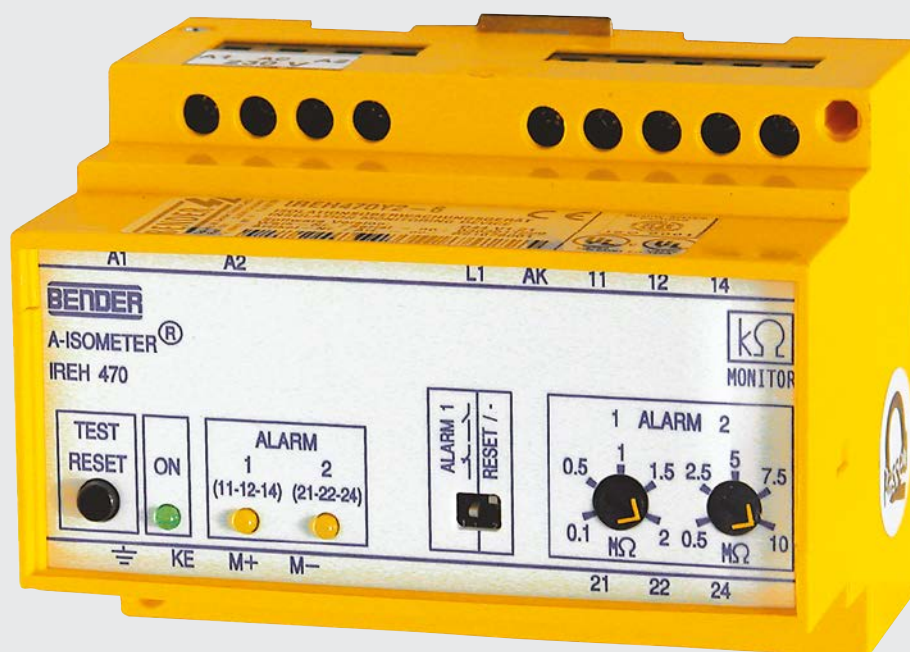


ISOMETER® IREH470Y2-6...

Off-line monitor for disconnected
 AC, DC and 3(N) AC loads in TN, TT and IT systems



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IREH470Y2-6

Device characteristics

- Insulation monitoring device for offline TN, TT and IT systems
- AC, 3(N) AC and DC systems 0...793 V
- Nominal voltage extendable via coupling devices
- Two separately adjustable response values 100 kΩ...2 MΩ/500 kΩ...10 MΩ
- Power On LEDs and alarm LEDs for the indication of insulation faults, ALARM1 and ALARM2
- Connection for external kΩ indication
- Combined TEST and RESET button
- Two separate alarm relays with one voltage-free changeover contact each
- Alarm relay 1 N/C operation
Alarm relay 2 N/O operation
- Fault memory, selectable

Certifications



Product description

The ISOMETERs® of the IREH470Y2-6 series monitor the insulation resistance of deenergized TN, TT and IT systems and energized systems with voltages 0...793 V. These loads, e. g. fire extinguisher pumps, slide-valve drives etc., are only switched on in "case of emergency". During the shutdown periods, however, humidity or other effects may cause insulation faults in the supply leads or loads which may go undetected. Switching the device on may then lead to the tripping of the protective device to or may even result in motor fires so that operation of the device is no longer possible. In combination with a coupling device, the ISOMETERs® can also be used for higher voltages.

Application

Disconnected loads such as fire extinguisher pumps, emergency drives, ship cranes, slide-valve drives in supply lines (gas, water, oil), motor-driven closing systems, diving pumps, drives for anchors, elevators, flue gas valves and stand-by generators.

Function

If 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. The measured value is indicated on an externally connectable measuring instrument. In this way changes, e. g. the connection of branch circuits, can easily be detected. The fault message can be stored. The fault memory can be reset by pressing the RESET button. By pressing the TEST button, the function of the device can be tested. Two separately adjustable response values and two separate alarm relays allow prewarning already in case of very high-resistance insulation faults. When the lower response level is reached an interlocking function will be activated and the connection of a defective load can be prevented.

