The PVS-175-TL is ABB’s innovative three-phase string inverter, delivering a six-in-one solution to enhance and optimize solar power generation for ground mounted utility scale applications.

**Highlights**
- Up to 185 kW power rating, highest in class
- All-in-one combiner and fuse free design
- Separate power module and wiring compartment for fast swap and replacement
- Easy access to consumables for fast inspection and replacement
- 12 MPPT and wide input voltage range for maximum energy yield
- WLAN interface for commissioning and configuration
- Remote monitoring and firmware upgrade via ABB cloud platform (logger free)
- Free of charge standard access to Aurora Vision® cloud

**High power density**
This new high-power string inverter with the highest power density within the 1500 Vdc segment, delivers up to 185 kVA at 800 Vac. This not only maximizes the ROI for ground-mounted utility-scale applications but also reduces Balance of System costs (i.e. AC side cabling) for small to large scale, free field ground mounted PV installations.

**Design flexibility**
The inverter comes equipped with 12 MPPT, the highest available in the market, assuring maximum PV plant design flexibility and increasing yields also in case of complex installations.

**Installer friendly design**
Quick and easy installation, thanks to plug and play connectors, as the existing PV module’s mounting systems can be used to install the inverters, thus saving time and cost on site preparation and hire of plant.

The fuse and combiner free design eliminates the need for external components, such as separate DC combiner boxes and AC first level combiners, thanks to the integrated DC disconnect and AC wiring compartment with optional AC disconnect.

The Advanced Cooling Concept preserves the lifetime of the system and minimizes O&M costs thanks to internal heavy-duty inverter cooling fans. These can be easily removed during scheduled maintenance cycles whilst the power module can be easily replaced without removing the wiring box.

**Advanced communication for O&M**
Standard wireless access from any mobile device makes the configuration of inverter and plant easier and faster. Improved user experience thanks to a built-in User Interface (UI) enables access to advanced inverter configuration settings. The Installer for Solar Inverters mobile APP and configuration wizard enable a quick multi-inverter installation and commissioning thus reducing the time spent on site.

**Fast system integration**
Industry standard Modbus (RTU/TCP)/SUNSPEC protocol enables fast system integration.

Two Ethernet ports enable fast and future-proof communication for PV plants.

**Protect your assets**
Monitoring your assets is made easy, as every inverter is capable to connect to ABB cloud platform and thanks to the state-of-the-art cybersecurity and Arc Fault Detection option, your assets and profitability are secure in the long term.
ABB string inverters
PVS-175-TL

## Technical data and types

<table>
<thead>
<tr>
<th>Type code</th>
<th>PVS-175-TL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input side</strong></td>
<td></td>
</tr>
<tr>
<td>Absolute maximum DC input voltage ($V_{max,abs}$)</td>
<td>1500 V</td>
</tr>
<tr>
<td>Start-up DC input voltage ($V_{start}$)</td>
<td>750 V (650...1000 V)</td>
</tr>
<tr>
<td>Operating DC input voltage range ($V_{dcmin}...V_{dcmax}$)</td>
<td>0.7 x $V_{start}...1500$ V (min 600 V)</td>
</tr>
<tr>
<td>Rated DC input voltage ($V_{dc}$)</td>
<td>1100 Vdc</td>
</tr>
<tr>
<td>Rated DC input power ($P_{dcr}$)</td>
<td>188000 W @ 30°C - 177000 W @ 40°C</td>
</tr>
<tr>
<td>Number of Independent MPPT</td>
<td>12</td>
</tr>
<tr>
<td>MPPT input DC voltage range ($V_{MPPTmin}...V_{MPPTmax}$) at $P_{acr}$</td>
<td>850...1350 V</td>
</tr>
<tr>
<td>Maximum DC input current for each MPPT ($I_{MPPTmax}$)</td>
<td>22 A</td>
</tr>
<tr>
<td>Maximum input short circuit current for each MPPT ($I_{SCmax}$)</td>
<td>30 A</td>
</tr>
<tr>
<td>Number of DC input pairs for each MPPT</td>
<td>2 DC inputs per MPPT</td>
</tr>
<tr>
<td>DC connection type</td>
<td>PV quick fit connector</td>
</tr>
</tbody>
</table>

## Output protection

- DC Series Arc Fault Circuit Interrupter Type I acc. to UL 1699B with single-MPPT sensing capability
- Reverse polarity protection Yes, from limited current source
- Input over voltage protection for each MPPT - varistor Yes, Z (S/S2 version only)
- Input over voltage protection for each MPPT - replaceable surge arrester Type 2 with monitoring (SX/SX2 version only)
- Photovoltaic array isolation control (insulation resistance) Yes, acc. to IEC 62109-2
- Residual Current Monitoring Unit (leakage current protection) Yes, acc. to IEC 62109-2
- DC Load Breaking Disconnect Switch (rating for each MPPT) 20 A/1500 V - 35 A/1250 V - 50 A/1000 V
- Fuse rating N/A, No fuses
- String current monitoring MPPT-level current sense

