



Low Voltage Systems

MNS PDU

Power Distribution Units

Power and productivity
for a better world™



MNS PDU

Tested, tried and trusted



MNS - Global system design

The renowned ABB MNS system, manufactured for over 30 years to exacting standards in over 30 countries, now includes the latest in intelligent Power Distribution Unit (PDU) technology.

ABB fully understands that PDU's are to be designed so they can be operated with a high degree of confidence at all times in large data facilities which attract high contractual liabilities (penalties) for system downtime.

The ABB PDU is designed such it offers high operational reliability and availability, with the ability to adapt through the life of the data centre by providing both scalable and modular designs with maximum flexibility, whilst at all times providing optimum personal protection.

Switchgear evolution

ABB is the global leader for low voltage switchgear with over 2 million MNS cubicles delivered worldwide since the inception of this system in 1973. ABB's history in switchgear can be traced back even further, to the 1890's when we first manufactured switchgear systems in Sweden.

With these credentials it is no surprise that the MNS system is the benchmark for operational safety, reliability and quality.

The Challenge

Conventional switchgear used in power distribution networks for commercial installations is generally unsuitable for large data processing systems due to the additional demands placed on the supply network and the need for greater useable or lettable floor space. For example, high value computer installations often require all data processing operations of national and multi-national corporations to be concentrated in central locations. These data centres operate on a 24 hour 365 day basis.

System downtime or “green periods” are extremely rare in the data centre environment; consequently, traditional routine maintenance becomes unrealistic. Data corruption or loss following an unscheduled power interruption of just a few minutes, can take weeks to retrieve, and attract large financial penalties. The effect on operations and revenue generation can be serious so the need for ultimate reliability in the power distribution system is of paramount importance.

The Solution

An PDU from ABB provides key solutions for data centres or computer rooms including:

- Non intrusive maintenance, working whilst live, expansion without powering down.
- With maximum operating voltages up to 690V AC and busbar joints being Lloyds approved and ‘maintenance free’ the design lends itself to 24/7 operation without the need to power down.
- The key component being the encapsulated riser bar or ‘MultiFunction Wall’. The IP20 unique ‘labyrinth’ connection which suppresses and extinguishes arcs allows for working whilst live. The MNS range of PDU’s allows for no accidental contact with the bars by using a ‘labyrinth’ connection which suppresses and extinguishes arcs. The MNS range being fully type tested and arc fault tested and certified to IEC 61641- VDE 0660 Part 500.
- Flexible - Backward and future compatible with its scalable and modular design using plug and grow techniques.

- Other PDU designs are based on 200A or 250A devices, these require 3 times the number of PDUs to be installed for the same number of outgoing circuits therefore giving ABB PDU’s a reduced footprint.
- Maximum operating voltages are up to 690V AC with current ratings up to 6300A.
- Additional circuits can be added without the need for a shutdown .
- Incoming supplies have facilities to test EPO systems without the need to power down.
- The ABB PDU can be reconfigured to meet new needs and requirements with hardware changes typically every 4-5 years. This ensures the operational cost of the ABB PDU is kept to a minimum.
- The ABB PDU lends itself to SP&N, SPSN, TP&N or 4P or a combination of all. PDU’s can therefore be transferred from country to country yet comply with National and International standards across Europe.

The PDU represents the culmination of 20 years experience in the most demanding of secured supply environments with some of the world’s leading users, such as financial institutions, data centres, and hospitals.

