

SB146

Fault voltage monitor



SB146


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Device features:

- Voltage monitoring of 6 secondary circuits of welding transformers
- Alarm LEDs for fault voltage per channel, PE/KE interruption, interruption of the measuring line
- Connection monitoring of measuring line and earth connection
- Fault memory
- Reset button
- 1 potential-free changeover contact
- 45 mm enclosure

Product description

The relays of the SB146 series monitor the secondary circuits of welding transformers for fault voltages. A total of six secondary circuits can be monitored.

Typical applications

- Monitoring of welding equipment according to DIN VDE 0545 (VDE 0545-1)

Function

Both measuring connections (z.B. E1/E2) are connected to different points on the same secondary circuit. Also the two earth connection terminals are connected to the PE conductor (PE) at different points. If the measured fault voltage value exceeds the response value, the alarm LED of the respective measuring circuit lights up and the alarm relay switches. The alarm relay works in N/C operation so that in the event of supply voltage failure a message is ensured.

When the fault (touch voltage) has been eliminated, the alarm relay switches back to its original state and the alarm LED goes out after pressing the reset button.

To ensure a safe condition, the connecting leads to the welding circuits being monitored and the connecting leads to earth are continuously monitored. If one or several measurement or earth connections are interrupted, the alarm relay switches.

In addition, the alarm LED ON (interruption earth connection) and/or-the alarm LED of the respective channel flashes.

The device function can be tested by pressing the test button.

Alarm messages

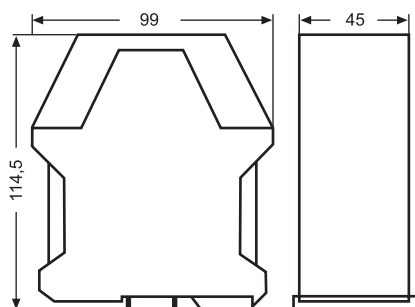
Condition				Messages		
U_s	$U_{F>}$	Connection		LED		Relay
		System	PE	ON	"E...K"	
on	–	OK	OK	■	–	on
on	–	open	OK	■	flashes	de-energised
on	■	OK	OK	■	on	de-energised
on	–	OK	open	flashes	–	de-energised
off	–	–	–	–	–	de-energised

Ordering information

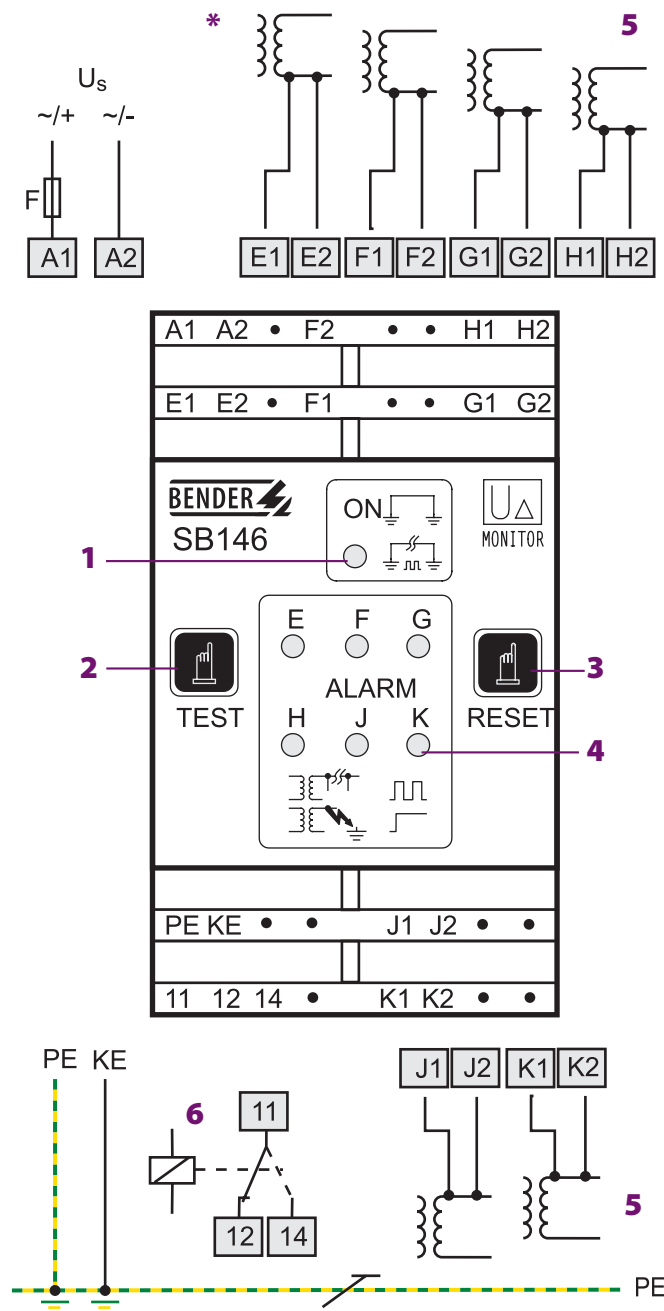
Supply voltage U_s		Type	Art. No.
AC	DC		
10...65 V	10...90 V	SB146-34	B 9308 3017
65...276 V	90...308 V	SB146-35	B 9308 3018

Dimension diagram

Dimensions in mm



Wiring diagram



- 1 - Power On LED "ON":
 - lights during operating mode
 - flashes in case of interruption of the connection PE/KE
- 2 - Test button "TEST"
- 3 - Reset button "RESET"
- 4 - Alarm LEDs
 - light in the case of fault voltage
 - flash in case of a fault in the connection monitoring
- 5 - Welding transformers monitored
- 6 - Alarm relay in N/C operation (marked by dotted lines: without fault voltage)
- 7 - 6 A fuse recommended.
- 8 - Unassigned inputs have to be bridged individually

Technical data

Insulation coordination acc. to IEC 60664-1

Rated insulation voltage	AC 800 V
Rated impulse voltage/pollution degree	6 kV/3

Supply voltage

Supply voltage U_s	see ordering information
Power consumption	≤ 3 VA

Measuring circuit

Nominal system voltage U_n	600 V
Nominal voltage range	0...1.15 x U_n
Response value	
U_F for sinusoidal voltages	AC 21.6...24 V, 50...1000 Hz
U_F for DC voltages	DC 19...24 V
Response time t_{an} at $1.1 \times U_{Fmax}$	≤ 100 ms
Response time for coupling monitoring	≤ 5 s
Recovery time t_b	≤ 500 ms

Switching elements

Number of changeover contacts	1 x 1
Operating principle	N/C operation

Fault memory behaviour

Electrical endurance, number of cycles	12000
Contact class IEC 60255-0-20	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

Environment/EMC

EMC immunity	acc. to IEC 61000-6-2
EMC emission	acc. to IEC 61000-6-4
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 (device in operation)	1 g/10...150 Hz
Vibration resistance IEC 60068-2-6 (device not in operation)	2 g/10...150 Hz
Ambient temperature, during operation	-10...+55 °C
Ambient temperature for storage	-45...+70 °C
Climatic class acc. to IEC 60721-3-3	3K5 (except condensation and formation of ice)

Connection

Connection type	modular terminals
Connection properties single wire/flexible	0.14...2.5 mm ²

Other

Operating mode	continuous operation
Mounting	any position
Degree of protection, internal components (IEC 60529)	IP30
Degree of protection, terminals (IEC 60529)	IP30
Screw mounting	no
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94V-0
Operating manual	BP308008
Weight	≤ 210 g



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