

# A-ISOMETER® IRDH275

Insulation monitoring device for unearthed AC, AC/DC and DC systems (IT systems)



A-ISOMETER® IRDH275

## Device features

- Insulation monitoring for unearthed AC, AC/DC systems 0...793 V, DC 0...650 V
- Nominal voltage extendable via coupling device
- Two separately adjustable response values 1 kΩ...10 MΩ
- **AMP<sup>Plus</sup>** measurement method
- Automatic adaptation to the system leakage capacitance
- Info button to display device settings and the system leakage capacitance
- Self monitoring with automatic alarm
- Automatic self test, selectable
- Connection for external kΩ indication
- Test and reset button
- Connection external test and reset button
- Two separate alarm relays with two voltage-free changeover contacts
- N/O or N/C operation, selectable
- Backlit LC display
- RS-485 interface

## Standards, approvals and certifications



## Product description

The A-ISOMETER® of the IRDH275 series is designed to monitor the insulation resistance of unearthed main circuits (IT systems) AC, AC/DC 0...793 V resp. DC 0...650 V. The **AMP<sup>Plus</sup>** measurement method meets the particular requirements of modern power supplies which often include rectifiers, converters, thyristor-controlled DC drives and directly connected DC components. In these systems often high leakage capacitances against earth occur due to interference suppression measures. The IRDH275 automatically adapts itself to the existing system conditions.

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. For door mounting into distribution panels, refer to type IRDH375(B).

## Application

- AC, DC or AC/DC main circuits
- AC/DC main circuits with directly connected DC components, such as rectifiers, converters, and thyristor-controlled DC drives
- UPS systems, battery systems
- Heaters with phase control
- Systems including switched-mode power supplies
- IT systems including high leakage capacitances
- Coupled IT systems

## 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. Two separately adjustable alarm relays allow to distinguish between prewarning and alarm. The measured value is indicated on the LC display 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 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 as well as the connections to system and earth can be tested. Pressing the Info button provides additional information, such as the existing system leakage capacitance or device settings.

The function of the device and the system and earth connections are continuously monitored. When a fault occurs, the system fault relay switches and the alarm LED "system fault" lights up. The parameterisation of the device can be carried out via the LC display or the function buttons integrated in the front plate.

## Device version IRDH275B

Device version IRDH275B includes the following additional functions:

- History memory with real-time clock to store all alarm messages with date and time stamp
- Electrically isolated RS-485 interface (BMS protocol) for communication with other Bender devices
- Isometer disconnecting relays for the operation of several A-ISOMETER®s in coupled IT systems
- Current output 0(4)...20 mA (electrically isolated)

## Use in coupled IT systems

Only one A-ISOMETER® may be active when several IT systems are coupled. Isometer disconnecting relays and the control inputs F1/F2 integrated in version IRDH275B guarantee that only one A-ISOMETER® is active at any one time.

## Measurement method

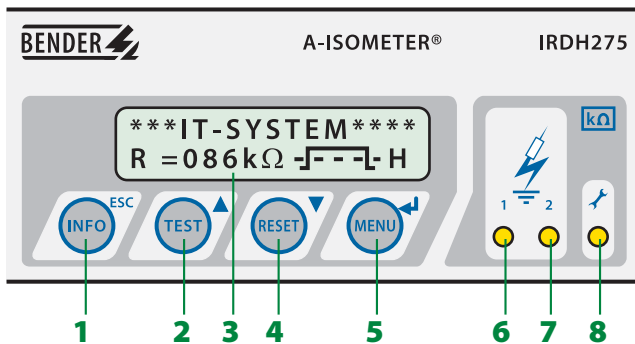
**AMP<sup>Plus</sup>** The IRDH275(B) uses the patented **AMP<sup>Plus</sup>** measurement method. This measurement method allows concise monitoring of modern power supply systems, also in case of extensive, directly connected DC components and high system leakage capacitances.

## Standards

The A-ISOMETER® was designed in accordance with the following standards: IEC 61557-8, IEC 61326-2-4, IEC 60664-1, IEC 60664-3, ASTM F1669M-96 (2007), ASTM F1207M-96 (2007).

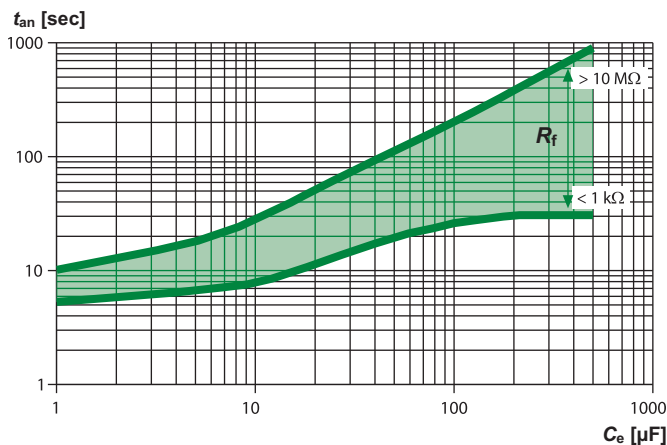
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Operating elements IRDH275



