

# 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

## Additional highlights

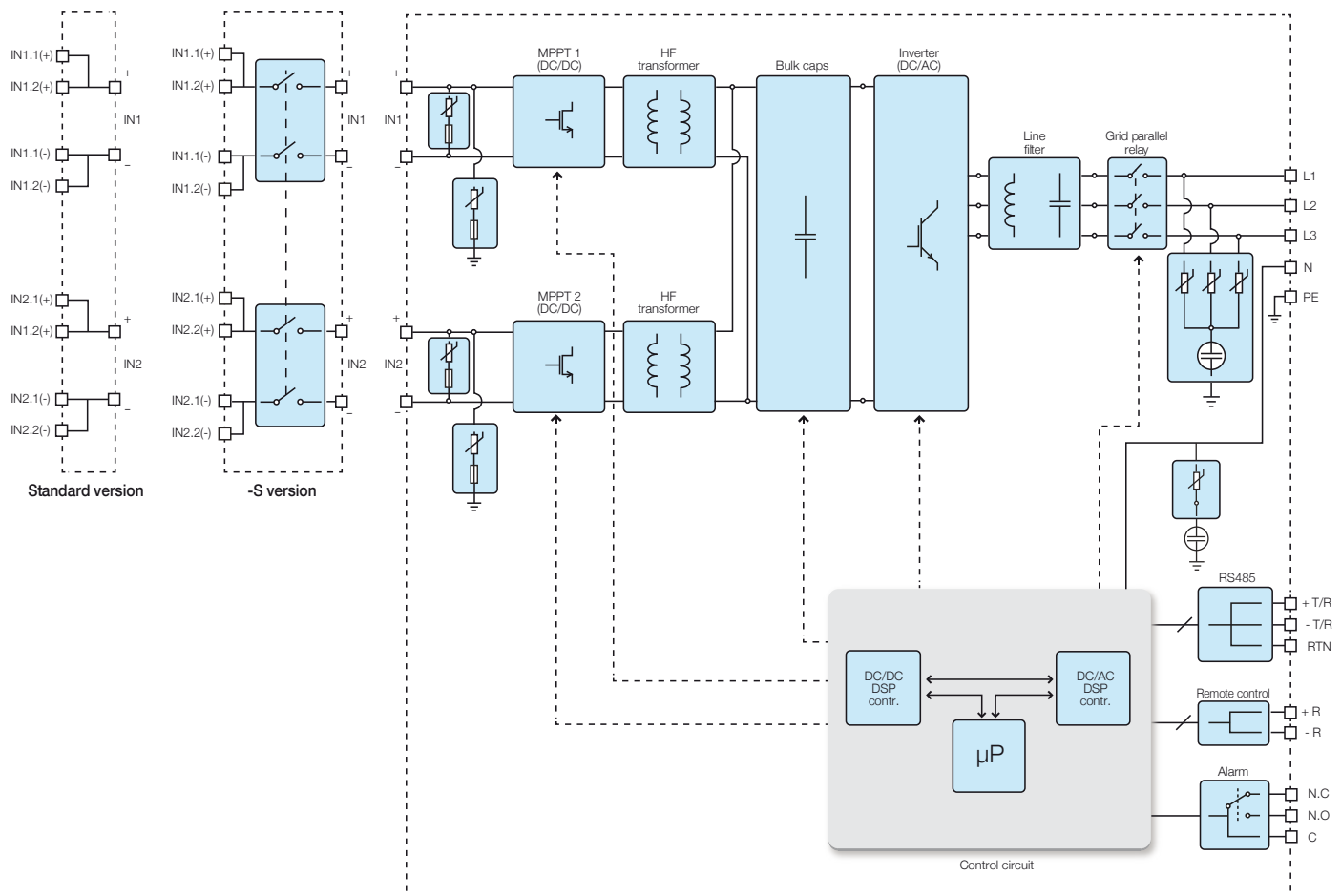
- Integrated DC disconnect switch in compliance with international Standards (-S version)
- Natural convection cooling for maximum reliability
- Outdoor enclosure for unrestricted use under any environmental conditions (IP65)
- RS-485 communication interface (for connection to laptop or data logger)



