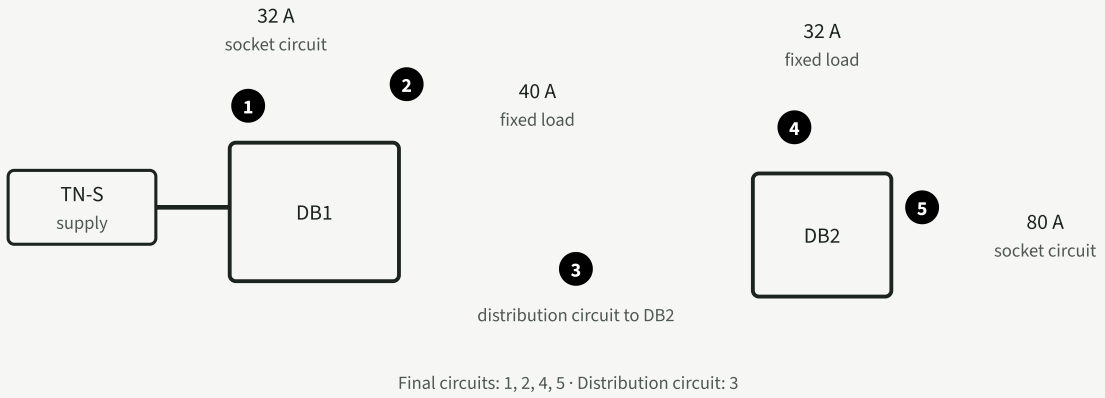
ONE INSTALLATION, FIVE CIRCUITS: DISCONNECTION TIMES WORKED THROUGH

TABLE 41.1 OR NOT, CIRCUIT BY CIRCUIT?

OUR EXAMPLE INSTALLATION

To cover every case, we'll use one installation with **five circuits**. It's on a **TN-S** earthing arrangement, which is common in the UK. It doesn't matter whether it's domestic, commercial or industrial. The rules are the same.

- The supply enters the building and feeds **DB1**.
- DB1 has **two final circuits** (red and green) and one **distribution circuit** (yellow) that feeds **DB2**.
- DB2 has **two final circuits** (blue and purple).



Final circuits: 1, 2, 4, 5 · Distribution circuit: 3

Drawn for these notes. Five circuits, one of each type you'll meet: **1** sockets 32 A, **2** fixed 40 A, **3** distribution, **4** fixed 32 A, **5** sockets 80 A.

FINAL CIRCUIT OR DISTRIBUTION CIRCUIT?

Final circuit	A circuit that is **finally being used**: it supplies the lights, the heaters, the cooker, the shower or the socket-outlets directly.
Distribution circuit	A circuit that feeds **another distribution board** (like the yellow submain from DB1 to DB2). It doesn't supply the equipment itself.

BS 7671 · Part 2 Definitions · "Circuit, final" and "Circuit, distribution"

WORTH A READ. CHECK YOUR COPY FOR THE PAGE

WORKING THROUGH THE FIVE CIRCUITS

For each circuit, ask: **Is it a final circuit? Does it supply sockets or fixed equipment? What's its rating?**

CIRCUIT	WHAT IT IS	WHICH RULE	MAX TIME (TN, 230 V)
1 · red	Final circuit, **sockets**, 32 A (a typical ring or radial)	**Table 41.1** (sockets ≤ 63 A)	0.4 s
2 · green	Final circuit, **fixed** equipment, 40 A (e.g. a shower)	**Reg 411.3.2.3** (fixed > 32 A)	5 s
3 · yellow	**Distribution circuit**, DB1 to DB2	**Reg 411.3.2.3** (never Table 41.1)	5 s
4 · blue	Final circuit, **fixed** equipment, 32 A (e.g. a cooker)	**Table 41.1** (fixed ≤ 32 A)	0.4 s
5 · purple	Final circuit, **sockets**, 80 A	**Reg 411.3.2.3** (sockets > 63 A)	5 s

If the installation were **TT** instead, circuits 2, 3 and 5 would use **Reg 411.3.2.4** (up to **1 s**), and circuits 1 and 4 would use the TT row of Table 41.1 (**0.2 s**).

"FIXED EQUIPMENT" MEANS

Anything that's **fixed current-using equipment** rather than something that plugs in. In practice it's **any circuit that isn't a socket circuit**: a shower, a cooker, a heater.

THE DB2 TRAP

> **Common mistake**Some people think that because DB2 is fed by a distribution circuit, the circuits from DB2 can't be final circuits. **Wrong.** Circuits 4 and 5 are still **final circuits**. Look at **each circuit on its own**, not at what feeds its board.

SOCKETS ABOVE 63 A?

You'll almost never see this in a house, but it happens in **commercial and industrial** work. A "socket-outlet" isn't only a 13 A 3-pin socket on a wall. It's **anything classed as a socket**, such as an industrial socket for a large machine that plugs in and draws a high current.

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