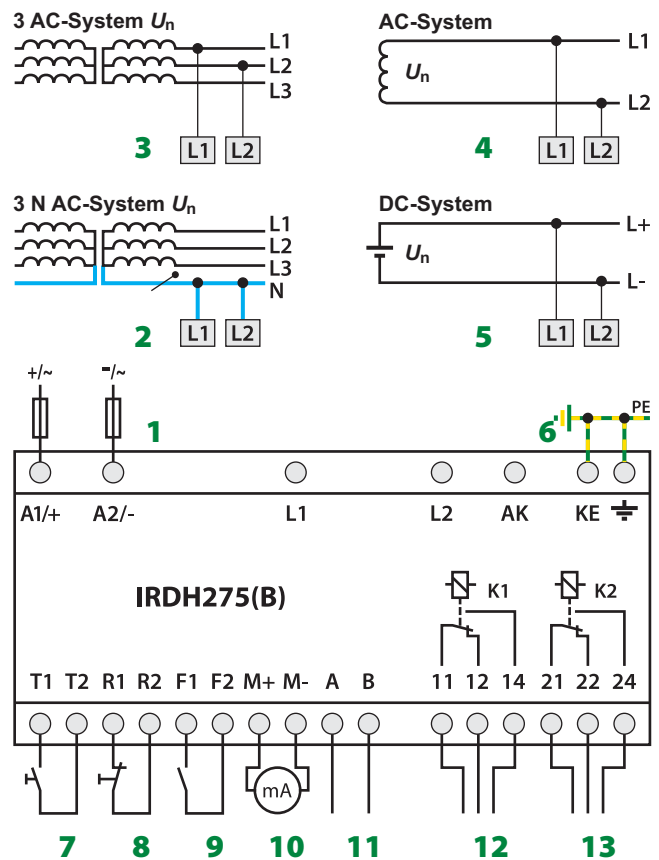
- 1 - "INFO" button: to query standard information  
ESC button: back to the menu function
- 2 - "TEST" button: to call up the self test  
Arrow up button: parameter change, scroll
- 3 - LC display
- 4 - "RESET" button: to delete alarm and fault messages  
Arrow down button: parameter change, scroll
- 5 - "MENU" button: to activate the menu system  
Enter button: to confirm parameter change
- 6 - Alarm LED "1" lights: insulation fault, 1st warning level reached
- 7 - Alarm LED "2" lights: insulation fault, 2nd warning level reached
- 8 - LED lights up: a system fault exists

Response times



A-ISOMETER® response times in relation to the system leakage capacitances:  $C_e = 1 \dots 500 \mu\text{F}$ ,  $U_n = 0 \dots 793 \text{ V} / 50 \text{ Hz}$

Wiring diagram

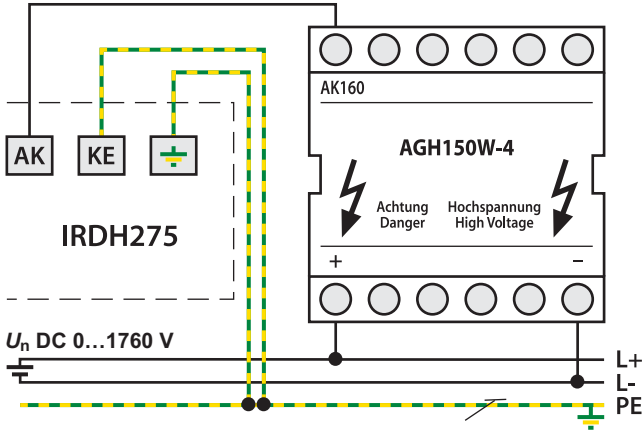


- 1 - Supply voltage  $U_S$  (see ordering information) via 6 A fuse; for UL and CSA applications, it is mandatory to use 5 A fuses.
  - 2,3 - Connection to the 3AC system being monitored: Connect the terminals L1, L2 to neutral conductor N or terminals L1, L2 to conductor L1, L2.
  - 4 - Connection to the AC system to be monitored: Connect terminals L1, L2 to conductor L1, L2.
  - 5 - Connection of the DC systems being monitored: Connect terminal L1 to conductor L+, terminal L2 to conductor L-
  - 6 - Separate connection of the equipotential bonding conductor to PE and KE
  - \*7 - External test button "T1/T2" (N/O contact)
  - \*8 - External reset button "R1/R2" (N/C contact or wire jumper)  
When the terminals are open, the fault message will not be stored, provided that the memory has not been activated via the operating menu.
  - \*9 - STANDBY by means of the function input "F1, F2": with the contact in closed position no insulation measurement takes place (Isometer disconnection B version only / no disconnection when operated via AK).
  - 10 - IRDH275: Current output, electrically isolated:  $0 \dots 400 \mu\text{A}$   
IRDH275B: Current output, electrically isolated:  $0 \dots 20 \text{ mA}$  or  $4 \dots 20 \text{ mA}$
  - 11 - RS-485 interface
  - 12 - Alarm relay: Alarm 1
  - 13 - Alarm relay: Alarm 2 / system
- \* The terminal pairs 7, 8 and 9 must be wired galvanically isolate and must not have a connection to PE!

