RCD TYPES: AC, A, F AND B

TYPE AC, A, F OR B?

There are now lots of different types of RCD. **Chapter 53** sets them out in detail, at **Regulation 531.3.3**.

- **Type AC** only detects **AC** (sine-wave) residual currents.
- **Type A** adds pulsating DC, **Type F** adds mixed-frequency currents, and only **Type B** detects smooth DC.
- The limits in 531.3.3: a **Type A** still works with smooth DC up to **6 mA**, a **Type F** up to **10 mA**, and a **Type B** up to **0.4 × IΔn or 10 mA**, whichever is higher.

A **Type AC** should **only** be installed **where it's known that the load contains no DC components**. In modern life, there are very few times you could fit a Type AC.

So the focus is now on Types A, F and B:

- **Type A** is the most common. It meets the **minimum requirement** and is the "one size fits all".
- **Types F and B** are for more specific jobs, often seen with things like **EV charging**.

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residual current waveform	Type AC	Type A	Type F	Type B
AC (sine wave)	✓	✓	✓	✓
pulsating DC	–	✓	✓	✓
mixed frequency	–	–	✓	✓
smooth DC	–	–	–	✓

Our summary of the types. Each type detects everything the one to its left does, plus more. Types A and F cope with small amounts of smooth DC (up to 6 mA and 10 mA), but only Type B is designed to detect smooth DC fully.

> **Watch out: "A, B and F detect DC"** Only **Type B** detects **smooth DC** residual current. **Type A** detects AC plus **pulsating DC**. **Type F** adds **mixed-frequency** currents (such as from inverter-driven equipment). A large smooth DC current can stop a Type A or F from working properly. That's why EV charge points (**Section 722**) need a **Type B**, or a Type A or F with a separate 6 mA DC detection device.

Sparky's closing advice: be clear on **when** an RCD has to be installed and **which job** it's doing, and use the regs to your advantage.

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