

A-ISOMETER® IR470LY...

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



IR470LY

Device features

- Insulation monitoring for unearthed IT AC / 3(N)AC systems 0...793 V
- Nominal voltage extendable via coupling device
- Response values, adjustable 1...200 kΩ
- Connection monitoring system / earth
- Power ON LED, Alarm LED for signalling AC, L+, L- insulation faults
- LED bar graph indicator for signalling AC, L+, L- insulation faults
- Connection for kΩ indication
- Combined test and reset button
- Connection external test / reset button
- Alarm relay with two potential-free changeover contacts
- N/O or N/C operation, selectable
- Fault memory behaviour, selectable

Standards, approvals and certifications

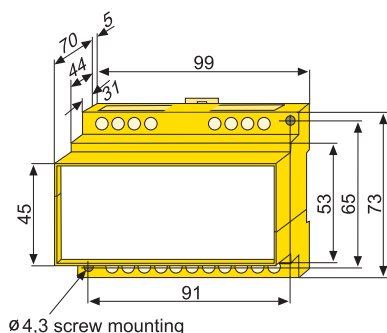


Response delay			
Type	*) Response time t_{an} in the 10...200 kΩ range	*) Response time t_{an} in the 1...20 kΩ range	System leakage capacitance C_e max.
IR470LY-40...	≤ 1 s	≤ 3 s	20 μF

*) Response times acc. to IEC 61557-8 at $R_f = 0.5 \times R_{an}$ and at 1 μF system leakage capacitance.

Dimension diagram X470

Dimensions in mm



Product description

The A-ISOMETER®s of the IR470LY series monitor the insulation resistance of unearthed AC and three-phase systems (IT systems) AC / 3(N)AC 0...793 V. In combination with a coupling device, the devices can also be used for higher voltages. An external supply voltage allows de-energised systems to be monitored too.

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 relay switches and the alarm LEDs light up. In case of interruption of the system and earth connection, the alarm LEDs flash. Different alarm LEDs AC, DC+, DC- allow to distinguish between insulation faults on the AC and the DC side. The measured value is indicated by the LED bar graph indicator or a measuring instrument that can be connected externally. In this way any changes, for example when circuits are connected to the system, can be recognised easily. 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



Superimposed DC voltage with inverter.

Standards

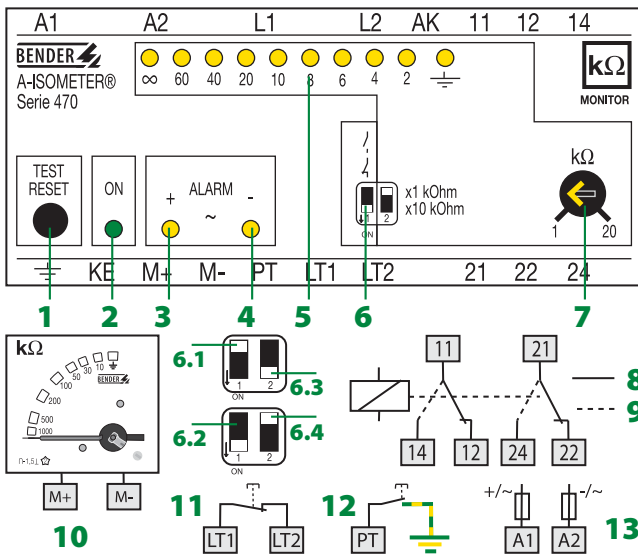
The IR470LY series complies with the requirements of the device standards: IEC 61557-8, ASTM F1669M-96 (2007).

Ordering information					
Type	Supply voltage U_S	Art. No.	Type	Supply voltage U_S	Art. No.
IR470LY-40	AC 230 V	B 9104 8007	IR470LY-4016	AC 500 V	B 9104 8018
IR470LY-4011	AC 24 V	B 9104 8012	IR470LY-4017	AC 690 V	B 9104 8017
IR470LY-4012	AC 42 V	B 9104 8002	IR470LY-4018	AC 440 V	B 9104 8024
IR470LY-4013	AC 90...132 V*	B 9104 8011	IR470LY-4021	DC 9.6...84V*	B 9104 8006
IR470LY-4015	AC 400 V	B 9104 8008	IR470LY-4023	DC 77...286V*	B 9104 8026

