



Cambridge Instruments
& Engg. Co.

EST. 1963 · HOWRAH, INDIA

TEST CERTIFICATE FORM

Wiring Insulation Resistance Test

Final circuits of a house, shop or building · live to earth and live to neutral, circuit by circuit

01 Installation details

Customer / premises

Address / location

Installation
☐ New ☐ Extension ☐ Periodic inspection
Test instrument, serial no.

Test date

Supply

Earthing system
☐ TN-S ☐ TN-C-S ☐ TT

Test voltage (V DC)

Distribution board / panel ID

Nominal voltage (V)

Calibration due

02 Circuit readings

MΩ. Circuit isolated, lamps and appliances removed, electronics disconnected, all switches on

Circuit no.	Description lights / sockets / AC ...	Cable size sq mm	Live-Live L to N	Live-Earth L to E	Neutral-Earth N to E	Minimum MΩ	Result
1							☐ Pass ☐ Fail
2							☐ Pass ☐ Fail
3							☐ Pass ☐ Fail
4							☐ Pass ☐ Fail
5							☐ Pass ☐ Fail
6							☐ Pass ☐ Fail
7							☐ Pass ☐ Fail
8							☐ Pass ☐ Fail
9							☐ Pass ☐ Fail
10							☐ Pass ☐ Fail
11							☐ Pass ☐ Fail
12							☐ Pass ☐ Fail
13							☐ Pass ☐ Fail
14							☐ Pass ☐ Fail

Three-phase circuits: also test between each pair of phases and from each phase to neutral and to earth. Record the lowest of the readings in each column. Disconnect anything that could be damaged by the test voltage (dimmers, electronic starters, surge protectors, meters) before you test.

03 Result and sign-off

Overall result ☐ SATISFACTORY ☐ UNSATISFACTORY

Earth continuity checked ☐ Yes ☐ No

Remarks, circuits to repair, re-test date

Signature and date: tester

Signature and date: customer / reviewer



Test voltage, minimum values and method

What to apply and what to expect on a low-voltage installation

01 Test voltage and minimum IR commonly quoted from IEC 60364-6 and national wiring rules. Check the rules that apply to your installation

Circuit nominal voltage GUIDE	Test voltage, DC	Minimum insulation resistance
SELV and PELV circuits	250 V	0.5 MΩ
Up to and including 500 V (normal 230 / 415 V wiring)	500 V	1.0 MΩ
Above 500 V	1000 V	1.0 MΩ

These are minimums, not targets. A healthy new installation normally reads far above 1 MΩ, often 100 MΩ or more. A reading that is only just above the minimum, or a reading that falls from one test to the next, points to damp, damage or an overloaded circuit. Some local rules or supply companies ask for a higher figure: use the strictest.

02 Method

- **Isolate and prove dead.** Switch off and lock off the supply, and test that the circuit is dead before connecting the tester.
- **Remove loads.** Unplug appliances, remove lamps, and disconnect any electronic device, surge protector or dimmer that could be damaged by the test voltage.
- **Test the combined circuits first.** Join all live conductors together and read to earth. If that passes, the individual readings will too, and you can save time on large boards. If it fails, test each live conductor to earth separately to find which one.
- **Live to live.** Test between line and neutral (and between phases on three-phase work) with all switches closed.
- **Hold the test** until the reading settles, usually about 1 minute, then record it. Discharge the circuit before disconnecting the leads.

03 Quick cause finder when a circuit reads low

Symptom	Likely cause
Low L to E only	Damaged cable, damp accessory, nail or screw through the cable
Low N to E	Neutral touching earth in a box or accessory, or a neutral joined across circuits
Low L to N	Pinched or crushed cable, a connected load left in circuit

Symptom	Likely cause
Reading climbs slowly then settles	Normal capacitive charging on a long cable
Reading wanders or collapses	Moisture, tracking or an arcing fault
Every circuit low on one board	Contaminated busbar or a connected neutral link

CIE INSTRUMENTS FOR THIS TEST

DIT-2500

Digital insulation tester with True-RMS multimeter, 100 to 2500 V

CIE/444

Analog megger range for 500 V and 1000 V wiring tests

DET-2000

Digital earth resistance tester for the earth electrode



See insulation testers

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