The ABB medium voltage pad mounted solution is a cost efficient and robust solution designed for large-scale solar power generation and to be compatible with the PVS800 inverter station. It combines the medium voltage transformer and the switchgear equipment needed to connect the inverters to the medium voltage network of the photovoltaic plant.

All the components within this medium voltage pad come from ABB’s product portfolio to meet the performance and quality standards required for solar applications.

Cost efficient solution for PV power plants
The ABB medium voltage pad mounted design capitalizes on ABB’s long experience in developing and manufacturing medium voltage components for utility scale solutions for major end-users worldwide in conventional power transmission installations.

The solution contains an optimized transformer, MV switchgear and signaling interfaces for the PVS800 inverter station. PVS800 inverter station together with the PVS800 medium voltage pad mounted solution ensure easy and rapid connection of the inverters to a plant’s medium voltage grid and its communication network.

Compact and robust design for harsh environments
This pad mounted solution is to be assembled on an onsite built concrete foundation. The design enables operation in harsh temperature and humidity environments and is designed for at least 25 years of operation.

The ABB medium voltage pad mounted solution supports fast on-site installation and it is easy to transport. Lifting of components can be done with a standard truck crane, which simplifies the installation. Together with pre-configured layout options a minimal footprint and optimum cablings can be achieved.

Highlights
• Reliability – proven components from one supplier
• Transportability – compact and robust design
• Plug-and-play – integrated signaling interfaces
• Increased uptime – modular and serviceable system
• Bankable solution – global life cycle services and support
Transformers are available in standard sizes that are based on optimized power ratings to meet different climatic conditions and inverter station sizes. The transformers as well as the general design provide excellent mechanical and short-circuit characteristics. All ABB’s transformers are manufactured in accordance with the most demanding industry and international standards.

Switchgear cabinet
ABB offers a complete range of medium voltage switchgear for secondary distribution, including air-insulated and gas-insulated switchgear.

The ABB medium voltage pad mounted solution is equipped as standard with the widely proven ABB SafeRing SF6-insulated switchgear. A sealed steel tank with constant atmospheric conditions ensures a high level of reliability as well as personnel safety. The virtually maintenance-free system comes in a compact and flexible design that has a wide range of signalling and protection options.

The switchgear comes installed in an IP54 outdoor enclosure that is suitable for harsh environments. The outdoor housing provides easy access for switch manoeuvres and increased serviceability. For humid conditions the switchgear can be equipped with hygrostat and heater for removal of condensation.
ABB medium voltage pad mounted solution connected to inverter station and grid

Inverter station

PVS800-MVP

Technical data and types

<table>
<thead>
<tr>
<th>Type designation</th>
<th>PVS800-MVP-</th>
<th>-1645kW-C-xx</th>
<th>-1732kW-C-xx</th>
<th>-3290kW-C-xx</th>
<th>-3464kW-C-xx</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inverter station compatibility</td>
<td>PVS800-IS-1645kW-C</td>
<td>PVS800-IS-1732kW-C</td>
<td>PVS800-IS-3290kW-C</td>
<td>PVS800-IS-3464kW-C</td>
<td></td>
</tr>
<tr>
<td>Nominal AC output power ($S_{N(AC)}$)</td>
<td>1645 kVA</td>
<td>1732 kVA</td>
<td>3290 kVA</td>
<td>3464 kVA</td>
<td></td>
</tr>
<tr>
<td>Maximum AC output power ($S_{max(AC)}$)</td>
<td>1975 kVA</td>
<td>2078 kVA</td>
<td>3950 kVA</td>
<td>4156 kVA</td>
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</tr>
<tr>
<td>Nominal MV voltage level ($U_{N(AC)}$)</td>
<td>12 kV to 36 kV</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Ambient temperature range (nominal ratings)</td>
<td>-25 °C to +45 °C</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Maximum altitude (above sea level)</td>
<td>1000 m</td>
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</tr>
<tr>
<td><strong>Switchgear</strong></td>
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<td></td>
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</tr>
<tr>
<td>Medium voltage switchgear type</td>
<td>SF6-insulated RMU, ABB SafeRing DeV or CCV, rated 570 A at 45 °C (nominal 630 A)</td>
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<tr>
<td>Enclosure</td>
<td>Painted Aluzinc coated steel outdoor enclosure, IP54</td>
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<tr>
<td>Protection relay</td>
<td>REJ603 protection relay (self-powered)</td>
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</tr>
<tr>
<td>Options</td>
<td>SF6 gas alarm, switch positions, plug-in type MV surge protection, automatic cut-off or reclose</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Transformer</strong></td>
<td>ABB Oil immersed ONAN, outdoor design</td>
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<tr>
<td>LV voltage level</td>
<td>1900 kVA</td>
<td>2200 kVA</td>
<td>2200 kVA</td>
<td>2400 kVA</td>
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<tr>
<td>MV voltage level</td>
<td>12 kV to 36 kV</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>LV terminals</td>
<td>3 flag type terminals</td>
<td>2 x 3 flag type terminals</td>
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</tr>
<tr>
<td>MV terminals</td>
<td>bolted C-type</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard protection</td>
<td>2 x temperature, gas, oil level, pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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1) Where xx-medium voltage level
2) At max +45°C
3) At max +20°C
4) Nominal voltage 12 kV to 36 kV, from 6kV on as option
5) Extended range upon request
6) Higher altitude upon request
7) Other ABB switchgear types available as an option
8) Other relay types upon request
9) Other options upon request
10) LV terminal box available as an option
MV switchgear standard configurations for ABB medium voltage pad mounted solution

Accessories
- Surge protection for medium voltage side
- Hygrostat and heater for medium voltage switchgear
- Transformer LV side terminal box
- Warranty extensions
- Service contracts

Options
- Output voltage from 6 kV up to 36 kV
- Different MV switchgear configurations (e.g. CCV or DeV)
- Additional transformer and switchgear signaling options
- LV cable set between inverters and transformer
- MV cable set between transformer and medium voltage switchgear

Support and service
ABB supports its customers with a dedicated service network in more than 60 countries and provides a complete range of life cycle services from installation and commissioning to preventative maintenance, spare parts, repairs and recycling.