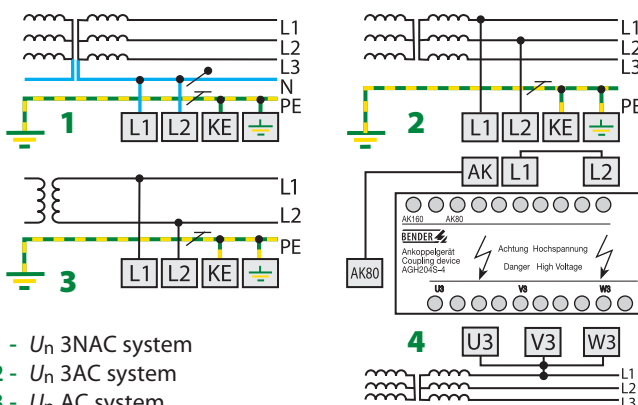
Other supply voltages on request * Absolute values

Accessories					
External kΩ measuring instruments			Coupling devices		
Type	Art. No.		Type	Nominal system voltage U_n	Art. No.
7204-1421	B 986 763		AGH204S-4	AC 0...1650 V	B 914 013
9604-1421	B 986 764		AGH520S	AC 0...7200 V	B 913 033

Wiring diagram – Front plate and system connection



- 1 - Combined test/reset button "TEST/RESET"; short-time pressing (< 1 s) = RESET, long-time pressing (> 1 s) = TEST
- 2 - LED Power "ON"
- 3,4 - Alarm LEDs "+ ALARM -", 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
- 5 - LED bar graph indicator
- 6 - Operating principle of the alarm relays and setting range R_{ALARM}
 6.1 - N/O operation 6.3 - x 10 kΩ
 6.2 - N/C operation 6.4 - x 1 kΩ
 Changing the setting range from x 1 kΩ to x 10 kΩ automatically changes the indication of the kΩ values on the LED bar graph indicator: Setting range x 1 kΩ: Meter scale point x 1 kΩ. Setting range: x 10 kΩ: Meter scale point has to be multiplied by 10 kΩ.
- 7 - Potentiometer to set the response value R_{ALARM}
- 8 - Alarm relay - N/O operation (basic setting)
- 9 - Alarm relay - N/C operation
- 10 - External kΩ indicating instrument
- 11 - External reset button "LT1, LT2" or bridge for fault memory
- 12 - External test button "PT"
- 13 - U_S see ordering information, 6 A fuse recommended



- 1 - U_n 3NAC system
- 2 - U_n 3AC system
- 3 - U_n AC system
- 4 - U_n with coupling devices: AGH204S-4 = 0...1300 V resp. 0...1650 V, AGH520S = 0...7200 V, here: coupling device AGH204S-4 connected to U_n 3AC system

Technical data

Insulation coordination acc. to IEC 60664-1

Rated insulation voltage	AC 630 V
Rated impulse withstand 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	0.8...1.15 x U_S
Frequency range U_S	50...460 Hz
Power consumption	≤ 3 VA

Response values

Response value R_{an1} (Alarm 1)	1 kΩ...200 kΩ
Response time t_{an} at $R_F = 0.5 \times R_{an}$ and $C_e = 1 \mu F$	
10...200 kΩ range	≤ 1 s
1...10 kΩ range	≤ 3 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 kΩ
Impedance Z_i at 50 Hz	≥ 180 kΩ
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 kΩ)	0...400 μA
Load	≤ 25 kΩ

Switching elements

Switching elements	2 changeover contacts
Operating principle	N/O operation / N/C operation
Factory setting	N/O operation
Electrical endurance, number of cycles	12000
Contact class	IIB
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)

General data

Shock resistance IEC 60068-2-27 (during operation)	15 g/11 ms
Bumping IEC 60068-2-29 (transport)	40 g/6 ms
Vibration resistance IEC 60068-2-6 (during operation)	1 g/10...150 Hz
Vibration resistance IEC 60068-2-6 (transport)	2 g/10...150 Hz
Ambient temperature (during operation/during storage)	-10 °C...+55 °C/-40 °C...+70 °C
Climatic class acc. to IEC 60721-3-3	3K5
Operating mode	continuous operation
Mounting	any position
Connection type	modular terminals
Connection properties rigid / flexible	0.2...4 mm ² / 0.2...2.5 mm ²
Degree of protection, internal components (IEC 60529)	IP 30
Degree of protection, terminals (IEC 60529)	IP 20
Screw mounting	2 x M4
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94 V-0
Operating manual	TBP104001
Weight approx.	360 g

