

SOLAR INVERTERS

ABB string inverters

PVI-10.0/12.5-TL-OUTD

10 to 12.5 kW



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PVI-10.0/12.5-TL-OUTD
outdoor string inverter

The high speed and precise Maximum Power Point Tracking (MPPT) algorithm provides real-time power tracking and improved energy harvesting.

Two independent MPPTs and efficiency ratings up to 97.8%

This transformerless device has two independent MPPTs and efficiency ratings of up to 97.8%.

Flat efficiency curves ensure high efficiency at all output levels ensuring consistent and stable performance across the entire input voltage and output power range.

The wide input voltage range makes the inverter suitable for low power installations with reduced string size.

Designed for commercial usage, the PVI-10/12.5, three-phase inverter is highly unique in its ability to control the performance of the PV panels, especially during periods of variable weather conditions.

Highlights

- True three-phase bridge topology for DC/AC output converter
- Transformerless topology
- Each inverter is set on specific grid codes which can be selected in the field
- Wide input voltage range
- Dual input section with independent MPPT allows optimal energy harvesting from two sub-arrays oriented in different directions
- Integrated DC disconnect switch in compliance with international standards (-S and -FS versions)
- Natural convection cooling for maximum reliability
- Outdoor enclosure for unrestricted use under any environmental conditions
- RS-485 communication interface (for connection to laptop or datalogger)
- VSN300 Wifi Logger Card as optional for adding Wifi radio, Modbus TCP/Sunspec features as well as access to all Aurora Vision functionalities
- Lifetime free of charge access to Aurora Vision

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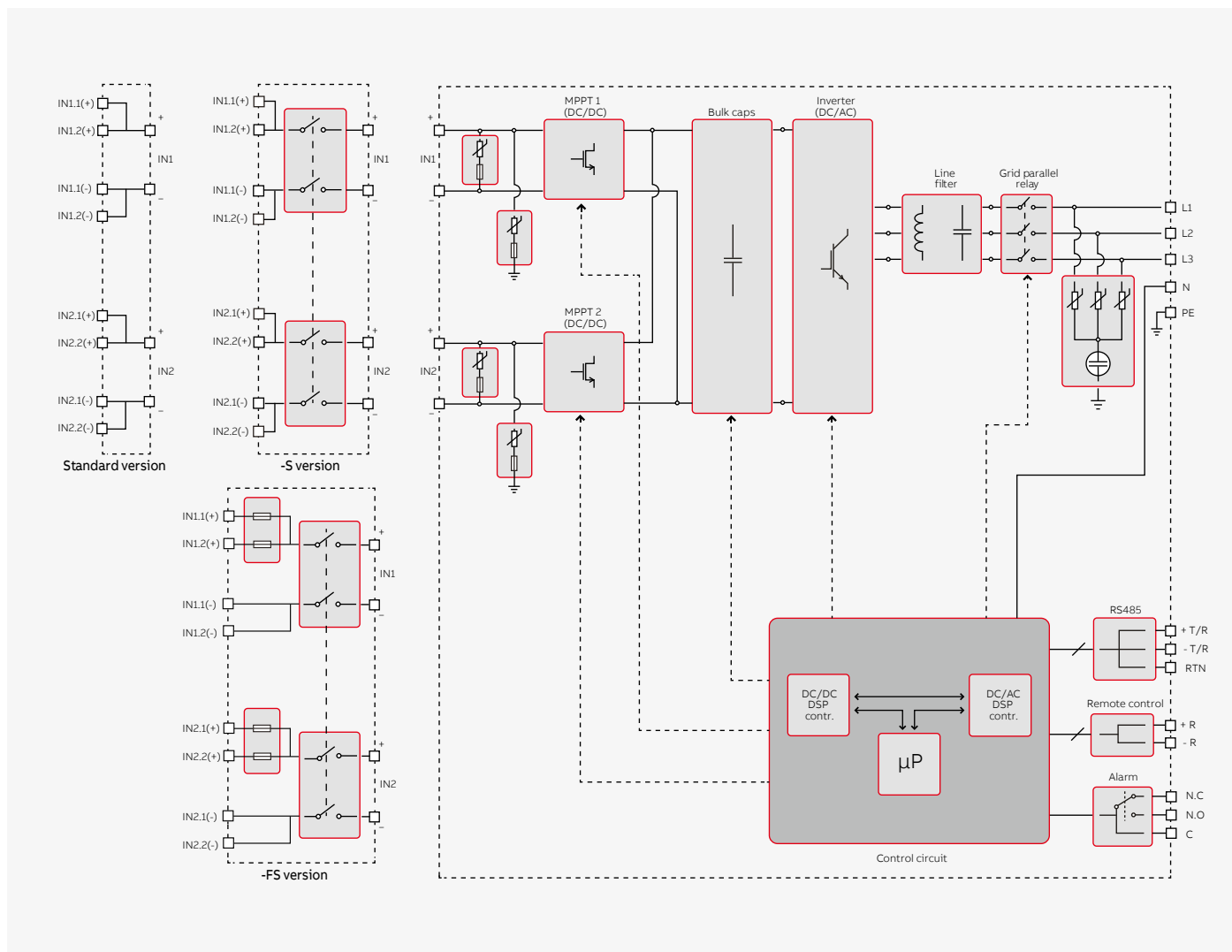
10 to 12.5 kW



