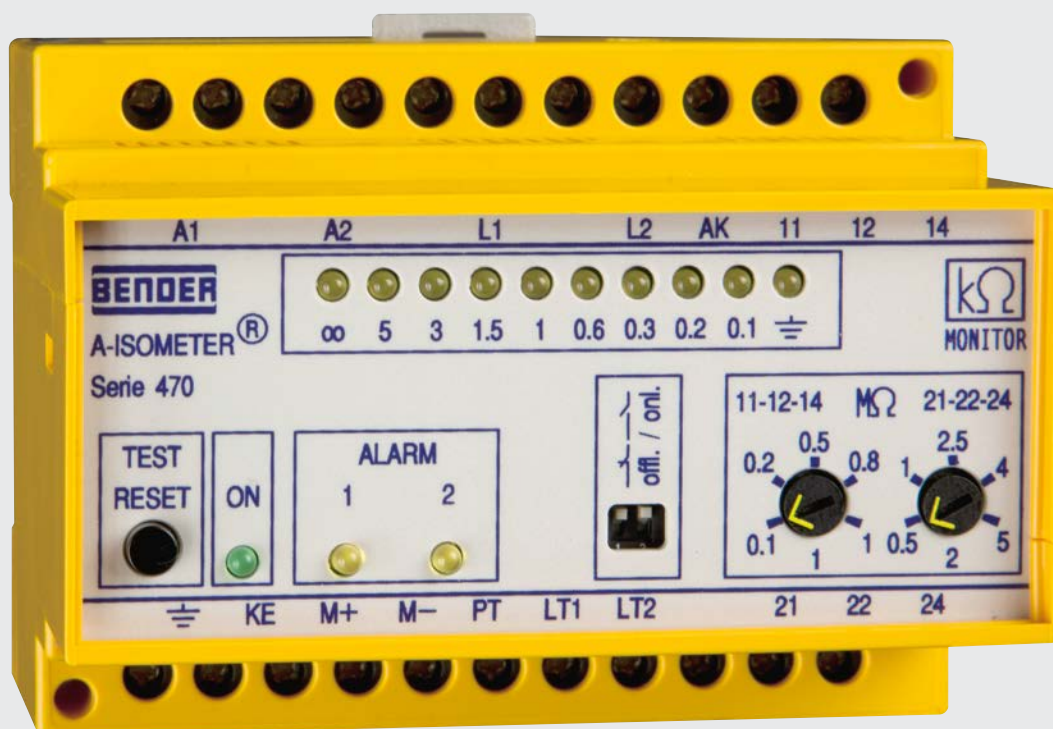


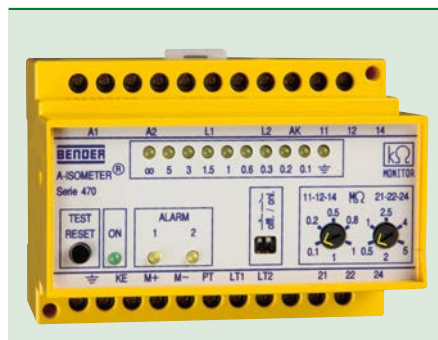
ISOMETER® IR470LY2-4061

Insulation monitoring device for unearthed AC and 3(N)AC systems (IT systems)



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Device features

- Insulation monitoring for AC, 3(N)AC systems 0...793 V (IT systems)
- Nominal voltage extendable via coupling device
- Two separately adjustable response values 10...100 kΩ/35...500 kΩ
- Connection monitoring system/earth
- LEDs: Power ON LED, LED to signal AC insulation faults
- LED bar graph indicator for the indication of the insulation resistance
- Connection for external kΩ indication
- Combined test and reset button
- Two separate alarm relays with one potential-free changeover contact each
- N/O or N/C operation, selectable
- Fault memory behaviour, selectable

Approvals



Product description

The ISOMETER®s of the IR470LY2 series monitor the insulation resistance of unearthed AC and three-phase systems (IT systems) AC/3(N)AC 0...793 V. Two separately adjustable response values and alarm relays allow to distinguish between prewarning and alarm. In combination with a coupling device the device series can be used for higher voltages.