1.4

A-ISOMETER® IR470LY2-4061

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



IR470LY2-4061

Device features

- Insulation monitoring for IT AC / 3(N)AC systems 0...793 V
- 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 insulation resistance
- Connection for kΩ indication
- Combined test and reset button
- Two separate alarm relays with one changeover contact each
- N/O or N/C operation, selectable
- Fault memory behaviour, selectable

Standards, approvals and certifications



Product description

The A-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 IR470LY2-4061 series complies with the requirements of: IEC 61557-8, ASTM F1669M-96 (2007).

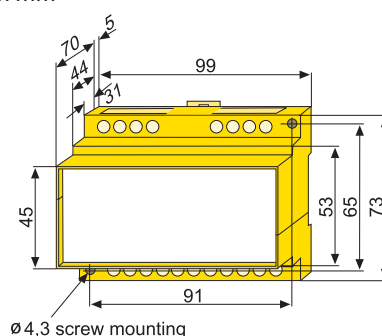
Ordering information		
Type	Supply voltage U_s	Art. No.
IR470LY2-4061	AC 230 V	B 9104 8052

Other supply voltages on request

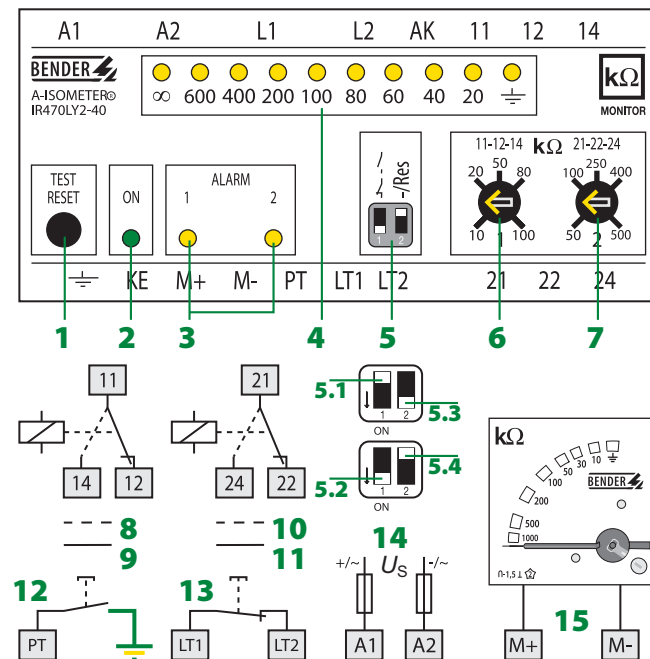
Accessories					
External kΩ measuring instruments		Coupling devices			
Type	Art. No.	Type	Nominal system voltage U_n	Art. No.	
7204-1421	B 986 763	AGH204S-4	AC 0...1650 V	B 914 013	
9604-1421	B 986 764	AGH520S	AC 0...7200 V	B 913 033	

Dimension diagram X470

Dimensions in mm

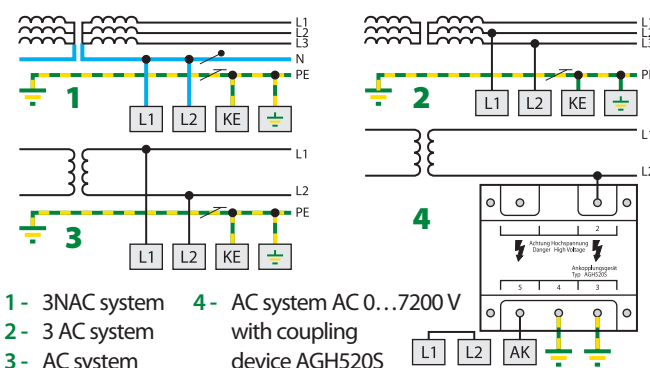


Wiring diagram – Operating elements



- 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 RALARM1
- 7 - Potentiometer to set the response value RALARM2
- 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 - 3 AC system
- 3 - AC system
- 4 - AC system AC 0...7200 V with coupling device AGH520S

