

# MCCB, SECTION BOARD & DISTRIBUTION BOARD

## Technical Data Sheet | Industrial & Commercial LV Distribution

Typical technical parameters and specification considerations for industrial and commercial low-voltage distribution installations. Final ratings and arrangements are project-specific and subject to design, site conditions and manufacturer data.

### MCCB TECHNICAL DATA

| PARAMETER             | TYPICAL REQUIREMENT / DESIGN CONSIDERATION                                                           |
|-----------------------|------------------------------------------------------------------------------------------------------|
| Application           | Incomers, submains, section boards, distribution boards, machinery and larger plant supplies.        |
| Rated current         | Selected to suit design current, cable capacity, load characteristics and assembly rating.           |
| Frame / trip rating   | Selected to suit the circuit and required adjustment range; manufacturer-specific.                   |
| Breaking capacity     | Must be adequate for the prospective short-circuit current at the installation point.                |
| Trip protection       | Thermal-magnetic or electronic trip unit depending on device and application.                        |
| Adjustable protection | May include long-time/overload, short-time and instantaneous functions depending on trip unit.       |
| Poles                 | Typically 3P or 4P subject to system design, neutral requirements and switching arrangement.         |
| Accessories           | Auxiliary contacts, shunt trip, undervoltage release, motor operators and interlocks where required. |
| Coordination          | Discrimination/selectivity and any manufacturer back-up/cascading data to be considered.             |

### SECTION BOARD / DISTRIBUTION BOARD DATA

| PARAMETER                | TYPICAL REQUIREMENT / DESIGN CONSIDERATION                                                         |
|--------------------------|----------------------------------------------------------------------------------------------------|
| System voltage           | Typically 400/230 V AC, 50 Hz for UK three-phase LV installations; verify site supply.             |
| Assembly rating          | Selected to suit maximum demand, incomer, busbar rating and anticipated future load.               |
| Incoming device          | Switch-disconnector or MCCB arrangement to suit the project design.                                |
| Outgoing devices         | MCCBs, MCBs, RCBOs or other compatible protective devices as required.                             |
| Short-circuit capability | Assembly and devices selected for the fault conditions at the point of installation.               |
| Neutral arrangement      | Sized and configured for the connected loads and system requirements.                              |
| Enclosure / IP rating    | Selected for the installation environment, access and location.                                    |
| Cable entry              | Top, bottom or other manufacturer-approved arrangement to suit cable routes and termination space. |
| Metering                 | Multifunction metering, CT metering or sub-metering can be incorporated where required.            |
| Surge protection         | SPD provision and coordination assessed as part of the electrical design.                          |
| Spare capacity           | Spare ways and load capacity can be incorporated for foreseeable future expansion.                 |

### SUBMAIN & INSTALLATION DATA

| PARAMETER            | TYPICAL REQUIREMENT / DESIGN CONSIDERATION                                                           |
|----------------------|------------------------------------------------------------------------------------------------------|
| Cable type           | SWA, multicore or single-core cable arrangements selected to suit the installation.                  |
| Cable sizing         | Based on design current, correction factors, voltage drop, fault protection and installation method. |
| Parallel conductors  | May be used for larger supplies subject to correct design, routing and termination.                  |
| Protective conductor | CPC/earthing arrangement selected and sized to suit the fault protection design.                     |
| Containment          | Cable ladder, tray, trunking or other suitable containment sized for cables and environment.         |
| Terminations         | Suitable glands, lugs, crimping systems, supports and manufacturer-specified terminal torque.        |
| Labelling            | Board, device, circuit, isolation and warning labels provided as applicable.                         |

### DESIGN, TESTING & DOCUMENTATION

| PARAMETER           | TYPICAL REQUIREMENT / DESIGN CONSIDERATION                                                                    |
|---------------------|---------------------------------------------------------------------------------------------------------------|
| Design assessment   | Maximum demand, diversity, supply characteristics, fault level and existing infrastructure.                   |
| Verification        | Continuity, insulation resistance, polarity, phase sequence, loop impedance and fault current as applicable.  |
| Device verification | Protective-device type, rating and settings checked against the circuit design.                               |
| Functional testing  | Isolation, switching, controls, metering and protective functions checked where applicable.                   |
| Certification       | Appropriate electrical certification and schedules provided for the completed work.                           |
| Technical records   | Board schedules, settings, manufacturer information and single-line/as-installed information where required.  |
| Maintenance         | Periodic inspection, maintenance and thermal imaging may be incorporated into the ongoing maintenance regime. |

### REFERENCE FRAMEWORK

BS 7671 – Requirements for Electrical Installations | BS EN IEC 61439-1 / 61439-2 – Low-voltage switchgear and controlgear assemblies | Electricity at Work Regulations 1989 – workplace electrical safety requirements.

**Note:** This technical data sheet provides typical design and specification considerations only. It is not a manufacturer product data sheet. Actual current ratings, fault ratings, device settings, enclosure ratings, cable sizes and component selections must be established for each project using site data, calculations and the relevant manufacturer's technical information.