power-one®
Renewable Energy Solutions

AURORA®

PVI-3.8-I
PVI-4.6-I

GENERAL SPECIFICATIONS
OUTDOOR MODELS

This isolated inverter is optimized for use in residential applications requiring PV array grounding, such as some thin-film modules. This inverter has also been designed to serve all countries and regions with specific field-configurable set-ups available for all major country grid codes and display languages.

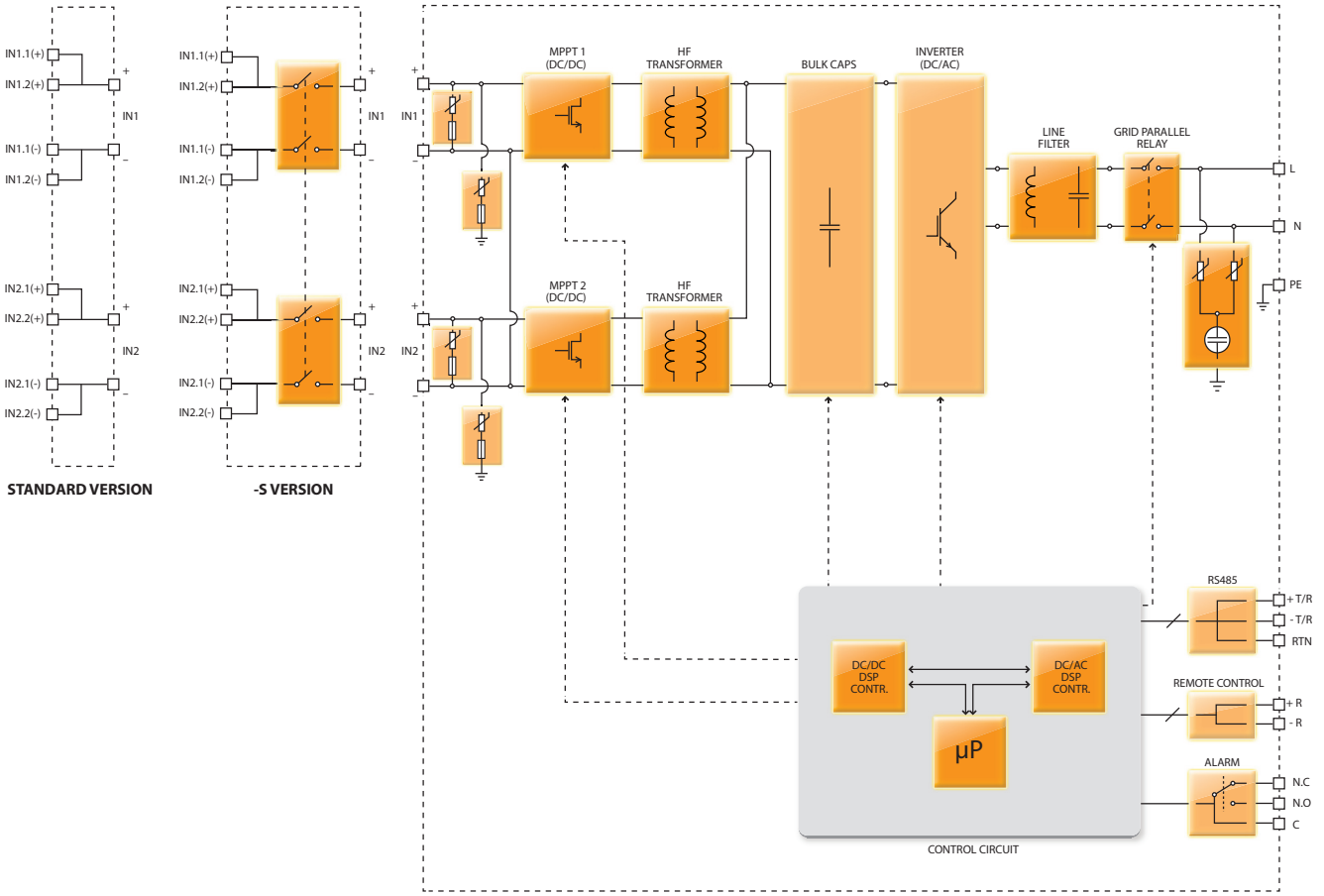
The 3.8 and 4.6kW isolated inverters have all the usual Aurora benefits including dual input section to process two strings with independent MPPT, high speed and precise MPPT algorithm for real-time power tracking and energy harvesting, as well as regular high performance efficiencies of up to 96.8%. The wide input voltage range makes the inverter suitable to low power installations with reduced string size.

Its high frequency isolated topology allows this unit to be lightweight and compact in size to help with transportation and installation. This rugged outdoor inverter has been designed as a completely sealed unit to withstand the harshest environmental conditions.

