ABB OEM Days 2014
Low voltage products
# Low Voltage Products

## Business Units

<table>
<thead>
<tr>
<th>Low Voltage Systems</th>
<th>Breakers &amp; Switches</th>
<th>Enclosures &amp; DIN-Rail Products</th>
<th>Control Products</th>
<th>Wiring Accessories</th>
<th>Protection, Connection &amp; Wire Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>• MNS Conventional Switchgear</td>
<td>• Circuit Breakers</td>
<td>• Modular DIN-Rail Products</td>
<td>• Control and Protection</td>
<td>• Wiring Accessories</td>
<td>• Wire and cable management</td>
</tr>
<tr>
<td>• MNS Intelligent Switchgear</td>
<td>• Switches</td>
<td>• Intelligent Building Control KNX</td>
<td>• Electronic Products and Relays</td>
<td>• Industrial Plugs and Sockets</td>
<td>• Cable protection systems</td>
</tr>
<tr>
<td>• MNS Integrated Switchgear</td>
<td>• Fusegear and Cable Distribution Cabinets</td>
<td>• Enclosures and Cable Systems</td>
<td>• Connection</td>
<td>• Critical process protection</td>
<td>• People protection</td>
</tr>
</tbody>
</table>

© ABB Group

September 29, 2014 | Slide 2
Low Voltage Products
Channels and markets served

Distributors  Panel Builders  OEMs  System Integrators and Contractors  End-users and Utilities

Industry  Buildings and infrastructures  Renewable energy  E-mobility  Building Automation and Energy Efficiency
ABB OEM Days 2014
SACE Emax 2 Product presentation
SACE Emax 2 improves the efficiency of electrical plants, creating the new standard of:

- **Control**: optimization of power flow
- **Connectivity**: integration into systems
- **Performance**: satisfaction of requirements in the right size
- **Ease of use**: creation of efficiency and simplicity

SACE Emax 2 is the evolution of the Circuit-Breaker into the **Power Manager**.
SACE Emax 2
Control
SACE Emax 2
Control
High accuracy of measurements directly available on the wide display permits the elimination of external devices:

- Current 1%
- Voltage 0,5%
- Power and Energy 2%
SACE Emax 2
Control

Built-in trend analysis: record I, V, P last 24 intervals

The new trip units Ekip have a wide color touch display were it is possible to clearly see the measurements.
Network analyzer is effective solution, ready to use, allow continuous monitoring, without installing additional instruments:

- Short Voltage interruptions and spikes
- Slow voltage sags and swells
- Voltage and Current Harmonic up to 50th
- Voltage unbalance
SACE Emax 2
Performance
SACE Emax 2
Performance

E 1.2
1600 A

E 2.2
2500 A

E 4.2
4000 A

E 6.2
6300 A
Footprint reduction: -25%
Copper reduction: -25%
SACE Emax 2
Connettivity
SACE Emax 2
Connettivity

Ekip Com Modbus TCP
SACE Emax 2
Connetivity

Ekip Com Profibus
SACE Emax 2
Connetivity

Ekip Com IEC 61850
New main distribution boards up to 6300A
System pro E power

- ABB presents **System pro E power**, the new main distribution boards up to 6300A
- A complete solution for the main distribution of electric energy for infrastructures and industry & building complexes.
System pro E power
Key components

- Structure
  - Flexibility

- Internal Kit
  - Velocity

- Distribution System
  - Simplicity
System pro E power
Technical features

- Rated Current: up to 6300A
- IP: IP30, IP31, IP40, IP41, IP65
- Ue (Rated service voltage): up to 1000V AC/ 1500V DC
- Icw (Rated short-time current): up to 120kA
- Standard of reference: IEC 61439-1-2, IEC 60068-2-57
- Vibration test: IEE Std 693
- Seismic test: IEC 61641
System pro E power
Flexibility is Power
System pro E power - Flexibility
Structure

Structure

- Constitutive elements:
  - Uprights and Crosspieces
  - Plinth and flanges
  - Top/bottom
  - Door and Panels
System pro E power - Flexibility Structure

Uprights and Crosspieces

- New supply philosophy

- 13 product codes for assembling up to 120 different configurations

- No possibility of error in assembling due to perfect symmetry

  - New 13 folded profile with two different available surfaces

  - New three way joint coupling
System pro E power - Flexibility Structure

Plinth and Flanges

- Innovative geometry provides high mechanical strength
- Assembling from the inside/outside of the structure
- Anti-rotation system
- Possibility of stand-alone structure without plinth
- Front/rear and side flanges H=100mm
System pro E power - Flexibility Structure

