

# ISOMETER® IR125Y-4

Insulation monitoring device for AC and DC systems (IT systems)





ISOMETER® IR125Y-4

### Device features

- Insulation monitoring for AC and DC systems (IT systems)
- Response values, adjustable 10...200 kΩ
- LEDs: Power On LED, alarm LED to signal insulation faults
- Internal combined test and reset button
- Connection external reset button
- Alarm relay with one potential-free changeover contact
- N/C operation
- Fault memory behaviour, selectable

### Approvals



### Product description

The ISOMETER®s of the IR125Y-4 series monitor the insulation resistance of unearthed AC and DC control circuits (IT systems). The supply voltage is taken from the system to be monitored.

In contrast to insulation monitoring devices which evaluate the offset voltage for insulation fault detection this series uses the active AMP measuring principle. This creates the possibility to detect and indicate both symmetrical and asymmetrical insulation faults.

### Application

- AC and DC control and auxiliary circuits in accordance with DIN EN 60204-1, "Electrical equipment of machines", IEC 60204-1, EN 60204-1
- DC auxiliary circuits in accordance with DIN VDE 0100-725
- Simple battery systems

### Function

When the insulation resistance between the system conductors and earth falls below the set response value, the alarm relay switches and the alarm LED lights up. The fault message can be stored. The fault memory can be reset by pressing the reset button. The device function can be tested using the test button.

### Measurement method



The IR125Y series uses a variant of the AMP measurement method.

### Standards

The ISOMETER® of the IR125Y-4 series complies with the requirements of the standards:

- DIN EN 61557-8 (VDE 0413- 8)
- EN 61557-8
- IEC 61557-8

### Ordering information

Nominal system voltage $U_n$		Type	Art. No.
AC	DC		
19.2...265 V <sup>1)</sup>	19.2...308 V <sup>1)</sup>	IR125Y-4	B91023005

<sup>1)</sup> Absolute values

### Response values/measuring circuits

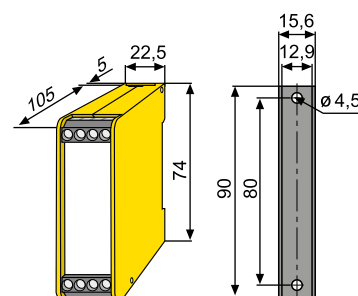
Type	Response value $R_{an}$	Response time $t_{an}$	System leakage capacitance $C_e$
IR125Y-4...	10...200 kΩ	≤ 6 s	≤ 10 μF
Type	Measuring voltage $U_m$	Measuring current $I_m$	Internal DC resistance $R_i$
IR125Y-4...	13 V	≤ 0.12 mA	112 kΩ

### Accessories

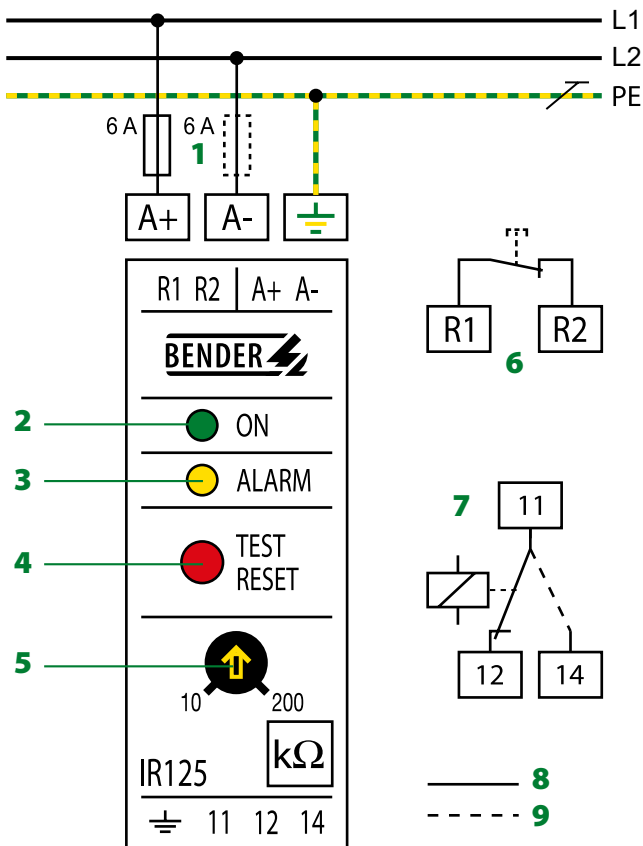
Description	Art. No.
Mounting plate	B990056

