

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 to low power installations with reduced string size.

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

Free remote monitoring capability 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 split phase output grid connection.
- Wide input 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:

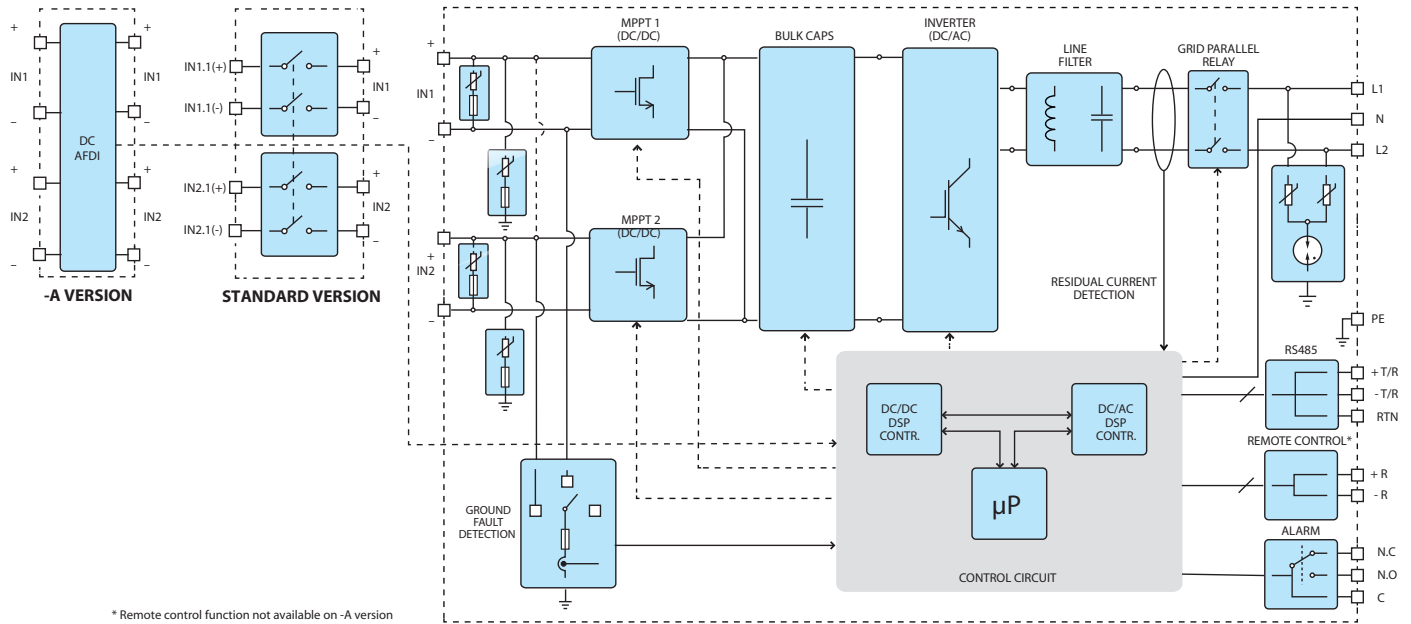
- RS-485 communication interface (for connection to laptop or data logger).
- Integrated Arc Fault Detection and Interruption (-A Version).



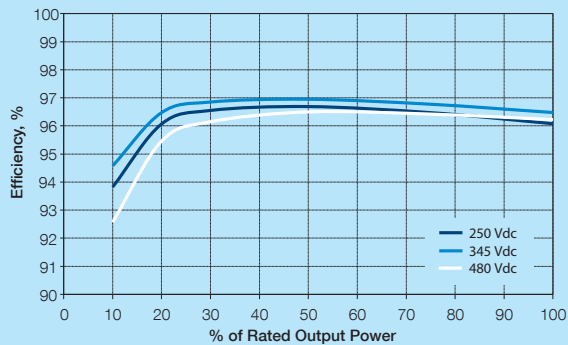
Technical data and types

Type code	PVI-5000-OUTD-US			PVI-6000-OUTD-US		
Input side						
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	200 - 530V					
Operating MPPT voltage range	0.7 x Vstart - 580V					
Maximum current (Idcmax) for both MPPT in parallel	36A					
Maximum usable current per channel	22A					
Number of wire landing terminals per channel	2 Pairs					
Array wiring termination	Terminal block, pressure clamp, AWG16-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)	183V-228V	221V-264V	244V-304V	183V-228V	211V-264V	244V-304V
Grid frequency	60Hz					
Adjustable grid frequency range	57-60.5Hz					
Maximum current (Iac,max) A _{RMS}	27A _{RMS}	23A _{RMS}	20A _{RMS}	30A _{RMS}	28A _{RMS}	24A _{RMS}
Power factor	> 0.995					
Total harmonic distortion at rated power	< 2%					
Contributory fault current¹	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, AWG14-AWG4					
Input						
Reverse polarity protection	Yes					
Over-voltage protection type	Varistor, 2 for each channel					
PV array ground fault detection	Pre start-up Riso and Dynamic GFDI (requires floating arrays)					
Output						
Anti-islanding protection	Meets UL 1741/IEEE1547 requirements			Meets UL 1741/IEEE1547 requirements		
Over-voltage protection type	Varistor, 2 (L ₁ - L ₂ / L ₁ - G)			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			Graphic display		
Operating performance						
Stand-by consumption	<8W _{RMS}			<8W _{RMS}		
Night time consumption	<0.6W _{RMS}			<0.6W _{RMS}		
Communication						
User-interface	16 characters x 2 lines LCD display					
Remote monitoring (1xRS485 incl.)	VSN700 Data Logger (opt)					
Wired local monitoring (1xRS485 incl.)	PVI-USB-RS485_232 (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 altitudde without derating	6560 ft (2000 m)			6560 ft (2000 m)		
2. Inverter can apply that much current - Breaker will open						

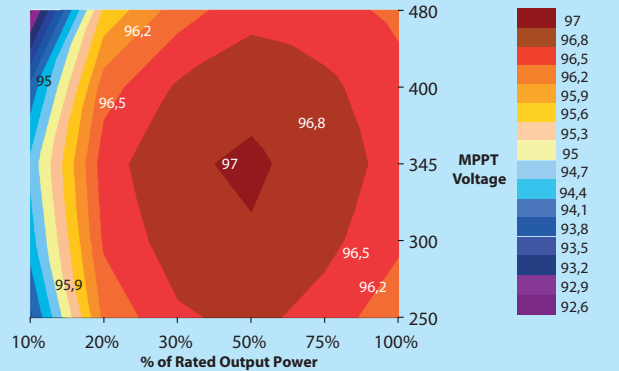
Block diagram of PVI-5000/6000-TL-OUTD



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 (27.0 kg)	
Shipping weight	< 78lb (35.4 kg)	
Mounting system	Wall bracket	
Conduit connections	Trade size KOs: (2ea x 1/2") and (2ea x 1-1/4", 3 places side, front, rear)	
DC switch rating (per contact)	25A / 600V	
Safety		
Isolation level	Transformerless (floating array)	
Safety and EMC standard	UL1741, IEE1547, IEE1547.1, CSA-C22.2N. 107.1-01, UL1998 UL 1699B, FCC Part 15	
Safety Approval	Class B cCSA _{us}	
Warranty		
Standard warranty	10 years	
Extended warranty	15 & 20 years	
Available models		
Standard - with DC switch - floating Array	PVI-5000-OUTD-US	PVI-6000-OUTD-US
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:

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