FIMER



Solar inverter PVS-175-TL

The PVS-175-TL is FIMER's innovative three-phase string inverter, delivering a six-in-one solution to enhance and optimize solar power generation for ground mounted utility scale applications.

175 kW

High power density
This new high-power string inverter with the highest power density within the 1500 Vdc segment, delivers up to 185 kVA at 800 Vac. This not only maximizes the ROI for ground-mounted utility-scale applications but also reduces Balance of System costs (i.e. AC side cabling) for small to large scale, free field ground mounted PV installations.

Design flexibility
The inverter comes equipped with 12 MPPT, the highest available in the market, assuring maximum PV plant design flexibility and increasing yields also in case of complex installations.

Installer friendly design
Quick and easy installation, thanks to plug and play connectors, as the existing PV module's mounting systems can be used to install the inverters, thus saving time and cost on site preparation and hire of plant.
The fuse and combiner free design eliminates the need for external components, such as separate DC combiner boxes and AC first level combiners, thanks to the integrated DC disconnect and AC wiring compartment with optional AC disconnect.
The Advanced Cooling Concept preserves the lifetime of the system and minimizes O&M costs thanks to internal heavy-duty inverter cooling fans. These can be easily removed during scheduled maintenance cycles whilst the power module can be easily replaced without removing the wiring box.

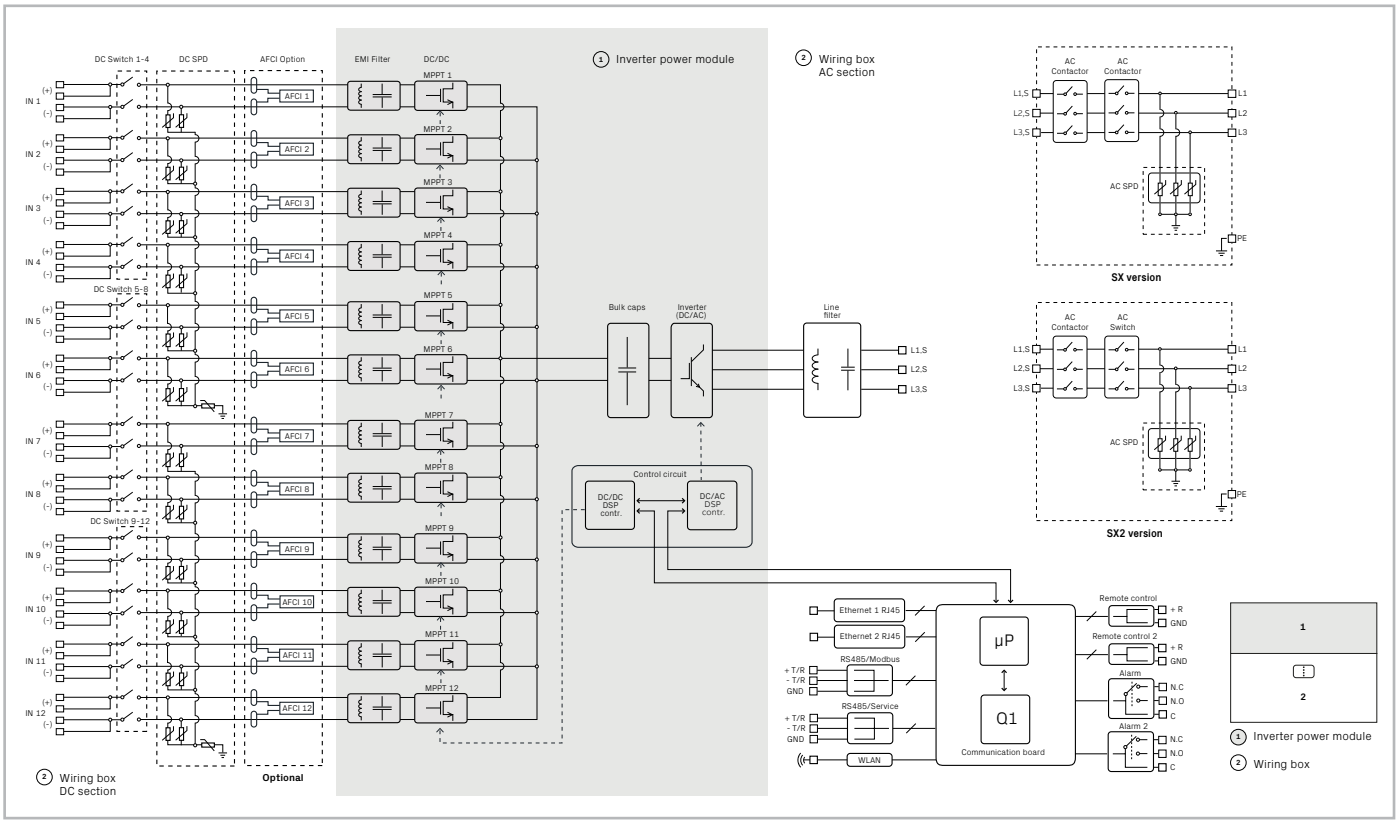
Advanced communication for O&M
Standard wireless access from any mobile device makes the configuration of inverter and plant easier and faster. Improved user experience thanks to a built-in User Interface (UI) enables access to advanced inverter configuration settings.
The Installer for Solar Inverters mobile APP and configuration wizard enable a quick multi-inverter installation and commissioning thus reducing the time spent on site.

