

## Solar inverters

# ABB string inverters PVI-5000/6000-TL-OUTD 5kW to 6kW



Designed for residential and small commercial PV installations, this inverter fills a specific niche in the ABB product line to cater for those installations producing between 5kW and 20kW.

**This inverter includes dual input section to process two strings with independent Multiple Power Point Tracker (MPPT).**

The high-speed and precise MPPT algorithm offers real-time power tracking and energy harvesting. Flat efficiency curves ensure high-efficiency at all output levels ensuring consistent and stable performance across the entire input voltage and output power range.

This outdoor inverter has been designed as a completely sealed unit to withstand the harshest environmental conditions.

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

The transformerless operation offers high performance efficiencies of up to 97.1 percent.

Free remote monitoring capability is available with every installation. This enables homeowners to view their energy production and offers installers a proactive and economic way of maintaining and troubleshooting the system.

### Highlights

- Single-phase and three-phase output grid connection
- Wide input-voltage range for increased stringing flexibility
- The high-speed and precise MPPT algorithm offers real-time power tracking and improved energy harvesting
- Outdoor NEMA 4X rated enclosure for unrestricted use under any environmental conditions
- Integrated DC disconnect switch in compliance with international Standards (-S Version)

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### Additional highlights

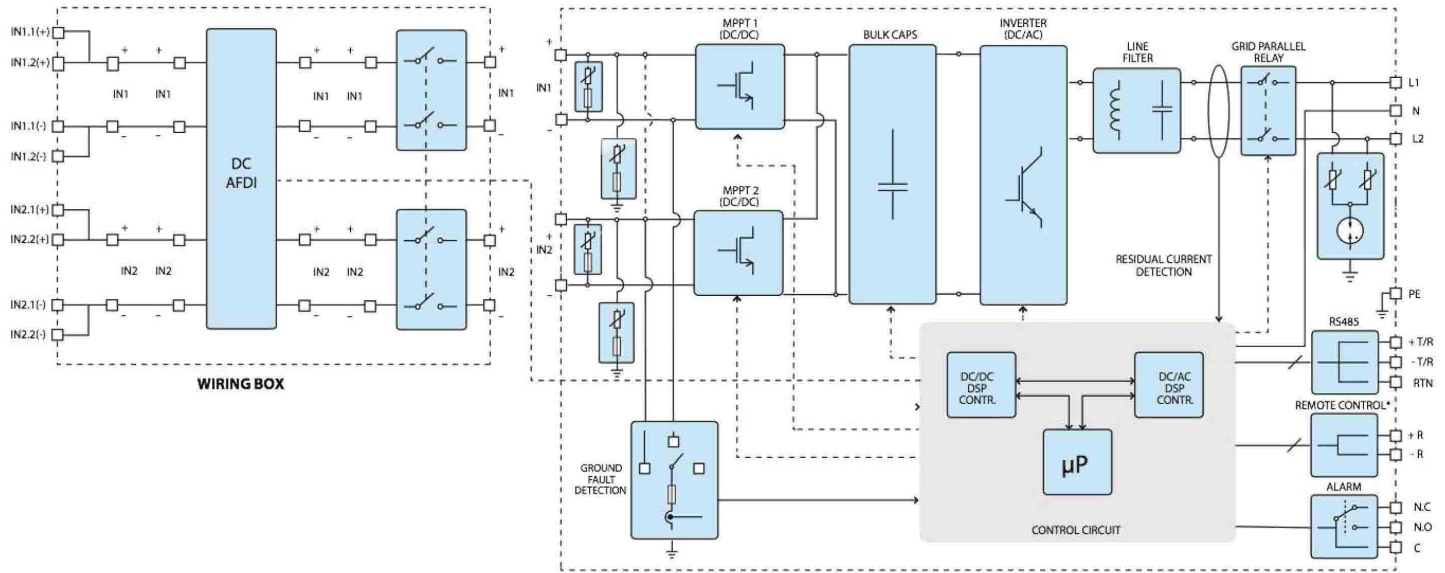
- RS-485 communication interface (for connection to laptop or data logger)
- Available with the optional VSN300 Wifi Logger Card for easy and affordable wireless monitoring
- Compliant with NEC 690.12 when used with ABB's Rapid Shutdown device
- Comes standard with DC Arc Fault Circuit Interruptor (AFCI) to comply with NEC 690.11