Technical data

Insulation coordination acc. to IEC 60664-1	
Rated insulation voltage	AC 630 V
Rated impulse withstand 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 kΩ...100 kΩ
Response value R_{an2} (Alarm 2)	35 kΩ...500 kΩ
Response time t_{an} at $R_F = 0.5 \times R_{an}$ and $C_e = 1 \mu F$	≤ 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 kΩ
Impedance Z_i at 50 Hz	≥ 180 kΩ
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 kΩ)	0...400 μA
Load	≤ 25 kΩ
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
Rated contact voltage	AC 250 V/DC 300 V
Making capacity	AC/DC 5 A
Breaking capacity	2 A, AC 230 V, $\cos \phi = 0.4 - 0.2$, DC 220 V, L/R = 0.04 s
Contact rating at DC 24 V	≥ 2 mA (50 mW)
General data	
Shock resistance IEC 60068-2-27 (during operation)	15 g/11 ms
Bumping IEC 60068-2-29 (transport)	40 g/6 ms
Vibration resistance IEC 60068-2-6 (during operation)	1 g/10...150 Hz
Vibration resistance IEC 60068-2-6 (transport)	2 g/10...150 Hz
Ambient temperature (during operation)	-10 °C...+55 °C
Ambient temperature (during storage)	-40 °C...+70 °C
Climatic class acc. to IEC 60721-3-3	3K5
Operating mode	continuous operation
Mounting	any position
Connection type	modular terminals
Connection properties rigid / flexible	0.2...4 mm ² / 0.2...2.5 mm ²
Degree of protection, internal components (IEC 60529)	IP 30
Degree of protection, terminals (IEC 60529)	IP 20
Screw mounting	2 x M4
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94 V-0
Operating manual	TBP104010
Weight approx.	360 g

1.4

A-ISOMETER® IR470LY2-60...

Insulation monitoring device for unearthed AC and 3(N)AC systems (IT systems) and de-energised loads



IR470LY2-60

Device features

- Insulation monitoring for unearthed AC/3(N)AC systems 0...793 V
- Off-Line monitoring for TN, TT and IT systems 0...793 V
- Nominal voltage extendable via coupling device
- Operating mode selectable: Insulation monitoring/offline monitoring
- Two separately adjustable response values 100 kΩ...1 MΩ/500 kΩ...5 MΩ
- Connection monitoring system / earth
- Power ON LED, Alarm LED for signalling AC, L+, L- insulation faults
- LED bar graph indicator for the insulation resistance
- Connection for kΩ indication
- Combined test and reset button
- Two separate alarm relays with one changeover contact each
- N/O or N/C operation
- Fault memory behaviour, selectable

Standards, approvals and certifications



Product description

The A-ISOMETER®s of the IR470LY series monitor the insulation resistance of unearthed AC and three-phase systems (IT systems) AC / 3(N)AC 0...793 V. The device series is particularly suitable for systems requiring a high insulation level. The device can also be used for monitoring de-energised loads. 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.
- De-energised loads, such as fire extinguisher pumps, slide-valve drives (gas, water, oil etc.), flue gas valves, cranes

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 or earth connection, the alarm LEDs flash. The measured value is indicated on the LED bar graph indicator or a measuring instrument that can be connected externally. 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 IR470LY2-60 series complies with the requirements of the device standards: IEC 61557-8, ASTM F1669M-96 (2007), ASTM F1134-94 (2007).

Off-line mode

In this mode, the insulation monitoring process is automatically activated when the system voltage between the terminals L1 and L2 falls below 80 V. Only if the system voltage has fallen below this value, the device assumes that the load is de-energised. If the voltage between the terminals L1 and L2 exceeds 80 V, insulation monitoring will be automatically deactivated. This is signalled by a flashing LED ∞ of the LED line.

Ordering information

Type	Supply voltage U_S	Art. No.
IR470LY2-60	AC 230 V	B 9104 8010
IR470LY2-6013	AC 90...132 V*	B 9104 8013
IR470LY2-6015	AC 400 V	B 9104 8009
IR470LY2-6021	DC 9.6...84V*	B 9104 8014

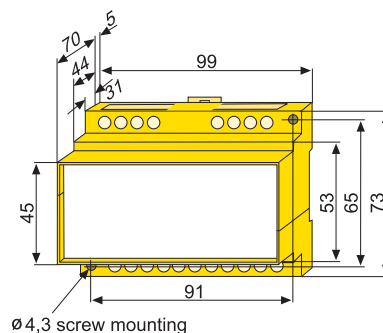
Other supply voltages on request * Absolute values

