Solar inverters

ABB string inverters
PVI-12.0-I-OUTD
12kW



Designed for commercial systems, the PVI-12.0-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 natural convection cooling and electrolytic free design leads to a longer product lifetime and reliability.
This inverter comes with a night wake up button to access energy harvesting data and information when inverter is in sleep mode.
The PVI-12.0-I is available with an optional fully-integrated fused DC combiner box equipped either with DC or AC and DC disconnect switches.

Highlights:
- True three-phase bridge topology for DC/AC output conversion.
- Available in 480V and 600V outputs levels.
- This inverter operates with a 97.3% efficiency rating.
- High speed and precise MPPT algorithm which enables real time power tracking and improved energy harvesting.
- The electrolyte-free power converter increases the life expectancy and reliability of the inverter.

Power and productivity
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Additional highlights:

- Integrated combiner box equipped with a DC switch in compliance with international standards (-S1,-S2).
- RS-485 communication interface (for connection to laptop or data logger).
- 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.



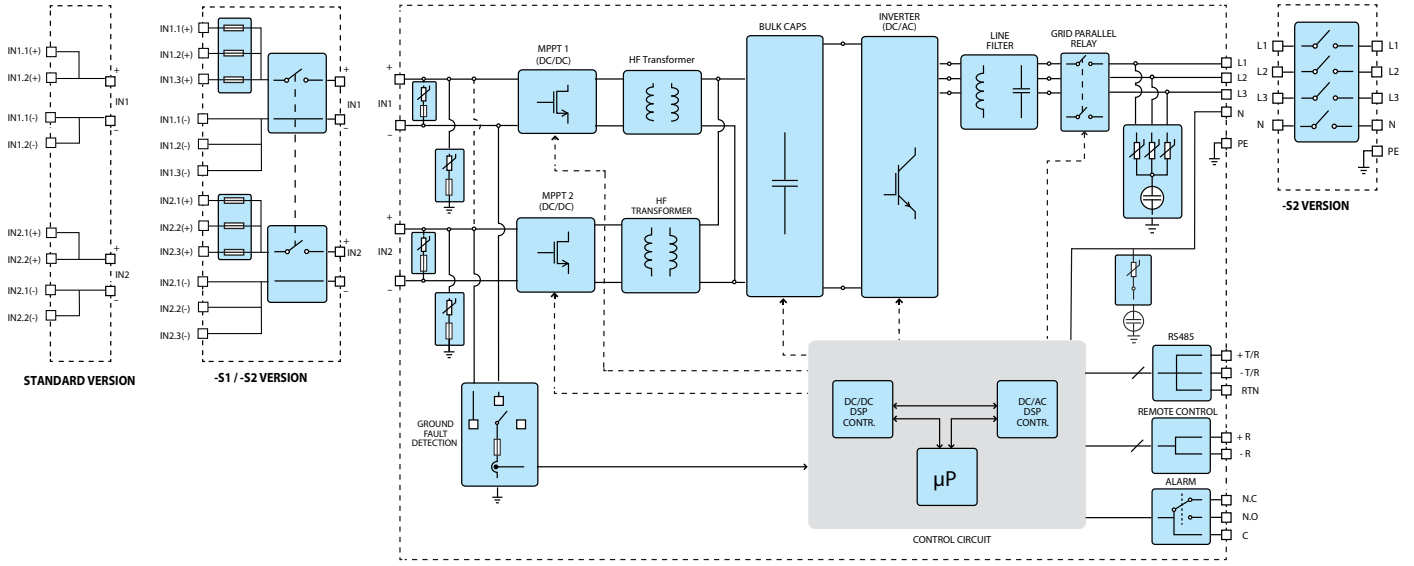
Technical data and types

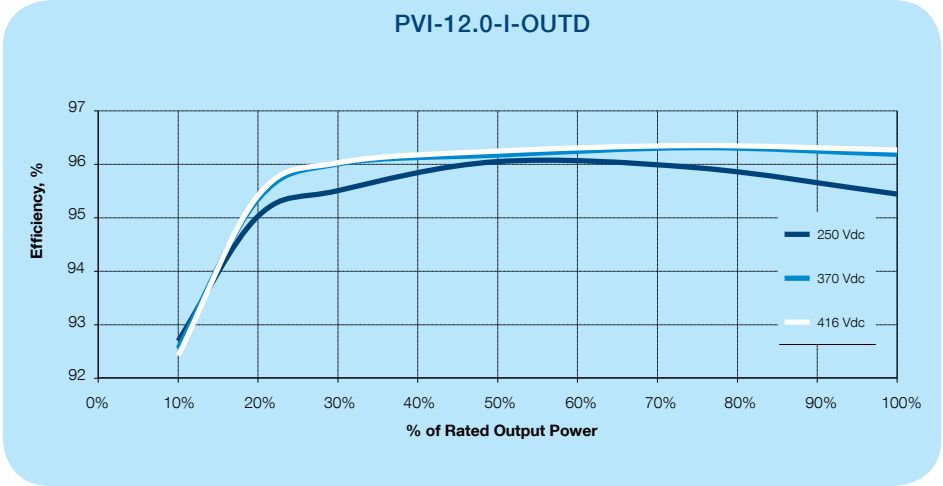
Type code	PVI-12.0-I-OUTD-US	PVI-12.0-I-OUTD-CAN	
Nominal output power	12000W	12000W	
Maximum output power	13200W*	12000W*	
Rated grid AC voltage	480V	480V	600V
Input side (DC)			
Number of independent MPPT channels	2; programmable for 1 MPPT		
Maximum usable power for each MPPT channel	6800W		
Absolute maximum voltage (Vmax)	520V		
Start-up voltage (Vstart)	200V (adj. 120V min.)		
Full power MPPT voltage range	250-470V		
Operating MPPT voltage range	0.7 x Vstart - 520		
Maximum current (Idcmax) for both MPPT in parallel	50A		
Maximum usable current per MPPT channel	25A		
Maximum short circuit current (Isc max.) per MPPT channel	29A		
Maximum short circuit current (Isc max.) for both MPPT in parrallel	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		
Output side (DC)			
Grid connection type	3Ø/3W or 4W + Ground		
Default voltage range	422V-528V	422V-528V	528V-660V
