Technical data A-ISOMETER® and UG-ISOMETER® for IT DC systems ≤ 230 V

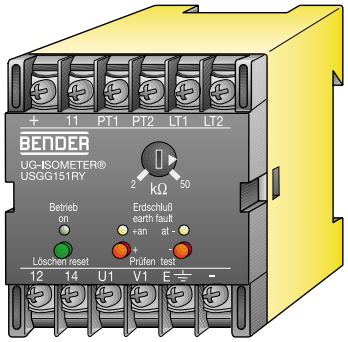
Device type	IR145Y-..	UG140P	USGG(USGH)151RY
Insulation coordination acc. to IEC 60664-1:			
Rated insulation voltage	AC 250 V	AC 250 V	AC 250 V
Rated impulse withstand voltage/contamination level	4 kV/3	4 kV/3	4 kV/3
Voltage range			
Nominal voltage range U_n	DC 0...290V/AC 15...400Hz, 0...300V *1)	DC 12 V to 220 V *1)	DC 19.2 ... 33.6 V *1)
	-	0.8 ... 1.3 (220V: 0.8...1.1)xUn	
Supply voltage U_S	AC/DC up to 230 V *1)	U_S = Un	DC 24 V / AC 230 V *1)
Operating range U_S	0.8 ... 1.15 x U_S	-	0.8 ... 1.1 x U_S
Max. power consumption	3 VA	2.7 VA	4 VA
Response values			
Response value R_{an1}	1 kΩ to 200 kΩ *1)	10 / 25 / 50 kΩ	2 kΩ to 50 kΩ
Response value R_{an2}	-	-	-
Response time at R_F = 0.5 x R_{an} and C_e = 1 µF	3 s to 5 s	-	
Max. admissible system leakage capacitance C_e	20 µF	1 µF	20 µF
Measuring circuit			
Measuring voltage U_m	13 V	-	-
Measuring current I_m	max. 0.11 mA / 0.47 mA	max. 0.3 mA / 2.2 mA	max. 0.6 mA
Internal DC resistance R_i	28 kΩ /120 kΩ	40 kΩ / 100 kΩ	28 kΩ
Impedance Zi at 50 Hz	22 kΩ /94 kΩ	-	-
Max. admissible extraneous DC voltage	138 V (IR140Y-3) resp. 300 V (IR140Y-4)	-	-
Outputs			
Current output at measuring instrument SKMP *4)	-	-	-
Max. load	-	-	-
Contact circuit			
Switching components	2 change-over contacts	2 change-over contacts	2 change-over contacts
Contact class acc. to DIN IEC 60255 part 0-20	IIB	IIB	IIB
Rated contact voltage	AC 250 V / DC 300 V	AC 250 V / DC 300 V	AC 250 V / DC 300 V
Admissible number of operations	12000 cycles	12000 cycles	12000 cycles
Making capacity	UC 5 A	UC 5 A	UC 5 A
Breaking capacity			
AC 230 V and cos phi = 0.4	2 A	2 A	2 A
DC 220 V and L/R = 0.04 s	0.2 A	0.2 A	0.2 A
Tests of the Electromagnetic Compatibility (EMC)			
acc. to EC directives, test data „Annex“	Yes	Yes	Yes
General data			
Ambient temperature, during operation	-10°C to +55°C	-10°C to +50°C	-10°C to +60°C
Storage temperature range	-40°C to +70°C	-20°C to +70°C	-20°C to +60°C
Climatic class acc. to IEC 60721			
(except condensation and formation of ice)	3K5	3K5	3K5
Operating mode	continuous operation	continuous operation	continuous operation
Mounting	any position	any position	any position
Connection	modular terminals	modular terminals	modular terminals
Cross sectional area of connecting cable, single wire	0.2...4 mm²	0.2...4 mm²	2x(1...1.5 mm²)
Cross sectional area of connecting cable, flexible	0.2...2.5 mm²	0.2...2.5 mm²	2x(0.75...1.5 mm²)
Protection class acc. to DIN EN 60529			
Built-in components	IP 30	IP 30	IP 30
Terminals / with terminal covers	IP 20	IP 20	IP 20
Type of enclosure / dimension diagram	XM 45	X140	X150
Screw fixing	with mounting plate	with mounting plate	-
DIN rail mounting acc. to	DIN EN 50022	DIN EN 50022	DIN EN 50022
Flammability class	UL94V-0	UL94V-0	UL94V-0
Data sheet No.	103001	102001	102002
Weight max.	350 g	200 g	300 g

*1) see device description “ordering details” *2) see device description “response values“ and„measuring circuit“

*4) SKMP = scale centre point

UG-ISOMETER® USGG151RY and USGH151RY

Earth fault relay for IT DC systems



Application in PLC systems

- DC control systems with PLC systems
- Control voltage systems with higher system leakage capacitances

Ordering details

Type	Nominal voltage U_n	Supply voltage U_S	Art.No.
USGG151RY	DC19.2-33.6V	DC 24V	B 916 356 [2]
USGH151RY	DC19.2-33.6V	AC 230V	B 916 359 [2]

[2] for use in the household as well as industrial sector

Product description

The UG-ISOMETER USGG151RY and USGH151RY are used for continuous insulation monitoring with indication of the faulty pole in unearthed DC systems.

The devices are particularly designed for monitoring DC systems containing PLC systems. The special characteristics of these systems, such as high system leakage capacitances (up to 20 µF) and relatively low response values, have been considered.

Device characteristics

- Suitable for systems with leakage capacitances up to 20 µF.
- Two built-in test buttons and one reset button.
- Two built-in alarm LEDs for fault localization.
- Built-in Power On LED.
- Adjustable response value 2...50 kΩ.
- N/C operation.

Measuring principle

The device uses a bridge circuit for automatic fault indication.

The shift voltage measured when there is an insulation fault is evaluated using measurement technology.

Because of the passive measuring principle, only unbalanced insulation faults can be detected. Equally large insulation faults from the positive and negative lines to earth are not detected.

The Annex contains a detailed description of the measuring principle.

Standards

UG-ISOMETER are not insulation monitoring devices as defined in IEC 61557-8.

When installing the device, the safety instructions enclosed with the equipment must be observed !

Certifications:

TÜV mining industry

Wiring diagram