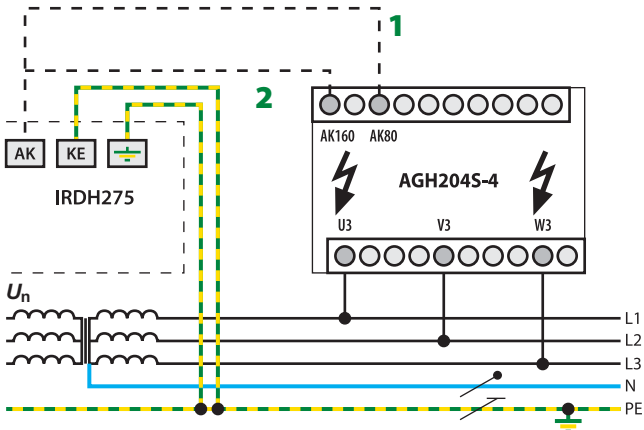
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**Wiring diagrams –  
IRDH275 connected to different types of coupling devices**

**A-ISOMETER® IRDH275 with coupling device AGH150W-4**

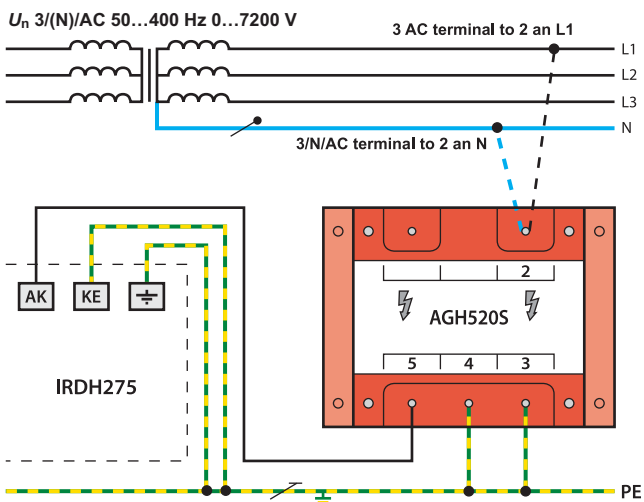


**A-ISOMETER® IRDH275 with coupling device AGH204S-4**



- 1 - without rectifier  $U_n = 3AC\ 0...1650\ V$  (DC max. 1000 V)
- 2 - with rectifier  $U_n = 3AC\ 0...1300\ V$  (peak voltage downstream of the rectifier or DC voltage intermediate circuit of max.1840 V)

**A-ISOMETER® IRDH275 with coupling device AGH520S**



**Ordering information A-ISOMETER® IRDH275**

Type	Nominal system voltage $U_n$	Supply voltage $U_s$	Art. No.
IRDH275-435	AC 0...793 V/ DC 0...650 V*	AC 88...264 / DC 77...286 V*	B 9106 5100
IRDH275B-435	AC 0...793 V/ DC 0...650 V*	AC 88...264 / DC 77...286 V*	B 9106 5101
IRDH275-427	AC 0...793 V/ DC 0...650 V*	DC 19.2...72 V	B 9106 5104
IRDH275B-427	AC 0...793 V/ DC 0...650 V*	DC 19.2...72 V	B 9106 5105
IRDH275-425	AC 0...793 V/ DC 0...650 V*	DC 10.2...36 V	B 9106 5108
IRDH275B-425	AC 0...793 V/ DC 0...650 V*	DC 10.2...36 V	B 9106 5109

\* Absolute values

**Accessories**

**External kΩ measuring instrument 400 μA**

Type	Art. No.
7204-1421	B 986 763
9604-1421	B 986 764

**External kΩ measuring instrument 20 mA**

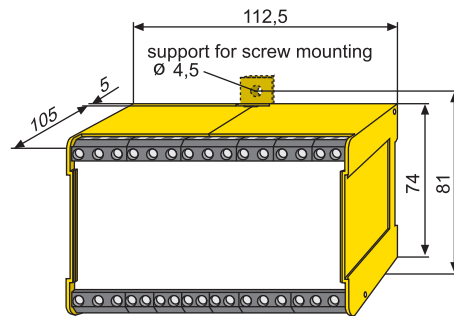
Type	Art. No.
9620-1421	B 986 841

**Coupling devices**

Type	Nominal system voltage $U_n$	Art. No.
AGH150W-4	DC 0...1760 V	B 9801 8006
AGH204S-4	AC 0...1650 (1300) V	B 914 013
AGH520S	AC 0...7200 V	B 913 033

**Dimension diagram XM112**

Dimensions in mm



**Technical data**
**Insulation coordination acc. to IEC 60664-1**

Rated insulation voltage	AC 800 V
Rated impulse voltage/pollution degree	8 kV / 3

**Voltage ranges**
**IRDH275... :**

Nominal system voltage $U_n$	AC / 3/(N) AC 0...793 V*
Nominal frequency $f_n$	50...460 Hz
Nominal system voltage $U_n$	DC 0...650 V*

**IRDH275... -435:**

Supply voltage $U_S$ (also see nameplate)	AC 88...264 V*
Frequency range $U_S$	42...460 Hz
Supply voltage $U_S$ (also see nameplate)	DC 77...286 V*

**IRDH275... -427:**

Supply voltage $U_S$ (also see nameplate)	DC 19.2...72 V*
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**IRDH275... :**

Power consumption	≤ 14 VA
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**Response values**

