



# Solar inverter

## **PVS-100/120-TL 2MPPT's**

\*Preliminary

The PVS-100/120-TL equipped with 2 MPPT is FIMER's cloud connected three-phase string solution for cost efficient decentralized photovoltaic systems for both ground mounted and large commercial applications.

**From 100 to 120 kW**

This new addition to the PVS-100/120 string inverter family, with up to 2 independent MPPT, has been designed with the objective to complete the portfolio and provide a rapid return on investment in large systems with all the advantages of a decentralized configuration for both rooftop and ground-mounted installations.

**Extreme power with a high integration level**

The extreme high power module up to 120 kW saves installation resources as less units are required. Due to its compact size further savings are generated in logistics and in maintenance. Thanks to the separate wiring compartment, the unit can be fast and easily swapped and replaced.

**Ease of installation**

The horizontal and vertical mounting possibility creates flexibility for both ground mounted and rooftop installations. Covers are equipped with hinges and locks that are fast to open and reduce the risk of damaging the chassis and interior components when commissioning and performing maintenance actions.

Standard wireless access from any mobile device makes the configuration of inverter and plant easier and faster. Improved user experience thanks to a build in User Interface (UI) enables access to advanced inverter configuration settings.

The installer mobile APP, available for Android/iOS devices, further simplifies multi-inverter installations.

The design supports both copper and aluminum cabling even up to 185 mm<sup>2</sup> cross section to minimize the energy losses.

**Fast system integration**

Industry standard Modbus/SUNSPEC protocol enables fast system integration. Two ethernet ports enable fast and future proof communication for PV plants.

**Plant portfolio integration**

Monitoring your assets is made easy as every inverter is capable to connect to Aurora Vision cloud platform to secure your assets and profitability in long term.

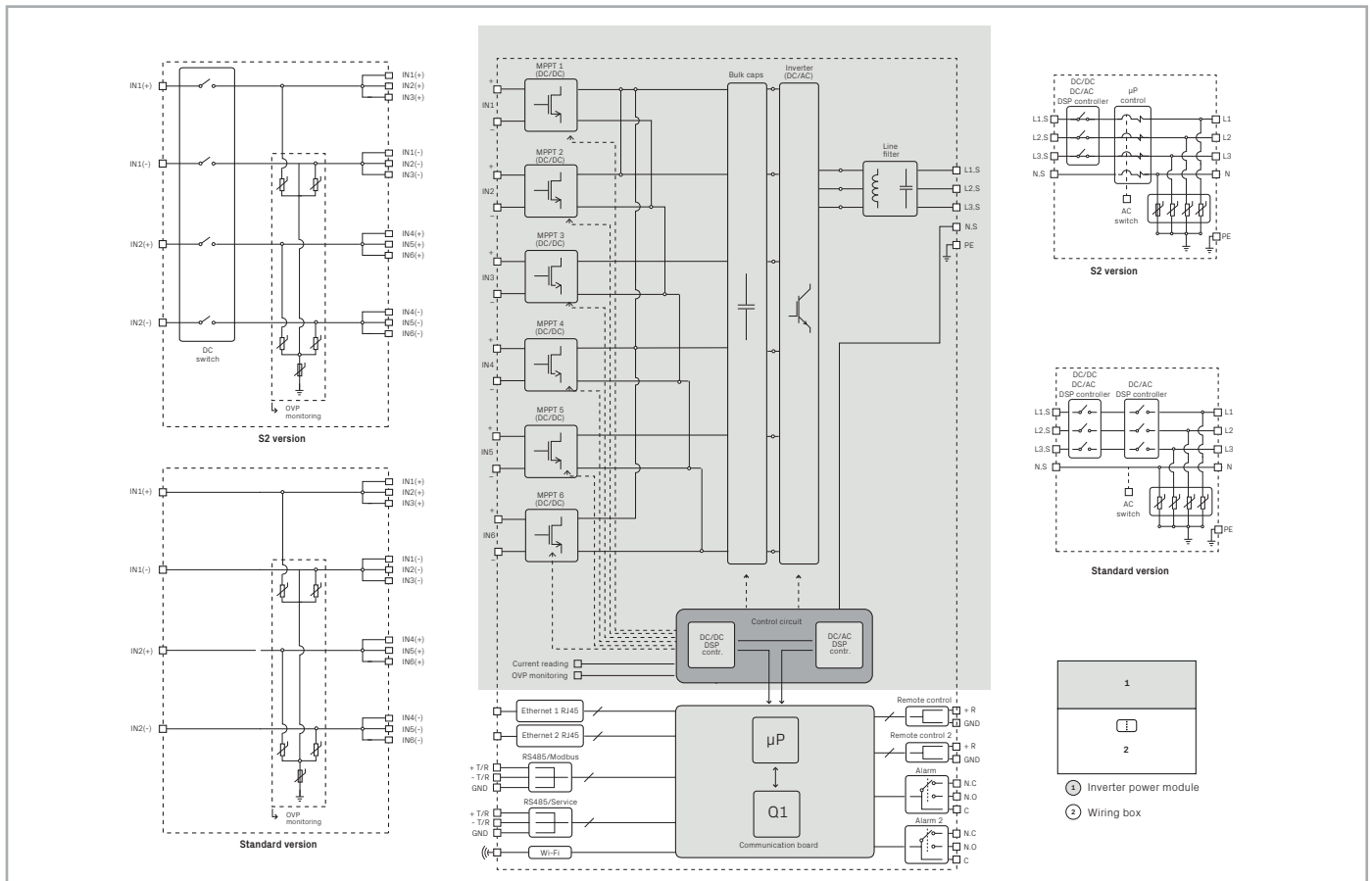
**Design flexibility and shade tolerance**