### Technical data and types

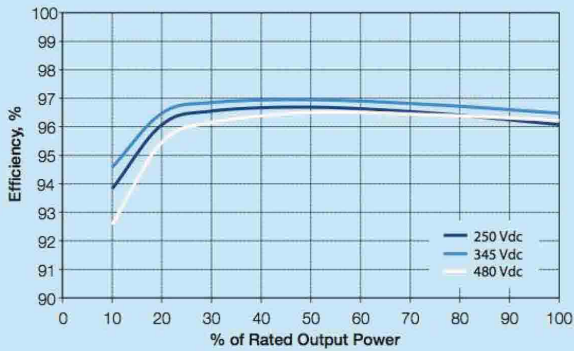
Type code	PVI-5000-OUTD-US			PVI-6000-OUTD-US		
<b>General Specifications</b>						
Nominal output power	5000W			6000W		
Maximum output power	5000W			6000W		
Rated grid AC voltage	208V	240V	277V	208V	240V	277V
<b>Input side (DC)</b>						
Number of independent MPPT channels	2			2		
Maximum usable power for each channel	4000W			4000W		
Absolute maximum voltage (Vmax)	600V			600V		
Start-up voltage (Vstart)	200V (adj. 120-350)			200V (adj. 120-350)		
Full power MPPT voltage range	145-530V			175-530V		
Operating MPPT voltage range	0.7 x Vstart - 580V (≥90V)			0.7 x Vstart - 580V (≥90V)		
Maximum current (Idcmax) for both MPPT in parallel	36A			36A		
Maximum usable current per channel	18A			18A		
Maximum short circuit current per channel	22A			22A		
Number of wire landing terminals per channel	2 Pairs			2 Pairs		
Array wiring termination	Terminal block, pressure clamp, AWG20-AWG6					
<b>Output side (AC)</b>						
Grid connection type	1Ø/2W	Split-Ø/3W	1Ø/2W	1Ø/2W	Split-Ø/3W	1Ø/2W
Adjustable voltage range (Vmin-Vmax)	183-228V	221-264V	244-304V	183-228V	211-264V	244-304V
Grid frequency	60Hz					
Adjustable grid frequency range	57-60.5Hz					
Maximum current (Iac,max) A <sub>RMS</sub>	27A	23A	20A	30A	28A	24A
Power factor	> 0.995 (adjustable to ±0.8)					
Total harmonic distortion at rated power	< 2%					
Contributory fault current <sup>1</sup>	36.25 A <sub>pk</sub> / 25.63A <sub>RMS</sub>	36.5 A <sub>pk</sub> / 25.81A <sub>RMS</sub>	31.75 A <sub>pk</sub> / 22.45A <sub>RMS</sub>	36.25 A <sub>pk</sub> / 25.63A <sub>RMS</sub>	36.5 A <sub>pk</sub> / 25.81A <sub>RMS</sub>	31.75 A <sub>pk</sub> / 22.45A <sub>RMS</sub>
Grid wiring termination type	Terminal block, pressure clamp, AWG20-AWG4					
<b>Input</b>						
Reverse polarity protection	Yes					
Over-voltage protection type	Varistor, 2 for each channel					
PV array ground fault detection	Pre start-up R <sub>iso</sub> and dynamic GFDI (requires floating arrays)					
<b>Output</b>						
Anti-islanding protection	Meets UL1741 / IEEE1547 requirements					
Over-voltage protection type	Varistor, 2 (L <sub>1</sub> - L <sub>2</sub> / L <sub>1</sub> - G)					
Maximum AC OCPD rating	35A	30A	25A	40A	35A	30A
<b>Efficiency</b>						
Maximum efficiency	97.1%					
CEC efficiency	96%	96.5%	96.5%	96%	96.5%	96.5%
User interface	Graphic display					
<b>Operating performance</b>						
Stand-by consumption	<8W <sub>RMS</sub>			<8W <sub>RMS</sub>		
Nighttime consumption	<0.6W <sub>RMS</sub>			<0.6W <sub>RMS</sub>		
<b>Communication</b>						
User-interface	16 characters x 2 lines LCD display					
Remote monitoring (1xRS485 incl.)	VSN700 Data Logger (opt.), VSN300 Wifi Logger Card (opt.)					
<b>Environmental</b>						
Ambient air operating temperature range	-13°F to +140°F (-25°C to +60°C)			-13°F to +140°F (-25°C to +60°C) with derating above 122°F (50°C)		
Ambient air storage temperature range	-40°F to +176°F (-40°C to +80°C)			-40°F to +176°F (-40°C to +80°C)		
Relative humidity	0-100% RH condensing			0-100% RH condensing		
Acoustic noise emission level	< 50 db (A) @1m			< 50 db (A) @1m		
Maximum operating altitude without derating	6560ft (2000m)			6560ft (2000m)		

