

# DEMONSTRATION BOARD

## DB-1



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# DB-1

• The board DB-1 simulates home distribution network. It enables to demonstrate the method of carrying out the following tests:

- short-circuit loop impedance for the evaluation of automatic supply disconnection,
- RCD disconnection time and current,
- earthing resistance,
- earth resistivity,
- continuity of equipotential bondings,
- insulation resistance,
- mains power voltage.

It is possible to simulate typical faults and irregularities in the power network.

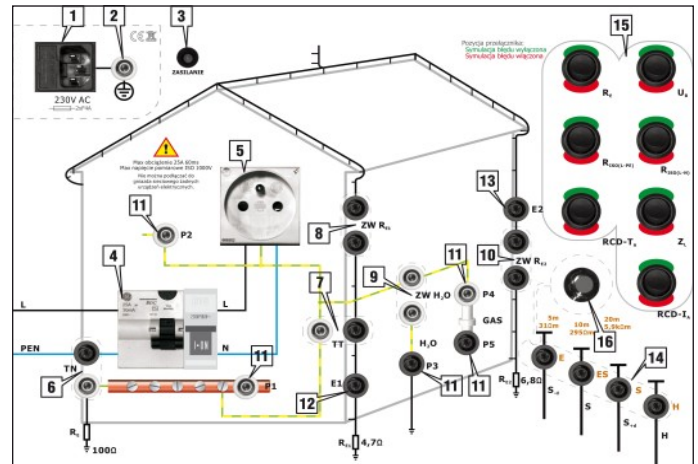
**The technical parameters of the board DB-1 and the properties of particular functions:**

- **Short-circuit loop impedance:**
  - measurement of the short-circuit loop impedance L-N with impulse current to 25A and 60ms,
  - measurement of the short-circuit loop impedance L-PE with current to 20mA.
- **RCD security parameters (switch 30mA):**
  - disconnection time measurement of RCD,
  - measurement of RCD disconnection current,
  - measurement of earthing resistance,
  - measurement of touch voltage.
- **Earth resistivity:**
  - measurement of resistivity for three types of ground (14Ωm; 300Ωm; 6,2Ωm).
- **Earthing resistance.**  
**The measurement with the method:**
  - 2-pole,
  - 3-pole,
  - 4-pole,
  - three pole method with clamps,
  - 2-clamps.
- **Continuity of connections:**
  - Measurement of equipotential bondings and connections of available parts.
- **Insulation resistance:**
  - measurement of L-N insulation,
  - measurement of L-PE insulation,
  - measurement of N-PE insulation.
- **Voltage measurement:**
  - measurement of voltage in the plug-in socket.
- **Simulation of irregularities:**
  - lack of continuity of earthing conductor ( $R_E$ ),
  - exceeding of safety voltage during the measurement RCD ( $U_B$ ),
  - leakage current ( $I_{Err}$ ),
  - too low insulation resistance L-N ( $R_{ISO(L-N)}$ ),
  - too low insulation resistance L-PE ( $R_{ISO(L-PE)}$ ),
  - too high short circuit loop impedance ( $Z_L$ ),
  - error of RCD system (RCD).

**Electric security:**  
 - type of insulation single, in accordance with EN 61010-1  
 - measurement category CAT II 300V in accordance with EN 61010-1  
 - protection class acc. to EN 60529 IP40

**Rated operational conditions:**  
 - operation temperature +10...+40°C  
 - storage temperature -20...+60°C  
 - humidity 20...80%

**Other technical data:**  
 - mains power supply 230V  
 - warranty 12 months  
 - dimensions 405 x 300 x 140 mm  
 - weight approximately 3,6 kg  
 - quality standard development, design and production in accordance with ISO 9001  
 - protection 2 x T3, 14A 250V, or 2x F4A 250 V  
 - power consumption approximately 15mW  
 - RCD type 30mA type AC



- 1) Power supply network socket 230 V.
- 2) Additional PE socket.
- 3) 230 V power supply signalling diode.
- 4) RCD switch.
- 5) Measurement socket.
- 6) TN network jumper.
- 7) TT network jumper.
- 8)  $R_{E1}$  (ZW  $R_{E1}$ ) earth electrode jumper.
- 9) Equipotential pipe connection jumper H<sub>2</sub>O (ZW H<sub>2</sub>O).
- 10)  $R_{E2}$  (ZW  $R_{E2}$ ) earth electrode jumper.
- 11) Measurement points P1, P2, P3, P4, P5.
- 12) Measurement point of the  $R_{E1}$  (E1) earth electrode.
- 13) Measurement point of the  $R_{E2}$  (E2) earth electrode.
- 14) Measurement electrode sockets.
- 15) Irregularity selection switch.
- 16) Ground type switch for ground resistivity measurements.