Response value $R_{an1}$ (Alarm1)	1 kΩ...10 MΩ
Response value $R_{an2}$ (Alarm2)	1 kΩ...10 MΩ
Relative uncertainty (20 kΩ...1 MΩ) (acc. to IEC 61557-8)	± 15 %
Relative uncertainty (1 kΩ...20 kΩ)	+ 2 kΩ/ + 20 %
Relative uncertainty (1 kΩ...10 kΩ)	0.2 kΩ/ + 20 %
Response time $t_{an}$ at $R_F = 0.5 \times R_{an}$ and $C_e = 1 \mu F$	≤ 5 s
Measuring time	see characteristic curves
Hysteresis (1 kΩ...10 kΩ)	+2 kΩ
Hysteresis (10 kΩ...10 MΩ)	25 %

**Measuring circuit**

Measuring voltage $U_m$	≤ 50 V
Measuring current $I_m$ (at $R_F = 0 \Omega$ )	≤ 280 μA
Internal DC resistance $R_i$	≥ 180 kΩ
Impedance $Z_i$ at 50 Hz	≥ 180 kΩ
Permissible extraneous DC voltage $U_{fd}$	≤ DC 1200 V
Permissible system leakage capacitance	≤ 500 μF
Factory setting	150 μF

**Displays**

Display, illuminated	two-line display
Characteristics (number)	2 x 16
Display range measured value	1 kΩ...10 MΩ
Operating uncertainty (20 kΩ...1 MΩ) (acc. to IEC 61557-8)	± 15 %**
Operating uncertainty (1 kΩ...20 kΩ)	± 1 kΩ / ± 15 %**
Operating uncertainty (1 MΩ...10 MΩ)	± 0.1 MΩ / ± 15 %**

**Outputs/Inputs**

Test / reset button	internal/external
Cable length test/reset button, external	≤ 10 m
Current output for measuring instrument SKMP (scale centre point = 120 kΩ):	
Current output IRDH275 (load)	400 μA (≤ 12.5 kΩ)
Current output IRDH275B (load)	20 mA (≤ 500 Ω)
Accuracy current output (1 kΩ...1 MΩ) related to the value indicated	±10 %, ±1 kΩ

**Serial interface**

Interface / protocol IRDH275	RS485 / ASCII-IsoData
Interface/protocol IRDH275B	RS485/BMS
Connection	terminals A/B
Cable length	≤ 1200 m
Shielded cable (shield to PE on one end)	2-core, 0.6 mm <sup>2</sup> , z. B. J-Y(St)Y 2x0.6
Terminating resistor	120 Ω (0.5 W)
Device address, BMS bus	1...30 (factory setting = 3)

**Switching elements**

Switching elements	2 changeover contacts: K1 (Alarm 1), K2 (Alarm 2, device error)
Operating principle K1, K2 (Alarm 1/Alarm 2)	N/O or N/C operation
Factory setting (Alarm 1/Alarm 2)	N/O operation
Electrical endurance, number of cycles	12 000
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**

EMC	acc. to IEC 61326-2-4
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 (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	display-oriented
Distance to adjacent devices	≥ 30 mm
Connection	screw-type terminals
Connection, rigid/flexible	0.2...4 mm <sup>2</sup> / 0.2...2.5 mm <sup>2</sup>
Connection, flexible with ferrule, without/with plastic sleeve	0.25...2.5 mm <sup>2</sup>
Tightening torque	0.5 Nm
Conductor sizes (AWG)	24...12
Degree of protection, internal components (IEC 60529)	IP30
Degree of protection, terminals (IEC 60529)	IP20
Type of enclosure	X112, free from halogen
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94 V-0
Software version IRDH275	D160 V1.4
Software version IRDH275B	D159 V1.4
Operating manual	TGH1361
Weight	approx. 510 g

**Option "W"**

Shock resistance acc. to IEC 60068-2-27 (device in operation)	30 g / 11 ms
Bumping IEC 60068-2-29 (during transport)	40 g/6 ms
Vibration resistance IEC 60068-2-6	1.6 mm / 10...25 Hz 4 g / 25...150 Hz
Ambient temperature, during operation	-40 °C...+70 °C
Ambient temperature for storage	-40 °C...+85 °C
Screw mounting	2 x M4

The data labelled with an \* are absolute values

\*\* = under test conditions according to IEC 61326-2-4, the tolerances may double

# Coupling device AGH150W-4



Coupling device AGH150W-4

## Technical data

### Insulation coordination acc. to IEC 60664-1

Rated insulation voltage	DC 1600 V
Rated impulse withstand voltage/pollution degree	12 kV/3

### Voltage ranges

Nominal system voltage $U_n$	DC 0...1760 V
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### 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	flat terminals
Connection properties rigid / flexible	0.2...4 mm <sup>2</sup> / 0.2...2.5 mm <sup>2</sup>
Degree of protection, internal components (IEC 60529)	IP 30
Degree of protection, terminals (IEC 60529)	IP 20
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94 V-0
Operating manual	BP109001
Weight approx.	900 g