Features

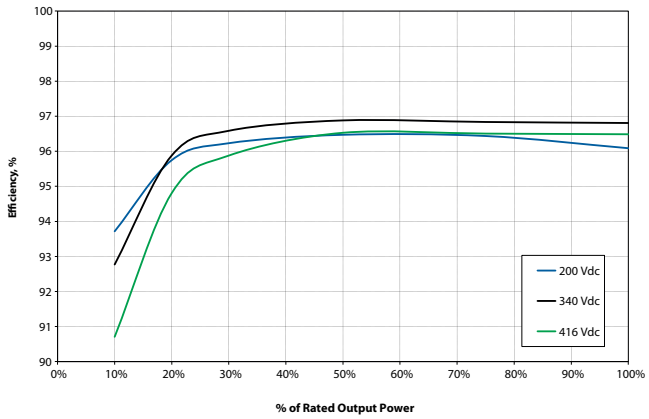
- Each inverter is set on specific grid codes which can be selected in the field
- Single phase output
- Night Wake up button to access energy harvesting data and error log
- Dual input sections with independent MPP tracking, allows optimal energy harvesting from two sub-arrays oriented in different directions
- Wide input range
- High speed and precise MPPT algorithm for real time power tracking and improved 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
- Outdoor enclosure for unrestricted use under any environmental conditions
- RS-485 communication interface (for connection to laptop or datalogger)
- Compatible with PVI-RADIOMODULE for wireless communication with Aurora PVI-DESKTOP