Nominal grid frequency	60Hz		
Adjustable grid frequency range	57-63 Hz		
Maximum current (Iac max/phase)	16.0A$_{RMS}$	16.0A$_{RMS}$	12.8A$_{RMS}$
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	30.6A$_{RMS}$	30.6A$_{RMS}$	18.65A$_{RMS}$
Input protection devices			
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		
Output protection devices			
Anti-islanding protection	Meets UL1741 / IEEE1547 requirements		
Over-voltage protection type	1 varistor per line (3), 1 gas arrester to PE		
Efficiency			
Maximum efficiency	97.3%		
CEC efficiency	97.0%		
Operating parameters			
Feed-in power threshold	30W$_{RMS}$		
Stand-by consumption	< 8W$_{RMS}$		
Communication			
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		
Environmental			
Ambient air operating temperature range	-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 altitutde without derating	6560 ft (2000 m)		

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

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Block diagram of PVI-12.0-I-OUTD





Technical data and types

Type code	PVI-12.0-I-OUTD-US	PVI-12.0-I-OUTD-CAN	
Mechanical specifications			
Enclosure rating	NEMA 4X		
Cooling	Natural convection		
Dimensions (H x W x D)	Standard: 28.2 x 25.4 x 8.7in / 716 x 645 x 222mm -S1, -S2 version: 37.7 x 25.4 x 8.7in / 958 x 645 x 222mm		
Unit weight	Standard: 101lbs (45.8kg); -S1: 107lbs (48.5kg); -S2: 114lbs (51.7kg)		
Shipping weight	With pallet: 254lbs (<115kg); without pallet: 143lbs (<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	15A / 600V 10mm x 38mm		
Optional DC switch current rating (per contact)	32A		
Safety			
Isolation level	Isolated - High frequency transformer		
Safety and EMC standard	UL 1741, IEE1547, IEE1547.1, CSA-C22.2N. #107.1-01		
Safety Approval	cCSAus		
Warranty			
Standard warranty	10 years		
Extended warranty	15 & 20 years		
Available models			
Standard	PVI-12.0-I-OUTD-US-480-NG	PVI-12.0-I-OUTD-CAN-480-NG	PVI-12.0-I-OUTD-CAN-600-NG
With DC switch and DC fuses	PVI-12.0-I-OUTD-S1-US-480-NG	PVI-12.0-I-OUTD-S1-CAN-480-NG	PVI-12.0-I-OUTD-S1-CAN-600-NG
With AC and DC switches and DC fuses	PVI-12.0-I-OUTD-S2-US-480-NG	PVI-12.0-I-OUTD-S2-CAN-480-NG	PVI-12.0-I-OUTD-S2-CAN-600-NG

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