Top/Bottom

- Different combinations for ingoing/outgoing
- New solutions for incoming cables
System pro E power - Flexibility Structure

Door and Panels

- New asymmetrical design
- Glass door and blind door version available
- 135° door opening (also possible up to 180°)
- RAL7035 panels can be fixed using TORX screws
- New ergonomic handle, which allows the possibility to assemble different locking inserts
System pro $E$ power
Velocity is Power
System pro E power - Velocity Internal Kit

- Kit for air circuit-breakers Emax 2
- Kit for moulded-case circuit-breakers Tmax XT and Tmax T
- Kit for modular apparatus System Pro M and moulded-case circuit-breakers Tmax XT series XT1-XT3
- Kit for OT disconnectors
- Kit for completion
- Functional frame and panels
- Kit for internal segregation
System pro E power - Velocity
Internal kit

Kit for OT disconnectors

- Spring fastening “click in” system, quick and new
- For OT up to 1600A
- Vertical and horizontal versions
- Up to segregation **Form 2b** with front terminals and terminal covers
Kit for completion

- For the assembling of apparatus into the enclosure
- Blind flat panels starting from $H=50\text{mm}$ up to $600\text{mm}$
- Blind mounting plates starting from $H=50\text{mm}$ up to $600\text{mm}$
- Recessed panels, ventilated panels and panels for square measuring instruments
System pro E power - Velocity
Internal Kit

Internal segregation kit

- Same starting kit for segregation Form 1; adding different accessories in sequence it is possible to reach:
  - segregation Form 4b (rear access)
  - Form 2b (frontal access)
System pro $E$ power
Simplicity is Power
System pro E power - Simplicity Distribution System

**Distribution System**
- Busbars up to 6300A
- \( I_{cw} = 120 \text{kA} \)
- Length = 1750mm
- Copper busbars or Cuponal busbars
- Flat and shaped section busbar
- Linear or scaled busbar holders
System pro E power - Simplicity Distribution System

Installation
- Vertical Installation: back and side
- Horizontal installation: busbar at top, at bottom and at each height
System pro E power - Simplicity Distribution System
System pro E power - Simplicity
Distribution System
System pro E Power - Simplicity Distribution System

Flat or Shaped section Busbars

- Flat copper busbar from 250A up to 6300A
- Shaped section copper Busbars from 400A up to 2500A
- Cuponal flat busbars up to 3200A

<table>
<thead>
<tr>
<th></th>
<th>Copper</th>
<th>Cuponal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flat</strong></td>
<td>6300 A</td>
<td>3200 A</td>
</tr>
<tr>
<td><strong>Shaped</strong></td>
<td>2500 A</td>
<td>X</td>
</tr>
</tbody>
</table>
System pro E power
Advantages
System pro E power
Advantages for the customer

- **Time**
  Reduction up to 15% for assembling time

- **Space**
  Reduction up to 10% of the stock surface

- **Costs**
  Reduction of costs in terms of transport and stock
OEMs Partner Concept
Power Products OEM channel
Flexible value chain

ABB scope

OEM scope
Low Voltage Products OEM channel
Flexible value chain

ABB scope

OEM scope
OEM Cooperation Program
OEM cooperation concept set-up

- 4 elements of a strategic partnership
- Cooperation based on a modular concept
- Results
  - Capture more business opportunities
  - Penetrate more markets

Three main types of agreements:
- Commercial
- Trademark
- Technology
OEM Cooperation Program
Solutions for every need

Three main types of agreements:
- Commercial
- Trademark
- Technology

- For every market segment
- For any market
- Standards
- Homologation

<table>
<thead>
<tr>
<th>Switchgears</th>
<th>Apparatus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main distribution</td>
<td>Air circuit breakers</td>
</tr>
<tr>
<td>Sub distribution</td>
<td>Moulded case circuit breakers</td>
</tr>
<tr>
<td></td>
<td>Miniature circuit breakers</td>
</tr>
<tr>
<td></td>
<td>Fuses</td>
</tr>
<tr>
<td></td>
<td>Disconnectors</td>
</tr>
</tbody>
</table>