The double stage conversion topology and the 2 parallelable MPPT guarantee maximum flexibility for the system design on rooftop applications as well as for retrofitting on existing plants. With this technological choice energy harvesting is optimized even in shading situations.

**Highlights**

- 2 independent MPPT
- Transformerless inverter
- 120 kW for 480 Vac and 100 kW for 400 Vac
- Wi-Fi as standard for configuration
- Two ethernet ports for plant level communication
- Large set of specific grid codes available which can be selected directly in the field
- Double stage topology for a wide input range
- Both vertical and horizontal installation
- Separate wiring compartment for fast swap and replacement
- IP66 Environmental protection
- Maximum efficiency up to 98.9%

**PVS-100/120-TL string inverter block diagram**



## Technical data and types

Type code	PVS-100-TL	
Wiring Box version	Standard	S2
<b>Input side</b>		
Absolute maximum DC input voltage ( $V_{max,abs}$ )	1000 V	
Start-up DC input voltage ( $V_{start}$ )	420 V (400...500 V)	
Operating DC input voltage range ( $V_{dcmin}...V_{dcmax}$ )	360...1000 V	
Rated DC input voltage ( $V_{dcr}$ )	620 V	
Rated DC input power ( $P_{dcr}$ )	102000 W	
Number of independent MPPT	2 (Parallelable)	
MPPT input DC voltage range at ( $V_{MPPTmin}...V_{MPPTmax}$ ) at $P_{dcr}$	480...850 V (symmetrical load)	
Maximum DC input power for each MPPT ( $P_{MPPT,max}$ )	63000 W [585 V ≤ $V_{MPPT}$ ≤ 850 V]	
Maximum DC input current for each MPPT ( $I_{dc,max}$ )	108 A	
Maximum input short circuit current ( $I_{sc,max}$ ) for each MPPT <sup>1)</sup>	150 A	
Number of DC input pairs for each MPPT	1	
DC connection type	4 x M40 cable glands (Ø 19...28mm) with M10 Cable lugs	
<b>Input protection</b>		
Reverse polarity protection	Yes, from limited current source	
Input over voltage protection for each MPPT-surge arrester with monitoring)	Type II	
Photovoltaic array isolation control	Yes, acc. to IEC 62109-2	
Residual Current Monitoring Unit (leakage current protection)	Yes, acc. to IEC 62109-2	
DC switch rating for each MPPT	Not present	150 A-1000V
Input current monitoring	MPPT level	
<b>Output side</b>		
AC Grid connection type	Three phase 3W+PE or 4W+PE	
Rated AC power ( $P_{acr} @ \cos\phi=1$ )	100000 W	
Maximum AC output power ( $P_{ac,max} @ \cos\phi=1$ )	100000 W	
Maximum apparent power ( $S_{max}$ )	100000 VA	
Rated AC grid voltage ( $V_{acr}$ )	400 V	
AC voltage range	320...480 V <sup>2)</sup>	
Maximum AC output current ( $I_{ac,max}$ )	145 A	
Rated output frequency ( $f_r$ )	50 Hz / 60 Hz	
Output frequency range ( $f_{min}...f_{max}$ )	45...55 Hz / 55...65 Hz <sup>3)</sup>	
Nominal power factor and adjustable range	> 0.995, 0...1 inductive/capacitive with maximum $S_{max}$	
Total current harmonic distortion	< 3%	
Max DC Current Injection (% of $I_n$ )	< 0.5%* $I_n$	
Maximum AC cable	185mm <sup>2</sup> Aluminum and copper	
