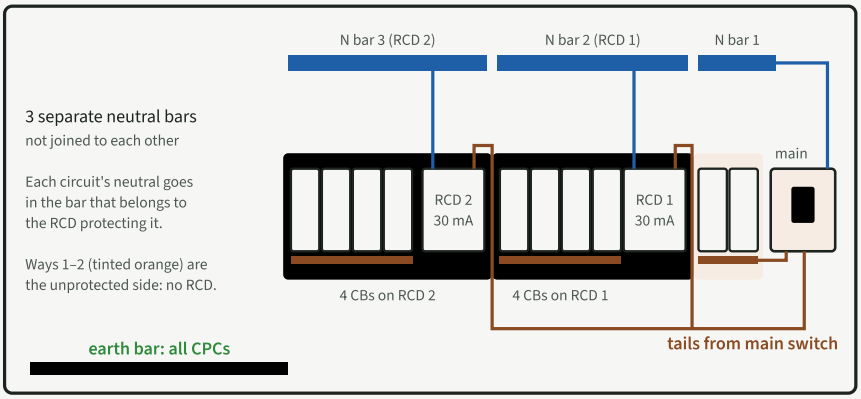
THE SPLIT-LOAD BOARD

HOW MANY NEUTRAL BARS ON A SPLIT-LOAD BOARD?

A split-load board shares **RCDs** between groups of circuit breakers. Ours is a **10-way** board with the same main switch as before, plus **two RCDs**:

- Both RCDs are **30 mA, Type A** (the sine wave plus pulsating-DC symbol), and each is rated as an **80 A** isolator: it can switch 80 A through. (The main switch carries 100 A.)
- The RCDs can be **slid along** the rail to space the board out.
- The **busbars come loose** in the box: two with **4 spines** and one with **5**. Read the **manufacturer's instructions** before cutting any down to suit. If they say don't, doing it voids the warranty.
- Plastic **busbar end covers** are included to go over unused spines. Leave the plastic sleeve on the busbar itself.
- The thick cables between the main switch and the RCDs come **pre-fitted** from the factory.



Redrawn split-load layout. Anything between the main switch and RCD 1 is on the **unprotected side** and uses **neutral bar 1**. Circuits on RCD 1 use **neutral bar 2**, and circuits on RCD 2 use **neutral bar 3**. The easy check: each RCD has a short cable running up to its own neutral bar.

HOW IT'S FED

- Two **brown** tails leave the bottom of the main switch: one to the top of **each RCD**. So both RCDs are fed **directly** from the main switch, and turning the main switch off turns **everything** off.
- On the neutral side, one cable goes from the main switch to a neutral bar, and another goes to the RCDs. Each RCD's **neutral out** goes up to its **own neutral bar**.
- The loose busbars fit into the **line terminal** at the bottom of each RCD. Then the CBs drop onto the spines and hook onto the DIN rail.
- A circuit is just line joined to neutral **through a load**. Line comes from the RCD's busbar through the CB. Neutral must go back to **that same RCD's** neutral bar.

> **The golden rule of split-load boards**There are **three separate neutral bars**, isolated from each other, but **one shared earth bar** for all CPCs. Put every circuit's neutral in the bar that belongs to the RCD protecting it. **Get it wrong and you'll get tripping** (see section 11).

THE UNPROTECTED SIDE

Our example: an **SWA** (steel wire armoured) cable out to a **garage or shed**, with its own small consumer unit there.

- The circuits **in** the shed may well need RCD protection, so you fit **RCBOs** in the shed board.
- If the shed's feed cable were on RCD 1 in the house, a bit of damp in the shed could trip RCD 1 and knock off **every circuit in the house** on that side. That isn't against the rules, just frustrating.
- So you might decide the **distribution circuit** from house to shed doesn't need an RCD (the SWA has an earthed metallic covering), and put its CB on the **unprotected side**, between the main switch and RCD 1. Its neutral goes in **neutral bar 1**.

RCBOS ON A SPLIT-LOAD BOARD

- An RCBO can go on the **unprotected side**. Its fly lead goes into **neutral bar 1**, and the circuit's line and neutral go into the RCBO.
- **Never** put an RCBO **under an RCD**. That puts two 30 mA RCDs in series and they end up in conflict: an earth fault on that circuit might trip the RCD **as well as**, or **instead of**, the RCBO, depending on which one is slightly more sensitive from the factory. You lose **selectivity** and waste the money you spent on the RCBO.

Free section from Sparky Study Notes. The full Level 3 notes, 1,463 practice questions and the video lessons: sparkystudynotes.co.uk