MES Live-front and MDS Dead-front Padmount Switchgear

15 - 25 kV
ABB’s Padmount Switching Products represent over 30 years of quality design and manufacturing of air insulated live-front and dead-front loadbreak switchgear for underground distribution systems.

Overview
ABB’s flexible pad-mounted switchgear is available in over 40 models, with a variety of switch and fuse arrangements to satisfy most customer requirements. Different design combinations provide unlimited applications and maximum service reliability. Standard two or four compartment designs meet the many circuit configurations required.

ABB’s padmount switchgear incorporates the ABB VersaRupter load interrupter switch. The VersaRupter uses an innovative puffer and nozzle system to quickly and efficiently extinguish the arc of full-load interruptions, resulting in a compact, high-performance switch. This 600 A loadbreak switch is rated for 100 full load and 1,000 mechanical operations. Switch status is visible through the viewing window.

ABB offers a variety of 200 A fuse mounting options to meet all industry standard fusing requirements.

ABB’s padmount switchgear is designed and constructed to meet the requirements of ANSI C37.73 and C37.74.

Polymax Plus Premium coating and rugged construction meet or exceed ANSI Standard C57.12.28 for pad-mounted equipment enclosure integrity.

Common Construction Features

Enclosure Features
• Blind threaded lifting provisions with removable tab
• Superior rigidity and tamper resistance
• Flexible modular design promotes life cycle support including field upgrades and repairs
• Cross bus visible for easy inspection
• Available in mild steel, stainless steel or aluminum construction
• Anti-condensation coating on inside of roof
• Tamper resistant ventilation to prevent condensation build up

Folding Three-point Door Handle Assembly
• Manually operated latch
• Stainless steel housing
• Stainless pentahead bolt
• Heavy duty cast aluminum folding handle
• Pentahead bolt hidden behind handle when padlocked
• Easily replaceable

Switch Housing Assembly
• Padlock and pentahead bolt for added security
• Folding handle secured to housing
• Easily replaceable
• Stainless steel housing
• Switch lockable in open or closed position

Automatic Door Stay Assembly
• Secures door in open position
• Easy release with hand or foot
• Easily removable doors
ABB VersaRupter Loadbreak Switch

ABB’s padmount switchgear incorporates the ABB VersaRupter load interrupter switch. The VersaRupter is a general purpose, three-pole loadbreak switch that offers the advantages of an advanced interrupting technology and proven, dependable performance in a compact design. The switch is used in pad-mounted switchgear applications in ratings from 5 – 38 kV.

The standard VersaRupter switch includes:
• a heavy-duty steel frame with stand-off insulators
• a unique puffer-type arc extinguishing system
• an operating mechanism and current-carrying components, including blade-type interrupters with cast hinges and jaw connectors

The VersaRupter at a glance:
• offers an advanced contact design for efficient current breaking
• is a loadbreak switch developed for the world market
• has been fully qualified to ANSI standards
• UL labeling on the 5 and 15 kV switches
• is unique by offering an air blast technology for arc extinction, allowing it to be installed in a smaller enclosure without inter-phase barriers

MES & MDS Options
• Fuse options
• Key interlocks
• Barriers
• Cable supports
• Arresters
• Stainless steel or aluminum
• Refer to style guide for additional options
### Description

ABB MES live-front switchgear is compartmentalized with 600 A interrupter switches and/or 200 A fuses. Each compartment is segregated by steel and/or fiberglass reinforced polyester (NEMA rated GPO-3) barriers. Main bus between compartments is tin plated aluminum rated at 600 A.

Each three-phase interrupter switch and single pole fuse position are provided with optional dual purpose front safety barriers, also made of GPO-3 glass polyester. These front barriers guard against inadvertent contact with live parts. They also can be inserted between the open gap when the switches are open or when the fuses are in the disconnect position to prevent inadvertent contact with energized parts. These barriers are easily handled by a hookstick.

Termination pads handle a variety of stress cone style cable terminating devices for cables up to 1000 MCM on switch terminals and 4/0 on fuse terminals. Provisions to connect two cables per switch terminal are standard on 15 kV models and optional on 25 kV models.

### Ratings

<table>
<thead>
<tr>
<th>Nom</th>
<th>Max</th>
<th>BIL</th>
<th>VersaRupter</th>
<th>Fuse Type</th>
<th>Max Current</th>
<th>Load Interrupt</th>
<th>Short Circuit RMS Sym</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Continuous Current</td>
<td>Load Interrupt Capacity</td>
<td>Momentary &amp; Fault Closing</td>
<td>Fuse Type</td>
<td>Max Current</td>
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<tr>
<td>14.4</td>
<td>17</td>
<td>95</td>
<td>600</td>
<td>600</td>
<td>40000</td>
<td>S&amp;C SMU-20</td>
<td>200</td>
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<td></td>
<td>S&amp;C SM-4</td>
<td>200</td>
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<td>Cooper NX</td>
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<tr>
<td>25</td>
<td>27</td>
<td>125</td>
<td>600</td>
<td>600</td>
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<td>100</td>
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</tbody>
</table>

Note: applicable to solidly grounded neutral systems only.
MES Features

- Various switch / fuse configurations available
- Industry standard footprint and termination height
- Additional termination height available
- Industry leading phase spacing for improved access and safety
- Switch position visible through viewing windows with safety barrier in place
- Construction and coating meets or exceeds ANSI standards for pad-mounted equipment enclosure integrity
- Key interlocks available for switch and fuse compartments
- Surge arrester options from 9 - 21 kV
- Available in mild steel, stainless steel and aluminum