The insulation resistance can be measured via the output L1 or via a contact to the system being monitored. The contact is controlled via the contact element K1. With the contact in closed position, the system is deenergized and the insulation resistance is being measured. If the system or load is in operation, K1 opens the contact and insulation monitoring is deactivated. Note that the main switch disconnects all poles. Ensure a low-resistance connection between all line conductors (e. g. by motor windings) so that the measuring voltage can be superimposed onto the system.

Note: If the IREH470Y2-6 is operated via a coupling device, the auxiliary contact (NC contact) of K1 between the ISOMETER® and the coupling device need not to be designed for the nominal voltage of the system. A rated contact voltage of AC 230 V will be sufficient.

Messverfahren



Superimposed DC measuring voltage with reversing stage.

Standards

The IREH470Y2-6... series complies with the standards:

- EN 61557-1
- EN 61557-8

Ordering details

Supply voltage U_S	Type	Art. No.
AC		
230 V	IREH470Y2-6	B91078001
400 V	IREH470Y2-615	B91078003
90...132 V ¹⁾	IREH470Y2-613	B91078002

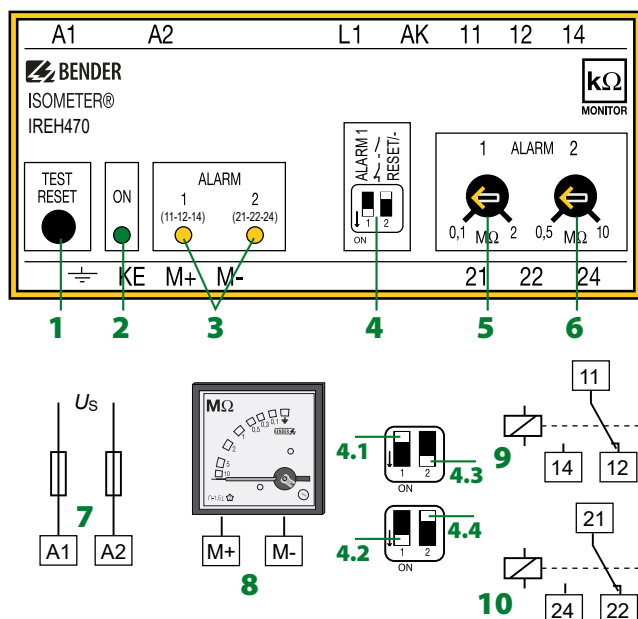
Other voltages on request.

¹⁾ Absolute values

Accessories

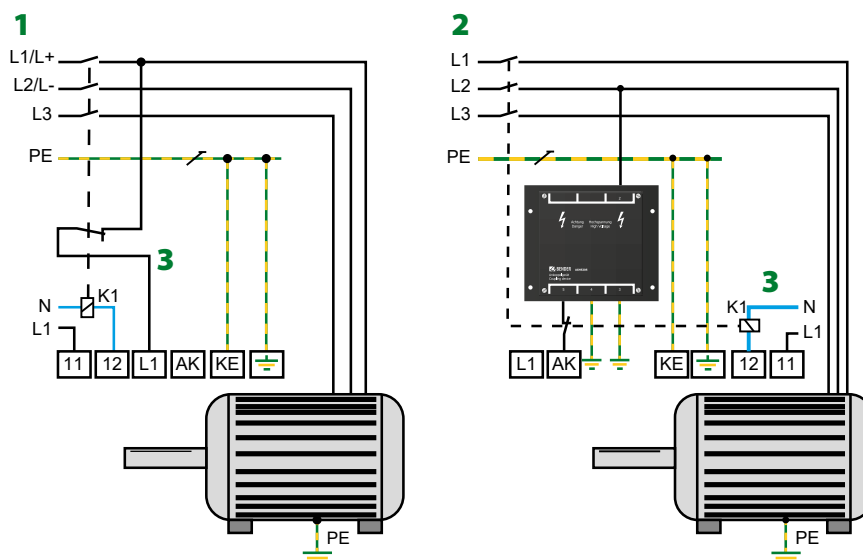
Bezeichnung	Nominal system voltage U_n	Type	Art. No.
	AC		
External kΩ measuring instruments	—	7204-1421	B986763
	—	9604-1421	B986764
Coupling devices	0...7200 V	AGH520S	B913033