MNS PDU for high resilience infra structures

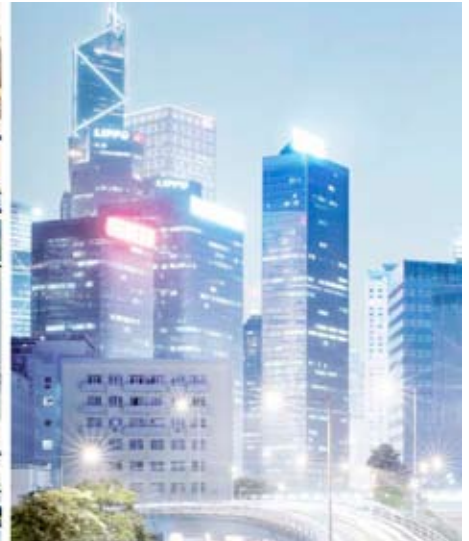


ABB Low Voltage Systems is the global leader in the supply of low voltage switchgear, motor control centres and PDU's in high resilience infra structure, data centre, hospitals and process plants. ABB holds certification for quality assurance, environmental and Health & Safety standards to ISO9001, ISO14001 and ISO18001 respectively.

Product range

From its 10,000 square metre manufacturing facility, based in Sunderland, ABB is able to supply the following:

- MV packaged substations
- LV main power switchboards
- Conventional and intelligent motor control centres
- Power Distribution units and UPS switchboards
- Sub distribution switchboards
- MCCB panelboards

Turnkey solutions

To complement its systems business, ABB has a dedicated team that can offer project management of turnkey solutions incorporating:

- Medium voltage switchgear
- Power transformers
- Busbar trunking and rising busbar
- Installation and pre-commissioning
- Power factor correction equipment and power quality filters
- Cabling
- Containerised substations

Service, maintenance & support

To ensure that equipment remains safe to operate and to minimise the risk of unexpected breakdown, cost effective packages can be provided that are specifically tailored to clients' individual needs. These include:

- Retrofits and up grades
- 24/7 emergency call out
- Planned maintenance
- Training
- Spares management



MNS PDU

Testing and certification



The ABB MNS system is a type-tested switchgear assembly in accordance with IEC 60439-1 and in compliance with 61439-1/2.



The MNS low voltage switchgear has been subjected to extensive type tests in compliance with the standards. In order to ensure the highest degree of safety, ABB continues to conduct tests within a continuous development programme. These tests are based on the most critical representative applications of the entire product or performance range of the switchgear with respect to the test standard.

In addition to the above specifications, ABB adopted as a standard IEC 61641 for testing under conditions of arcing due to an internal fault. To meet the requirements of IEC 61641, the switchgear is connected and supplied corresponding to the normal service arrangement. An arc is then initiated at various points within the switchgear, the point of ignition is chosen to produce the most stress on the assembly.

MNS PDU

Client driven solutions

1. Static transfer switch (STS)

Static Transfer Switches from various manufacturers can be easily integrated using solid tested busbar connections.

2. Incoming/outgoing and by-pass breakers (“wrap arounds”)

Compact configurations of incoming, maintenance bypass and outgoing fixed or withdrawable moulded case circuit breakers (MCCBs).

3. Incoming cable section

Fully shrouded incoming terminals offering maximum area for glanding. Top/bottom cable connections available.

4. Active harmonic filter

Active harmonic filtration units can be installed within the PDU, complete with communication ports and metering facilities.

