

## PVI-3.0-TL PVI-3.6-TL PVI-4.2-TL

### GENERAL SPECIFICATIONS OUTDOOR MODELS

The most common residential inverter is the ideal size for an average-sized family home. This family of single-phase string inverter complements the typical number of rooftop solar panels, allowing home-owners to get the most efficient energy harvesting for the size of the property. This rugged outdoor inverter has been designed as a completely sealed unit to withstand the harshest environmental conditions.

One of the key benefits of the Uno family of single-phase inverters is the dual input section to process two strings with independent MPPT especially useful for rooftop installations with two different orientations (ie East and West). The high speed MPPT offers real-time power tracking and improved energy harvesting.

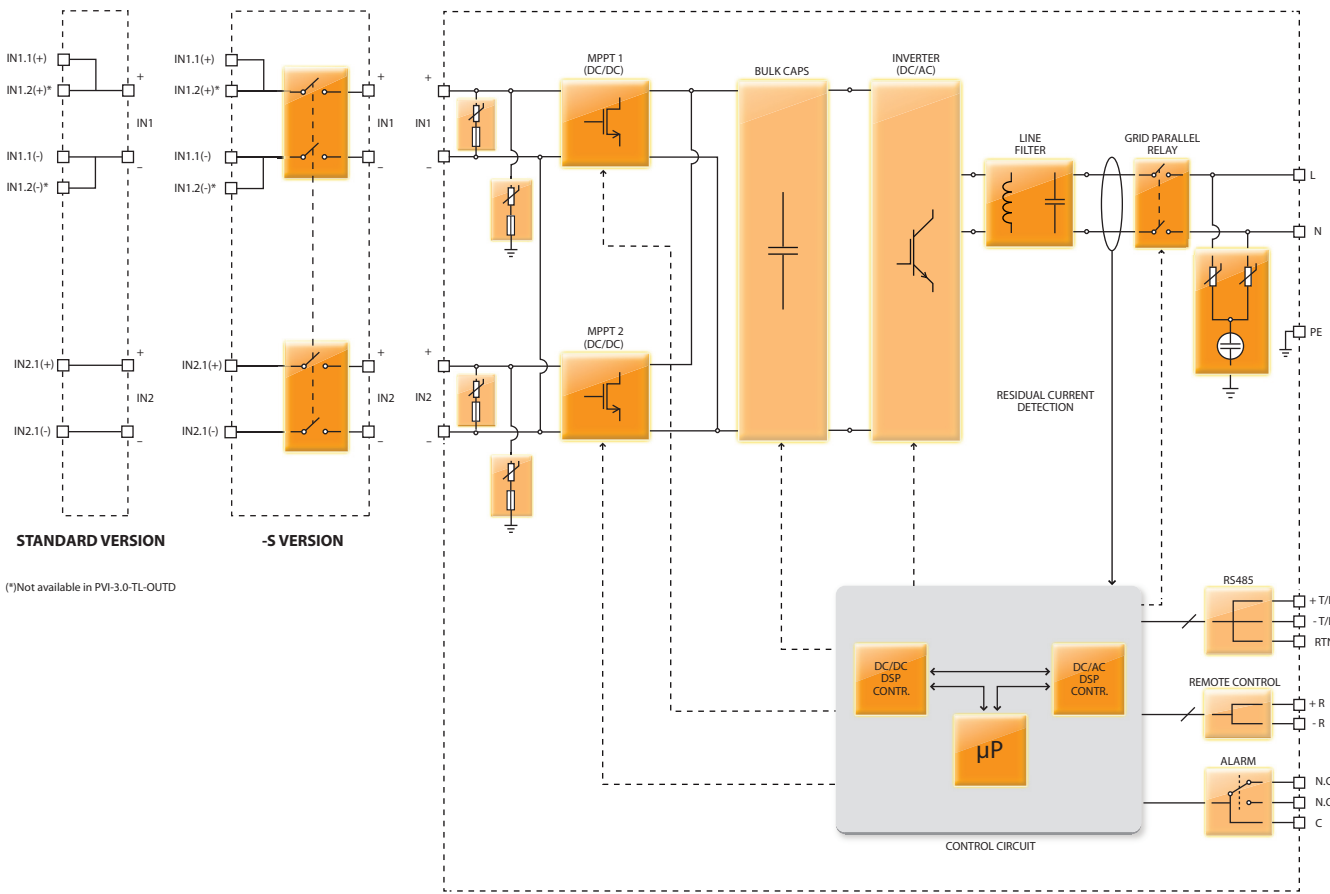
The transformerless operation gives the highest efficiency of up to 96.8%. The wide input voltage range makes the inverter suitable to low power installations with reduced string size.



