Solar inverters

ABB string inverters
PVI-10.0/12.5-TL-OUTD
10 to 12.5 kW

Designed for commercial usage, this 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.

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.

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 range
- Dual input section with independent MPPT allows optimal energy harvesting from two sub-arrays oriented in different directions

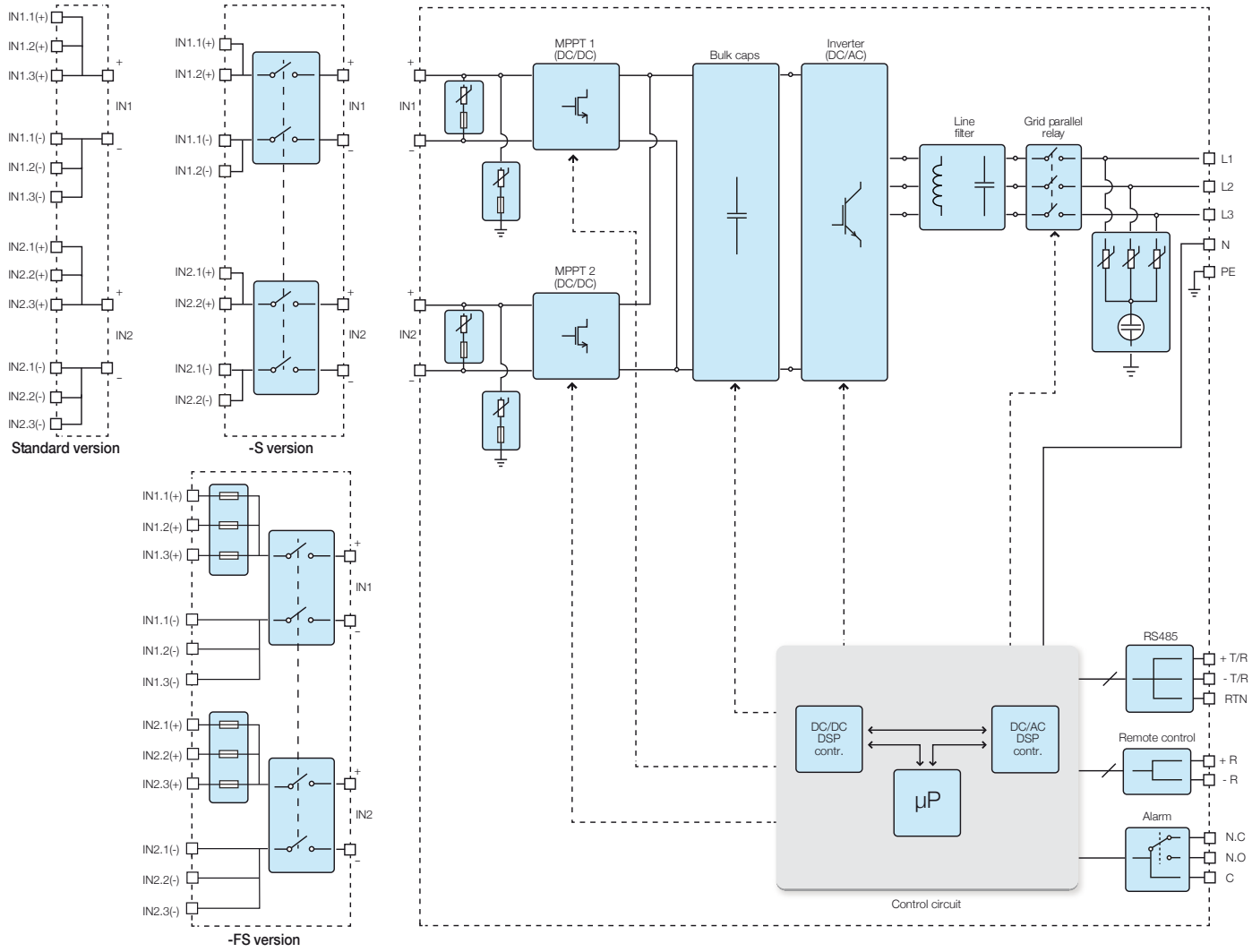
Additional highlights

- ‘Electrolyte-free’ power converter to further increase the life expectancy and long term reliability
- 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)