AC connection type	Provided bar for lug connections M10, single core cable glands 4xM40 and M25, multi core cable gland M63 as option	
<b>Output protection</b>		
Anti-islanding protection	According to local standard	
Maximum external AC overcurrent protection	225 A	
Output overvoltage protection - replaceable surge protection device	Type 2 with monitoring	
<b>Operating performance</b>		
Maximum efficiency ( $\eta_{max}$ )	98.4%	
Weighted efficiency (EURO)	98.2%	
<b>Communication</b>		
Embedded communication interfaces	1x RS485, 2x Ethernet (RJ45), WLAN (IEEE802.11 b/g/n @ 2.4 GHz)	
User interface	4 LEDs, Web User Interface	
Communication protocol	Modbus RTU/TCP (Sunspec compliant)	
Commissioning tool	Web User Interface, Mobile APP/APP for plant level	
Remote monitoring services	Aurora Vision® monitoring portal	
Advanced features	Embedded logging, direct telemetry data transferring to FIMER cloud	
<b>Environmental</b>		
Operating ambient temperature range	-25...+60°C / -13...140°F with derating above 40°C / 104°F	
Relative humidity	4%...100% condensing	
Sound pressure level, typical	68dB(A)@ 1m	
Maximum operating altitude without derating	2000 m / 6560 ft	

## Technical data and types

Type code	PVS-100-TL
Wiring Box version	Standard S2
<b>Physical</b>	
Environmental protection rating	IP 66 (IP54 for cooling section)
Cooling	Forced air
Dimension (H x W x D)	869x1086x419 mm / 34.2" x 42.7" x 16.5"
Weight	70kg / 154 lbs for power module ; ~55kg / 121 lbs for wiring box Overall max 125 kg / 276 lbs
Mounting system	Mounting bracket vertical & horizontal support
<b>Safety</b>	
Isolation level	Transformer-less
Marking	CE
Safety and EMC standard	IEC/EN 62109-1, IEC/EN 62109-2, EN 61000-6-2, EN 61000-6-4, EN55011:2017
Grid standard (check your sales channel for availability)	CEI 0-16, CEI 0-21, IEC 61727, IEC 62116, IEC 60068, IEC 61683, JORDAN IRR-DCC-MV, DRRG/DEWA, Chile LV/MV, BDEW, Belg C10-C11, EN50438 Generic +Ireland, EN50549-1/2, CLC-TS50549-1/2, AS/NZS4777.2, UK G59/3, EREC G99-1, MEA, PEA, ISO-IEC Guide 67 (system 5), NRS 097-2-1, P.O. 12.3, ITC-BT-40, UNE 206006 IN, VDE-AR-N 4105, VDE-AR-N 4110, VDE-AR-N 4120, VDE V 0-126-1-1, VFR 2019, UTE C15-712-1, Taiwan
<b>Available products variants</b>	
Inverter power module	PVS-100-TL-POWER MODULE
Input with cable gland + DC disconnect switch + AC disconnect switch + AC and DC overvoltage surge arresters (Type II) + MPPT level input current monitoring	WB-S2-PVS-100-TL
Input with cable gland + AC and DC overvoltage surge arresters (Type II) + MPPT level input current monitoring	WB-PVS-100-TL
<b>Optional available</b>	
AC Plate, Single Core Cables	Plate with 5 individual AC cable glands: 4 x M40: Ø 19...28mm, 1 x M25: Ø 10...17mm
AC Plate, Multi Core Cables	Plate with 2 individual AC cable glands: 1 x M63: Ø 37...53mm, 1 x M25: Ø 10...17mm
PVS-100/120 Pre-Charge Board Kit	Night time operation with restart capability
PVS-100/120 Grounding Kit	Allow to connect the negative input pole to ground

