The ABB compact skid is a plug and play solution designed for large-scale solar power generation using PVS980-58 high-power central inverters. It houses all the electrical equipment that is needed to rapidly connect a photovoltaic (PV) power plant to a medium voltage (MV) electricity grid.

**Turnkey-solution for PV power plants**

The ABB compact skid design capitalizes on ABB’s long experience in developing and manufacturing secondary substations for utilities and major end users worldwide in conventional power transmission installations.

A skid houses one 1500 V$_{dc}$, 4348 to 5000kVA ABB PVS980-58 central inverter, an optimized MV oil immersed transformer, MV switchgear and all needed auxiliary services. The ABB compact skid is used to connect a PV power plant to a MV electricity grid easily and rapidly. To meet the PV power plant’s demanded capacity, several ABB compact skids can be used.

**Compact design eases transportation**

The compact skid solution has dimensions suitable for transportation inside closed 40 feet High Cube (HC) shipping container. The total package weighs less than 24 tons. The standardized shipping dimensions ensures cost-effective and safe transportability to the site, even overseas. Inverter’s optimized air circulation and filtering system, together with hermetically sealed oil immersed transformer enable installations in various ambient conditions, from harsh desert temperatures to cold and humid environments. The ABB compact skid is designed for at least 25 years of operation.

**Highlights**

- Proven technology and reliable components
- Compact and robust design
- Outstanding endurance for outdoor use
- High DC input voltage up to 1500 V$_{dc}$
- High total efficiency
- Extensive DC and AC side protection
- Self-contained cooling system for inverters
- Modular and serviceable system
- Embedded auxiliary power distribution system
- Extendable manufacturing footprint with fast deliveries
- Global life cycle services and support
- Transportable inside closed 40 feet HC shipping container
- Arc-proof design
Solar inverters
The ABB PVS980-58 inverter has been developed on the basis of over 50 years of experience in the power electronics industry and proven technology platform. Unrivalled expertise from the world’s market and technology leader in frequency converters is the hallmark of this solar inverter series. The PVS980-58 inverter is one of the most efficient and cost-effective ways of converting the direct current (DC) generated by solar modules into high quality and CO₂-free alternating current (AC) that can be fed into the power distribution network. One ABB central inverter is used in the ABB compact skid. The inverter provides high conversion efficiency with low auxiliary power consumption, as well as very low maintenance need.

Transformer
The ABB compact skid includes an oil immersed transformer. The transformer is designed to meet the reliability, durability and efficiency required in PV applications. It is specifically designed and optimized for the PVS980-58 inverter to provide the best performance throughout the lifetime of the plant.

As a major global transformer manufacturer, ABB offers a wide range of transformers. Different power transformers are available to meet customer requirements. All ABB’s transformers are manufactured in accordance with the most demanding industry and international standards.

Switchgear
The ABB compact skid 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 allows for a versatile switchgear configuration with arc-proof capability.

---

Technical data and types

<table>
<thead>
<tr>
<th>Type code</th>
<th>4.3MVA</th>
<th>4.6MVA</th>
<th>4.8MVA</th>
<th>5.0MVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum rating in kVA</td>
<td>4348</td>
<td>4565</td>
<td>4782</td>
<td>5000</td>
</tr>
</tbody>
</table>

**Inverter**

<table>
<thead>
<tr>
<th>Inverter</th>
<th>PVS980-58, 4.3-5MVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum operating DC input voltage</td>
<td>1500 V</td>
</tr>
<tr>
<td>Number of inverters</td>
<td>1</td>
</tr>
<tr>
<td>Number of independent mppt</td>
<td>1</td>
</tr>
<tr>
<td>mppt range @ 35° C in V</td>
<td>850-1500</td>
</tr>
<tr>
<td>mppt range @ 50° C in V</td>
<td>850-1100</td>
</tr>
<tr>
<td>AC output voltage</td>
<td>600 V</td>
</tr>
</tbody>
</table>

