# EARTHING SYSTEMS AND ZE

## TN-C-S, TN-S OR TT. WHAT ZE SHOULD YOU EXPECT?

| SYSTEM | KEY POINT | EXPECTED MAX ZE |
|---|---|---|
| **TN-C-S** (PME) | Neutral and earth combined in the supply (the **PEN** conductor, protective earth neutral), separated at the cut-out | 0.35 Ω |
| **TN-S** | Earth and neutral separate the whole way, with the earth via the cable sheath | 0.8 Ω |
| **TT** | Earth electrode, **provided and paid for by the client**. Ze is high because of ground conditions: a metal rod in the general mass of earth. Above 200 Ω the earth connection becomes unstable. | up to 200 Ω |

**Electrician's Guide to the Building Regs** · maximum Ze values: 0.35 Ω TN-C-S, 0.8 Ω TN-S · **p.53**

**Ze** only measures the external earth path, from the transformer to the incoming MET or consumer unit. Under a fault the circuit breaker should disconnect within the Table 41.1 time (**0.4 s** on TN, **0.2 s** on TT, for final circuits) and a 30 mA RCD trip in **300 ms**.

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