5. Monitoring, alarms, trend & communications

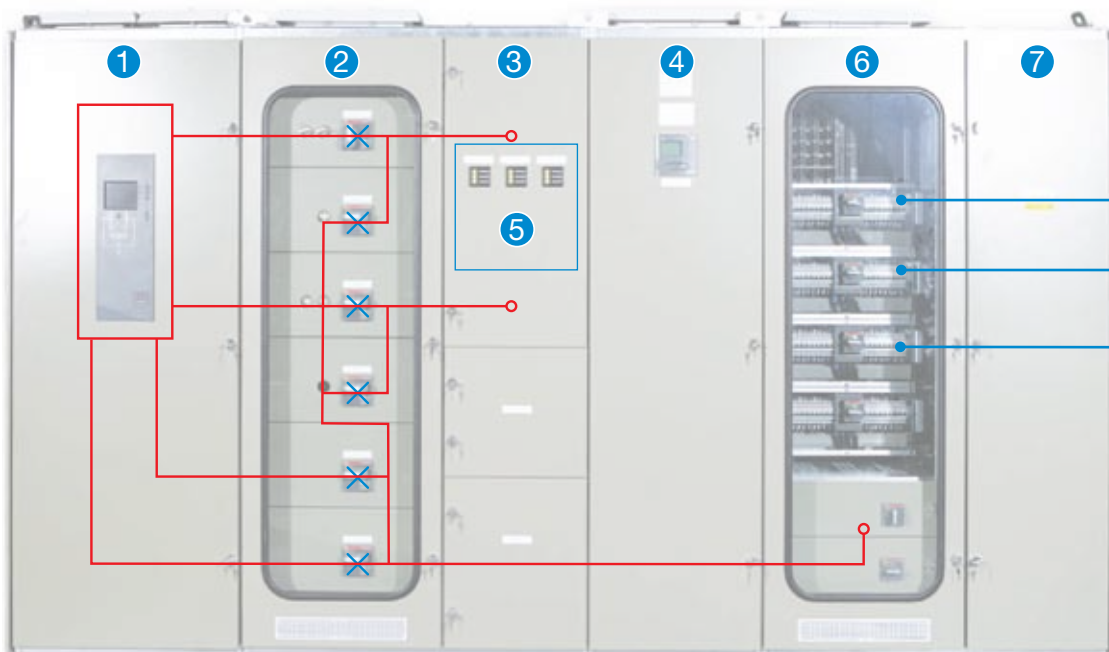
Tailored to suit client requirements, the PDU can offer a full monitoring, trend and communication solution including both current and energy/power monitoring.

6. Outgoing section see opposite page

7. Terminal arrangements

Various methods of fully shrouded cable termination are available including:

- Direct device connection
- Standard DIN Rail mounted terminals
- CEE ‘Commando’ style Sockets
- Individual Dual Plug & Socket connections
- Clean and dirty earth bars
- Top and bottom entry





SmissLine TP - ensures that load-free devices and components can be snapped on and off under voltage without the need for additional personal protective equipment to guard against electrical hazards.



S2C system - fully withdrawable with the board still live. Allows entire data floors to remain in operation. Utilising standard MCBs they can also be locked in the on position. Speedy changeover or up-rating of the device leads to zero downtime.



Fuses - Fuse holders fitted with 1038 burell holders with fuse blown indicator and lockable positions are available for rapid replacement of cartridge.



T-Max XT MCCB - Full insertion and with plug-in capabilities when live. The PDU allows for additional down stream PDU's or Satellite PDU's to be added without the need to power down.

6. Outgoing section

The outgoing section incorporates different modules.

Multi-Function Wall (MFW)

A "Plug & Play" system that allows the safe, quick and uncomplicated removal and replacement of functional devices from live distribution busbars (3P & 4P). These busbars are embedded in an insulated labyrinth known as a Multi-Function Wall (MFW) offering:-

- High short circuit withstand ratings
- Creepage distances that exceed standard requirements
- A busbar system designed to be maintenance free and approved for installation where periodic maintenance inspections are greater than five years.



Power contact

ABB's power contact connector in conjunction with the MFW allows devices and modules to be connected to the main busbar system safely offering:-

- On-line growth and management of the clients asset
- Easy modifications and maintenance
- Phase-to-phase isolation before making contact with the busbar through MFW
- Personnel safety and asset protection through superior design
- Operational life cycle up to 1000 insertions (independently certified)
- Touch proof (IP 2X) with no moving parts
- Arc-resistant fire wall to the busbar compartment
- Certified to meet the requirements of IEC 61641, arcing due to an internal fault



MCBs, MCCBs & Fuses

By utilising the 'Plug & Play' concept the client is able to mix and match single or multi pole devices including:-

- Miniature Circuit Breakers
- Moulded Case Circuit Breakers up to 630A
- Fuses with fuse blown indication

Contact us

ABB Ltd

Hanover Place
Sunderland
Tyne & Wear
SR4 6BY

Tel: +44 (0) 191 514 4555

Fax: +44 (0) 191 514 5505

www.abb.co.uk