Fast system integration
Industry standard Modbus (RTU/TCP)/SUNSPEC protocol enables fast system integration.
Two Ethernet ports enable fast and future-proof communication for PV plants.

Protect your assets
Monitoring your assets is made easy, as every inverter is capable to connect to Aurora Vision cloud platform and thanks to the state-of-the-art cybersecurity and Arc Fault Detection option, your assets and profitability are secure in the long term.

Highlights
- Up to 185 kW power rating, highest in class
- All-in-one combiner and fuse free design
- Separate power module and wiring compartment for fast swap and replacement
- Easy access to consumables for fast inspection and replacement
- 12 MPPT and wide input voltage range for maximum energy yield
- WLAN interface for commissioning and configuration
- Remote monitoring and firmware upgrade via the Aurora Vision cloud platform (logger free)
- Free of charge standard access to Aurora Vision cloud

PVS-175-TL string inverter block diagram



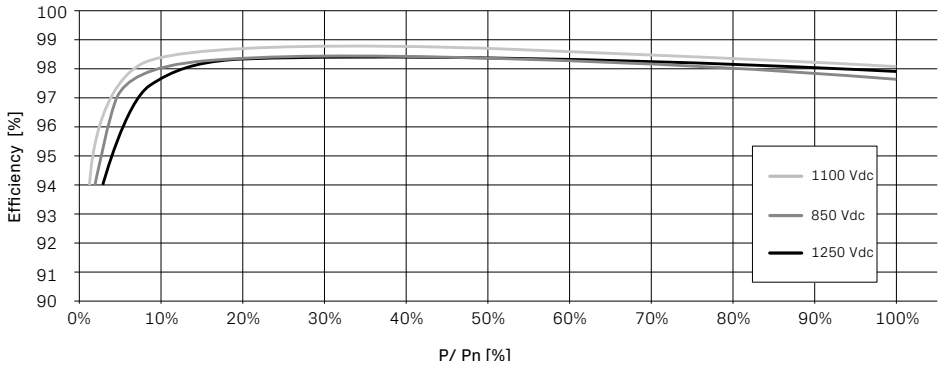
Technical data and types

Type code	PVS-175-TL
Input side	
Absolute maximum DC input voltage ($V_{max,abs}$)	1500 V
Start-up DC input voltage (V_{start})	750 V (650...1000 V)
Operating DC input voltage range (V_{dcmin}...V_{dcmax})	0.7 x Vstart...1500 V (min 600 V)
Rated DC input voltage (V_{dcr})	1100 Vdc
Rated DC input power (P_{dcr})	188000 W @ 30°C - 177000 W @ 40°C
Number of independent MPPT	12
MPPT input DC voltage range ($V_{MPPTmin}$...$V_{MPPTmax}$) at P_{acr}	850..1350 V
Maximum DC input current for each MPPT ($I_{MPPTmax}$)	22 A
Maximum input short circuit current for each MPPT (I_{SCmax})	30 A
Number of DC input pairs for each MPPT	2 DC inputs per MPPT
DC connection type	PV quick fit connector [1]
Input protection	
DC Series Arc Fault Circuit Interrupter [2]	Type I acc. to UL 1699B with single-MPPT sensing capability
Reverse polarity protection	Yes, from limited current source
Input over voltage protection for each MPPT	Type 2 with monitoring
Photovoltaic array isolation control (insulation resistance)	Yes, acc. to IEC 62109-2
Residual Current Monitoring Unit (leakage current protection)	Yes, acc. to IEC 62109-2
DC Load Breaking Disconnect Switch (rating for each MPPT)	20 A/1500 V - 50 A/1000 V
Fuse rating	N/A, No fuses
String current monitoring	MPPT-level current sense
Output side	
AC Grid connection type	Three phase 3W+PE (TN system)
Rated AC power (P_{acr} @cosφ=1)	175 000 W @ 40°C
Maximum AC output power (P_{acmax} @cosφ=1)	185 000 W @≤ 30°C
Maximum apparent power (S_{max})	185 000 VA
Rated AC grid voltage ($V_{ac,r}$)	800 V
AC voltage range	(552...960) [3]
Maximum AC output current ($I_{ac,max}$)	135 A
Rated output frequency (f_r)	50 Hz/60 Hz
Output frequency range (f_{min}...f_{max})	45...55 Hz/55...65 Hz [3]
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 In)	< 0.5%*In
Maximum AC Cable outer diameter / multi core	1 x 53 mm (1 x M63 cable gland)
Maximum AC Cable outer diameter / single core	3 x 32 mm (3 x M40 cable gland)
