

Training in electrical installations



Features

The DB-1 board makes it possible to demonstrate the method of performing the following tests:

- fault loop impedance for assessment of the automatic power cutoff condition,
- RCD parameters,
- earthing resistance,
- soil resistivity,
- continuity test of equipotential bonding,
- insulation resistance,
- power network voltage.

It is possible to simulate typical failures and irregularities in the electrical network.



Measurements

Technical specifications of DB-1 board and features of individual functions:

- **Fault loop impedance:**
 - » measurement of L-N short-circuit with impulse currents up to 25 A and 60 ms,
 - » measurement of L-PE earth fault loop with impulse currents up to 20 mA.
- **RCD parameters (30 mA RCD):**
 - » measurement of RCD trip time,
 - » measurement of RCD trip current,
 - » earth resistance measurement,
 - » touch voltage measurement.
- **Soil resistivity:**
 - » resistivity measurement for three soil types (31 Ωm, 295 Ωm, 5.9 kΩm).
- **Earthing resistance. Measurement by:**
 - » 2-pole method,
 - » 3-pole method,
 - » 4-wire method,
 - » 3-pole method with clamp,
 - » two-clamp method,
 - » with the use of fault loop meter.
- **Continuity of connections:**
 - » measurement of equipotential bonding and connections of accessible parts.
- **Insulation resistance:**
 - » measurement of L-N insulation,
 - » measurement of L-PE insulation,
 - » measurement of N-PE insulation.
- **Voltage measurement:**
 - » voltage measurement in power socket.
- **Simulation of irregularities:**
 - » no continuity of earth conductor (R_E),
 - » safe voltage exceeded during RCD measurement (U_B),
 - » permissible RCD tripping current (I_A) exceeded,
 - » permissible RCD tripping time (t_A) exceeded,
 - » insufficient L-N insulation resistance ($R_{ISO}(L-N)$),
 - » insufficient L-PE insulation resistance ($R_{ISO}(L-PE)$),
 - » excessive fault loop impedance (Z_L).
- 230 V network socket.

Technical specifications

Basic technical data

RCD type	30 mA type AC
Power supply	230 V network
Power consumption	ca. 15 mW
Protection	2 x T3 14 A 250 V or 2 x F 4 A 250 V

Safety and work conditions

Measuring category according to EN 61010	II 300 V
Ingress protection	IP40
Type of insulation according to EN 61010-1 and IEC 61557	single
Operating temperature	10...+40°C
Storage temperature	-20...+60°C
Humidity	20...80%
Dimensions	405 x 300 x 140 mm
Weight	ca. 3,6 kg

Other information

Quality standard – development, design and production	ISO 9001
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Standard accessories



Test lead 0.7 m, black (banana plugs)

WAPRZ0X7BLBB



Mains cable with IEC C13 plug

WAPRZ1X8BLIEC



4x configuration jumper

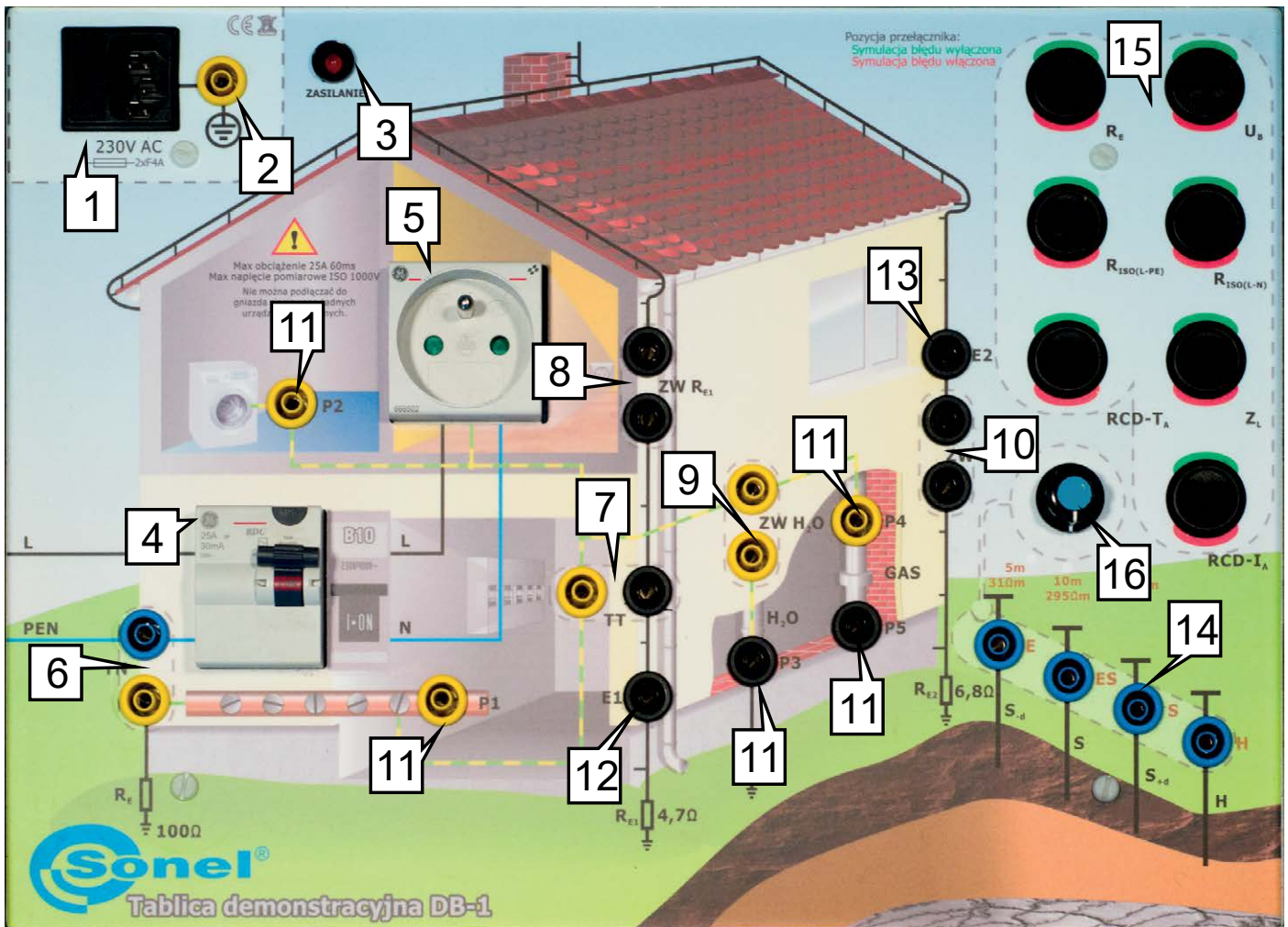
WAP0ZZW1



User manual



Declaration of verification



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|---|---|----|--|
| 1 | Power socket 230 V | 9 | Socket of equipotential bonding of H ₂ O pipe (ZW H ₂ O) |
| 2 | Additional PE socket | 10 | Socket of earth electrode R _{E2} (ZW R _{E2}) |
| 3 | 230 V power indicator lamp | 11 | Measurement points P1, P2, P3, P4, P5 |
| 4 | Residual current device (RCD) | 12 | Measurement point of earth electrode R _{E1} (E1) |
| 5 | Measurement socket | 13 | Measurement point of earth electrode R _{E2} (E2) |
| 6 | TN network cramp | 14 | Measuring electrode sockets |
| 7 | TT network cramp | 15 | Irregularity selection switches |
| 8 | Socket of earth electrode R _{E1} (ZW R _{E1}) | 16 | Soil type switch for soil resistivity measurements |