## Features

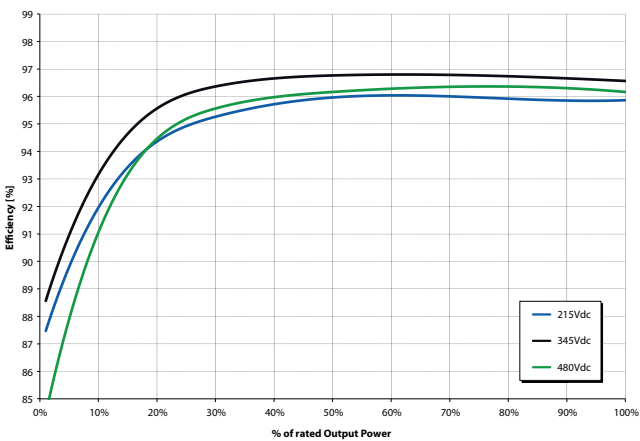
- Each inverter is set on specific grid codes which can be selected in the field
- Single phase output
- Dual input sections with independent MPP tracking, allows optimal energy harvesting from two sub-arrays oriented in different directions
- Wide input range
- High speed and precise MPPT algorithm 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
- Integrated DC disconnect switch in compliance with international Standards (-S Version)
- 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-3.0-TL-OUTD, PVI-3.6-TL-OUTD AND PVI-4.2-TL-OUTD