Wiring diagram – operating elements



- 1 - Combined TEST and RESET button: short-time pressing (< 1 s) = RESET, long-time pressing (> 2 s) = TEST
- 2 - Power On LED
- 3 - Alarm LEDs, yellow, illuminate when the insulation level falls below the pre-set response value
- 4 - DIP switch
alarm relay ALARM1: DIP switch RESET:
4.1 - not active 4.3 - with fault memory
4.2 - active 4.4 - without fault memory
- 5 - Potentiometer for the adjustment of the response value R_{an1} (ALARM1)
- 6 - Potentiometer for the adjustment of the response value R_{an2} (ALARM2)
- 7 - U_S see nameplate, 6 A fuse
- 8 - External MΩ measuring instrument
- 9 - Alarm relay ALARM1 in N/C operation
- 10 - Alarm relay ALARM2 in N/O operation

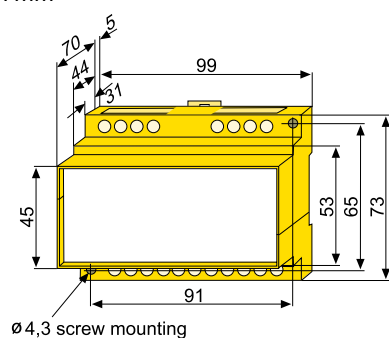
Wiring diagram – system connection



- 1 - 3/N AC system
- 2 - 3(N) AC system AGH520S 0...7200 V
- 3 - Auxiliary voltage for main contactor

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, DC 0...793 V
Nominal frequency f_n DC,	40...460 Hz
Supply voltage U_S	see ordering details
Operating range of U_S	0.8...1.15 x U_S
Frequency range U_S	50...460 Hz
Power consumption	< 3 VA

Response values

Response value R_{an1} (ALARM1)	100 k Ω ...2 M Ω
Response value R_{an2} (ALARM2)	500 k Ω ...10 M Ω
Response time t_{an} at $R_F = 0.5 \times R_{an}$ and $C_e = 1 \mu F$	< 4 s

Measuring circuit

Measuring voltage U_m	< 20 V
Measuring current I_m max. (at $R_F = 0 \Omega$)	< 17 μA
Internal d.c. resistance R_i	> 1.2 M Ω
Internal impedance Z_i at 50 Hz	> 1 M Ω
Max. permissible extraneous DC voltage U_{fg}	< 800 V
System leakage capacitance C_e	< 10 μF

Outputs

TEST/RESET button	internal/external
Current output at measuring instrument (scale centre point 120 k Ω)	0...400 μA
Max. load	25 k Ω

Switching elements

Switching elements	2 x 1 changeover contact
Operating principle	ALARM1: N/O operation ALARM2: N/C operation
Electrical endurance	12000 cycles
Contact class	IIB acc. to DIN IEC 60255 part 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

Environment

Shock resistance acc. to IEC 60068-2-27 (device in operation)	15 g/11 ms
Bumping acc. to IEC 60068-2-29 (during transport)	40 g/6 ms
Vibration resistance acc. to IEC 60068-2-6 (device in operation)	1 g/10...150 Hz
Vibration resistance acc. to IEC 60068-2-6 (during transport)	2 g/10...150 Hz
Ambient temperature (during transport)	-10...+70 °C
Storage temperature range	-40...+70 °C
Climatic class according to IEC 60721-3-3	3K5

Connection

Connection	screw terminals
Wire cross section, 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 DIN EN 60715/IEC 60715
Flammability class	UL94V-0
Documentation number	D00407
Weight	≤ 350 g



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