

# ABB string inverters

## PVI-3.0/3.6/3.8/4.2-TL-OUTD

3.0kW to 4.2kW



**This family of single-phase string inverters complements the typical number of rooftop solar panels enabling homeowners to get the most efficient energy harvesting for the size of the property.**

**This inverter offers a dual input section that processes two strings with independent Multiple Power Point Tracking (MPPT).**

This is especially useful for rooftop installations with two different orientations from two sub-arrays oriented in different directions, or unbalanced strings (for example: East and West).

The dual-input sections with independent MPPT enable a more optimal energy harvesting condition.

**The high-speed MPPT offers real-time power tracking and improved energy harvesting.**

The flat efficiency curve ensures high-efficiency at all output levels allowing a consistent and stable performance across the entire input voltage and output power range.

The transformerless operation gives the highest efficiency of up to 97.0 percent.

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

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

### Highlights

- Single-phase and three-phase output grid connection
- Wide input-voltage range for increased stringing flexibility and energy harvesting
- 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

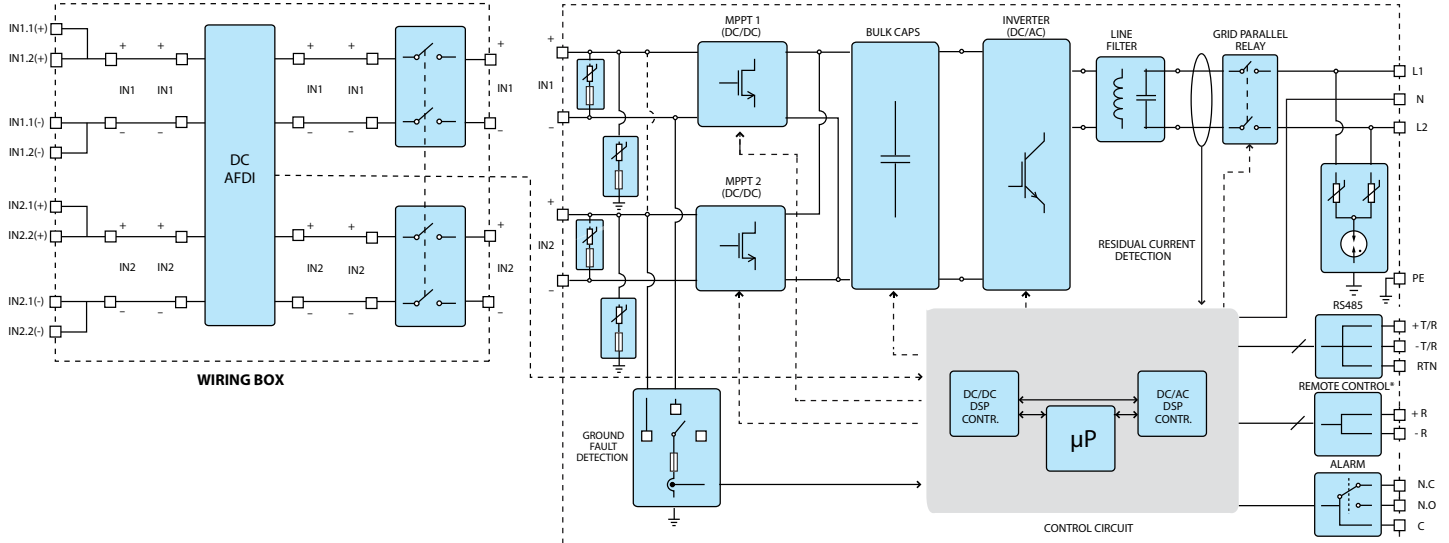


## Technical data and types

Type code	PVI-3.0-OUTD-US			PVI-3.6-OUTD-US			PVI-3.8-OUTD-US			PVI-4.2-OUTD-US		
<b>General specifications</b>												
Nominal output power	3000W			3600W			3300 W			3800W		
Maximum output power wattage	3000 W	3300 <sup>1</sup> W	3300 <sup>1</sup> W	3600 W	4000 <sup>1</sup> W	4000 <sup>1</sup> W	3300 W	4200 <sup>1</sup> W	4200 <sup>1</sup> W	4200 W	4600 <sup>1</sup> W	4600 <sup>1</sup> W
Rated grid AC voltage	208V	240V	277V	208V	240V	277V	208V	240V	277V	208V	240V	277V
<b>Input side (DC)</b>												
Number of independent MPPT channels	2			2			2			2		
Maximum usable power for each channel	2000W			3000W			3000W			3000W		
Absolute maximum voltage (Vmax)	600V											
Start-up voltage (Vstart)	200V (adj. 120-350V)											
Full power MPPT voltage range	160-530V			120-530V			140-530V			140-530V		
Operating MPPT voltage range	0.7 x Vstart - 580V (≥90V)											
Maximum current (I <sub>dcmax</sub> ) for both MPPT in parallel	20A			32A			32A			32A		
Maximum usable current per channel	10A			16A			16A			16A		
Maximum short circuit current limit per channel	12.5A			20.0A			20.0A			20.0A		
Number of wire landing terminals per channel	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	1Ø/ 2W	Split- Ø/3W	1Ø/ 2W	1Ø/ 2W	Split- Ø/3W	1Ø/ 2W
Adjustable voltage range (V <sub>min</sub> -V <sub>max</sub> ) (V)	183- 228V	211- 264V	244- 304V	183- 228V	211- 264V	244- 304V	183- 228V	211- 264V	244- 304V	183- 228V	211- 264V	244- 304V
Grid frequency	60Hz											