Accessories

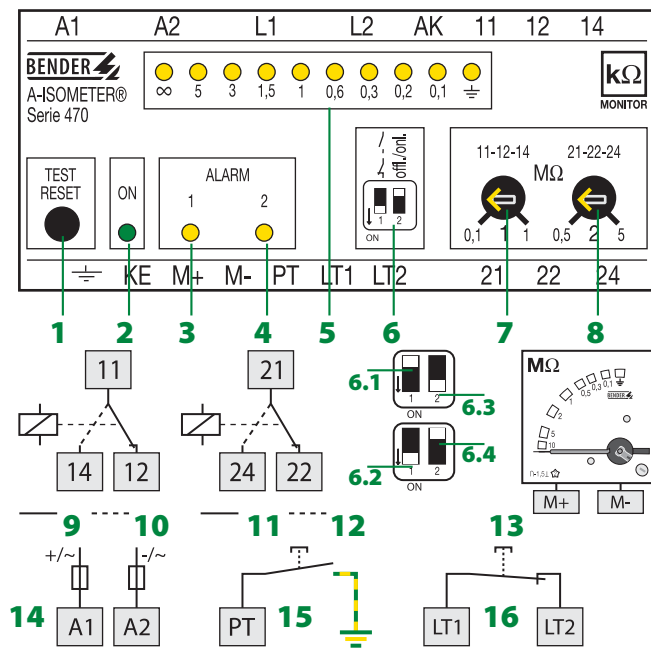
External kΩ measuring instruments		Coupling devices	
Type	Art. No.	Type	Nominal system voltage U_n Art. No.
7204-1621	B 986 763	AGH520S	AC 0...7200 V B 913 033
9604-1621	B 986 764		

Dimension diagram X470

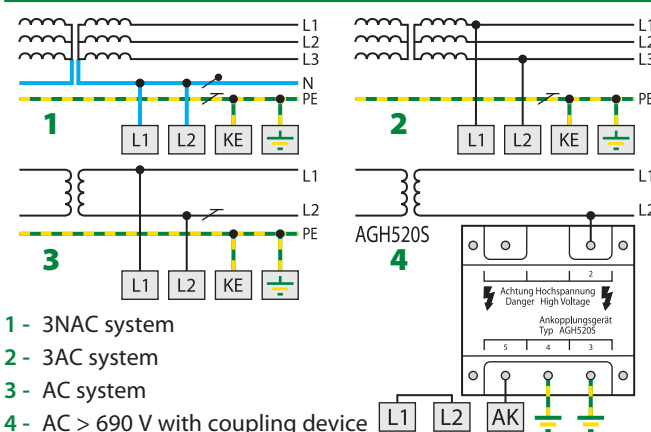
Dimensions in mm



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 - AlarmLEDs "1 ALARM 2", yellow, light when the value falls below the set response value and flash
- 4 - in case of interruption of the connecting leads E / KE or L1 / L2
- 5 - LED bar graph indicator
- 6 - Operating principle of the alarm relay online/offline
 - 6.1 - N/O operation
 - 6.2 - N/C operation
 - 6.3 - offline
 - 6.4 - online
- 7 - Potentiometer to set the response value R_{an1} (Alarm 1)
- 8 - Potentiometer to set the response value R_{an2} (Alarm 2)
- 9 - Alarm relay 1: N/O operation (basic setting)
- 10 - Alarm relay 1: N/C operation
- 11 - Alarm relay 2: N/O operation (basic setting)
- 12 - Alarm relay 2: N/C operation
- 13 - External MΩ indicating instrument
- 14 - U_S see ordering information, 6 A fuse recommended
- 15 - External test button "PT"
- 16 - External reset button "LT1, LT2" or bridge for fault memory



- 1 - 3NAC system
- 2 - 3AC system
- 3 - AC system
- 4 - AC > 690 V with coupling device

Technical data

Insulation coordination acc. to IEC 60664-1

Rated insulation voltage	AC 630 V
Rated impulse withstand 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	0.8...1.15 x U_S
Frequency range U_S	50...460 Hz
Power consumption	≤ 3 VA