## Block diagram of PVI-5000/6000-TL-OUTD

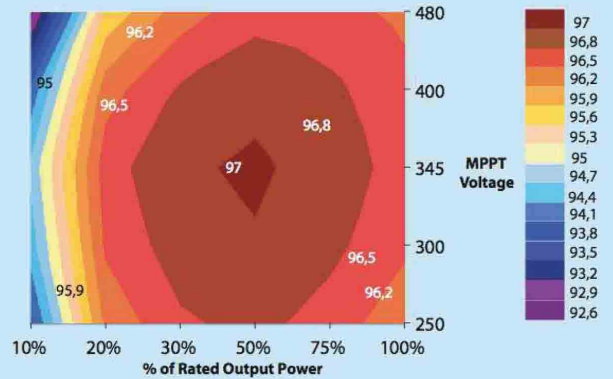


\* Remote control function not available on -A version

### PVI-5000/6000-OUTD-US



### PVI-5000/6000-OUTD-US



## Technical data and types

### Type code

PVI-5000-OUTD-US

PVI-6000-OUTD-US

### Mechanical specifications

Enclosure rating	NEMA 4X
Cooling	Natural convection
Dimensions H x W x D	41.4x12.8x8.6 in (1052 x 325 x 218 mm)
Weight	<59.5lb (27.0kg)
Shipping weight	<78lb (35.4kg)
Mounting system	Wall bracket
Conduit connections	Bottom: (2) pre-drilled opening for 3/4 inch conduits and concentric markings for 1 inch (both sides) and 1 1/2 inch conduit (DC side only) Sides: (2) pre-drilled opening for 3/4 inch conduits with concentric markings for 1 inch (both sides) and 1 1/2 inch conduit (DC side only) Back: (2) concentric markings for 3/4 inch and 1 inch conduits
DC switch rating (per contact)	25A / 600V

### Safety and Compliance

Isolation level	Transformerless (floating array)
Safety and EMC standard	UL 1741, UL1741SA (draft), IEEE1547, IEEE1547.1, CSA-C22.2 N. 107.1-01, UL1998 UL 1699B, FCC Part 15 Class B
Safety approval	CSA or TÜV
Regional Compliance	Rule 21, HECO, NEC 2014 690.11, NEC 2014 690.12 with ABB Rapid Shutdown device

### Available models

With DC switch, wiring box and arc fault detector and interruptor	PVI-5000-OUTD-US-A	PVI-6000-OUTD-US-A
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All data is subject to change without notice

### 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:

[www.abb.com/solarinverters](http://www.abb.com/solarinverters)

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This inverter is marked with one of the two certification marks shown here (TuV or CSA).

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