

# ABB string inverters PVI-10.0-I-OUTD 10kW



Designed for commercial systems, the PVI-10.0, isolated, 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 dual Multiple Power Point Tracker (MPPT) maximizes energy production and increases design flexibility.**

This dual independent MPPT functionality enables optimal energy harvesting from two sub-arrays oriented at different azimuths, tilts and varying string lengths. The wide input voltage range makes this inverter suitable for installations with a reduced string size.

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

**This inverter is feature rich, enabling the desired design flexibility to master any design challenge.**

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

The PVI-10.0-I is built to endure harsh environmental conditions with its NEMA 4X rating.

The PVI-10.0-I is available with an optional fully-integrated DC combiner box equipped either with DC or AC and DC disconnect switches and DC fuses.

#### Highlights:

- This isolated inverter is available in 208V, 480V and 600V outputs.
- It has an efficiency rating of up to 97.3%.
- The high-speed and precise MPPT algorithm enables real-time power tracking and improved energy harvesting.
- The electrolyte-free power converter increases the life expectancy and reliability.

### Additional highlights:

- True three-phase bridge topology for DC/AC output conversion
- It features a night wake up button to access energy harvesting data and information when inverter is sleeping
- The dual independent MPPT allows optimal energy harvesting from two sub-arrays oriented in different azimuths and tilts
- NEMA 4X outdoor enclosure for use under any environmental conditions
- Integrated combiner box equipped with a DC switch in compliance with international standards (-S1,-S2)
- RS-485 communication interface (for connection to laptop or datalogger)



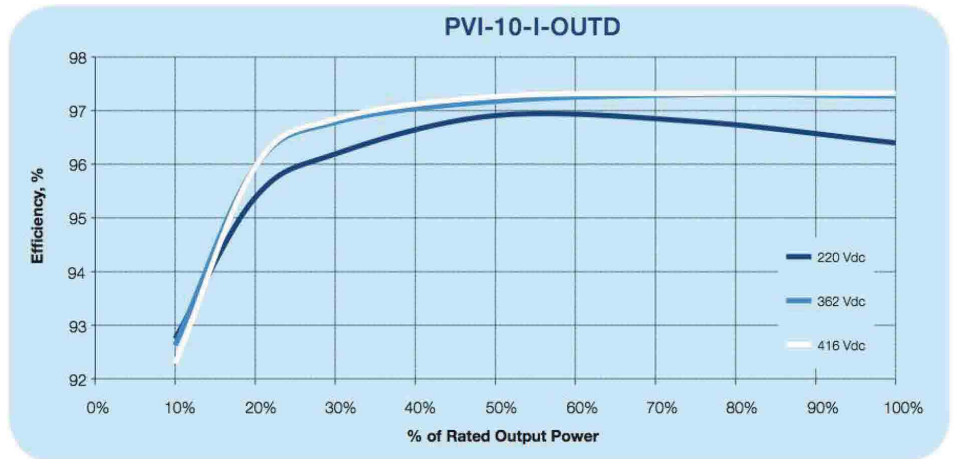
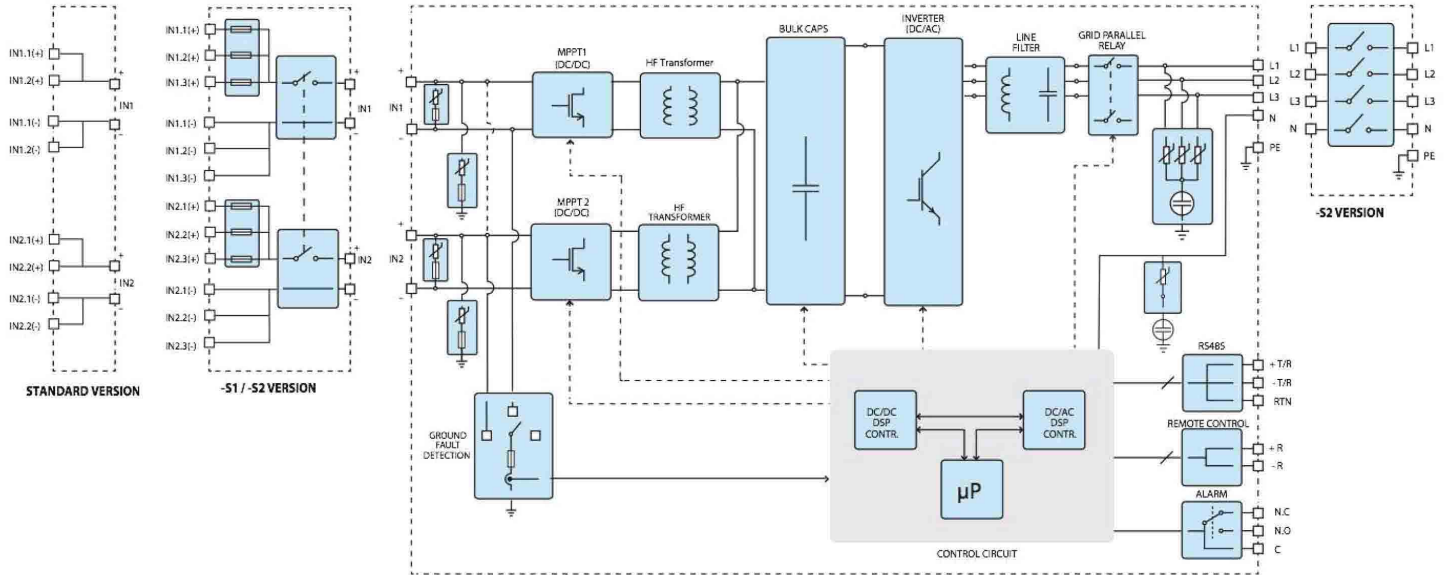
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### Technical data and types