Response values

Response value R_{an1} (Alarm 1)	100 kΩ...1 MΩ
Response value R_{an2} (Alarm 2)	500 kΩ...5 MΩ
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	≤ 40 V
Measuring current I_m (at $R_F = 0 \Omega$)	≤ 33 μA
Internal DC resistance R_i	≥ 1.2 MΩ
Impedance Z_i at 50 Hz	≥ 1 MΩ
Permissible extraneous DC voltage U_{fg}	≤ 800 V
Permissible system leakage capacitance	≤ 10 μF

Outputs

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

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
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)

General data

Shock resistance IEC 60068-2-27 (during operation)	15 g/11 ms
Bumping IEC 60068-2-29 (during transport)	40 g/6 ms
Vibration resistance IEC 60068-2-6 (during operation)	1 g/10...150 Hz
Vibration resistance IEC 60068-2-6 (during transport)	2 g/10...150 Hz
Ambient temperature (during operation)	-10 °C...+55 °C
Ambient temperature (during storage)	-40 °C...+70 °C
Climatic class acc. to IEC 60721-3-3	3K5
Operating mode	continuous operation
Mounting	any position
Connection type	modular terminals
Connection properties rigid / flexible	0.2...4 mm ² / 0.2...2.5 mm ²
Degree of protection, internal components (IEC 60529)	IP 30
Degree of protection, terminals (IEC 60529)	IP 20
Screw mounting	2 x M4
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94 V-0
Operating manual	TBP104002
Weight approx.	360 g

Coupling device AGH520S



Coupling device AGH520S

Technical data

Insulation coordination acc. to IEC 60664-1

Rated insulation voltage	AC 6.3 V
Rated impulse withstand voltage/pollution degree	17 kV/3

Voltage ranges

Netznominalspannung U_n	3(N)AC 0...7200 V
Nominal frequency f_n	50...400 Hz

General data

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 °C...+55 °C
Ambient temperature (during storage)	-40 °C...+70 °C
Climatic class acc. to IEC 60721-3-3	3K5
Operating mode	continuous operation
Mounting	any position
Connection	screw-type terminals
Degree of protection, internal components (IEC 60529)	IP 64
Degree of protection, terminals (IEC 60529)	IP 20
Type of enclosure	resin-encapsulated block
Screw mounting	4 x M5
Flammability class	UL94 V-0
Operating manual	BP109003
Weight approx.	4500 g

Ordering information

Type	Nominal system voltage U_n	Art. No.
AGH520S	3(N)AC 0...7200 V	B 913 033

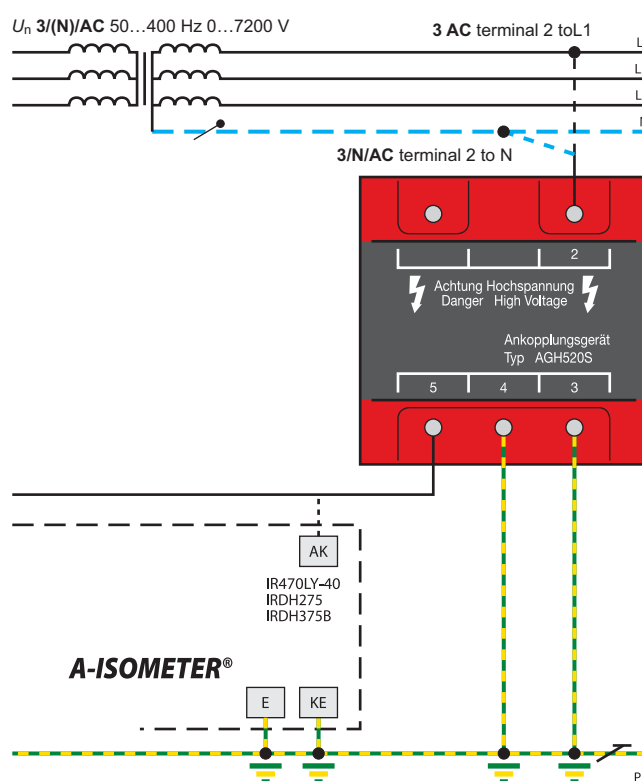
Product description

The coupling device AGH520S is designed to extend the nominal voltage range of the A-ISOMETER® series described in the wiring diagram below to (3)AC 50...400 Hz, 0...7200 V. The coupling device is connected to the system to be monitored by one pole and connected to the terminal AK of the A-ISOMETER® by means of the terminal 5.

