

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)

Additional highlights

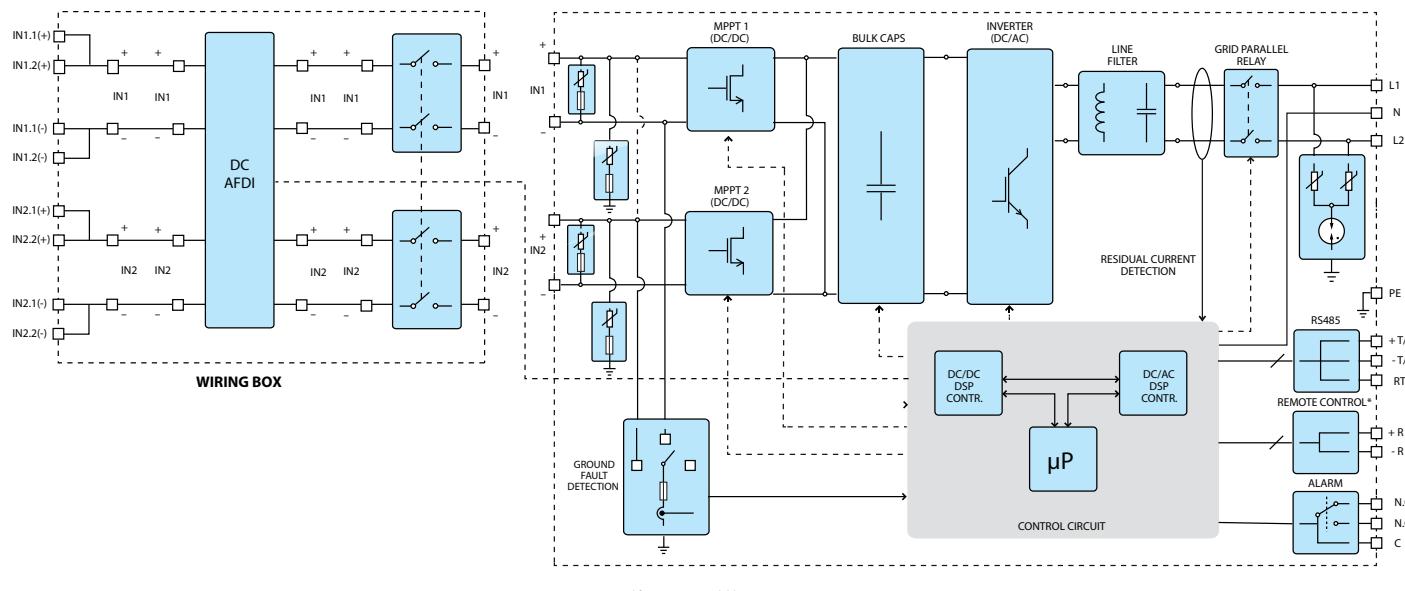
- RS-485 communication interface (for connection to laptop or data logger)
- Available with the optional VSN300 Wifi Logger Card for easy and affordable wireless monitoring
- Compliant with NEC 690.12 when used with ABB's Rapid Shutdown device
- Comes standard with DC Arc Fault Circuit Interruptor (AFCI)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



