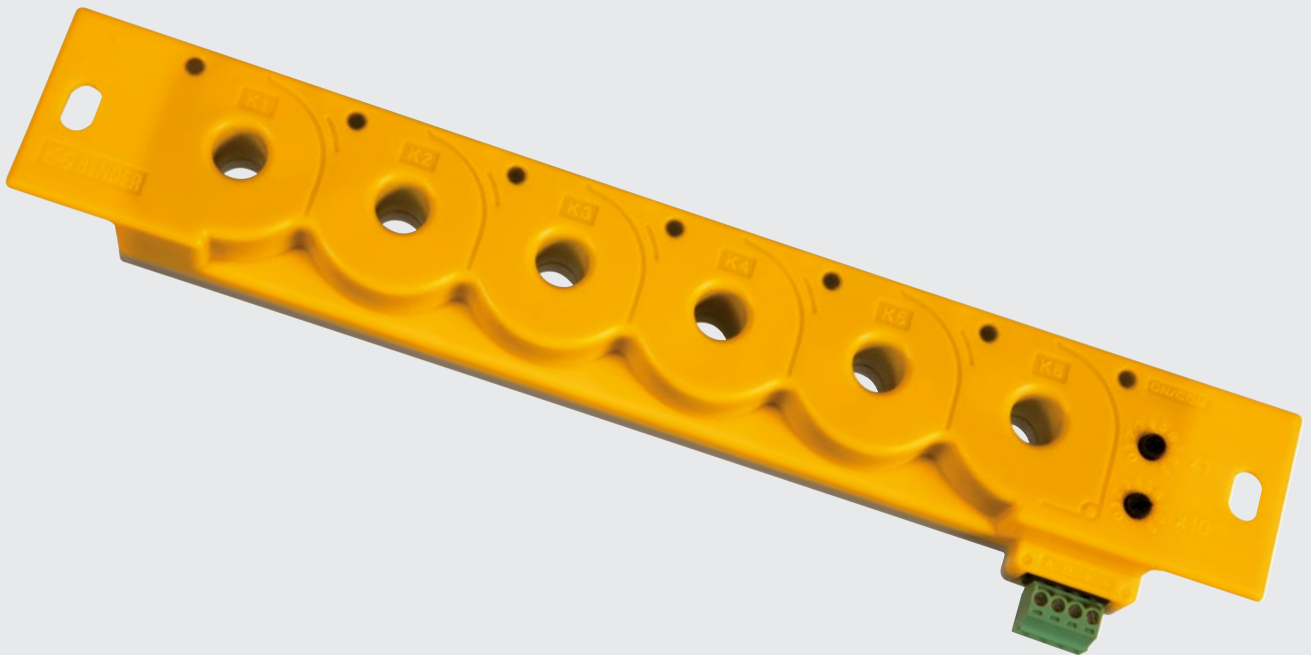


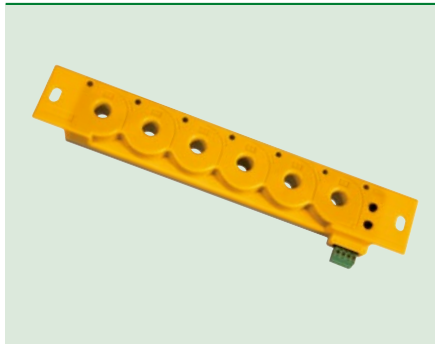
Insulation fault locator EDS151

Insulation fault locator with integrated measuring current transformers for EDS systems



Insulation fault locator EDS151

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EDS151

Device features

- Insulation fault location in AC, AC/DC and DC-IT systems
- 6 measuring channels with measuring current transformer per EDS151
- Up to 528 measuring channels can be combined by the BMS bus in the IT system being monitored: 88 x 6 measuring channels
- Response sensitivity 0.5 mA
- A response time of up to 8 s in the AC system according to IEC 61557-9
- RS-485 interface with BMS protocol
- BMS address range 3...90
- Cyclical self test

Approvals



Product description

The insulation fault locator EDS151 in conjunction with the ISOMETER® iso-MED427P, the automatic transfer switching device ATICS or the locating current injector PGH474, are designed for insulation fault location in unearthed power supplies (IT systems). The locating current pulse generated by the iso-MED427P, ATICS or PGH are detected using the integrated measuring current transformers and evaluated by the insulation fault locators. The integration of six measuring current transformers in an EDS151 permits all current-carrying conductors of an outgoing line to be routed through. The response time for an alarm message inclusively indication on the respective display device is max. 8 s (e.g. MK2430).