## Ordering information

Type	Nominal system voltage $U_n$	Art. No.
AGH150W-4	DC 1760 V	B 9801 8006

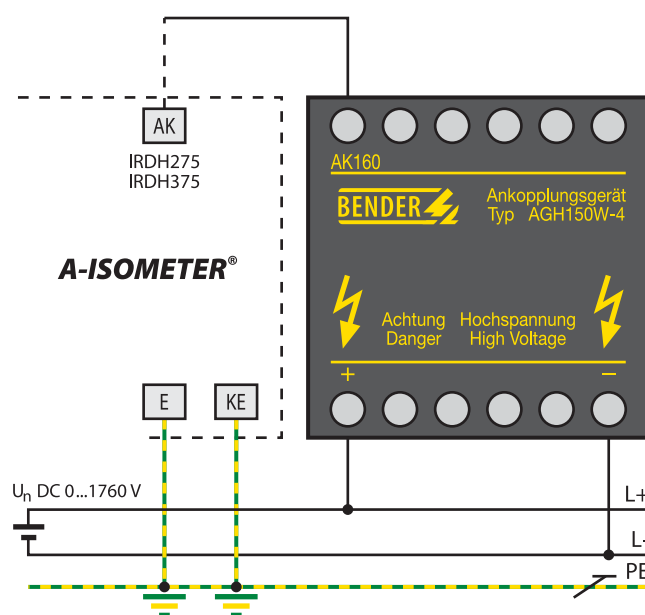
## Product description

The AGH150W-4 coupling device is designed to extend the nominal voltage range of the A-ISOMETER® IRDH265-4/IRDH365-4/IRDH1065B-4 series to DC 0...1760 V. The coupling device is connected to the system being monitored by two poles and connected to the terminal AK of the A-ISOMETER® by means of the terminal AK160.

## Standards, approvals and certifications

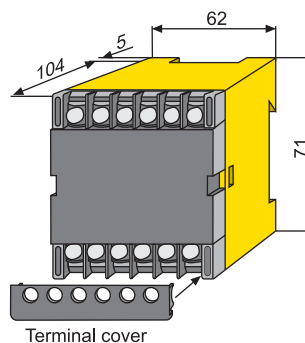


## Wiring diagram



## Dimension diagram X150

Dimensions in mm



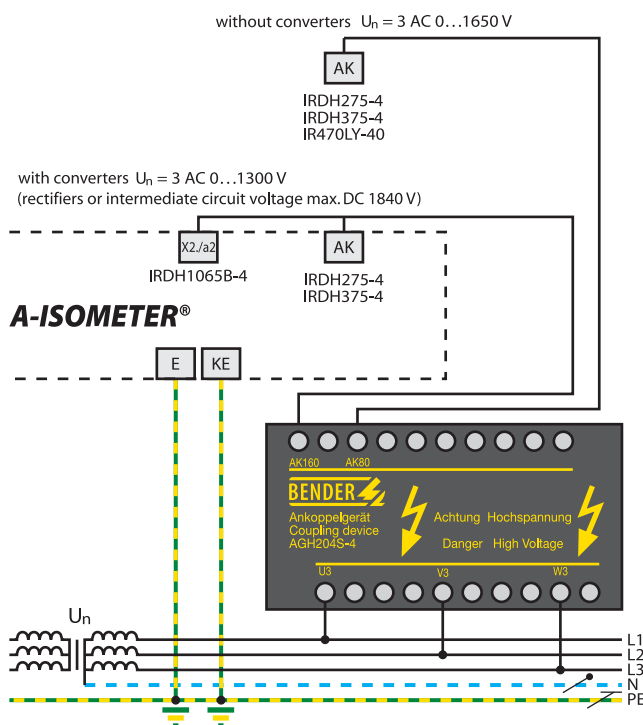
**Product description**

The coupling device AGH204S-4 is designed to extend the nominal voltage range of the A-ISOMETER® series described in the wiring diagram below to AC, 3(N)AC 50...400 Hz, 0...16500...1300 V. The coupling device is connected to the system to be monitored according to the wiring diagram and connected to the terminal AK of the A-ISOMETER® by means of terminal AK...

**Standards, approvals and certifications**

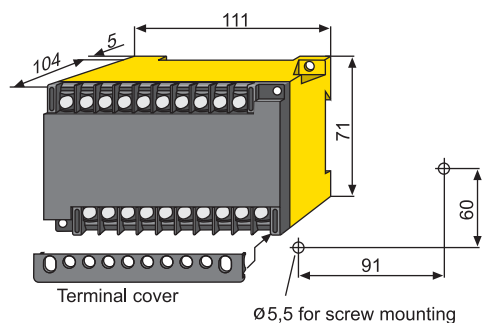


**Wiring diagram**



**Dimension diagram X200**

Dimensions in mm



**Coupling device AGH204S-4**

**Technical data**

**Insulation coordination acc. to IEC 60664-1**

Rated insulation voltage	AC 1500 V
Rated impulse withstand voltage/pollution degree	12 kV/3

**Voltage ranges**

Nominal system voltage $U_n$	AC, 3(N)AC 50...400 Hz 1650 V/0...1300 V
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**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	flat terminals
Connection properties rigid / flexible	0.2...4 mm <sup>2</sup> / 0.2...2.5 mm <sup>2</sup>
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	BP109002
Weight approx.	1350 g

**Ordering information**

Type	Nominal system voltage $U_n$	Art. No.
AGH204S-4	AC 0...1650 V / 0...1300	B 914 013

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# 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