The systems to be monitored should not contain DC components. Due to the measuring method, insulation faults downstream of directly connected rectifiers are indicated with increased response sensitivity. The set response values apply to the pure AC system only.

Application

AC, 3(N)AC main circuits (without directly connected rectifiers), such as motors, pumps, rolling mills without variable-speed drives, air cooling and air conditioning systems, lighting systems, heating systems, mobile generators, building services, domestic electrical installation practice, etc.

Function

When the insulation resistance between the system conductors and earth falls below the set response value, the alarm relays switch and the alarm LEDs light up. In case of interruption of the system and earth connection, the alarm LEDs flash. Two separately adjustable response values and alarm relays allow to distinguish between prewarning and alarm. The measured value is indicated by the LED bar graph indicator or an externally connectable measuring instrument. In this way any changes, for example when circuits are connected to the system, can be recognised easily. The fault messages 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



Superimposed DC voltage with inverter.

Standards

The ISOMETER® of the IR470LY2-4061 series complies with the requirements of the device standards:

- EN 61557-1
- EN 61557-8

Ordering information

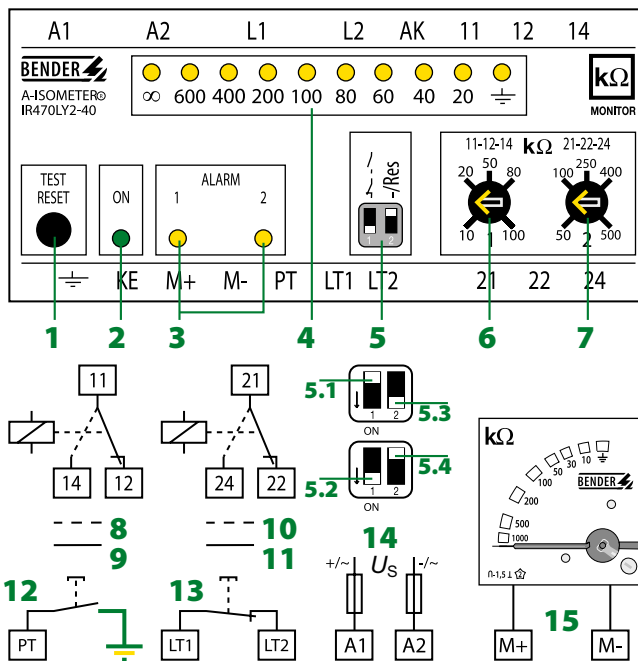
Supply voltage U_s	Type	Art. No.
AC		
230 V	IR470LY2-4061	B91048052

Other supply voltages on request.

Suitable system components

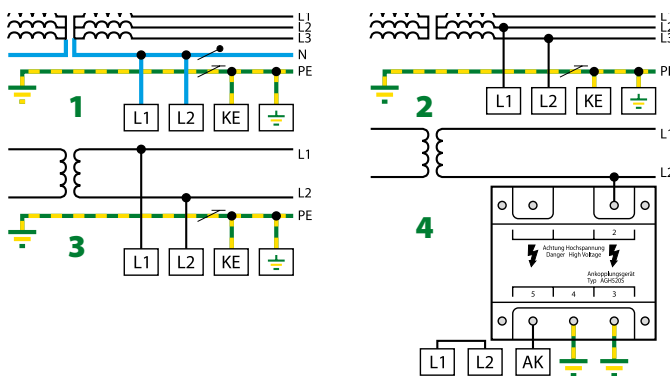
Type designation	Nominal system voltage U_n	Type	Art. No.
	AC		
External kΩ measuring instruments	–	7204-1421	B986763
	–	9604-1421	B986764
Coupling devices	0...1650 V	AGH204S-4	B914013
	0...7200 V	AGH520S	B913033