A total of 88 EDS151 devices can be connected via an RS-485 interface (BMS protocol). Hence, up to 528 circuits can be monitored. Activities on the BMS bus are indicated by an alarm LED.

Application

- Insulation fault location in AC, AC / DC and DC IT systems

Function

Insulation fault location is started by the ISOMETER® iso-MED427P, the ATICS® transfer switching device or the locating current injector PGH474. Once started, the insulation fault locator EDS151 starts scanning all measuring channels 1...6. When the response value of 0.5 mA is exceeded in one of the channels, the associated alarm LED lights up. The current alarm message and the respective address and channel number will be output via the BMS interface. The faulty circuit will be shown on either an alarm and test combination or a BMS master featuring a display.

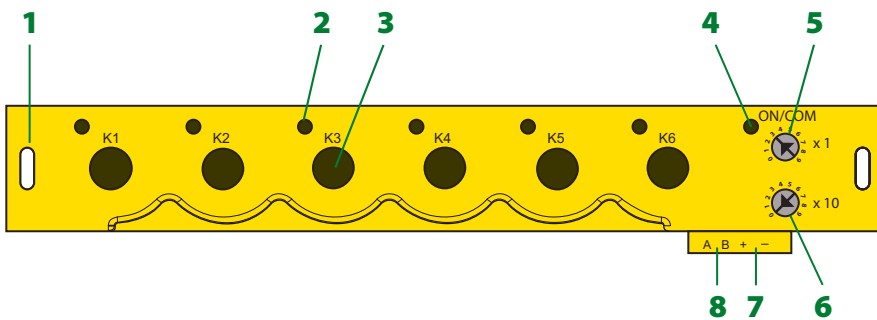
If there is more than one EDS151, all devices will be started simultaneously. An error outputted by channel 1, for example, can be clearly assigned to the respective EDS151 by its BMS address. An automatic self test monitoring the function of all measuring current transformers is carried out on an hourly basis. When a device error occurs, all alarm LEDs K1...K6 flash.

The alarm status remains activated until the EDS151 no longer detects an insulation fault or the insulation monitoring device signals via the BMS bus that the insulation fault is eliminated. If residual currents > 1 A occur on the measuring current transformers, insulation fault location on the respective channel will be terminated and the alarm message "residual current fault > 1 A" will be outputted via the BMS bus (RCM function). The RCM function is active only during the insulation fault location process.