Adjustable grid frequency range	57-60.5Hz											
Maximum current (I <sub>ac,max</sub> )	14.5A	14.5A	12.0A	17.2A	16.0A	16.0A	16.0A	16.0A	16.0A	20.0A	20.0A	20.0A
Power factor	> 0.995 (adjustable to ±0.8)											
Total harmonic distortion at rated power	< 2%											
Grid wiring termination	Terminal block, Pressure clamp, AWG20-AWG6											
<b>Input protection devices</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 protection devices</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	20A	20A	15A	25A	20A	20A	20A	20A	20A	25A	25A	25A
<b>Efficiency</b>												
Maximum efficiency	96.9%			97%			97%			97%		
CEC efficiency	96%											
<b>Operating performance</b>												
Nighttime consumption	< 0.6W <sub>RMS</sub>											
Stand-by consumption	< 8W <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) with derating above 122°F (50°C)											
Ambient air storage temperature range	-40°F to +176°F (-40°C to +80°C)											
Relative humidity	0-100% RH condensing											
Acoustic noise emission level	< 50 db (A) @1m											
Maximum operating altitude without derating	6560ft (2000m)											

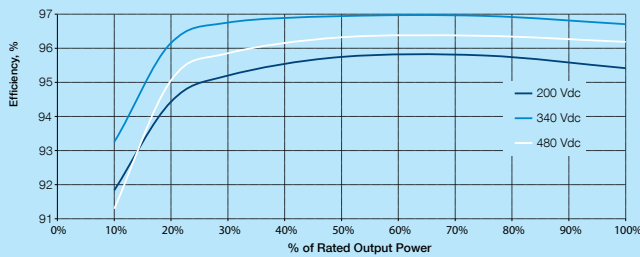
1. Capability enabled at nominal AC voltage and with sufficient DC power available.

## Block diagram of PVI-3.0/3.6/3.8/4.2-TL-OUTD

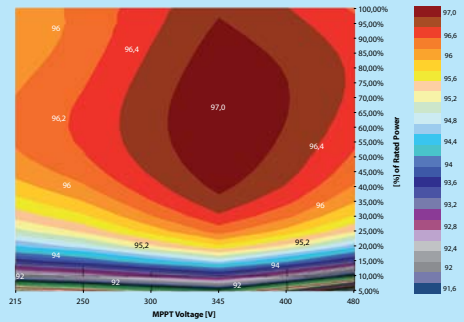


\* Remote control function not available on -A version

### PVI-4.2-OUTD-US



### PVI-4.2-OUTD-US



## Technical data and types

Type code	PVI-3.0-OUTD-US	PVI-3.6-OUTD-US	PVI-3.8-OUTD-US	PVI-4.2-OUTD-US
<b>Mechanical specifications</b>				
Enclosure rating	NEMA 4X			
Cooling	Natural convection			
Dimensions H x W x D	33.8 x 12.8 x 8.7in (859 x 325 x 222mm) <sup>2</sup>			
Weight	<47.3lb (21.3kg) <sup>2</sup>			
Shipping weight	< 60lb (27.0kg) <sup>2</sup>			
Mounting system	Wall bracket			
Conduit connections <sup>2</sup>	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) (A/V)	25/600			
<b>Safety and Compliance</b>				
Isolation level	Transformerless (floating array)			
Safety and EMC standard	UL1741, UL1741SA (draft), IEEE1547, IEEE1547.1, CSA-C22.2 N. 107.1-01, UL1998 UL 1699B, FCC Part 15 Class B			
Safety approval	cCSA <sub>US</sub> or cTUV <sub>US</sub>			
Regional Compliance	Rule 21, HECO, NEC 2014 690.11, NEC 2014 690.12 with ABB Rapid Shutdown device			
<b>Available models</b>				
With DC switch, wiring box, arc fault detector and interrupter	PVI-3.0-OUTD-S-US-A	PVI-3.6-OUTD-S-US-A	PVI-3.8-OUTD-S-US-A	PVI-4.2-OUTD-S-US-A

<sup>2</sup> When equipped with optional DC switch and wiring box.  
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)

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

© Copyright 2015 ABB. All rights reserved. Specifications subject to change without notice.



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

9AKK106103A4852 REV F EN 09.11.2015 #16634