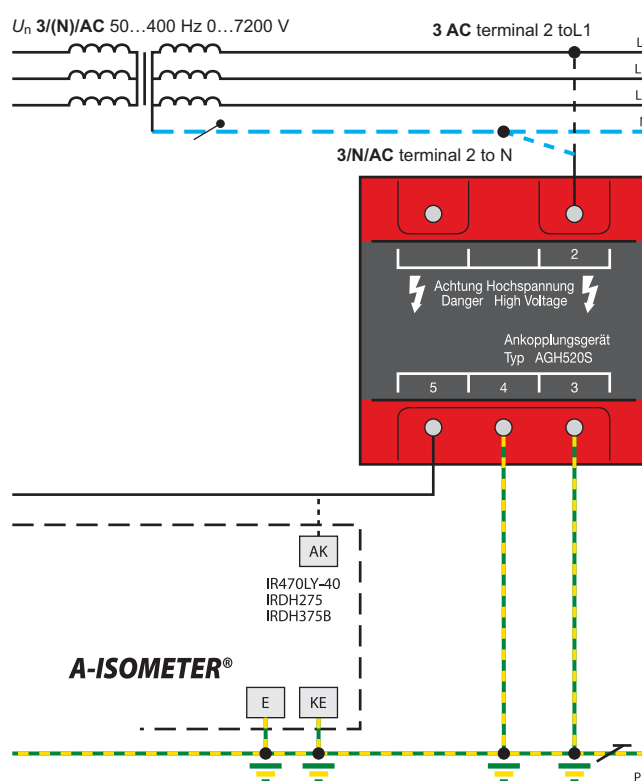
## Product description

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

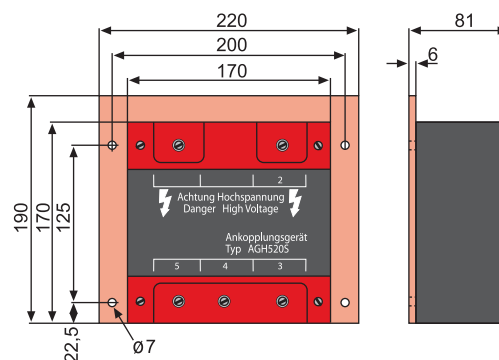


## Wiring diagram



## Dimension diagram

Dimensions in mm



# Measuring transducer RK170



Measuring transducer RK170

### Device features

- Plastic enclosure for DIN rail mounting
- Zero setting 0 or 4 mA
- Electrical separation between the input and output signal

### Product description

The measuring transducer RK170 is designed to convert current signals of measuring instrument outputs of A-ISOMETER<sup>®</sup>s (0...400  $\mu$ A) and residual current monitors (RCM, RCMA) into standard current signals 0(4)...20 mA or into voltage signals (0...10 V). These currents and voltages are usually required in process technology.

### Application

- Conversion of DC 0...400  $\mu$ A current signals into 0(4)...20 mA or 0...10 V signals
- For A-ISOMETER<sup>®</sup>s and residual current monitors RCM, RCMA with measuring instrument output of DC 0...400  $\mu$ A

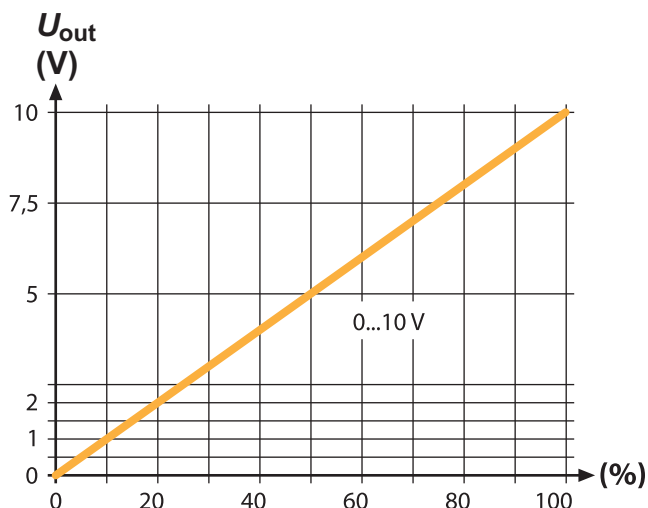
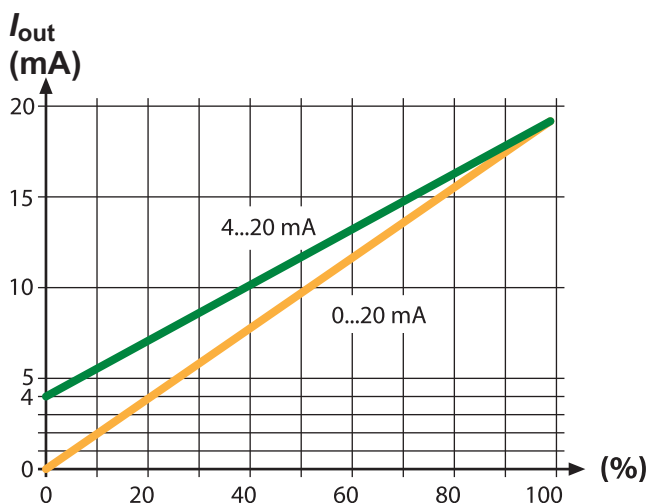
### RK170 adjustments

The signals at the outputs 0(4)...20 mA and 0...10 V are simultaneously available and their own nominal load must not be exceeded.