### Dimension diagram XM22

Dimensions in mm



Wiring diagram – Operating elements



- 1 - Supply voltage  $U_S$  (see ordering information) via fuse
- 2 - Power On LED "ON"
- 3 - "ALARM" LED
- 4 - Combined test and reset button "TEST/RESET", short-time pressing (< 1 s) = RESET; long-time pressing (> 1 s) = TEST
- 5 - Adjustable response value 10...200 kΩ
- 6 - "R1/R2" bridged:  
If open (nothing connected): Fault memory inactive  
If bridged (wire jumper): fault memory active, reset by pressing the button on the device.  
When bridged via the N/C contact: fault memory active, reset by pressing the button on the device or via N/C contact
- 7 - Alarm relay in N/C operation
- 8 - Alarm
- 9 - No alarm

Technical data

<b>Insulation coordination acc. to IEC 60664-1</b>	
Rated voltage	AC 250 V
Rated impulse voltage/pollution degree	4 kV/3
<b>Voltage ranges</b>	
Nominal system voltage $U_n$	DC 19.2... 308 V, protected against polarity reversal AC 19.2... 265 V
Nominal frequency $f_n$	DC 42...460 Hz
Supply voltage	= $U_n$
Max. power consumption	≤ 3 VA
<b>Response values</b>	
Response value contact	10... 200 kΩ
Response time $t_{an}$ at $R_f = 0.5 \times R_{an}$ and $C_e = 1 \mu F$	≤ 6 s
Relative uncertainty (acc. to IEC 61557-8)	+30/- 0 %, at least ±1.5 kΩ
<b>Measuring circuit</b>	
Measuring voltage $U_m$	13 V
Measuring current $I_m$ max. ( $R_f = 0 \Omega$ )	≤ 120 $\mu A$
Internal DC resistance $R_i$	112 kΩ
Permissible system leakage capacitance	≤ 10 $\mu F$
<b>Switching elements</b>	
Number of switching elements	1 changeover contact
Operating principle	N/C operation
Electrical endurance, number of cycles	12000
Contact class	IIB (IEC 60255-0-20)
Rated contact voltage	AC 250 V/DC 300 V
Making capacity	AC/DC 5 A
Breaking capacity	2 A, AC 230 V, $\cos \phi = 0.4$ 0.2 A, DC 220 V, L/R = 0.04 s
<b>Environment/EMC</b>	
EMC immunity	acc. to IEC 61326-2-4 <sup>1)</sup>
EMC emission	acc. to EC 61326-2-4 <sup>1)</sup>
Shock resistance IEC 60068-2-27 (device in operation)	15 g/11 ms
Bumping IEC 60068-2-29 (transport)	40 g/6 ms
Vibration resistance IEC 60068-2-6 (device in operation)	1 g/10...150 Hz
Vibration resistance IEC 60068-2-6 (transport)	2 g/10...150 Hz
Ambient temperature (during operation)	-10...+55 °C
Ambient temperature (during operation)	-40...+70 °C
Climatic class acc. to DIN IEC 60721-3-3	3K5
<b>Connection</b>	
Connection type	modular terminals
Connection properties rigid/flexible	0.2...4/0.2...2.5 mm <sup>2</sup>
Connection, flexible with ferrule, without/with plastic sleeve	0.25...2.5 mm <sup>2</sup>
Conductor sizes (AWG)	24...12
Tightening torque	0.5...0.6 Nm
<b>Other</b>	
Operating mode	continuous operation
Mounting	any position
Degree of protection, internal components (DIN EN 60529)	IP30
Degree of protection, terminals (DIN EN 60529)	IP20
Type of enclosure	XM22
Screw mounting	2 x M4 with mounting plate
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94 V-0
Documentation number	D00114
Weight approx.	130 g

<sup>1)</sup> This is a class A product. In a domestic environment, this product may cause radio interference. In this case, the user may be required to take corrective actions.



**Bender GmbH & Co. KG**

P.O. Box 1161 • 35301 Grünberg • Germany  
Londorfer Strasse 65 • 35305 Grünberg • Germany  
Tel.: +49 6401 807-0 • Fax: +49 6401 807-259  
E-Mail: [info@bender.de](mailto:info@bender.de) • [www.bender.de](http://www.bender.de)



**BENDER Group**