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	
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 [750V≤V_{MPPT}≤850V]	
DC power limitation for each MPPT with independent configuration of MPPT at P_{acr}, max unbalance example	6500 W [380V≤V_{MPPT}≤750V] the other channel: P_{dcr}-6500W [225V≤V_{MPPT}≤750V]	8000 W [445V≤V_{MPPT}≤750V] the other channel: P_{dcr}-8000W [270V≤V_{MPPT}≤750V]
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 inputs pairs for each MPPT	2 (-S version) 3 (Standard or -FS version)	
DC connection type	Tool Free PV connector WM / MC4	
Input protection		
Reverse polarity protection	Inverter protection only, from limited current source, for standard and -S versions, and for -FS version when max 2 strings are connected	
Input over voltage protection for each MPPT - varistor	2	
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)	12 A / 1000 V	
Output side		
AC grid connection type	Three phase 3W or 4W+PE	
Rated AC power (P_{acr} @cosϕ=1)	10000 W	12500 W
Maximum AC output power (P_{acmax} @cosϕ=1)	11000 W (3)	13800 W (4)
Maximum apparent power (S_{max})	11500 VA	13800 VA
Rated AC grid voltage ($V_{ac,r}$)	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 AC overcurrent protection	19.0 A	22.0 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	
Stand-by consumption	< 10.0 W	

Block diagram of PVI-10.0/12.5-TL-OUTD



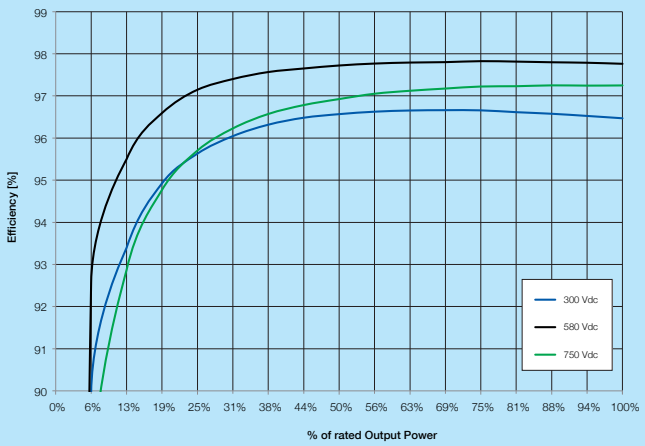
Technical data and types

Type code	PVI-10.0-TL-OUTD	PVI-12.5-TL-OUTD
Communication		
Wired local monitoring	PVI-USB-RS232_485 (opt.)	
Remote monitoring	VSN300 Wifi Logger Card[5] (opt.), PVI-AEC-EVO (opt.), VSN700 Data Logger (opt.)	
Wireless local monitoring	VSN300 Wifi Logger Card[5] (opt.)	
User interface	16 characters x 2 lines LCD display	
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	
Noise emission	< 50 dB(A) @ 1 m	
Maximum operating altitude without derating	2000 m / 6560 ft	
Physical		
Environmental protection rating	IP 65	
Cooling	Natural	
Dimension (H x W x D)	716mm x 645mm x 224mm / 28.2" x 25.4" x 8.8"	
Weight	< 41.0 kg / 90.4 lb	
Mounting system	Wall bracket	
Safety		
Isolation level	Transformerless	
Marking	CE (50 Hz only)	
Safety and EMC standard	EN62109-1, EN62109-2, AS/NZS3100, AS/NZS 60950, EN61000-6-2, EN61000-6-3, EN61000-3-11, EN61000-3-12	
Grid standard (check your sales channel for availability)	CEI 0-21, CEI 0-16, VDE 0126-1-1, VDE-AR-N 4105, G59/3, C10/11, EN 50438 (not for all national appendices), RD1699, RD 1565, AS 4777, BDEW, ABNT NBR 16149, CLC/FprTS 50549, PEA, MEA	CEI 0-21, CEI 0-16, VDE 0126-1-1, VDE-AR-N 4105, G59/3, C10/11, EN 50438 (not for all national appendices), RD1699, RD 1565, AS 4777, BDEW, ABNT NBR 16149, CLC/FprTS 50549
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

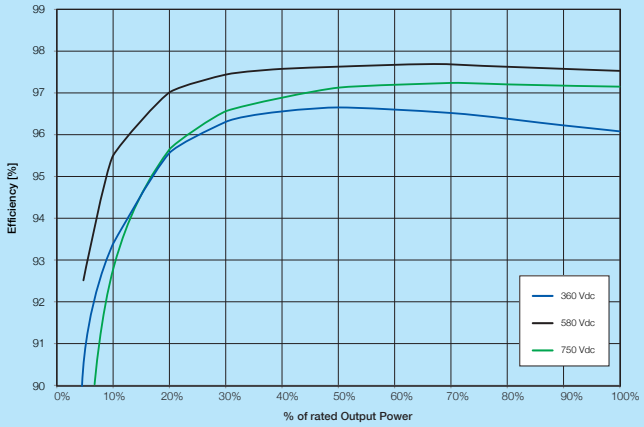
1. The AC voltage range may vary depending on specific country grid standard
2. The Frequency range may vary depending on specific country grid standard
3. Limited to 10000 W for Belgium and Germany
4. Limited to 12500 W for Germany
5. Check availability before to order

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



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