THE TWO-STAGE INSULATION RESISTANCE TEST (REG 643.3.2)

HOW DO YOU TEST A CIRCUIT WITH SENSITIVE EQUIPMENT ON IT?

For circuits with equipment that would be damaged by the test, or would influence it, the insulation resistance test is done in **two stages**. The inspector identifies those circuits.

Stage 1 · before

equipment NOT connected

conductors joined in blocks

500 V · L–N, L–E, N–E

these are the results you record

Stage 2 · after

equipment connected

250 V DC

live conductors → earth only

no L–N · at least 1 MΩ

proves nothing changed

Stage 1 proves the wiring at full test voltage before anything vulnerable is on it. Stage 2 proves the connected installation to earth at a voltage that won't harm the equipment — and never line to neutral, which would put the test voltage straight through it.

As the installer, plan for it.

On circuits with vulnerable equipment or neon switches, join the conductors in connector blocks for the test, then second-fix the equipment. It's ten minutes' extra work, against damaging a two-thousand-pound piece of kit and explaining that to the client.

Lower test voltage, lower range.

Some testers show a lower over-range figure at 250 V — **>200** instead of >999. It's still off the scale, and still a pass.

BS 7671 · Reg 643.3.2 · two-stage testing

Guidance Note 3 · 2.6.7 · the two-stage test

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