UNDERVOLTAGE, COORDINATION AND MONITORING — 535 TO 538

WHY SHOULD ONLY THE NEAREST DEVICE TRIP?

These are short sections. You don't learn them, you **locate** them — recognise the keyword in the question and flick straight there.

535 — PROTECTION AGAINST UNDERVOLTAGE

This is the device-selection end of **445**, which you met in Part 4 earlier. The danger is what a drop or loss of voltage, and its **return**, can do: equipment **restarting by itself** when the voltage comes back, with someone's hands on it, or equipment being damaged by running on too low a voltage. The regulation is mostly framed around relays and motor circuits, but the principle applies to any circuit.

536 — COORDINATION, ALSO KNOWN AS SELECTIVITY

Section 536 is headed **coordination**. **Selectivity** is the same idea under its other name, and it is defined in Part 2 (p.48). Know both words.

> § **536.1 — mutual interaction.** Whatever overcurrent protective devices you use must coordinate with the protective and switching devices around them: RCBOs, contactors and starters, switch-disconnectors. They have to work together rather than fight each other.

- Selectivity applies to **overload conditions** as well as short circuits and residual currents.
- You can have selectivity **between fuses and breakers**, and between **overcurrent devices and RCDs**.
- There is more than one way of achieving it, and the section lists options. **536.3** lists the requirements — that's the bit worth highlighting.

Don't confuse it with the problem from earlier: put too many circuits behind one 30 mA RCD and accumulated leakage trips it with no fault present. That isn't selectivity; it's a design and division-of-circuits problem (531.3.2: standing leakage no more than 30 % of $I_{\Delta n}$).

538 — MONITORING DEVICES

This is where **insulation monitoring devices (IMDs)** for **IT systems** sit, alongside residual current monitoring. Don't muddle an IMD with an RCM — different job, different device.

There's another standard behind these.

Reg **532.3** (p.168) says **residual current monitors shall be in accordance with BS EN 62020**. Being mentioned in BS 7671 doesn't mean BS 7671 is the whole requirement.

535 · devices for protection against undervoltage

536 · coordination / **selectivity** ★

536.3 · the list of requirements

538 · monitoring devices · IMDs for IT systems

445 · undervoltage (Part 4)

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