Low Voltage Systems
MNS and MNS iS PowerCenter
For our customers, it’s all about saving space – maximizing functionality for power distribution systems while reducing equipment footprint. ABB has answered that need with MNS and MNS iS PowerCenter solutions.
Availability and reliability
PowerCenter solutions provide pure functionality and seamlessly integrated performance for a wide range of applications:
- Compact incoming and bus-tie ACBs
- Power distribution
- Feeders (in conjunction with a motor control center)

PowerCenter is designed to provide the highest possible performance at mid-high currents (see electrical characteristics) at protection classes up to IP54. Fully tested and IEC compliant, it performs consistently and reliably in any geographical location.

PowerCenter combines the long-term experience, energy efficiency, grid reliability, and industrial productivity of our market-leading MNS system that bears the stamp of ABB's renowned SafetyPlus philosophy.

Flexibility with ease of maintenance
PowerCenter integrates ABB's state-of-the-art, fuseless protection technology with MNS and MNS iS. The MNS platform is designed for full front access with individual doors for each compartment that create enclosed, segregated, protected spaces. Safe, simple and efficient maintenance saves time and reduces costs by up to 90% over the plant's life cycle.

PowerCenter technology at a glance
Incomer, feeder and bus-tie solutions using two air circuit breakers (ACBs) per section
- ABB SACE ACBs X1, E2, E3 - 3pole and 4pole switched
- Designed for 400 and 600 mm device compartment width
- Separate compartment doors
- Rigid arc barrier to the main busbars
- 200 and 400 mm deep busbar compartment
- Segregation up to form 4b
- Separate power cable compartments at top and bottom
- Integrated into MNS iS via MConnect

Multiple conventional feeders per section using plug-in modules with moulded-case circuit breakers (MCCBs)
- ABB SACE MCCBs XT2, XT4 fixed and plug-in breakers, and T5 fixed breaker, 3pole and 4pole switched
- Designed for 400 and 600 mm wide plug-in modules
- Separate compartment doors and external operation
- Multi-functional wall
- 200 and 400 mm deep busbar compartments
- Segregation up to form 4b
- Common power cable compartment 200 and 400 mm wide

Note: All pictures show protection class IP54. Ventilated protection classes up to IP43 are also available as standard.
Compact, reliable and safe, ABB’s high-performance PowerCenter is the ideal solution to focus on customer needs by extending the power distribution portfolio.

**Saving space, lowering costs**
MNS and MNS i/S PowerCenter is a compact solution that saves up to 33% of groundfloor space over current solutions. By limiting the number of auxiliaries, we target our customers’ need to extend power distribution capabilities within a smaller footprint that delivers optimal function and cost savings.

**Optimized back-to-back design**
- 4 ACBs with 1600 A each can fit on a footprint of 600 mm width and 1400 mm depth
- multiple MCCB design with plug-in modules accommodates up to 16 XT2 breakers in 600 mm width and 1400 mm depth

**Pure front access design**
- the same 4 ACBs need a footprint of 1200 mm width and 600 mm depth
- multiple MCCB design with plug-in modules accommodates up to 16 XT2 breakers in 1200 mm width and 600 mm depth

**Delivering maximum safety**
Being fully compliant with IEC, PowerCenter solutions not only provide consistent, reliable, trouble-free performance in any geographical location, they are also the safest on the market.

The PowerCenter solution of the MNS platform seamlessly integrates with MNS and MNS i/S in accordance with ABB’s rigorous SafetyPlus philosophy, and is compliant with IEC 61439-1 and -2 as well as IEC 61641. Arc fault protection features ABB’s well-proven arc barriers preventing the arc from internal propagation.

- Two ACB solution is available with rigid arc barrier
- Multiple MCCB solution is available with multi-functional wall embedding the distribution bars
- Separate doors for each compartment for extra protection
- Forms of internal separation up to Form 4b provide enclosed protected spaces for safe operation

**The latest in information management**
ABB’s two ACB solution is fully integrated into the functionality of MNS i/S, and includes all varieties of information provided by current HMI technology with a technician-friendly interface for:

- Remote management
- Plug & produce
- Real-time plant condition monitoring

Alternatively, the multiple MCCB solution as conventional feeders without communication interface is the obvious choice for economical and compact power distribution in MNS i/S motor control centers.
Standards and Approvals