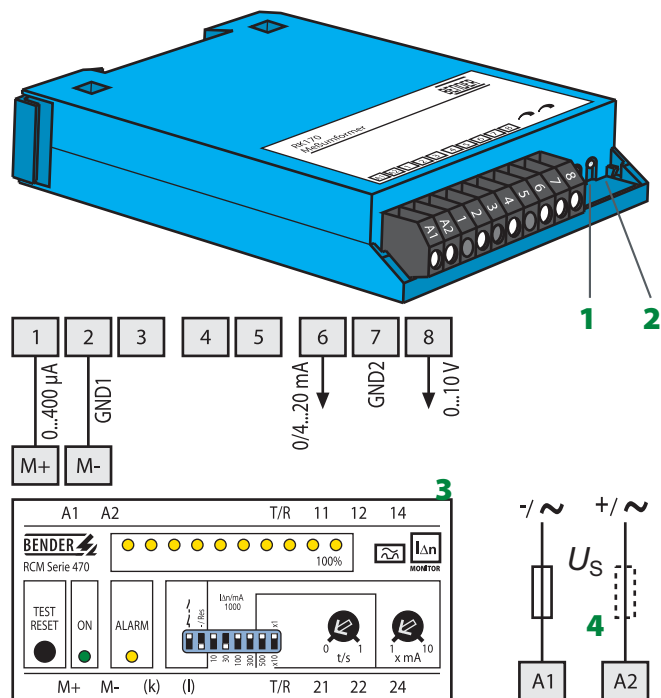
Setting the zero and the full-scale value will have an effect on both outputs. Hence, optimum adjustment is only possible for one output at a time.

The measuring transducer RK170 is factory-set to an input signal of DC 0...400  $\mu$ A providing a galvanically isolated output signal of 0...20 mA or 0...10 V. When an output signal of 4...20 mA is required or the measuring transducer RK170 is to be adjusted for other reasons, the adjustment can be carried out using the trimmers "Zero" and "Scale".

### Characteristic curve



### Wiring diagram



- 1 - Zero: zero setting
- 2 - Scale: full-scale value calibration
- 3 - RCM series device
- 4 -  $U_S$  see nameplate, 2 A slow-blow fuse recommended

### Ordering information

Type	Supply voltage $U_S$	Art. No.
RK170	AC 19...264 V* / DC 20...297 V*	B 9804 1500

\*Absolute value

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**Technical data**

**Voltage ranges**

Supply voltage $U_s$	DC 20...297 V / AC 19...264 V
Frequency range $U_s$	50...120 Hz
Power consumption	≤ 3 VA

**Inputs**

Current input	DC 0...400 μA
Max. permissible current	DC 4 mA
Rated input resistance	approx. 2.5 kΩ

**Outputs**

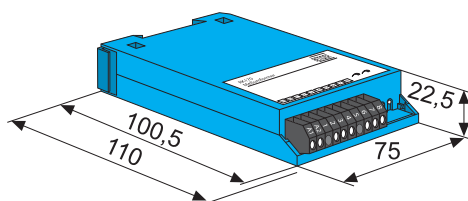
Outputs	two outputs with common ground
Voltage output	DC 0...10 V
Open-circuit voltage	DC 12 V
Rated burden	1 kΩ
Current output	DC 0 / 4...20 mA
Short-circuit current	≤ DC 50 mA short-circuit proof
Rated burden	500 Ω
Accuracy at $T_u = 23\text{ °C}$	class 0.5
Temperature coefficient	0.025 % / °C
Rated rise time T 0.9	50 ms
Dielectric strength input/output/supply	AC 2500 V

**General data**

Shock resistance IEC 60068-2-27 (during operation)	5 g/11 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)	0 °C...+50 °C
Ambient temperature (during storage)	-20 °C...+70 °C
Climatic class acc. to IEC 60721-3-3	3K3
Operating mode	continuous operation
Mounting	any position
Connection type	modular terminals
Connection properties rigid / flexible	0.5...2.5 mm <sup>2</sup> / 0.14...1.5 mm <sup>2</sup>
Degree of protection, internal components (IEC 60529)	IP40
Degree of protection, external components (IEC 60529)	IP20
Dimensions	75 x 22.5 x 110 mm
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94 V-2
Operating manual	BP109006
Weight	≤ 200 g

**Type of enclosure/dimension diagram**

Dimensions in mm



## 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.

### "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.



Measuring instruments 9604-4241

### 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

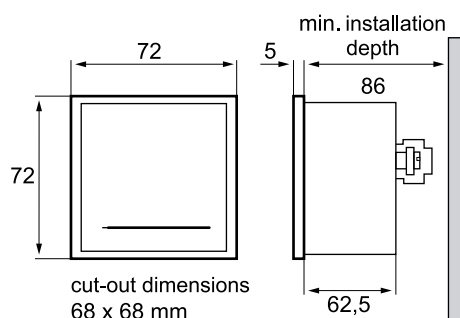
Test voltage	3 kV
Accuracy class acc. to DIN 43780	1.5
Normal position	vertical + 5 degree
Temperature range	-25...+40 °C

### Protection class acc. to DIN 40050

Enclosure	IP52
Terminals	IP00
Terminals with contact protection	IP20

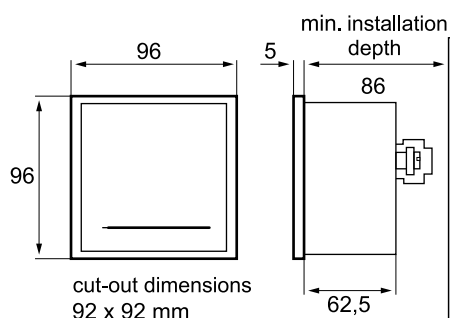
### Type of enclosure / dimension diagram measuring instrument 7204 / 7220