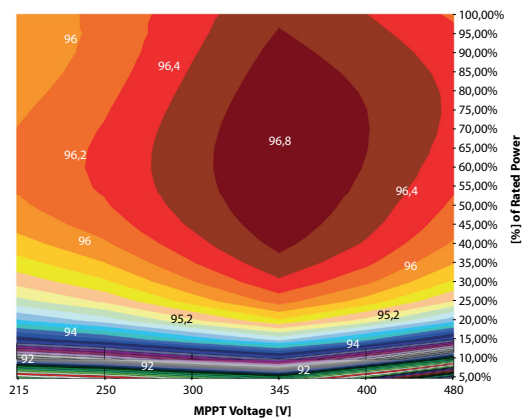


## Block Diagram and Efficiency Curves

**PVI-4.2-TL-OUTD**



**PVI-4.2-TL-OUTD**



| PARAMETER   | PVI-3.0-TL-OUTD  | PVI-3.6-TL-OUTD   | PVI-4.2-TL-OUTD  |
|---|--|---|--|
| <b>Input Side</b>   |  |   |  |
| Absolute Maximum DC Input Voltage ( $V_{max,abs}$ )   | 600 V  |   |  |
| Start-up DC Input Voltage ( $V_{start}$ )   | 200 V (adj. 120...350 V)   |   |  |
| Operating DC Input Voltage Range ( $V_{dcmin}...V_{dcmax}$ )  | 0.7 x $V_{start}...580$ V  |   |  |
| Rated DC Input Power ( $P_{dcr}$ )  | 3120 W   | 3750 W  | 4375 W   |
| Number of Independent MPPT  | 2  |   |  |
| Maximum DC Input Power for each MPPT ( $P_{MPPTmax}$ )  | 2000 W   | 3000 W  | 3000 W   |
| DC Input Voltage Range with Parallel Configuration of MPPT at $P_{acr}$                                       | 160...530 V  | 120...530 V   | 140...530 V  |
| DC Power Limitation with Parallel Configuration of MPPT   | Linear Derating From MAX to Null [ $530V \leq V_{MPPT} \leq 580V$ ]  |   |  |
| DC Power Limitation for each MPPT with Independent Configuration of MPPT at $P_{acr}$ , max unbalance example | 2000 W [ $200V \leq V_{MPPT} \leq 530V$ ]<br>the other channel: $P_{dcr} = 2000W$<br>[ $112V \leq V_{MPPT} \leq 530V$ ]                    | 3000 W [ $190V \leq V_{MPPT} \leq 530V$ ]<br>the other channel: $P_{dcr} = 3000W$<br>[ $90V \leq V_{MPPT} \leq 530V$ ]                            | 3000 W [ $190V \leq V_{MPPT} \leq 530V$ ]<br>the other channel: $P_{dcr} = 3000W$<br>[ $90V \leq V_{MPPT} \leq 530V$ ]                     |
| Maximum DC Input Current ( $I_{dcmax}$ ) /<br>for each MPPT ( $I_{MPPTmax}$ )                                 | 20.0 A / 10.0 A  | 32.0 A / 16.0 A   | 32.0 A / 16.0 A  |
| Maximum Input Short Circuit Current for each MPPT   | 12.5 A   | 20.0 A  | 20.0 A   |
| Number of DC Inputs Pairs for each MPPT   | 1  | 2 for MPPT1 and 1 for MPPT2   | 2 for MPPT1 and 1 for MPPT2  |
| DC Connection Type  | Tool Free PV Connector WM / MCA  |   |  |
| <b>Input Protection</b>   |  |   |  |
| Reverse Polarity protection   | Yes, from limited current source   |   |  |
| Input Over Voltage Protection for each MPPT - Varistor  | 2  |   |  |
| Photovoltaic Array Isolation Control  | According to local standard  |   |  |
| DC Switch Rating for each MPPT (Version with DC switch)   | 25 A / 600 V   |   |  |
| <b>Output Side</b>  |  |   |  |
| AC Grid Connection Type   | Single phase   |   |  |
| Rated AC Power ( $P_{acr}$ )  | 3000 W   | 3600 W  | 4200 W   |
| Maximum AC Output Power ( $P_{acmax}$ )   | 3300 W <sup>(4)</sup>  | 4000 W <sup>(5)</sup>   | 4600 W <sup>(6)</sup>  |
| Rated AC Grid Voltage ( $V_{ac,r}$ )  | 230 V  |   |  |
| AC Voltage Range  | 180...264 V <sup>(1)</sup>   |   |  |
| Maximum AC Output Current ( $I_{ac,max}$ )  | 14.5 A   | 17.2 A <sup>(2)</sup>   | 20.0 A   |
| Rated Output Frequency ( $f_r$ )  | 50 Hz  |   |  |
| Output Frequency Range ( $f_{min}...f_{max}$ )  | 47...53 Hz <sup>(3)</sup>  | 47...53 Hz <sup>(3)</sup>   | 47...53 Hz <sup>(3)</sup>  |
| Nominal Power Factor ( $\cos\phi_{iac,r}$ )   | > 0.995 (adj. $\pm 0.9$ <sup>(7)</sup> )   |   |  |