Standards

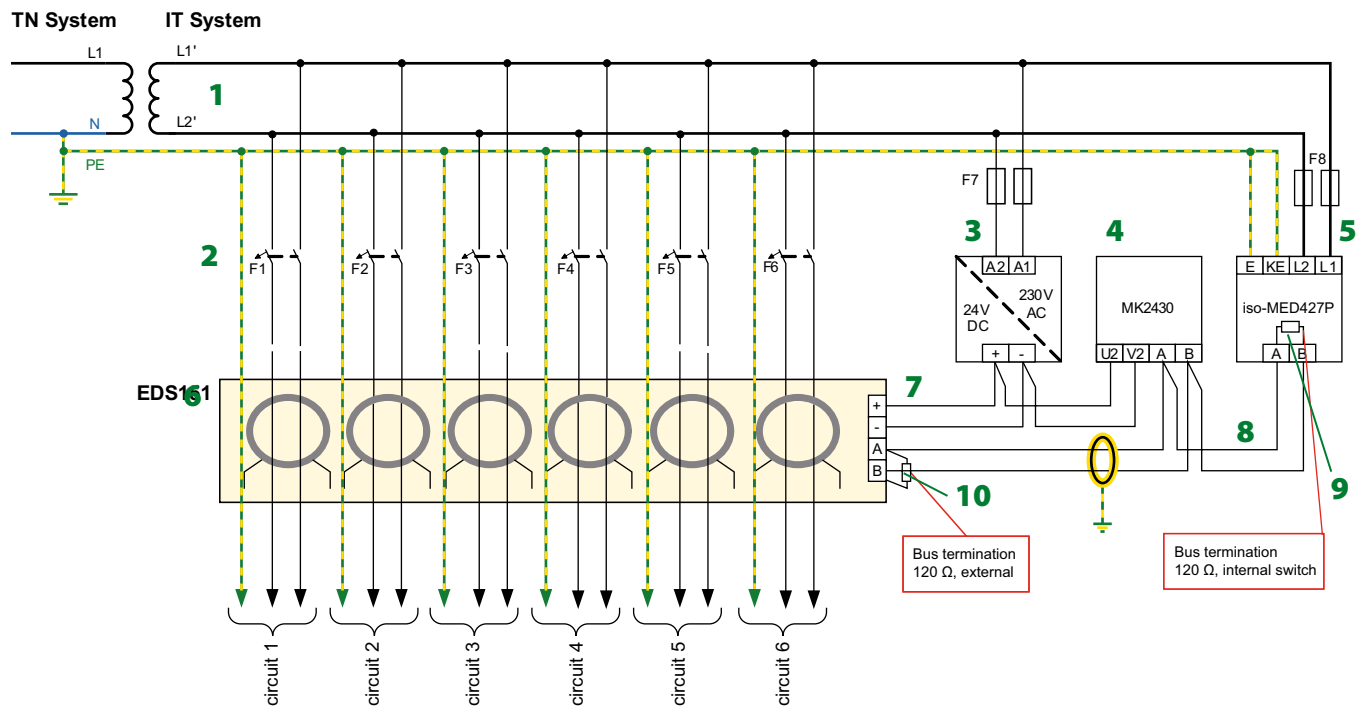
EDS151 complies with the requirements of IEC 61557-9.

Display and operating elements



- 1 - Opening for screw mounting
- 2 - Alarm LEDs for the measuring channels K1...K6
- 3 - CT openings for passing through the electrical wires for the measuring channels K1...K6
- 4 - ON/COM LED:
Power On LED and bus activity EDS151
- 5 - Set the ones position of the BMS address
- 6 - Set the tens position of the BMS address
- 7 - Connection to the power supply
- 8 - Connection for the RS-485, BMS bus

Wiring diagram



- 1 - Transformer for the IT system to be monitored
- 2 - Circuit-breakers for the circuits 1 to 6
- 3 - AN410 for DC 24 V supply voltage
- 4 - Alarm indicator and test combination MK2430 for indication of alarm messages from the EDS151 (BMS master)
- 5 - Insulation monitoring device iso-MED427P with locating current injector for insulation fault location systems
- 6 - Insulation fault locator EDS151 with integrated measuring current transformers
- 7 - Supply voltage U_S DC 24 V
- 8 - Serial interface BMS
- 9 - Terminating resistor BMS bus (120 Ω , internally connected)
- 10 - Terminating resistor BMS bus

Technical data

Insulation coordination acc. to IEC 60664-1 / IEC 60664-3

Rated insulation voltage	AC 250 V
Rated impulse voltage/pollution degree	6 kV / III

Voltage ranges

IT system being monitored:

Nominal system voltage U_n	AC 20...265 V / DC 20...308 V
Nominal frequency f_n	42...460 Hz

Supply voltage:

Supply voltage U_s	AC 17...24 V, DC 14...28 V
Frequency range of the supply voltage	50...60 Hz
Power consumption	≤ 1.5 VA

Measuring circuit

Number of measuring channels (per device/system)	6 / 528
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EDS function:

Response value	0.5 mA
Relative uncertainty	± 30 %
Rated frequency	42...460 Hz
Measuring range EDS function	0.5...2.5 mA
Response time in the AC system according to IEC 61557-9	≤ 8 s

RCM function:

Response value	1 A
Relative uncertainty	± 30 %
Frequency range	42...68 Hz

Displays

LEDs:

ON / COM, green	operation indicator / bus activity
ALARM K1...K6, yellow	EDS and RCM function

Interface

Interface / protocol	RS-485 / BMS
Connection	terminals A/B
Shielded cable (shield connected to PE on one side)	two-core, e.g.: J-Y(St)Y 2x0.8
Cable length	≤ 1200 m
Terminating resistor	120 Ω (0.25 W)
Device address, BMS bus	3...90 (3)*

Environment / EMC

EMC	IEC 61326-2-4
Operating temperature	-25 °C...+55 °C

Classification of climatic conditions acc. to IEC 60721:

Stationary use (IEC 60721-3-3)	3K5 (except condensation and formation of ice)
Transport (IEC 60721-3-2)	2K3 (except condensation and formation of ice)
Long-term storage (IEC 60721-3-1)	1K4 (except condensation and formation of ice)

Classification of mechanical conditions acc. to IEC 60721:

Stationary use (IEC 60721-3-3)	3M4
Transport (IEC 60721-3-2)	2M2
Storage (IEC 60721-3-1)	1M3

Connection

Connection type	pluggable push-wire terminals
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Connection properties:

rigid, flexible / conductor sizes AWG	0.2...1.5 mm ² / AWG 24...16
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Multi-conductor connection (2 conductors with the same cross section):

rigid	0.2...1.5 mm ²
flexible	0.2...1.5 mm ²
flexible with ferrule without plastic sleeve	0.25...1.5 mm ²
flexible with TWIN ferrule with plastic sleeve	0.25...0.75 mm ²
Stripping length	10 mm

General data

Operating mode	continuous operation
Position of normal use	any
Enclosure material	polycarbonate
Flammability class	UL94 V-0
Screw mounting	2 x M6
Tightening torque	1.5 Nm
Software version	D353 V1.0x
Weight	approx. 340 g

() * = factory setting

Ordering information

Measuring range	Response value		Supply voltage ¹⁾ U _S		Type	Art. No.
	EDS function	RCM function	AC	DC		
0.5...2.5 mA	0.5 mA	1 A	17...24V, 50...60 Hz	14...28 V	EDS151	B 9108 0101

¹⁾ Absolut values

Accessories

Type designation	Art. No.
Mounting clip for enclosure XM150	B 9108 0110

Suitable system components and accessories

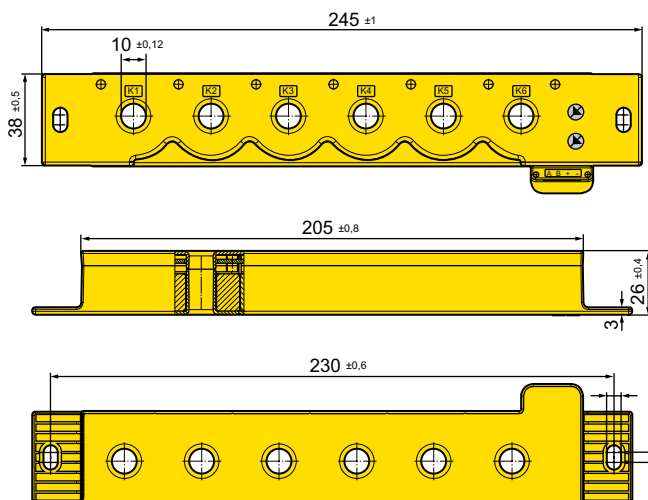
Type designation	Voltage supply	Output voltage	Explanation	Type	Art. No.
Power supply unit	AC 90...264 V, 47...63 Hz/DC 120...370 V	DC 24 V, 420 mA	For the supply of max. 6 EDS15...	AN410	B 924 209
	AC 230 V, 50...60 Hz	AC 20 V, 500 mA	For the supply of max. 6 EDS15...	AN450	B 924 201
	AC 127 V, 50...60 Hz	AC 20 V, 500 mA	For the supply of max. 6 EDS15...	AN450-133	B 924 203



According to IEC 60364-7-710 only power supply units providing "Safe separation" (reinforced insulation) may be used for the supply voltage between the primary and secondary side. All power supply units listed above comply with this requirement!

Dimension diagram

Dimensions in mm





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