Solar inverters

ABB string inverters
PVI-10.0/12.0-I-OUTD
10 to 12 kW

Designed for commercial usage, this 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, precise Multiple Power Point Tracker (MPPT) algorithm enables real-time power tracking and improved energy harvesting.

This device has two independent MPPTs and efficiency ratings of up to 97.3%.

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

The input voltage range makes the inverter suitable for installations with reduced string size

Dual input section with independent MPP tracking, allows for optimal energy harvesting from two sub-arrays oriented in different directions.

Each inverter is set on specific grid codes which can be selected in the field.

The outdoor enclosure provides unrestricted usage under any environmental condition.

Highlights

- True three-phase bridge topology for DC/AC output converter
- The HF isolation allows positive or negative ground configuration
- The unit is free of electrolytic capacitors, leading to a longer product lifetime
- Night wake up button to access energy harvesting data and error log

Power and productivity
for a better world™

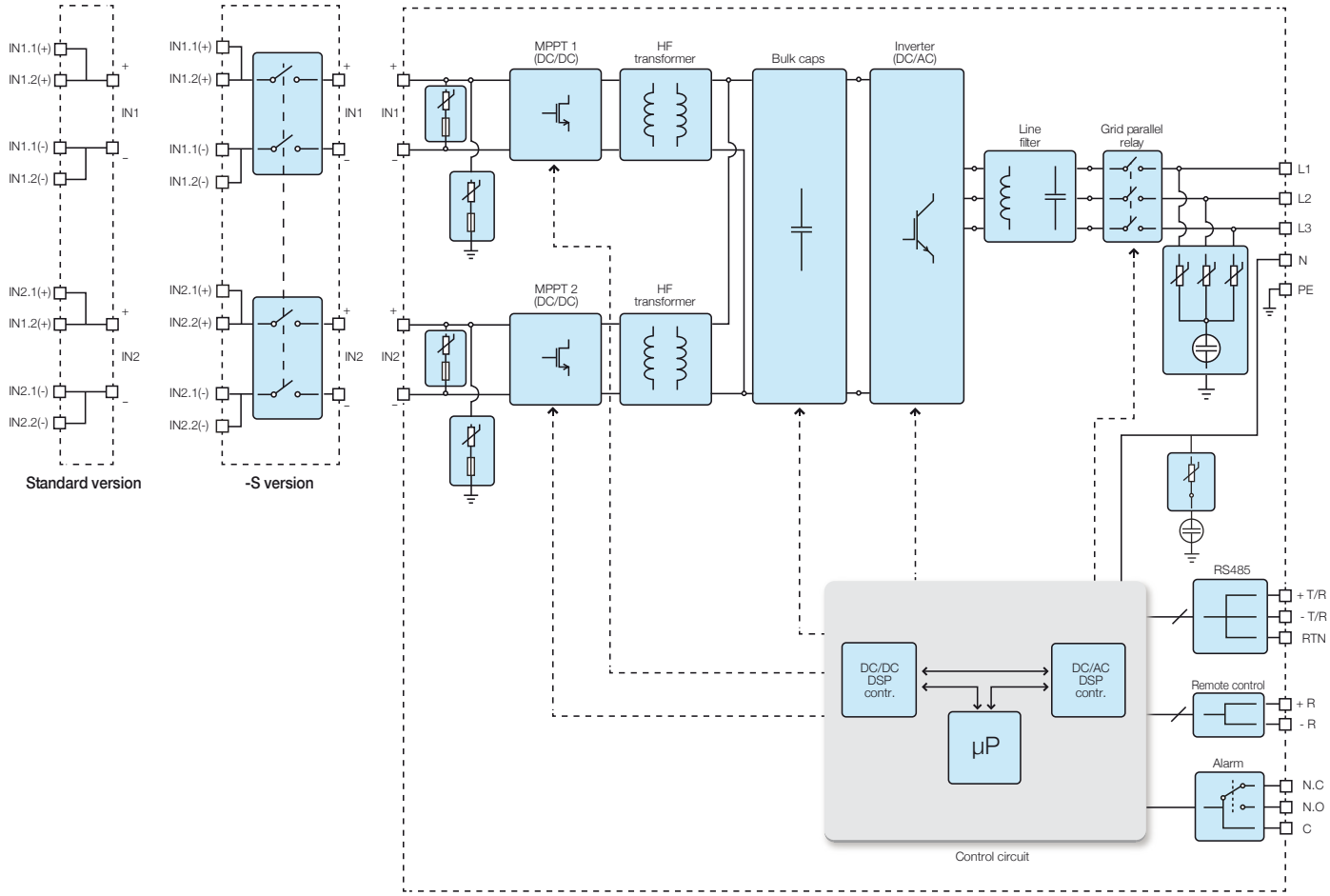
Additional highlights

- Integrated DC disconnect switch in compliance with international Standards (-S version)
- Natural convection cooling for maximum reliability
- Outdoor enclosure for unrestricted use under any environmental conditions (IP65)
- RS-485 communication interface (for connection to laptop or data logger)