| Total Current Harmonic Distortion   | < 3.5 %  |   |  |
| AC Connection Type  | Screw terminal block   |   |  |
| <b>Output Protection</b>  |  |   |  |
| Anti-Islanding Protection   | According to local standard  |   |  |
| Maximum AC Overcurrent Protection   | 16.0 A   | 19.0 A  | 22.0 A   |
| Output Overvoltage Protection - Varistor  | 2 (L - N / L - PE)   |   |  |
| <b>Operating Performance</b>  |  |   |  |
| Maximum Efficiency ( $\eta_{max}$ )   | 96.8%  |   |  |
| Weighted Efficiency (EURO/CEC)  | 96.0% / -  |   |  |
| Feed In Power Threshold   | 10.0 W   |   |  |
| Stand-by Consumption  | < 8.0 W  |   |  |
| <b>Communication</b>  |  |   |  |
| Wired Local Monitoring  | PVI-USB-RS232_485 (opt.), PVI-DESKTOP (opt.)   |   |  |
| Remote Monitoring   | PVI-AEC-EVO (opt.), AURORA-UNIVERSAL (opt.)  |   |  |
| Wireless Local Monitoring   | PVI-DESKTOP (opt.) with PVI-RADIOMODULE (opt.)   |   |  |
| User Interface  | 16 characters x 2 lines LCD display  |   |  |
| <b>Environmental</b>  |  |   |  |
| Ambient Temperature Range   | -25...+60°C / -13...140°F with<br>derating above 50°C/122°F  | -25...+60°C / -13...140°F with<br>derating above 55°C/131°F   | -25...+60°C / -13...140°F with<br>derating above 50°C/122°F  |
| Relative Humidity   | 0...100 % condensing   |   |  |
| Noise Emission  | < 50 dB(A) @ 1 m   |   |  |
| Maximum Operating Altitude without Derating   | 2000 m / 6560 ft   |   |  |
| <b>Physical</b>   |  |   |  |
| Environmental Protection Rating   | IP 65  |   |  |
| Cooling   | Natural  |   |  |
| Dimension (H x W x D)   | 617mm x 325mm x 222mm / 24.3" x 12.8" x 8.7"   |   |  |
| Weight  | 17.5 kg / 38.5 lb  |   |  |
| Mounting System   | Wall bracket   |   |  |
| <b>Safety</b>   |  |   |  |
| Isolation Level   | Transformerless  | Transformerless   | Transformerless  |
| Marking   | CE   | CE  | CE   |
| Safety and EMC Standard   | EN 50178, AS/NZS3100, AS/NZS<br>60950, EN61000-6-1, EN61000-6-3,<br>EN61000-3-2, EN61000-3-3   | EN 50178, AS/NZS3100, AS/NZS<br>60950, EN61000-6-1, EN61000-6-3,<br>EN61000-3-11, EN61000-3-12  | EN 50178, AS/NZS3100, AS/NZS<br>60950, EN61000-6-1, EN61000-6-3,<br>EN61000-3-11, EN61000-3-12   |
| Grid Standard   | Enel Guideline (CEI 0-21 + Attach-<br>ment A70 Terna) <sup>(7)</sup> , VDE 0126-1-1,<br>VDE-AR-N 4105, G83/1, EN 50438,<br>RD1663, AS 4777 | Enel Guideline (CEI 0-21 + Attach-<br>ment A70 Terna) <sup>(7)</sup> , VDE 0126-1-1,<br>VDE-AR-N 4105, G83/1, G59/2, EN<br>50438, RD1663, AS 4777 | Enel Guideline (CEI 0-21 + Attach-<br>ment A70 Terna) <sup>(7)</sup> , VDE 0126-1-1,<br>VDE-AR-N 4105, G59/2, EN 50438,<br>RD1663, AS 4777 |
| <b>Available Products Variants</b>  |  |   |  |
| Standard  | PVI-3.0-TL-OUTD  | PVI-3.6-TL-OUTD   | PVI-4.2-TL-OUTD  |
| With DC Switch  | PVI-3.0-TL-OUTD-S  | PVI-3.6-TL-OUTD-S   | PVI-4.2-TL-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. Limited to 3000 W for Germany

5. Limited to 3600 W for Germany

6. Limited to 4200 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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