Standards, approvals and certifications

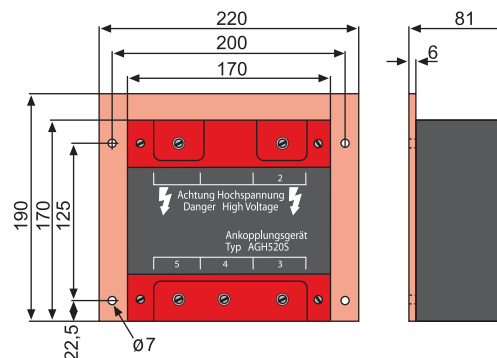


Wiring diagram



Dimension diagram

Dimensions in mm



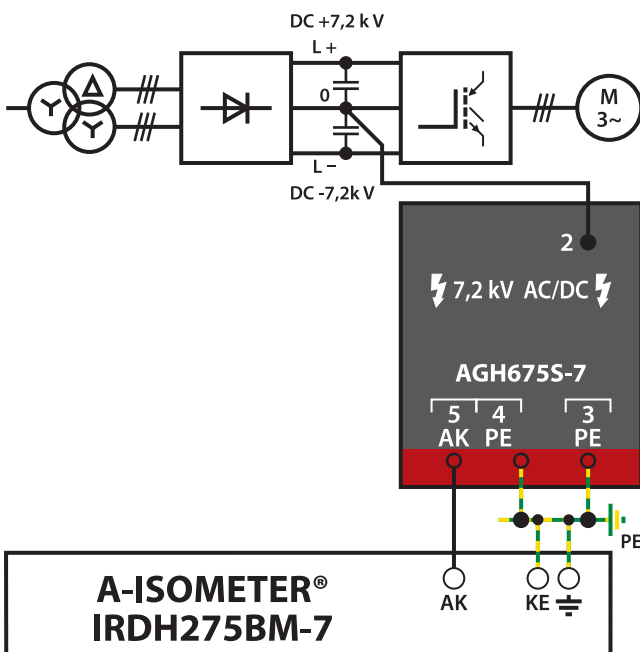
Product description

The coupling device AGH675S-7 is designed to extend the nominal voltage range of the A-ISOMETER® IRDH275BM-7 to AC/ 0...7.2 kV. The coupling device is connected to the system to be monitored by one pole and connected to the terminal AK of the A-ISOMETER® by means of the terminal 5.

Standards, approvals and certifications

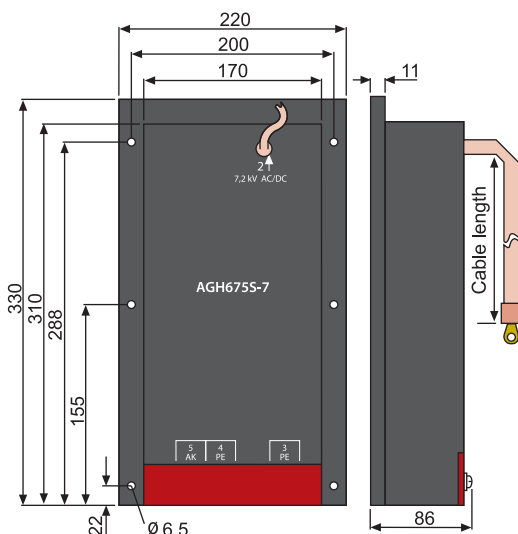


Wiring diagram (example)



Dimension diagram AGH675S-7

Dimensions in mm



Coupling device AGH675S-7

Technical data

Insulation coordination based on IEC 61800-5-1

Rated insulation voltage AC 7.2 V

Voltage test based on IEC 61800-5-1

Type test	
Voltage impulse test	AC 80 kV
AC voltage test	AC 40 kV
Partial discharge test	14 kVeff

Routine test:

AC voltage test, rate of increase < 2 kV/s AC 40 kV

Voltage ranges

Nominal system voltage U_n	AC/3(N)AC/DC 0...7.2 kV
Nominal frequency f_n	0...460 Hz