Technical data and types

| Type code | PVI-10.0-TL-OUTD | PVI-12.5-TL-OUTD |
|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Input side | | |
| Absolute maximum DC input voltage ($V_{max,abs}$) | 900 V | |
| Start-up DC input voltage (V_{start}) | 360 V (adj. 250...500 V) | |
| Operating DC input voltage range ($V_{dcmin}...V_{dcmax}$) | 0.7 x $V_{start}...850$ V (min 200 V) | |
| Rated DC input voltage (V_{dcr}) | 580 V | |
| Rated DC input power (P_{dcr}) | 10300 W | 12800 W |
| Number of independent MPPT | 2 | |
| Maximum DC input power for each MPPT ($P_{MPPTmax}$) | 6500 W | 8000 W |
| DC input voltage range with parallel configuration of MPPT at P_{acr} | 300...750 V | 360...750 V |
| DC power limitation with parallel configuration of MPPT | Linear derating from max to null [$750 V \leq V_{MPPT} \leq 850 V$] | |
| DC power limitation for each MPPT with independent configuration of MPPT at P_{acr} , max unbalance example | 6500 W [$380 V \leq V_{MPPT} \leq 750 V$] the other channel: P_{dcr} -6500 W [$225 V \leq V_{MPPT} \leq 750 V$] | 8000 W [$445 V \leq V_{MPPT} \leq 750 V$] the other channel: P_{dcr} -8000 W [$270 V \leq V_{MPPT} \leq 750 V$] |
| Maximum DC input current (I_{dcmax}) / for each MPPT ($I_{MPPTmax}$) | 34.0 A / 17.0 A | 36.0 A / 18.0 A |
| Maximum input short circuit current for each MPPT | 22.0 A | |
| Number of DC input pairs for each MPPT | 2 | |
| DC connection type | PV quick fit connector ³⁾ | |
| Input protection | | |
| Reverse polarity protection | Inverter protection only, from limited current source | |
| Input over voltage protection for each MPPT - varistor | Yes | |
| Photovoltaic array isolation control | According to local standard | |
| DC switch rating for each MPPT (version with DC switch) | 25 A / 1000 V | |
| Fuse rating (versions with fuses) | 15 A / 1000 V | |
| Output side | | |
| AC grid connection type | Three-phase 3W+PE or 4W+PE | |
| Rated AC power ($P_{acr}@cos\phi=1$) | 10000 W | 12500 W |
| Maximum AC output power ($P_{acmax}@cos\phi=1$) | 11000 W ⁴⁾ | 13800 W ⁵⁾ |
| Maximum apparent power (S_{max}) | 11500 VA | 13800 VA |
| Rated AC grid voltage ($V_{acr,r}$) | 400 V | |
| AC voltage range | 320...480 V ¹⁾ | |
| Maximum AC output current ($I_{ac,max}$) | 16.6 A | 20.0 A |
| Contributory fault current | 19.0 A | 22.0 A |
| Rated output frequency (f_r) | 50 Hz / 60 Hz | |
| Output frequency range ($f_{min}...f_{max}$) | 47...53 Hz / 57...63 Hz ²⁾ | |
| Nominal power factor and adjustable range | > 0.995, adj. ± 0.9 with $P_{acr}=10.0$ kW, ± 0.8 with max 11.5 kVA | > 0.995, adj. ± 0.9 with $P_{acr}=12.5$ kW, ± 0.8 with max 13.8 kVA |
| Total current harmonic distortion | < 2% | |
| AC connection type | Screw terminal block, cable gland M40 | |
| Output protection | | |
| Anti-islanding protection | According to local standard | |
| Maximum external AC overcurrent protection | 25.0 A | |
| Output overvoltage protection - varistor | 3 plus gas arrester | |
| Operating performance | | |
| Maximum efficiency (η_{max}) | 97.8% | |
| Weighted efficiency (EURO/CEC) | 97.1% / - | 97.2% / - |
| Feed in power threshold | 30.0 W | |
| Night consumption | < 1.0 W | |
| Communication | | |
| Wired local monitoring | PVI-USB-RS232_485 (opt.) | |
| Remote monitoring | VSN300 Wifi Logger Card (opt.), VSN700 Data Logger (opt.) | |
| Wireless local monitoring | VSN300 Wifi Logger Card (opt.) | |
| User interface | 16 characters x 2 lines LCD display | |