BLOCK DIAGRAM OF PVI-3.8-I-OUTD AND PVI-4.6-I-OUTD

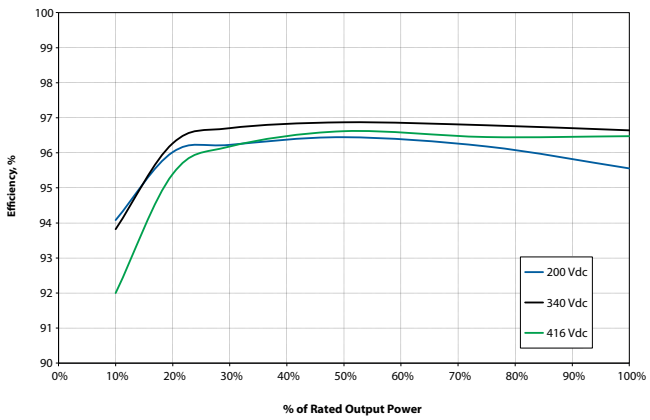


Block Diagram and Efficiency Curves

PVI-3.8-I-OUTD



PVI-4.6-I-OUTD



PARAMETER	PVI-3.8-I-OUTD	PVI-4.6-I-OUTD
Input Side		
Absolute Maximum DC Input Voltage ($V_{max,abs}$)	520 V	520 V
Start-up DC Input Voltage (V_{start})	200 V (adj. 120...350 V)	200 V (adj. 120...350 V)
Operating DC Input Voltage Range (V_{dcmin}...V_{dcmax})	0.7 x V_{start}...520 V	0.7 x V_{start}...520 V
Rated DC Input Power (P_{dcr})	4000 W	4800 W
Number of Independent MPPT	2 (4)	2 (4)
Maximum DC Input Power for each MPPT ($P_{MPPTmax}$)	3000 W	3000 W
DC Input Voltage Range with Parallel Configuration of MPPT at P_{acr}	160...470 V	180...470 V
DC Power Limitation with Parallel Configuration of MPPT	Linear Derating From MAX to Null [470V≤V_{MPPT}≤520V]	Linear Derating From MAX to Null [470V≤V_{MPPT}≤520V]
DC Power Limitation for each MPPT with Independent Configuration of MPPT at P_{acr}, max unbalance example	3000 W [210V≤V_{MPPT}≤470V] the other channel: P_{dcr}-3000W [90V≤V_{MPPT}≤470V]	3000 W [210V≤V_{MPPT}≤470V] the other channel: P_{dcr}-3000W [130V≤V_{MPPT}≤470V]
Maximum DC Input Current (I_{dcmax}) / for each MPPT ($I_{MPPTmax}$)	25.0 A / 12.5 A	28.0 A / 14.0 A
Maximum Input Short Circuit Current for each MPPT	22.0 A	22.0 A
Number of DC Inputs Pairs for each MPPT	2	2
DC Connection Type	Tool Free PV Connector WM / MC4	Tool Free PV Connector WM / MC4
Input Protection		
Reverse Polarity protection	Yes, from limited current source	Yes, from limited current source
Input Over Voltage Protection for each MPPT - Varistor	2	2
Photovoltaic Array Isolation Control	According to local standard	According to local standard
DC Switch Rating for each MPPT (Version with DC switch)	25 A / 600 V	25 A / 600 V
Output Side		
AC Grid Connection Type	Single phase	Single phase
Rated AC Power (P_{acr})	3800 W	4600 W
Maximum AC Output Power (P_{acmax})	4200 W (5)	5000 W (6)
Rated AC Grid Voltage ($V_{ac,r}$)	230 V	230 V
AC Voltage Range	180...264 V (1)	180...264 V (1)
Maximum AC Output Current ($I_{ac,max}$)	18.2 A (2)	22.5 A
Rated Output Frequency (f_r)	50 Hz	50 Hz
Output Frequency Range (f_{min}...f_{max})	47...53 Hz (3)	47...53 Hz (3)
Nominal Power Factor (Cosphi$_{ac,r}$)	> 0.995 (adj. ± 0.9 (7))	> 0.995 (adj. ± 0.9 (7))
Total Current Harmonic Distortion	< 2%	< 2%
AC Connection Type	Screw terminal block	Screw terminal block
Output Protection		
Anti-Islanding Protection	According to local standard	According to local standard
Maximum AC Overcurrent Protection	20.0 A	25.0 A
Output Overvoltage Protection - Varistor	2 (L - N / L - PE)	2 (L - N / L - PE)
Operating Performance		
Maximum Efficiency (η_{max})	96.8%	96.8%
Weighted Efficiency (EURO/CEC)	96.5% / -	96.5% / -
Feed In Power Threshold	24.0 W	24.0 W
Stand-by Consumption	< 8.0 W	< 8.0 W
Communication		
Wired Local Monitoring	PVI-USB-RS232_485 (opt.), PVI-DESKTOP (opt.)	PVI-USB-RS232_485 (opt.), PVI-DESKTOP (opt.)
Remote Monitoring	PVI-AEC-EVO (opt.), AURORA-UNIVERSAL (opt.)	PVI-AEC-EVO (opt.), AURORA-UNIVERSAL (opt.)
Wireless Local Monitoring	PVI-DESKTOP (opt.) with PVI-RADIOMODULE (opt.)	PVI-DESKTOP (opt.) with PVI-RADIOMODULE (opt.)
User Interface	16 characters x 2 lines LCD display	16 characters x 2 lines LCD display
Environmental		
Ambient Temperature Range	-25...+60°C (-13...+ 140°F)	-25...+60°C (-13...+ 140°F) with derating above 50°C (122°F)
Relative Humidity	0...100 % condensing	0...100 % condensing
Noise Emission	< 50 dB(A) @ 1 m	< 50 dB(A) @ 1 m
Maximum Operating Altitude without Derating	2000 m / 6560 ft	2000 m / 6560 ft
Physical		
Environmental Protection Rating	IP 65	IP 65
Cooling	Natural	Natural
Dimension (H x W x D)	712mm x 325mm x 222mm / 28.0" x 12.8" x 8.7"	712mm x 325mm x 222mm / 28.0" x 12.8" x 8.7"
Weight	< 24.0 kg / 53.0 lb	< 24.0 kg / 53.0 lb
Mounting System	Wall bracket	Wall bracket
Safety		
Isolation Level	HF Transformer	HF Transformer
Marking	CE	CE
Safety and EMC Standard	EN 50178, AS/NZS3100, AS/NZS 60950, EN61000-6-1, EN61000-6-3, EN61000-3-11, EN61000-3-12	EN 50178, AS/NZS3100, AS/NZS 60950, EN61000-6-1, EN61000-6-3, EN61000-3-11, EN61000-3-12
Grid Standard	Enel Guideline (CEI 0-21 + Attachment A70 Terna)(7), VDE 0126-1-1, VDE-AR-N 4105, G83/1, G59/2, EN 50438, RD1663, AS 4777	Enel Guideline (CEI 0-21 + Attachment A70 Terna)(7), VDE 0126-1-1, VDE-AR-N 4105, G59/2, EN 50438, RD1663, AS 4777
Available Products Variants		
Standard	PVI-3.8-I-OUTD	PVI-4.6-I-OUTD
With DC Switch	PVI-3.8-I-OUTD-S	PVI-4.6-I-OUTD-S

1. The AC voltage range may vary depending on specific country grid standard
2. Maximum Output Current Limited to 16A for G83/1 version
3. The Frequency range may vary depending on specific country grid standard
4. Independent MPPT just with negative ground
5. Limited to 3800 W for Germany
6. Limited to 4600 W for Germany
7. Since their applicability dates

Remark. Features not specifically listed in the present data sheet are not included in the product

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