General data

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 °C...+55 °C
Ambient temperature for storage	-40 °C...+70 °C
Climatic class acc. to IEC 60721-3-3	3K5
Operating mode	continuous operation
Mounting	any position
Connection medium voltage	high-voltage cable (encapsulated on the device side)
Connection terminals 3, 4, 5	screw-type terminals
Connection, rigid/flexible	0.2...4 mm ² / 0.2...2.5 mm ²
Connection, flexible with ferrule	0.25...2.5 mm ²
Degree of protection, internal components (IEC 60529)	IP64
Degree of protection, terminals (IEC 60529)	IP20
Type of enclosure	resin-encapsulated block
Screw mounting	M5
Flammability class	UL94 V-0
Operating manual	TGH1395 (IRDH275BM-7)
Weight	approx. 5.1 kg

Ordering information

Type	Nominal system voltage U_n	Cable length	Art. No.
AGH675S-7-2000	AC / DC 0...7.2 kV 0...460 Hz	2000 mm	B 913 054
AGH675S-7-500	AC / DC 0...7.2 kV 0...460 Hz	500 mm	B 913 056

1.8.1

Measuring instruments 9604 / 7204 / 7220 / 9620



Measuring instruments 9604 / 7204 / 9620

Device features

- Dimensions: 72 x 72 mm (7204) or 96 x 96 mm (9604 / 9620)
- Version S for increased shock and vibration resistance
- Scale background: white, imprint: black

Product description

The analogue measuring instruments of the 9604 7204 series are designed for indication of measured values from Bender devices equipped with the appropriate current output.

Measuring instruments for A-ISOMETER®

The respective internal resistance of the insulation monitoring device has to be considered. The internal resistance must be equal to the scale centre point (e.g. 120 kΩ). The instruments utilize either a division scale or a scale with a segment display.



Measuring instruments 9604-4241

"Standard" version

The enclosures are made of polycarbonate, which is self-extinguishing and of non-melting material (according to UL94 V-0). For space-saving arrangement, several instruments can be installed close together without spacers. Connection is made via hexagon head bolts with spring-loaded terminal bolts. The terminals of the enclosure are protected against accidental contact.

"S" version

The measuring instruments of the "S" series are designed to meet the requirements of harsh environmental conditions, e.g. for use on ships.

Ordering information and A-ISOMETER®/RCM assignment

Type	Input current	Dimensions	Suitable for A-ISOMETER® / RCM	Art. No.
7204-1421	0...400 μA	72 x 72 mm	IR470LY-4..., IRD1007L-4..., IRDH275 / 375	B 986 763
9604-1421	0...400 μA	96 x 96 mm	IR470LY-4..., IRD1007L-4..., IRDH275 / 375	B 986 764
7204S-1421	0...400 μA	72 x 72 mm	IR470LY-4..., IRD1007L-4..., IRDH275 / 375	B 986 804
9604S-1421	0...400 μA	96 x 96 mm	IR470LY-4..., IRD1007L-4..., IRDH275 / 375	B 986 784
9620-1421	0...20 mA	96 x 96 mm	IRDH275B/375B/575	B 986 841
9620S-1421	0...20 mA	96 x 96 mm	IRDH275B/375B/575	B 986 842
9604-1621	0...400 μA	96 x 96 mm	IR470LY2-6...	B 986 782
9604-4241	0...400 μA	96 x 96 mm	RCM470 / RCMA470	B 986 807
7220-1421	0...20 mA	72 x 72 mm	IRDH275B/375B/575	B 986 844
7220S-1421	0...20 mA	72 x 72 mm	IRDH275B/375B/575	B 986 848

Technical data

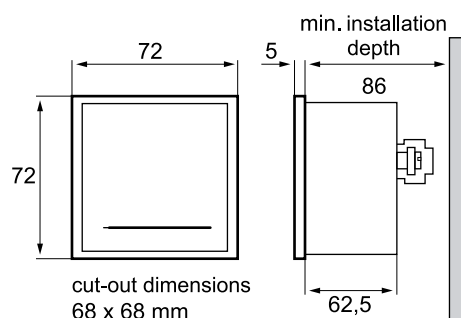
Test voltage	3 kV
Accuracy class acc. to DIN 43780	1.5
Normal position	vertical + 5 degree
Temperature range	-25...+40 °C

Protection class acc. to DIN 40050

Enclosure	IP52
Terminals	IP00
Terminals with contact protection	IP20

Type of enclosure / dimension diagram measuring instrument 7204 / 7220

Dimensions in mm



Type of enclosure / dimension diagram measuring instrument 9604 / 9620

Dimensions in mm