Standards
- IEC 61439-1 and -2, design verification by testing
- CEI 61439-1 and -2, design verification by testing
- DIN EN 61439-1 and -2, VDE 0660 part 600-1 and -2

Test certificates
- ASTA, Great-Britain
- IPH Berlin, Germany
- DLR German Research Institute for Aerospace e. V., Jülich **
- Earthquake Test for Security Areas in Nuclear Power Stations **
- IABG Industrieanlagen Betriebsgesellschaft, Vibration and shock tests **

Mechanical characteristics

Dimensions
- Cubicles and supporting structures: DIN 41488 Basic grid size
- Recommended height: 2200 mm
- Recommended width / Plug-in modules with MCCBs:
  - Equipment compartment: 400, 600 mm
  - Power cable compartment: 200, 400, 600 mm
  - Cubicle total: 600, 800, 1000, 1200 mm
- Recommended width / 2 ACBs per section:
  - Equipment compartment for Emax X1: 400, 600 mm
  - Equipment compartment for Emax E2: 400, 600 mm
  - Equipment compartment for Emax E3: 600, 800 mm
  - Power cable compartment: 200 mm
  - Cubicle total: 400, 600, 800, 1000 mm
- Recommended depth total: 600, 800, 1000, 1200 mm

Degrees of protection
- According to IEC 60529 or DIN 40050 IP 30 up to IP 54 *

Plastic components
- Halogen-free, self-extinguishing, flame retardant, CFC-free

Steel components
- Frame (C shape profiles): 2.0 mm
- Frame (Transverse sections): 2.5 mm
- Cladding, external: 1.5 mm
- Cladding, internal: 1.5 / 2.0 mm
- Compartment bottom plates: 2.0 mm

Surface protection
- Frame, incl. internal subdivisions: Zinc or Alu-zinc coated
- Transverse sections: Zinc or Alu-zinc coated
- Enclosure: Zinc or Alu-zinc coated and powder coated (RAL 7035)

Options (on request)
- Busbars: Insulated with heat-shrinkable sleeving

Electrical characteristics

Rated voltages
- Rated insulation voltage $U_i$ up to 1000 V 3~ ***
- Rated operating voltage $U_e$ 690 V 3~
- Rated impulse withstand voltage $U_{imp}$ 6 / 8 / 12 kV ***
- Overvoltage category II / III / IV ***
- Degree of pollution 3
- Rated frequency up to 60 Hz

Rated current
- Copper busbars:
  - Rated current $I_e$ up to 6300 A
  - Rated peak withstand current $I_{pk}$ up to 250 kA
  - Rated short-time withstand current $I_{cw}$ up to 100 kA
- Copper distribution bars:
  - Rated current $I_e$ up to 2000 A
  - Rated peak withstand current $I_{pk}$ up to 176 kA
  - Rated short-time withstand current $I_{cw}$ up to 100 kA
- 2 ACBs per section:
  - Rated current $I_e$ up to 2000 A *
  - Rated condition short-circuit current $I_{cc}$ up to 690 V, 100 kA *
- Multiple MCCBs in plug-in modules:
  - Rated current $I_e$ up to 360 A *
  - Rated condition short-circuit current $I_{cc}$ up to 690 V, 80 kA *

Arc fault containment
- Rated operational voltage: 400 V - 690 V *
- Prospective short-circuit current: 65 kA - 100 kA *
- Duration: 300 ms *
- Criteria: 1 to 7 *

Forms of separation:
- up to Form 4b

Service conditions
- Altitude: up to 2000 m
- Ambient temperature: 35 °C
- Special service conditions: on request

MNS i/S Communication Interfaces

Protocols
- Profibus DP / DP V0 / DP V1
- ProfiNet I/O
- Modbus RTU
- Modbus TCP

Interfaces
- Web Interface
- OPC Data Access (DA)
- OPC Alarms and Events (AE)

MNS Communication Interfaces

Protocols and Interfaces
- ACBs X1 acc. to ABB SACE catalogue 1SDC200009D0203
- ACBs E2, E3 acc. to ABB SACE catalogue 1SDC200006D0208
- MCCBs XT2, XT4 and T5 in plug-in modules are not foreseen to be equipped with any communication

* Design verification under preparation
** Derived from MNS
*** Depending on the electrical equipment