

ABB Medium Voltage Days MEA 2016

Low Voltage Switchgear

Safety and innovation in low voltage switchgear

Power and productivity
for a better world™



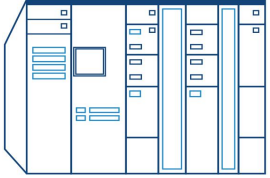
Technical session 4

Safety and innovation in low voltage switchgear

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Company name	ABB
Location	Dubai, UAE

Introduction – Electrification Solutions

You may be wondering...why is there a session on low voltage switchgear at an MV Days event ?



Electrification Solutions

Common theme of electrification solutions and packaging during the technical sessions today.

Our customers typically require both LV/MV switchgear for their investments

Synergies between low voltage and medium voltage technology portfolio and organization.

Perfect opportunity to discuss the benefits of our low voltage switchgear portfolio and global organizational capability

Introduction – Electrification solutions

Our philosophy – 5 essentials of low voltage switchgear

Ease of doing
Business



Our goal is to be a partner who is easy to deal with throughout the entire value chain from Sales to Service.

Safety



Protecting your personnel and plant. Our solutions are type tested and Arc Fault contained. Exceeding relevant international standards in some cases.

Flexibility



High level of scalability and in service changeability.

Availability
and reliability



Reduce downtime by as much as 50%. Modular withdrawable design – fast changeover, safe maintenance.

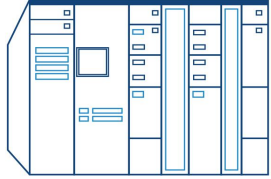
Ease of
maintenance



Decrease spare parts inventory by as much as 75%. 5 module variants up to 300kW

Introduction – Electrification solutions

Ease of doing business – who are we and how can we help you?



Electrification
Solutions

Market leader in IEC power distribution and motor control solutions

World's largest low voltage switchgear OEM

Unmatched domain expertise and local support in more than 30 countries.

MNS® solution technology platform evolving for over 40 years.

Millions of vertical sections currently installed globally and 10's of millions of functional units in service

Introduction – Electrification solutions

Ease of doing business – market focused, unmatched domain expertise

Oil & gas



Mining & metals



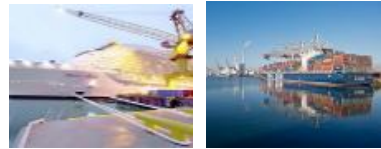
Data centers



Power & utilities



Marine



Infrastructure



Unmatched domain, segment and application specific competence available to you
across our global network of 3000+ employees