ABB PVI-10.0/12.5-TL-OUTD string inverter block diagram



Technical data and types

| Type code | PVI-10.0-TL-OUTD | PVI-12.5-TL-OUTD |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Environmental | | |
| Ambient temperature range | -25...+60°C (-13...+140°F) with derating above 55°C (131°F) | -25...+60°C (-13...+140°F) with derating above 50°C (122°F) |
| Relative humidity | 0...100% condensing | |
| Sound pressure level, typical | 50 dBA @ 1 m | |
| Maximum operating altitude without derating | 2000 m / 6560 ft | |
| Physical | | |
| Environmental protection rating | IP65 | |
| Cooling | Natural | |
| Dimension (H x W x D) | 716 mm x 645 mm x 224 mm / 28.2" x 25.4" x 8.8" | |
| Weight | < 41.0 kg / 90.4 lbs | |
| Mounting system | Wall bracket | |
| Safety | | |
| Isolation level | Transformerless | |
| Marking | CE (50 Hz only), RCM | |
| Safety and EMC standard | EN 50178, IEC/EN 62109-1, IEC/EN 62109-2, AS/NZS 3100, AS/NZS 60950.1, EN 61000-6-2, EN 61000-6-3, EN 61000-3-11, EN 61000-3-12 | |
| Grid standard (check your sales channel for availability) | CEI 0-21, CEI 0-16, DIN V VDE V 0126-1-1, VDE-AR-N 4105, G59/3, C10/11, EN 50438 (not for all national appendices), RD 1699, RD 413, RD 661, P.O. 12.3, AS/NZS 4777, IEC 61727, IEC 62116, BDEW, MEA, NRS 097-2-1, VFR 2014 | |
| Available products variants | | |
| Standard | PVI-10.0-TL-OUTD | PVI-12.5-TL-OUTD |
| With DC switch | PVI-10.0-TL-OUTD-S | PVI-12.5-TL-OUTD-S |
| With DC switch and fuse | PVI-10.0-TL-OUTD-FS | PVI-12.5-TL-OUTD-FS |

1) The AC voltage range may vary depending on specific country grid standard)

2) The Frequency range may vary depending on specific country grid standard

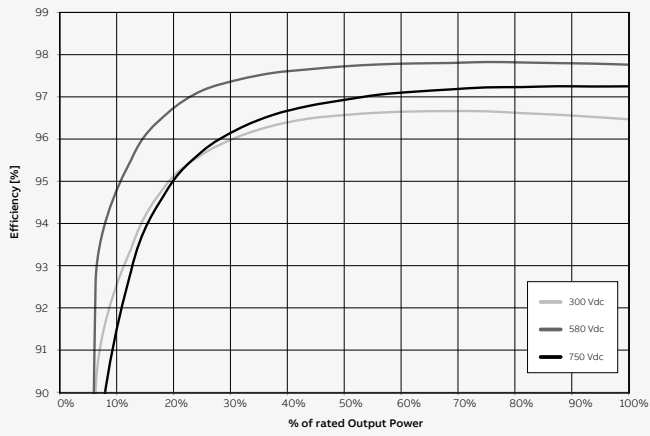
3) Please refer to the document "String inverters – Product manual appendix" available at www.abb.com/solarinverters for information on the quick-fit connector brand and model used in the inverter

4) Limited to 10000 W for Belgium and Germany

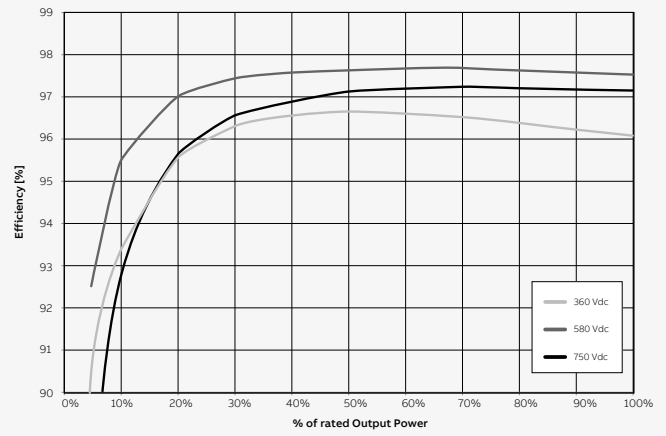
5) Limited to 12500 W for Germany

Remark. Features not specifically listed in the present data sheet are not included in the product

Efficiency curves of PVI-10.0-TL-OUTD



Efficiency curves of PVI-12.5-TL-OUTD



For more information please contact your local ABB representative or visit:

www.abb.com/solarinverters
www.abb.com

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