- Multiple fusing options
- Optional storage provisions for fuse holders/fuse end fitting assemblies in fuse compartments

- Connecting bus located at top of enclosure for ease of inspection and maintenance
- Bus is horizontally arranged to prevent dripping and reduce potential for flashover
- Full height electrical grade phase barriers for switch and fuse compartments
- Easy removal of phase barriers without tools or fasteners
## MES Live-front Pad Layouts

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<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>Height</th>
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<tbody>
<tr>
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<td>41</td>
<td>11</td>
<td>14.5</td>
<td>6</td>
<td>8.25</td>
<td>9.5</td>
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<tr>
<td>MES203/204</td>
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<td>54.5</td>
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<td>3.5</td>
<td>62</td>
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</tbody>
</table>

**Figure 1**

Note: dimensions are in inches

**Figure 2**

AABB Inc.
MDS Dead-front Padmount Switchgear

• 600 A load switching for 15 & 25 kV systems
• 40,000 A asymmetrical momentary and fault closing
• MDS 100 Series 15 kV / 95 kV BIL
• MDS 200 Series 25 kV / 125 kV BIL

Description

ABB dead-front elbow connected padmount switchgear has all energized parts completely enclosed within a grounded steel compartment for personnel protection, electrical isolation and protection from contamination.

MDS switchgear consists of three-phase group operated loadbreak switches and/or single pole fuses. Terminations in the switch compartment are 600 A bushings suitable for dead-break elbow connectors. Fuse terminations are 200 A bushing wells supplied to accept standard loadbreak bushing inserts and elbows.

Fuse access doors positively latch in the closed position and mechanically interlock with the 200 A elbows to prevent access until elbows are disconnected and parked. The fuses are accessible only when fuse access doors have been unlatched and pivoted to the open “service” position.

Ratings

<table>
<thead>
<tr>
<th></th>
<th>VersaRupter</th>
<th>Fuse Type</th>
<th>Max Current</th>
<th>Load Interrupt</th>
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<td>Nom</td>
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<td>600</td>
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</tr>
</tbody>
</table>

Note: overall ratings may be limited by the bushings, elbows, and cable components used with these units.
MDS Features

- Various switch / fuse configurations available
- Industry standard footprint and termination height
- Additional termination height available
- Bus is horizontally arranged to prevent dripping and reduce potential for flashover
- Key interlocks available for switch and fuse compartments
- Provisions for storing spare fuses on fuse compartment doors
- Construction and coating meets or exceeds ANSI standards for pad-mounted equipment enclosure integrity
- Available in mild steel, stainless steel and aluminum

- Switch position visible through viewing windows
- Hinged phase barriers secure high voltage compartment when fuse access door is in the service position
- Multiple fusing options
### MDS Line Diagrams

<table>
<thead>
<tr>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
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<tbody>
<tr>
<td><img src="image" alt="Model 3 Diagram" /></td>
<td><img src="image" alt="Model 4 Diagram" /></td>
<td><img src="image" alt="Model 5 Diagram" /></td>
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- **Model 3**: MDS103 & MDS203
- **Model 4**: MDS104 & MDS204
- **Model 5**: MDS105 & MDS205

<table>
<thead>
<tr>
<th>Model 6</th>
<th>Model 7</th>
<th>Model 8</th>
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<tbody>
<tr>
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<td><img src="image" alt="Model 7 Diagram" /></td>
<td><img src="image" alt="Model 8 Diagram" /></td>
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- **Model 6**: MDS106 & MDS206
- **Model 7**: MDS107 & MDS207
- **Model 8**: MDS108 & MDS208

<table>
<thead>
<tr>
<th>Model 9</th>
<th>Model 10</th>
<th>Model 11</th>
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<tbody>
<tr>
<td><img src="image" alt="Model 9 Diagram" /></td>
<td><img src="image" alt="Model 10 Diagram" /></td>
<td><img src="image" alt="Model 11 Diagram" /></td>
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</tbody>
</table>

- **Model 9**: MDS109 & MDS209
- **Model 10**: MDS110 & MDS210
- **Model 11**: MDS111 & MDS211

<table>
<thead>
<tr>
<th>Model 13</th>
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<td><img src="image" alt="Model 13 Diagram" /></td>
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- **Model 13**: MDS113 & MDS213
MDS Dead-front Pad Layouts

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<tr>
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<tbody>
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<td></td>
<td></td>
<td>n/a</td>
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<td>12</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>52</td>
</tr>
</tbody>
</table>

**Figure 2**

| MDS104/105 | 39.5 | 73  | 15  | 12.5 | 11.5 | 8.25 | 6   | 11  | 3.5  | 45    |
| MDS204/205 | 44   | 82  | 17.5| 16   | 11.5 | 10.5 | 7   | 12  | 3.5  | 51    |

**Figure 3**

| MDS106-113 | 75   | 73  | 15  | 12.5 | 11.5 | 8.25 | 6   | 11  | 3.5  | 45    |
| MDS206-213 | 84   | 82  | 17.5| 16   | 11.5 | 10.5 | 7   | 12  | 3.5  | 51    |

Note: dimensions are in inches