- 1) Maximum number of opening 5 under overloading
- 2) The AC voltage range may vary depending on country specific country grid standard
- 3) The Frequency range may vary depending on specific country grid standards

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

## Technical data and types

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Wiring Box version	Standard	S2
<b>Input side</b>		
Absolute maximum DC input voltage ( $V_{max,abs}$ )	1000 V	
Start-up DC input voltage ( $V_{start}$ )	420 V (400...500 V)	
Operating DC input voltage range ( $V_{dcmin}...V_{dcmax}$ )	360...1000 V	
Rated DC input voltage ( $V_{dcr}$ )	720 V	
Rated DC input power ( $P_{dcr}$ )	123000 W	
Number of independent MPPT	2 (Paralleleable)	
MPPT input DC voltage range at ( $V_{MPPTmin}...V_{MPPTmax}$ ) at $P_{acr}$	570...850 V (symmetrical load)	
Maximum DC input power for each MPPT ( $P_{MPPT,max}$ )	75000 W [695 V $\leq$ VMPPT $\leq$ 850 V]	
Maximum DC input current for each MPPT ( $I_{dc,max}$ )	108 A	
Maximum input short circuit current ( $I_{sc,max}$ ) for each MPPT <sup>1)</sup>	150 A	
Number of DC input pairs for each MPPT	1	
DC connection type	4 x M40 cable glands ( $\varnothing$ 19...28mm) with M10 Cable lugs	
<b>Input protection</b>		
Reverse polarity protection	Yes, from limited current source	
Input over voltage protection for each MPPT-surge arrester (with monitoring)	Type II	
Photovoltaic array isolation control	Yes, acc. to IEC 62109-2	
Residual Current Monitoring Unit (leakage current protection)	Yes, acc. to IEC 62109-2	
DC switch rating for each MPPT	Not present 150 A -1000V	
Input current monitoring	MPPT level	
<b>Output side</b>		
AC Grid connection type	Three phase 3W+PE or 4W+PE	
Rated AC power ( $P_{acr}@cos\phi=1$ )	120000 W	
Maximum AC output power ( $P_{ac,max}@cos\phi=1$ )	120000 W	
Maximum apparent power ( $S_{max}$ )	120000 VA	
Rated AC grid voltage ( $V_{ac,r}$ )	480 V	
AC voltage range	384...576 <sup>2)</sup>	
Maximum AC output current ( $I_{ac,max}$ )	145 A	
Rated output frequency ( $f_r$ )	50 Hz / 60 Hz	
Output frequency range ( $f_{min}...f_{max}$ )	45...55 Hz / 55...65 Hz <sup>3)</sup>	
Nominal power factor and adjustable range	> 0.995, 0...1 inductive/capacitive with maximum $S_{max}$	
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Maximum efficiency ( $\eta_{max}$ )	98.9%	
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<b>Communication</b>		
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User interface	4 LEDs, Web User Interface	
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