EARTH ELECTRODE TESTING: E1, E2 AND E3

E1, E2 OR E3. WHICH ONES ARE LIVE?

Guidance Note 3 · 2.6.13 · pp.78–83 (E1 p.78, Figure 2.26 p.79, E2 p.80, E3 p.83). Three methods, and the thing to remember is that **they are not all dead tests**.

METHOD	WHAT YOU DO	DEAD OR LIVE	ACCURACY
E1	Test directly on the electrode. A dead test: the **earthing conductor is disconnected**.	**Dead**	Most accurate
E2	Clamp around the earthing conductor — single-coil or two-coil. The conductor **stays connected to the MET** and the other rods stay in, so the supply can stay on. Then apply the formula.	**Live**	More accurate if there are a number of earth electrodes
E3	An earth fault loop impedance test — effectively a Z_e test, taken at the incoming supply. Main switch off and the earthing conductor disconnected, usually at the MET — but your leads are on the live supply side.	**Live**	May not be as accurate as a dedicated earth electrode tester

E3 is the one you will actually do.

Most testers do it natively, so there is little reason to spend hundreds on dedicated kit you might use once a year. E1 is the most accurate, but E3 is the common one.

When is E2 the better choice?

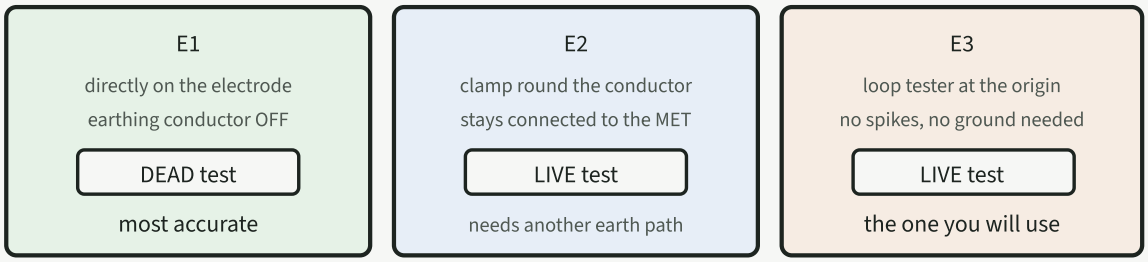
Guidance Note 3 says method E2 is **more accurate if there are a number of earth electrodes** (

Guidance Note 3

· 4.6 · p.139). The clamp also needs at least one other electrode or earth path for the test current to return through. The book does not rank E2 against E3.

Two likely questions.

How many methods are there for testing an earth electrode; and what type of test does method E3 use.



✋ They are not all dead tests. Only E1 is — and that is the one the exam likes to ask about.

E1 is the most accurate: a dead test, with the earthing conductor disconnected. E3 needs no test spikes, which is why it is the common one on site.

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