## Technical data and types

Type code	PVI-10.0-I-OUTD-400	PVI-12.0-I-OUTD-400
<b>Input side</b>		
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 ( $V_{dmin}...V_{dmax}$ )	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 <sup>(5)</sup>	
Maximum DC input power for each MPPT ( $P_{MPPTmax}$ )	6800 W	
DC input voltage range with parallel configuration of MPPT at $P_{dcr}$	220...470 V	250...470 V
DC power limitation with parallel configuration of MPPT	Linear derating from max to null [ $470V \leq V_{MPPT} \leq 520V$ ]	
DC power limitation for each MPPT with independent configuration of MPPT at $P_{dcr}$ , max unbalance example	6800 W [ $285V \leq V_{MPPT} \leq 470V$ ] the other channel: $P_{dcr}$ -6800W [ $155V \leq V_{MPPT} \leq 470V$ ]	6800 W [ $275V \leq V_{MPPT} \leq 470V$ ] the other channel: $P_{dcr}$ -6800W [ $220V \leq V_{MPPT} \leq 470V$ ]
Maximum DC input current ( $I_{dcr,max}$ ) / 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	
<b>Input protection</b>		
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	
<b>Output side</b>		
AC grid connection type	Three phase 3W or 4W+PE	
Rated AC power ( $P_{acr} @ \cos\phi=1$ )	10000 W	12000 W
Maximum AC output power ( $P_{ac,max} @ \cos\phi=1$ )	11000 W <sup>(3)</sup>	12500 W <sup>(4)</sup>
Maximum apparent power ( $S_{max}$ )	11100 VA	13300 VA
Rated AC grid voltage ( $V_{ac,r}$ )	400 V	
AC voltage range	320...480 V <sup>(1)</sup>	
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 <sup>(2)</sup>	
Nominal power factor and adjustable range	> 0.995, adj. $\pm$ 0.9 with $P_{acr}=10.0$ kW	> 0.995, adj. $\pm$ 0.9 with $P_{acr}=12.0$ kW
Total current harmonic distortion	< 2%	
AC connection type	Screw terminal block, cable gland M40	
<b>Output protection</b>		
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

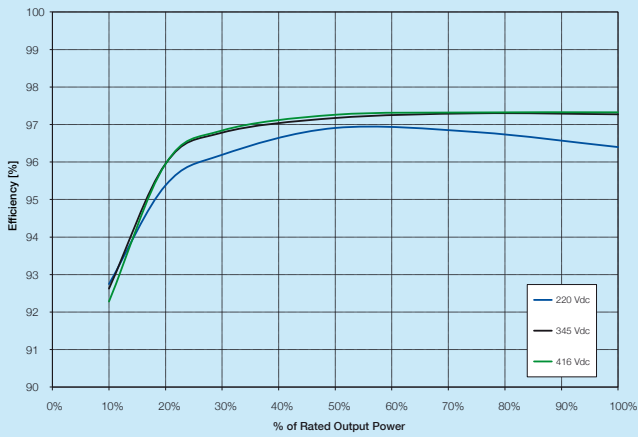
Type code	PVI-10.0-I-OUTD-400	PVI-12.0-I-OUTD-400
<b>Operating performance</b>		
Maximum efficiency ( $\eta_{max}$ )	97.3%	
Weighted efficiency (EURO/CEC)	97.0% / -	
Feed in power threshold	30 W	
Stand-by consumption	< 8 W	
<b>Communication</b>		
Wired local monitoring	PVI-USB-RS232_485 (opt.)	
Remote monitoring	VSN300 Wifi Logger Card <sup>®</sup> (opt.), PVI-AEC-EVO (opt.), VSN700 Data Logger (opt.)	
Wireless local monitoring	VSN300 Wifi Logger Card <sup>®</sup> (opt.)	
User interface	16 characters x 2 lines LCD display	
<b>Environmental</b>		
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	
<b>Physical</b>		
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	
<b>Safety</b>		
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
<b>Available products variants</b>		
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

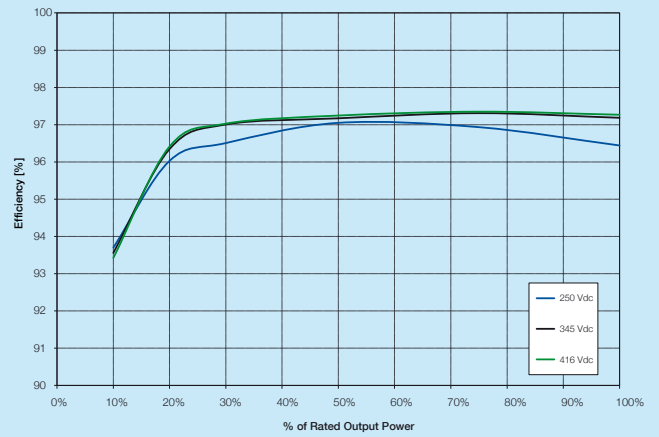
4. Limited to 12000 W for Germany  
 5. Independent MPPT just with negative ground  
 6. Check availability before to order

**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



### Support and service

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