**MV transformer**

<table>
<thead>
<tr>
<th>Transformer type</th>
<th>Oil immersed (ONAN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Power @ 25° C in kVA</td>
<td>4343</td>
</tr>
<tr>
<td>AC Power @ 35° C in kVA</td>
<td>4229</td>
</tr>
<tr>
<td>AC Power @ 50° C in kVA</td>
<td>3845</td>
</tr>
<tr>
<td>Number of secondary windings</td>
<td>1</td>
</tr>
<tr>
<td>Low voltage level</td>
<td>600 V</td>
</tr>
<tr>
<td>Medium voltage level range</td>
<td>≤ 36 kV</td>
</tr>
<tr>
<td>Rated frequency</td>
<td>50Hz or 60 Hz</td>
</tr>
<tr>
<td>Oil type</td>
<td>Mineral (vegetable optional)</td>
</tr>
<tr>
<td>Tap changer</td>
<td>± 2 x 2.5%</td>
</tr>
<tr>
<td>Winding material (primary / secondary)</td>
<td>Al / Al</td>
</tr>
<tr>
<td>Eco efficiency optional</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**MV switchgear**

<table>
<thead>
<tr>
<th>Switchgear type</th>
<th>SF6-insulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated current</td>
<td>630 A</td>
</tr>
</tbody>
</table>
ABB compact skid design and grid connection

### Type code

<table>
<thead>
<tr>
<th>Type code</th>
<th>4.3MVA</th>
<th>4.6MVA</th>
<th>4.8MVA</th>
<th>5.0MVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration</td>
<td>Single (CV) or double feeder (CCV)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection (up to 24 kV / up to 36 kV)</td>
<td></td>
<td>Circuit breaker (16 kA or 20 kA / 20 kA or 25 kA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection relay type</td>
<td></td>
<td>REJ603 (others on request)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motorized optional</td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Auxiliary supply

<table>
<thead>
<tr>
<th>Auxiliary transformer power</th>
<th>10 kVA (higher on request)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auxiliary transformer primary voltage level</td>
<td>600 V</td>
</tr>
<tr>
<td>Auxiliary transformer secondary voltage level</td>
<td></td>
</tr>
<tr>
<td>Low voltage distribution panel for auxiliary functions</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Mechanical characteristics

<table>
<thead>
<tr>
<th>Transport dimensions (length x width x height) in mm</th>
<th>11850 x 2150 x 2570 (40ft HC container dimensions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight approx. in ton</td>
<td>24</td>
</tr>
</tbody>
</table>

### Environmental

<table>
<thead>
<tr>
<th>Operating temperature range</th>
<th>-20° C … +50° C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating altitude range</td>
<td>≤ 2000 m</td>
</tr>
<tr>
<td>Relative humidity (non-condensing)</td>
<td>≤ 95%</td>
</tr>
<tr>
<td>Environmental protection rating</td>
<td>IP 54 (IP 55 for inverter)</td>
</tr>
<tr>
<td>Painting corrosion protection</td>
<td>C4 (CSM optional)</td>
</tr>
</tbody>
</table>

### Conformity

<table>
<thead>
<tr>
<th>IEC 60364, IEC 61936-1, IEC 60502-1</th>
</tr>
</thead>
</table>

### Grid support

| Reactive power compensation (also at night), power reduction, LVRT, HVRT, FqRT |
MV switchgear standard configurations for ABB compact skid

Accessories
- Solar array junction boxes with string monitoring
- Remote monitoring solutions

Options
- MV AC output voltages up to 36 kV
- Different MV switchgear configurations
- I/O extensions
- Floating DC
- Fieldbus and Ethernet connections
- Auxiliary power supply up to 40kVA
- CSM enclosure corrosion protection (inverter C4)
- Warranty extensions
- LV AC breaker to inverter output

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.

For more information please contact your local ABB representative or visit:
www.abb.com/solarinverters
www.abb.com