Introduction – Electrification solutions

Ease of doing business – our solutions portfolio

MNS conventional switchgear and motor control

MNS intelligent switchgear and motor control

MNS *iS* integrated switchgear and motor control

Non-system product packaging and electrical system integration

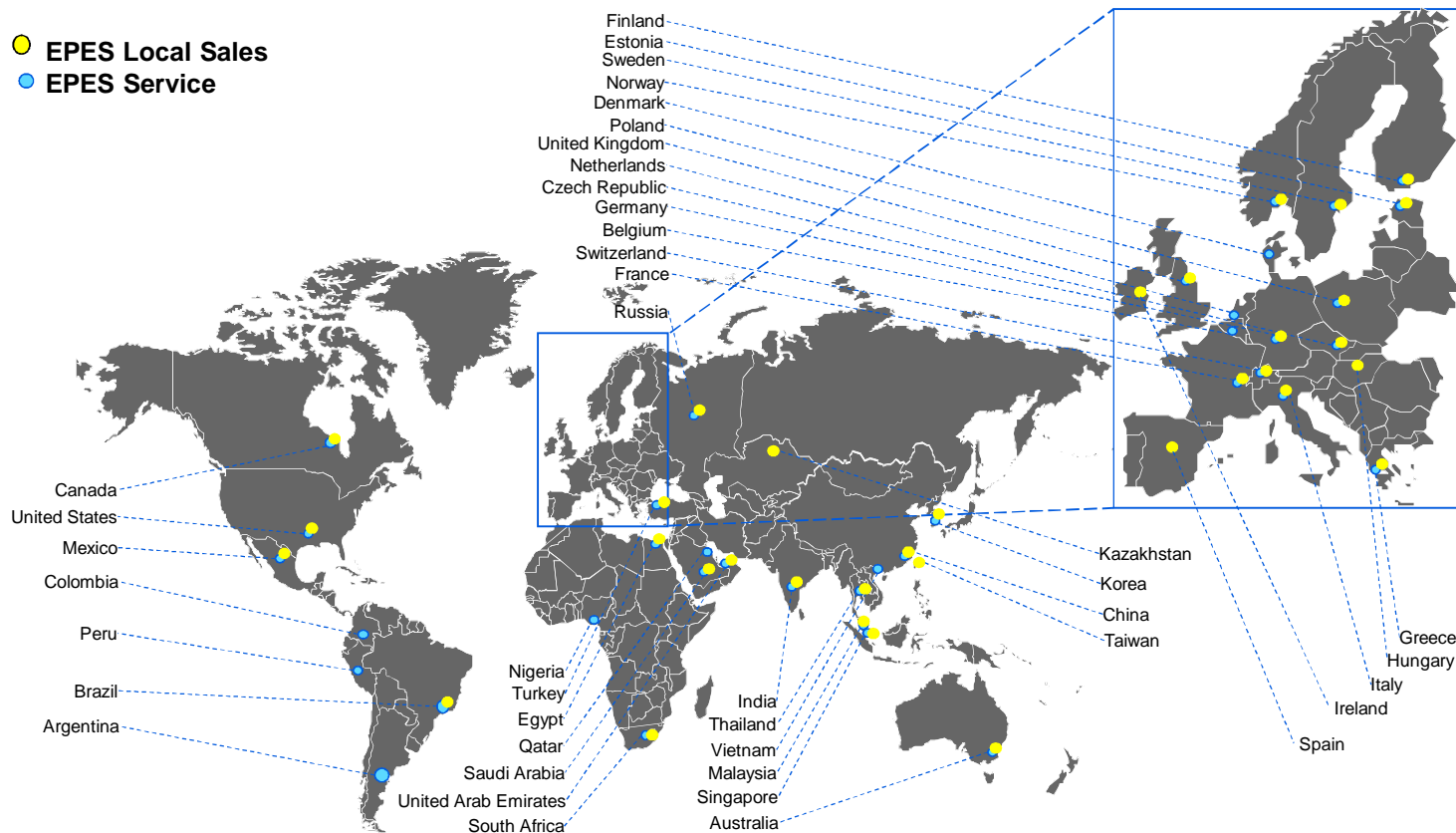
After Sales Service

The choice is yours.....



Introduction

Ease of doing business – the art of being local, globally



Maximum local support backed by a global organization over 30 manufacturing and service locations globally



Safety Innovation in low voltage switchgear MNS

Flexibility

MNS platform overview – power distribution and motor control solutions



The scalability of the MNS® platform enables it to cover all aspects required for the market place from the very basic, to the high end Integrated Motor Control and Power Distribution Systems.

- MNS Conventional MCC & Switchgear
- MNS Intelligent MCC & Switchgear
- MNSiS Integrated MCC & Switchgear

Flexibility

MNS platform overview – power distribution and motor control solutions

- Power Distribution
- Motor Control Centers
- Integrated Variable Speed Drives
- Distribution and Control Boards



Designed to meet your project requirements in an integrated technology platform

Flexibility

MNS platform – do you have particular footprint requirements ?

Functional units.

- 1 Equipment area
- 2 Cable area
- 3 Bus bar area



Standard

Optimization is available with Back to Back and Duplex options where space is available at a premium, and a reduced footprint is required.



Back-to-back



Duplex



Modular withdrawable design means its possible to incorporate late load list changes late in the execution process saving you significant cost

Reliability

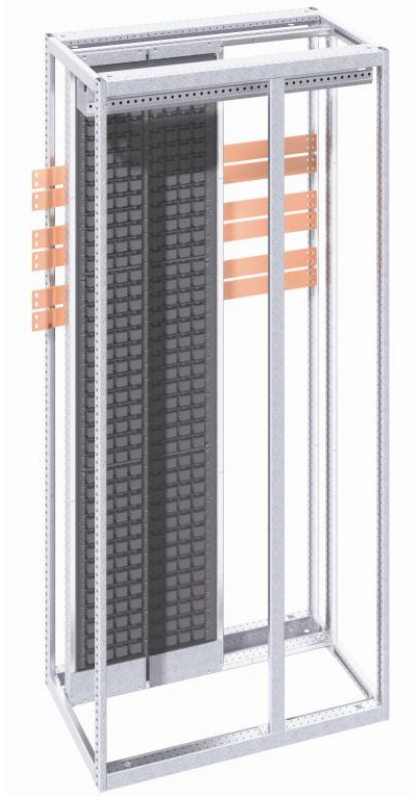
Main busbar - fault free and maintenance free by design