Technical data and types

Type code	PVI-10.0-I-OUTD-400	PVI-12.0-I-OUTD-400
Input side		
Absolute maximum DC input voltage ($V_{max,abs}$)	520 V	
Start-up DC input voltage (V_{start})	200 V (adj. 120...350 V)	
Operating DC input voltage range (V_{dcmin}...V_{dcmax})	0.7 x V_{start}...520 V	
Rated DC input voltage (V_{dcr})	345 V	
Rated DC input power (P_{dcr})	10500 W	12300 W
Number of independent MPPT	2 (5)	
Maximum DC input power for each MPPT ($P_{MPPTmax}$)	6800 W	
DC input voltage range with parallel configuration of MPPT at P_{acr}	220...470 V	250...470 V
DC power limitation with parallel configuration of MPPT	Linear derating from max to null [470V≤V_{MPPT}≤520V]	
DC power limitation for each MPPT with independent configuration of MPPT at P_{acr}, max unbalance example	6800 W [285V≤V_{MPPT}≤470V] the other channel: P_{dcr}-6800W [155V≤V_{MPPT}≤470V]	6800 W [275V≤V_{MPPT}≤470V] the other channel: P_{dcr}-6800W [220V≤V_{MPPT}≤470V]
Maximum DC input current (I_{dcmax}) / for each MPPT ($I_{MPPTmax}$)	48.0 A / 24.0 A	50.0 A / 25.0 A
Maximum input short circuit current for each MPPT	29.0 A	
Number of DC inputs pairs for each MPPT	2	
DC connection type	Tool Free PV connector WM / MC4	
Input protection		
Reverse polarity protection	Yes, from limited current source	
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)	32 A / 600 V	
Output side		
AC grid connection type	Three phase 3W or 4W+PE	
Rated AC power (P_{acr} @cosϕ=1)	10000 W	12000 W
Maximum AC output power (P_{acmax} @cosϕ=1)	11000 W (3)	12500 W (4)
Maximum apparent power (S_{max})	11100 VA	13300 VA
Rated AC grid voltage ($V_{ac,r}$)	400 V	
AC voltage range	320...480 V (1)	
Maximum AC output current ($I_{ac,max}$)	16.0 A	18.0 A
Contributory fault current	25.0 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	> 0.995, adj. ± 0.9 with P_{acr} =12.0 kW
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	20.0 A	
Output overvoltage protection - varistor	3 plus gas arrester	

Block diagram of PVI-10.0/12.0-I-OUTD



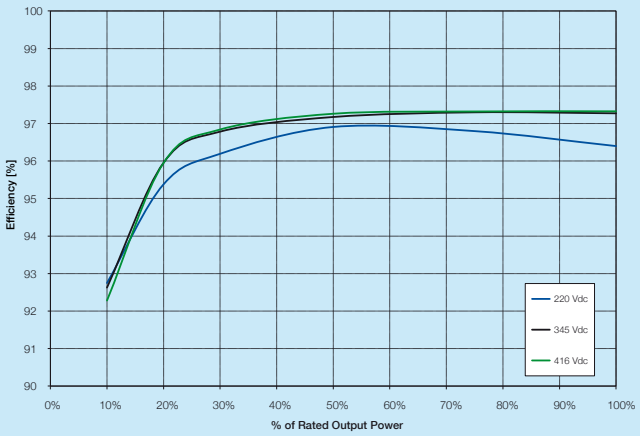
Technical data and types

Type code	PVI-10.0-I-OUTD-400	PVI-12.0-I-OUTD-400
Operating performance		
Maximum efficiency (η_{max})	97.3%	
Weighted efficiency (EURO/CEC)	97.0% / -	
Feed in power threshold	30 W	
Stand-by consumption	< 8 W	
Communication		
Wired local monitoring	PVI-USB-RS232_485 (opt.)	
Remote monitoring	VSN300 Wifi Logger Card[6] (opt.), PVI-AEC-EVO (opt.), VSN700 Data Logger (opt.)	
Wireless local monitoring	VSN300 Wifi Logger Card[6] (opt.)	
User interface	16 characters x 2 lines LCD display	
Environmental		
Ambient temperature range	-25...+60°C /-13...140°F with derating above 50°C/122°F	-25...+60°C /-13...140°F with derating above 45°C/113°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 222mm / 28.2" x 25.4" x 8.7"	
Weight	< 45.8 kg / 99.0 lb	
Mounting system	Wall bracket	
Safety		
Isolation level	HF transformer	
Marking	CE (50 Hz only)	
Safety and EMC standard	EN 50178, EN62109-1, EN62109-2, AS/NZS3100, AS/NZS 60950, EN61000-3-2, EN61000-3-3, EN61000-6-2, EN61000-6-3	EN 50178, 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, G83/2, G59/3, C10/11, EN 50438 (not for all national appendices), RD1699, RD 1565, AS 4777, ABNT NBR 16149, CLC/FprTS 50549	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, ABNT NBR 16149, CLC/FprTS 50549
Available products variants		
Standard	PVI-10.0-I-OUTD-400	PVI-12.0-I-OUTD-400
With DC switch	PVI-10.0-I-OUTD-S-400	PVI-12.0-I-OUTD-S-400

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 12000 W for Germany
5. Independent MPPT just with negative ground
6. 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-I-OUTD



Efficiency curves of PVI-12.0-I-OUTD

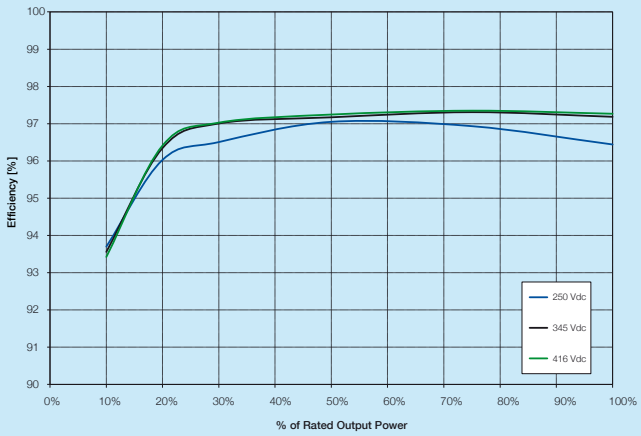


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ABB supports its customers with dedicated, global service organization in more than 60 countries and strong regional and national technical partner networks providing complete range of life cycle services.

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