Type code	PVI-10.0-I-OUTD-US			PVI-10.0-I-OUTD-CAN	
Nominal output power	10000W	10000W	10000W	10000W	10000W
Maximum output power	11000W*	11000W*	10000W*	10000W*	10000W*
Rated grid AC voltage	208V	480V	208V	480V	600V
<b>Input side (DC)</b>					
Number of independent MPPT Channels	2; programmable for 1 MPPT				
Maximum usable power for each MPPT channel	6800W				
Absolute maximum voltage (Vmax)	520V				
Start-up voltage (Vstart)	200V (adj. 120V min.)				
Full power MPPT voltage range	220-470V				
Operating MPPT voltage range	0.7 x Vstart - 520				
Maximum current (I <sub>dcmax</sub> ) for both MPPT in parallel	48A				
Maximum usable current per MPPT channel	24A				
Maximum short circuit current (I <sub>sc max.</sub> ) per MPPT channel	29A				
Maximum short circuit current (I <sub>sc max.</sub> ) for both MPPT in parallel	58A				
Number of inputs (strings) per MPPT channel	Standard version: 2; -S1 version: 3; -S2 version: 3				
Array wiring termination type	Terminal block, pressure clamp, 20AWG-6AWG				
<b>Output side (AC)</b>					
Grid connection type	3Ø/4W + Ground				
Default voltage range	183-228V	422-528V	183-228V	422-528V	528-660V
Nominal grid frequency	60Hz				
Adjustable grid frequency range	57-63 Hz				
Maximum Current (I <sub>ac max/phase</sub> )	30.0A <sub>RMS</sub>	14.0A <sub>RMS</sub>	30.0A <sub>RMS</sub>	14.0A <sub>RMS</sub>	10.6A <sub>RMS</sub>
Power factor	>0.995 (adj. ±0.9)				
Total harmonic distortion (at rated power)	<2%				
Grid wiring termination type	Terminal block, pressure clamp, 12AWG-4AWG				
Fault current	44.4A <sub>RMS</sub>	30.6A <sub>RMS</sub>	44.4A <sub>RMS</sub>	30.6A <sub>RMS</sub>	18.65A <sub>RMS</sub>
<b>Input protection devices</b>					
Reverse polarity protection	Yes				
Over-voltage protection type	Varistor, 2 for each channel				
PV array ground fault detection	GFDI (GFD fuse) per UL 1741/ NEC 690.5				
<b>Output protection devices</b>					
Anti-islanding protection	Meets UL 1741 / IEEE1547 requirements				
Over-voltage protection type	1 varistor per line (3), 1 gas arrester to PE				
<b>Efficiency</b>					
Maximum efficiency	96.5%	97.3%	96.5%	97.3%	97.3%
CEC efficiency	96.0%	97.0%	96.0%	97.0%	97.0%
<b>Operating parameters</b>					
Feed-in power threshold	30W <sub>RMS</sub>				
Stand-by consumption	<8W <sub>RMS</sub>				
<b>Communication</b>					
User-interface (display)	16 characters x 2 lines LCD display				
Standard communication interfaces	(1) RS485 connection. Standard Aurora protocol. Optional Modbus				
Optional remote monitoring logger	VSN 700 Data Logger				
<b>Environmental</b>					
Ambient air operating temperature range	-13°F to +140°F (-25°C to +60°C) Derating above +104°F (+40°C)	-13°F to +140°F (-25°C to +60°C) Derating above +122°F (+50°C)	-13°F to +140°F (-25°C to +60°C) Derating above +104°F (+40°C)	-13°F to +140°F (-25°C to +60°C) Derating above +122°F (+50°C)	-13°F to +140°F (-25°C to +60°C) Derating above +113°F (+45°C)
Ambient storage temperature range	-40°F to +176°F (-40°C to +80°C)				
Relative humidity	0-100 % condensing				
Acoustic noise emission level	<50 db (A) @ 1m				
Maximum operating altitude without derating	6560ft (2000m)				