- Once sealed no additional maintenance required
- 200mm / 400mm wide options
- Up to 6300A
- Rear mounted to improve heat dissipation and safety
- Options
 - 2 separate bus systems (rear top and rear bottom)
 - For Duplex single bus system for front and rear modules
 - Fully insulation of busbars possible

Safety

Distribution busbar - phase segregated IP 2X finger protection

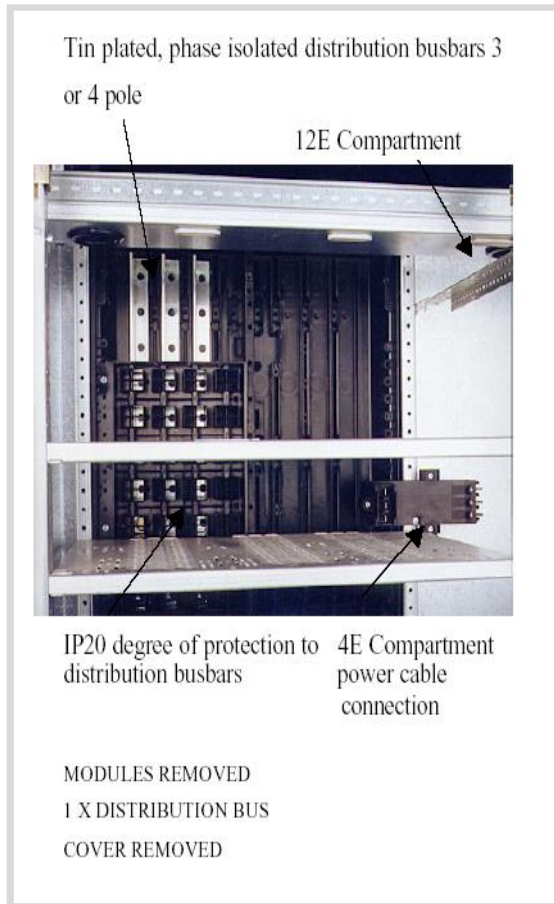


- Fully phase segregated and insulated, provides full fault-free zone
- 750A & 1500A options
- Contact openings are IP 2X with no moving parts
- Multi-function wall material is self extinguishing, CFC and halogen free

Maximum operator safety – even with modules removed

Safety

Functional unit compartment - industry leading safety, type tested with module removed



8 E Compartment

✓ Highest built in availability & safety

- Phase segregated distribution bus bar system
- Eliminates possibility of module fault developing into a major bus-bar fault
- Damage is always restricted to faulty module
- Faulty module can be replaced without powering down thus maximizing availability
- Modules can be added or re-arranged with high degree of safety without bus system isolation
- IP 2x internal protection

✓ Fully type tested

- Pre-condition to prevent failures
- Internal arc fault tested (IEC 61641) for maximum operator safety

Flexibility

Incoming units - flexibility to suit your requirements



- ACB's, fixed and withdrawable
- MCCB's, fixed and withdrawable
- Switch-disconnectors, fixed
- Top / bottom entry
- Option to use ABB SACE programmable releases PR or ABB Relion® series protection relays for ACB & MCCB protection

Flexibility

Outgoing units - flexibility to suit your requirements



- The following options are supported by the MNS platform with Plug-in and Withdrawable technologies.
 - Energy distribution
 - Motor starter
 - Variable speed drives
 - Softstarter
 - Reactive power compensation

Ease of maintenance

Withdrawable modules - flexibility to suit your requirements



- Reduced downtime – hot swappable if maintenance procedures allow.
- Highest availability (due to easy replacement).
- Most compact design for reduced footprint.
- Full width modules offer the possibility for motor starting up to 200kW and energy distribution up to 400A
- Module positions operable from a single handle are; On, Off, Test, Isolated, Move



Ease of maintenance

Various outgoing module solutions to suit your requirements



- ABB variable speed drive type ACS850 integrated in withdrawable design (up to 45kW) and fixed design
- Safest possibility for maintenance (removed from switchgear)
- Highest availability (due to easy replacement).
- Most compact design for reduced footprint
- Energy savings for plant operation



Flexibility

Your choice of intelligence – what communication protocol do you need?



We support all major communication protocols available in the market, including but not limited to :

- Profibus (all variants)
- Modbus (all variants)
- DeviceNet, CanOpen
- ProfiNet I/O

Summary

Takeaways – Electrification solutions

- Highly flexible technology platform configurable to your switchgear and motor control requirements
 - Maximum safety by design to protect your plant and personnel
 - Reduce your downtime by as much as 50%
 - Decrease spares inventory by as much as 75%
-
- Global organization ready to support you on your next project or with service requirements

Questions?

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