Technical data and types

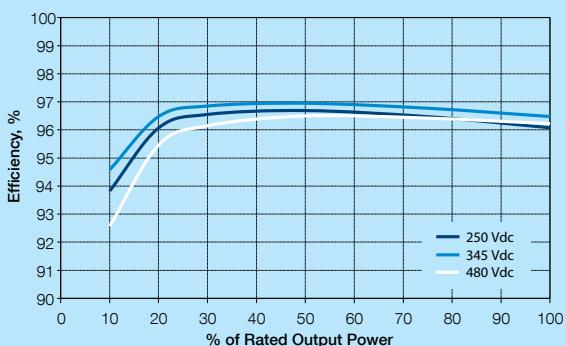
Type code	PVI-5000-OUTD-US			PVI-6000-OUTD-US		
General Specifications						
Nominal output power		5000W			6000W	
Maximum output power		5000W			6000W	
Rated grid AC voltage	208V	240V	277V	208V	240V	277V
Input side (DC)						
Number of independent MPPT channels		2				
Maximum usable power for each channel		4000W				
Absolute maximum voltage (Vmax)		600V				
Start-up voltage (Vstart)		200V (adj. 120-350)				
Full power MPPT voltage range	145-530V				175-530V	
Operating MPPT voltage range		0.7 x Vstart - 580V ($\geq 90\%$)				
Maximum current (Idmax) for both MPPT in parallel		36A				
Maximum usable current per channel		18A				
Maximum short circuit current per channel		22A				
Number of wire landing terminals per channel		2 Pairs				
Array wiring termination	Terminal block, pressure clamp, AWG20-AWG6					
Output side (AC)						
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 _{RMS}	27A	23A	20A	30A	28A	24A
Power factor		> 0.995 (adjustable to ± 0.8)				
Total harmonic distortion at rated power		< 2%				
Contributory fault current ¹	36.25 A _{pk} / 25.63A _{RMS}	36.5 A _{pk} / 25.81A _{RMS}	31.75 A _{pk} / 22.45A _{RMS}	36.25 A _{pk} / 25.63A _{RMS}	36.5 A _{pk} / 25.81A _{RMS}	31.75 A _{pk} / 22.45A _{RMS}
Grid wiring termination type	Terminal block, pressure clamp, AWG20-AWG4					
Input						
Reverse polarity protection		Yes				
Over-voltage protection type		Varistor, 2 for each channel				
PV array ground fault detection		Pre start-up R _{ISO} and dynamic GFDI (requires floating arrays)				
Output						
Anti-islanding protection		Meets UL1741 / IEEE1547 requirements				
Over-voltage protection type		Varistor, 2 (L ₁ - L ₂ / L ₁ - G)				
Maximum AC OCPD rating	35A	30A	25A	40A	35A	30A
Efficiency						
Maximum efficiency		97.1%				
CEC efficiency	96%	96.5%	96.5%	96%	96.5%	96.5%
User interface		Graphic display				
Operating performance						
Stand-by consumption	<8W _{RMS}					
Nighttime consumption	<0.6W _{RMS}					
Communication						
User-interface		16 characters x 2 lines LCD display				
Remote monitoring (1xRS485 incl.)		VSN700 Data Logger (opt.), VSN300 Wifi Logger Card (opt.)				
Environmental						
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

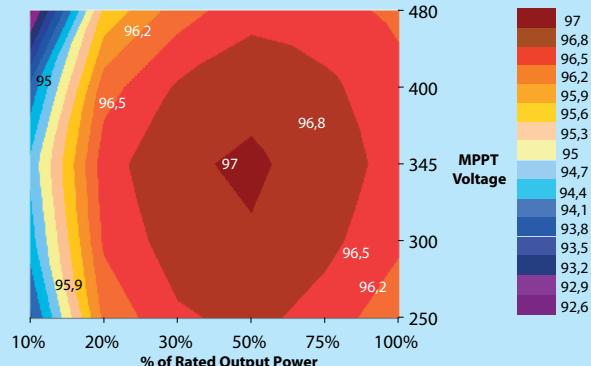


* Remote control function not available on -A version

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 $\frac{3}{4}$ inch conduits and concentric markings for 1 inch (both sides) and 1 $\frac{1}{2}$ inch conduit (DC side only) Sides: (2) pre-drilled opening for $\frac{3}{4}$ inch conduits with concentric markings for 1 inch (both sides) and 1 $\frac{1}{2}$ inch conduit (DC side only) Back: (2) concentric markings for $\frac{3}{4}$ 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 UL1699B, FCC Part 15 Class B	
Safety approval	cCSA _{US} or cUL _{US}	
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

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

www.abb.com

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