\*Capability enabled at nominal AC voltage and with sufficient DC power available

## Block diagram of PVI-10.0-I-OUTD



## Technical data and types

Type code	PVI-10.0-I-OUTD-US	PVI-10.0-I-OUTD-CAN
<b>Mechanical specifications</b>		
Enclosure rating	NEMA 4X	
Cooling	Natural convection	
Dimensions H x W x D	Standard: 28.2 x 25.4 x 8.7 in / 716 x 645 x 222mm -S1, -S2 version: 37.7 x 25.4 x 8.7 in / 958 x 645 x 222mm	
Unit weight	Standard: 101lb (45.8kg); -S1: 107 lb (48.5kg); -S2: 114lb (51.7kg)	
Shipping weight	With pallet: 254lb (<115kg); without pallet: 143lb (<65kg)	
Conduit connections	Bottom: (1) 1/2" KO, (2) 1" pluggable opening, (4) 1/2" pluggable openings / Left and right Side: (1) Concentric KO 3/4", 1" / Back: (4) Concentric KO 3/4", 1"	
Mounting system	Wall bracket	
Ground fault detector fuse size/type	1A / 600V 10 x 38mm	
Optional string combiner fuse size/type (-S1 and -S2)	15A / 600V 10mm x 38mm	
Optional DC switch current rating (per contact)	32A	
<b>Safety</b>		
Isolation level	Isolated - high-frequency transformer	
Safety and EMC standard	UL 1741, IEE1547, IEE1547.1, CSA-C22.2N, #107.1-01	
Safety approval	_CSA_	
<b>Available models</b>		
Standard	PVI-10.0-I-OUTD-US-208-NG	PVI-10.0-I-OUTD-US-480-NG
	PVI-10.0-I-OUTD-CAN-208-NG	PVI-10.0-I-OUTD-CAN-480-NG
	PVI-10.0-I-OUTD-CAN-600-NG	
With DC switch and DC fuses	PVI-10.0-I-OUTD-S1-US-208-NG	PVI-10.0-I-OUTD-S1-US-480-NG
	PVI-10.0-I-OUTD-S1-CAN-208-NG	PVI-10.0-I-OUTD-S1-CAN-480-NG
	PVI-10.0-I-OUTD-S1-CAN-600-NG	
With AC and DC switches and DC fuses	PVI-10.0-I-OUTD-S2-US-208-NG	PVI-10.0-I-OUTD-S2-US-480-NG
	PVI-10.0-I-OUTD-S2-CAN-208-NG	PVI-10.0-I-OUTD-S2-CAN-480-NG
	PVI-10.0-I-OUTD-S2-CAN-600-NG	

### Support and service

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

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

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