Wiring diagram – Operating elements



- 1 - Combined test and reset button "TEST/RESET", short-time pressing (< 1 s) = RESET, long-time pressing (> 2 s) = TEST
- 2 - LED Power "ON"
- 3 - Alarm LEDs "1 ALARM 2", yellow; light when the value falls below the set response value and flash in case of interruption of the connecting leads E/KE or L1/L2
- 4 - LED bar graph indicator
- 5 - Operating principle of the alarm relay Fault memory
 - 5.1 - N/O operation
 - 5.2 - N/C operation
 - 5.3 - without fault memory
 - 5.4 - with fault memory
- 6 - Potentiometer to set the response value R_{ALARM1}
- 7 - Potentiometer to set the response value R_{ALARM2}
- 8 - Alarm relay 1: N/O operation
- 9 - Alarm relay 1: N/C operation
- 10 - Alarm relay 2: N/O operation
- 11 - Alarm relay 2: N/C operation
- 12 - External test button "PT"
- 13 - External reset button "LT1, LT2" or bridge for fault memory
- 14 - U_S see ordering information, 6 A fuse recommended
- 15 - External kΩ indicating instrument

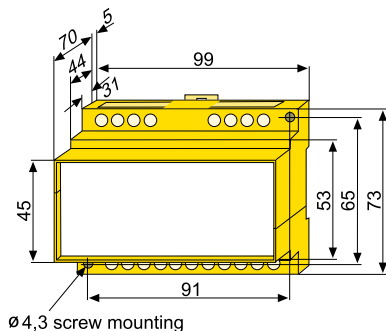
Wiring diagram – system connection



- 1 - 3NAC system
- 2 - 3AC system
- 3 - AC system
- 4 - AC system AC 0...7200 V with coupling device AGH520S

Dimension diagram X470

Dimensions in mm



Technical data

Insulation coordination acc. to IEC 60664-1

Rated insulation voltage	AC 630 V
Rated impulse voltage/pollution degree	6 kV/3

Voltage ranges

Nominal system voltage U_n	AC, 3(N)AC 0...793 V
Nominal frequency f_n	40...460 Hz
Supply voltage U_S	see ordering information
Operating range of U_S	0.85...1.15 x U_S
Frequency range U_S	50...460 Hz
Power consumption	≤ 3 VA

Response values

Response value R_{an1} (Alarm 1)	10...100 k Ω
Response value R_{an2} (Alarm 2)	35...500 k Ω
Response time t_{an} at $R_F = 0.5 \times R_{an}$ and $C_e = 1 \mu\text{F}$	≤ 1 s

Measuring circuit

Measuring voltage U_m	≤ 40 V
Measuring current I_m (at $R_F = 0 \Omega$)	≤ 200 μA
Internal DC resistance R_i	≥ 200 k Ω
Impedance Z_i at 50 Hz	≥ 180 k Ω
Permissible extraneous DC voltage U_{fg}	≤ 800 V
Permissible system leakage capacitance	≤ 20 μF

Outputs

Test/reset button	internal/external
Current output for measuring instrument (scale centre point = 120 k Ω)	0...400 μA
Load	≤ 25 k Ω

Switching elements

Number of switching elements	2 x 1 changeover contact
Operating principle	N/O operation/N/C operation
Factory setting	N/O operation
Electrical endurance, number of cycles	12000
Contact class	IIB in accordance with DIN 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
Contact rating at DC 24 V	≥ 2 mA (50 mW)

Environment

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 storage)	-40...+70 °C
Climatic class acc. to DIN IEC 60721-3-3	3K5

Connection

Connection type	modular terminals
Connection properties rigid/flexible	0.2...4 mm ² /0.2...2.5 mm ²

Other

Operating mode	continuous operation
Mounting	any position
Degree of protection, internal components (DIN EN 60529)	IP30
Degree of protection, terminals (DIN EN 60529)	IP20
Screw mounting	2 x M4
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94 V-0
Documentation number	D00120
Weight	≤ 360 g



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