Dimensions in mm



### Type of enclosure / dimension diagram measuring instrument 9604 / 9620

Dimensions in mm



## Enclosure mounting



**Mounting frame**

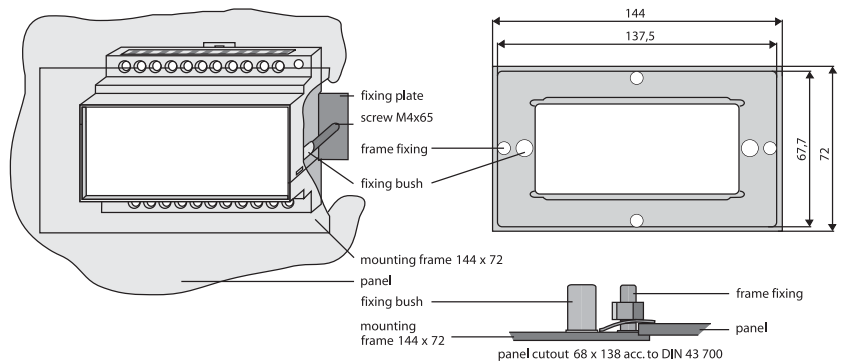
### Ordering information

Type	Art. No.
X470 Mounting frame	B 990 991
XM460 Mounting frame	B 990 995
XM490 Mounting frame	B 990 996

### Mounting frame for enclosure fixing into panels with standard cutout

For mounting X470/XM460 enclosures into panels with 144 x 72 mm cutout, made of silver anodised aluminium. Suitable for the 470 and 460 series, e.g. IR470, EDS470, RCMS470, RCMS460 and EDS460 devices.

For mounting XM490 enclosures into panel cutouts of 198 x 72 mm. Suitable for 490 series device, e.g. RCMS490, EDS490/491. Dimensions are given in mm.



**Fixing set**

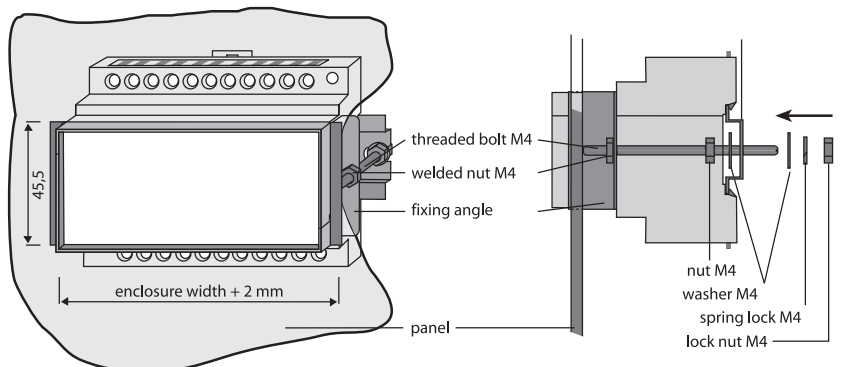
### Ordering information

Type	Art. No.
X450 Fixing set	B 990 992
X460 Fixing set	B 990 993
X470 Fixing set	B 990 990

### Fixing set for enclosure mounting into panels with 45 mm cutout

For mounting X440, X460, X470 enclosures into 45 mm panel cutouts, made of stainless steel. Suitable for all 470 series devices, e.g. RCM470, RCMA470.

Dimensions in mm



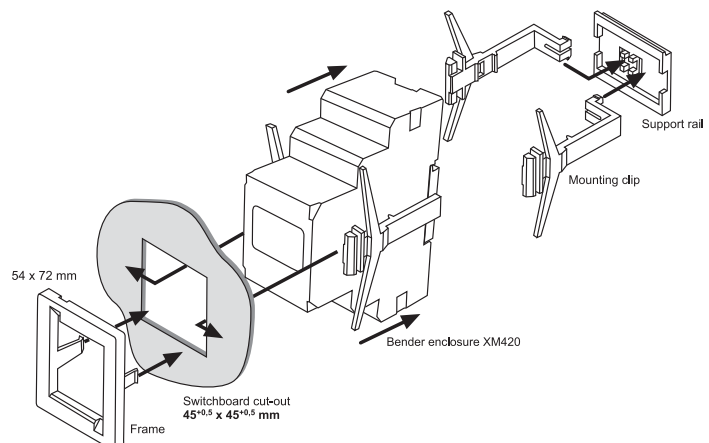
**XM420 Mounting frame**

### Ordering information

Type	Art. No.
XM420 Mounting frame	B 990 994

### XM420 mounting frame for mounting enclosures into panels

For mounting XM420 enclosures into panels. Suitable for all XM420 series devices, e.g. RCM420, RCMA420.



## Front plate cover



Front plate cover IRDH375



Front plate cover IRDH575

### Front plate cover IP65

Transparent front plate cover for use in harsh environmental conditions and for increasing the degree of protection (IP65), suitable for devices of the IRDH375/575 series.

#### Ordering information

Type	Suitable for	Art. No.
Front plate cover 144 x 72 mm	IRDH375	B 9806 0005
Front plate cover 144 x 96 mm	IRDH575	B 9806 0007