60	48	24 V
Measuring current I_M	1.7	1.2	1.8	1.4	0.9 mA
Internal DC resistance R_i	131	92	34	34	27 k Ω
Max. self consumption	6.8	4.5	2.4	3.4	2.3 VA
Max. admissible stray DC voltage					1.4 x U_N

Contact circuit

Switching components	1 change-over contact
Switching capacity max.	1100 VA
Rated contact voltage	220 V
Permanent current	5 A
Break capacity	
AC 220 V and cos ϕ = 0.4	3 A
DC 110 V and L/R = 0	0.38 A
Operating principle	N/C operation

Environmental conditions

Ambient temperature, during operation	-5°C ... +40°C/268 K ... 313 K
Storage temperature range	-20°C ... +60°C/253 K ... 333 K
Climatic class acc. to DIN 40040	

General data

Mounting	UG207 as desired UG207V according to meter
Front plate width	-
Type of connection	terminals with self-lifting clamp-washers, M 3.5;
Wire cross section	
single wire	2 x (1 ... 1.5 mm ²)
fine braid	2 x (0.75 ... 1.5 mm ²)
Rapid mounting	
Screw mounting	
Protection class acc. to DIN 40050	
Internal components	IP 50
Terminals/with terminal covers	IP 10/ IP 20
Type of casing	X 200
Weight approx.	400 g
Wiring diagram	GA 33

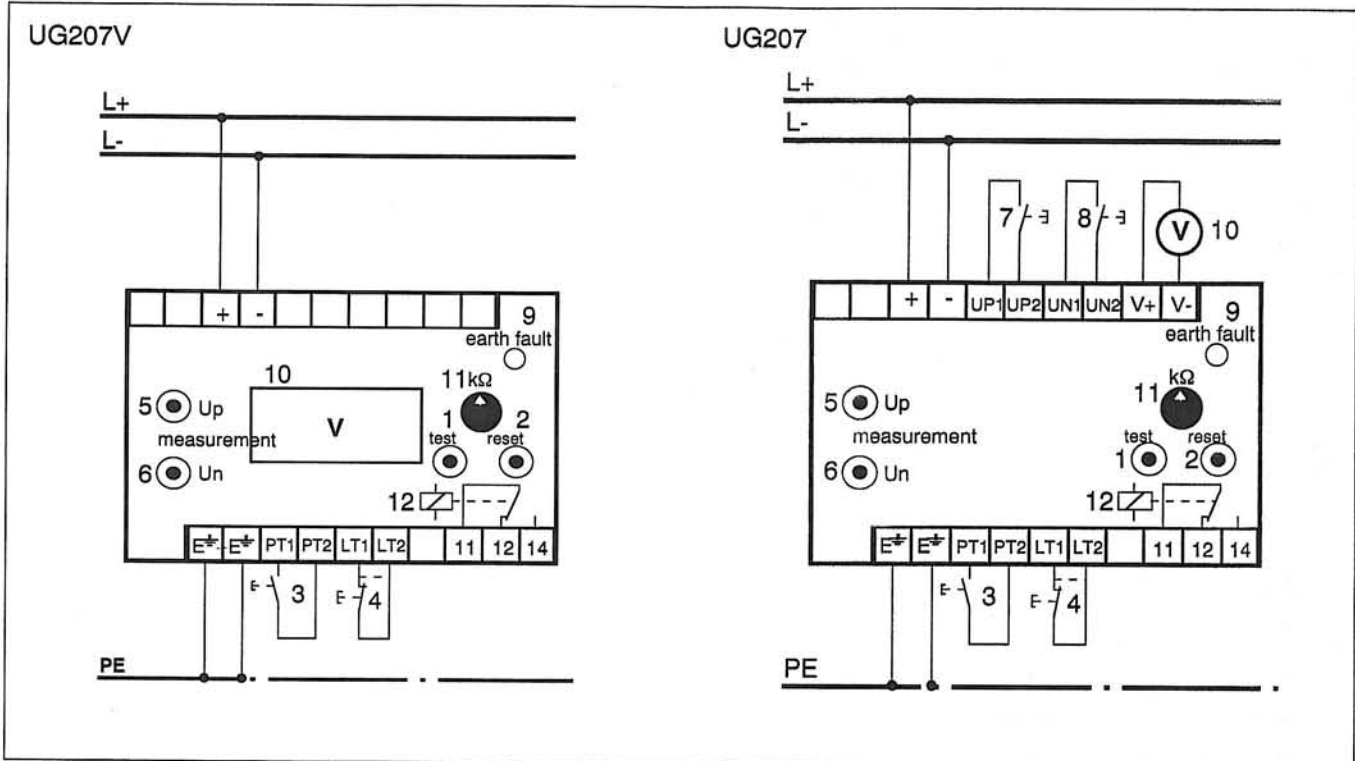
Ordering details

Type	Rated mains voltage U_N	Art. No.
UG207	DC 220 V	917 150
	DC 110 V	917 200
	DC 60 V	917 250
	DC 48 V	917 300
	DC 24 V	917 350
UG207V	DC 220 V	917 151
	DC 110 V	917 201
	DC 60 V	917 251
	DC 48 V	917 301
	DC 24 V	917 351

Ordering details for external voltmeters

Type	Size (mm)	Scale (V)	Art. No.
72V40-875054	72 x 72	40	986 733
72V60-875056		60	986 735
72V100-875058		100	986 737
72V150-875060		150	986 739
72V300-875062		300	986 741
96V40-875055	96 x 96	40	986 734
96V60-875057		60	986 736
96V100-875059		100	986 738
96V150-875061		150	986 740
96V300-875063		300	986 742

Wiring diagram



Legend to wiring diagrams

- 1 built-in test button
- 2 built-in reset button
- 3 external test button, if required
- 4 external reset, if required. If the fault indication is not to be stored, LT1-LT2 remain unused.
- 5 built-in button to measure the voltage Up
- 6 built-in button to measure the voltage Un
- 7 external button to measure the voltage Up (only part of UG207)
- 8 external button to measure the voltage Un (only part of UG207)
- 9 built-in alarm LED, indicating <earth fault>
- 10 voltmeter, only part of UG207V, can be connected separately to UG207. The voltmeter is normally connected to the mains voltage UN. When pressing the button 5 or 7, the voltage Up between L+ and earth is indicated. When pressing the button 6 or 8, the voltage between L1 and earth is indicated. According to the formula printed on the front plate, the insulation resistances Rp (L+ to earth) and Rn (L- to earth) can be exactly calculated by means of the three voltages U, Up and Un.
- 11 potentiometer for response value adjustment
- 12 output relay with one change over contact in N/C operation

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