## Output side

- AC Grid connection type Three phase 3W+PE (TN system)
- Rated AC power ($P_{ac}$ @ cos$\phi$=1) 175 000 W @ 40°C
- Maximum AC output power ($P_{acmax}$ @ cos$\phi$=1) 185 000 W @ ≤ 30°C
- Maximum apparent power ($S_{max}$) 185 000 VA
- Rated AC grid voltage ($V_{ac}$) 800 V
- AC voltage range (552...960) 3)
- Maximum AC output current ($I_{ac,max}$) 134 A
- Rated output frequency ($f_r$) 50 Hz/60 Hz
- Output frequency range ($f_{min}...f_{max}$) 45...55 Hz/55...65 Hz 3)
- Nominal power factor and adjustable range > 0.995, 0...1 inductive/capacitive with maximum $S_{max}$
- Total current harmonic distortion < 3%
- Max DC current injection (% of In) < 0.5%*In
- Maximum AC Cable outer diameter / multi core 1 x 53 mm (1 x M63 cable gland)
- Maximum AC Cable outer diameter / single core 3 x 32 mm (3 x M40 cable gland)
- AC connection type Copper Busbar for lug connections with M10 bolts (included)

## Output protection

- Anti-islanding protection According to local standard
- Maximum external AC overcurrent protection 200 A
- Output overvoltage protection - replaceable surge protection device Type 2 with monitoring

## Operating performance

- Maximum efficiency ($\eta_{max}$) 98.7%
- Weighted efficiency (EURO/CEC) 98.4%

## Communication

- Embedded communication interfaces Dual port Ethernet, WLAN, RS-485
- User Interface 4 LEDs, Web User Interface, Mobile APP
- Communication protocol Modbus RTU/TCP, (Sunspec)
- Commissioning tool Web User Interface, Mobile APP, APP for plant level
- Monitoring Plant Portfolio Manager, Plant Viewer
ABB PVS-175-TL string inverter block diagram

Technical data and types

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<td>FW update</td>
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<tr>
<td>Parameter upgrade</td>
<td>Remote inverter parameter (all components) upgrade via Ethernet/WLAN interface locally/remotey</td>
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Environmental

- Operating ambient temperature range: -25...+60°C/-13...140°F with derating above 40°C/133 °F
- Relative humidity: 4%...100% condensing
- Sound pressure level, typical: 65dB(A) @ 1m
- Maximum operating altitude without derating: 2000 m / 6560 ft

Physical

- Environmental protection rating: IP 65 (IPS4 for cooling section)
- Cooling: Forced air
- Dimension (H x W x D): 867x1086x458 mm / 34.2”x42.7”x18.0” for -S2, SX2 model
- Weight: ~76 kg / 167.5 lbs for power module; ~77 kg / 169.7 lbs for Wiring box Overall max ~153 kg / 337.2 lbs

Safety

- Isolation level: Transformerless
- Marking: CE

Safety and EMC standard

- IEC/EN 62109-1, IEC/EN 62109-2, EN 61000-6-11, EN 61000-6-12, EN 6000-6-4, EN 61000-3-11, EN 61000-3-12, EN 301 489-1, EN 301 489-17, EN 300 328, EN 62311.

Available products variants

- Inverter power module: PVS-175-TL-POWER MODULE
- 24 quick fit connector pairs (2 each mppt) + DC switches + DC side varistors: WB-S-PVS-175-TL
- 24 quick fit connector pairs (2 each mppt) + DC switches + DC side varistors + AC disconnection switch: WB-S2-PVS-175-TL
- 24 quick fit connector pairs (2 each mppt) + DC switches + SPD Type 2 Pluggable Cartridges (DC & AC): WB-SX-PVS-175-TL
- 24 quick fit connector pairs (2 each mppt) + DC switches + AC disconnection switch + SPD Type 2 Pluggable Cartridges (DC & AC): WB-SX2-PVS-175-TL

Optional available

- DC Series Arc Fault Circuit Interrupter: Type I acc. to UL 1699B 6) with single-MPPT sensing capability
- AC Plate, Single Core Cables: Plate with 4 individual AC cable glands:
  - 3 x M40: Ø 22...32mm, 1 x M32: Ø 18...25mm
- AC Plate, Multi Core Cables: Plate with 2 individual AC cable glands:
  - 1 x M63: Ø 37...53mm, 1 x M32: Ø 18...25mm
- DC link recharge circuit: Night time operation with restart capability
- Anti-PID 7) 7): Based on night time polarization of the array

References:

1) Multicontact MC4-Evo2. Cable couplers may accept up to 10mm² (AWG8)
2) Available as an option. Performance in line with the relevant requirements of the Draft IEC 63027 standard
3) The AC voltage and frequency range may vary depending on specific country grid standard
4) Use of aluminum cables is possible via bi-metallic cable lugs
5) as per IEEE 802.11b/g/n standard, 2.4 GHz
6) Check your sales channel for availability of the applicable grid standard for your country
7) Cannot operate simultaneously when installed in conjunction with the DC link recharge circuit