AC connection type [4]	Copper Busbar for lug connections with M10 bolts (included)
Output protection	
Anti-islanding protection	According to local standard
Maximum external AC overcurrent protection	200 A
Output overvoltage protection - replaceable surge protection device	Type 2 with monitoring
Operating performance	
Maximum efficiency (η_{max})	98.7%
Weighted efficiency (EURO/CEC)	98.4%
Communication	
Communication interfaces	1xRS485, 2x Ethernet (RJ45) [5]
Local user interface	4 LEDs, Web User Interface, Mobile APP
Communication protocol	Modbus RTU/TCP (Sunspec compliant)
Commissioning tool	FIMER Installer for solar inverters mobile app/Embedded Web User Interface
Remote monitoring services	Aurora Vision, Plant Portfolio Platform
Advanced features	Built-in Export Limitation control algorith/Integrated data logging for iverters and accessories / Remote FW update

Technical data and types

Type code	PVS-175-TL
Environmental	
Operating ambient temperature range	-25...+60°C/-13...140°F with derating above 40°C/133 °F
Relative humidity	4%...100% condensing
Sound pressure level, typical	65dB(A) @ 1m
Maximum operating altitude without derating	2000 m / 6560 ft
Physical	
Environmental protection rating	IP 65 (IP54 for cooling section)
Cooling	Forced air
Dimension (H x W x D)	867x1086x419 mm / 34.2"x42.7"x16.5" for, -SX model 867x1086x458 mm / 34.2"x42.7"x18.0" for, -SX2 model
Weight	~76 kg / 167,5 lbs for power module; ~77 kg / 169,7 lbs for Wiring box Overall max ~153 kg / 337,2 lbs
Mounting system	Mounting bracket (vertical support only)
Safety	
Isolation level	Transformerless
Marking	CE
Safety and EMC standard	IEC/EN 62109-1, IEC/EN 62109-2, EN 61000-6-2, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12, EN 301 489-1, EN 301 489-17, EN 300 328, EN 62311,
Grid standard [6]	CEI 0-16, UTE C 15 712-1, JORDAN IRR-DCC-MV and IRR-TIC, BDEW, VDE-AR-N 4110, VDE-AR-N 4120, P.O. 12.3, DRRG D.4, AS/ NZS4777.2
Available product variants	
Inverter power module	PVS-175-TL-POWER MODULE
24 quick fit connector pairs (2 each MPPT) + DC switches + SPD Type 2 (DC & AC)	WB-SX-PVS-175-TL
24 quick fit connector pairs (2 each MPPT) + DC switches + AC disconnection switch + SPD Type 2 (DC & AC)	WB-SX2-PVS-175-TL
Optional available	
DC Series Arc Fault Circuit Interrupter	Type I acc. to UL 1699B [2] with single-MPPT sensing capability
AC Plate, Single Core Cables	Plate with 4 individual AC cable glands: 3 x M40: Ø 22...32mm, 1 x M32: Ø 18...25mm
AC Plate, Multi Core Cables	Plate with 2 individual AC cable glands: 1 x M63: Ø 37...53mm, 1 x M32: Ø 18...25mm
Pre-Charge [7]	Night time operation with restart capability
Anti-PID [8]	Based on night time polarization of the array

Efficiency curves of PVS-175-TL



1) Multicontact MC4-Evo2. Cable couplers may accept up to 10mm^2 (AWG8)
2) Available as an option. Performance in line with the relevant requirements of the Draft IEC 63027 standard
3) The AC voltage and frequency range may vary depending on specific country grid standard
4) Use of aluminum cables is possible via bi-metallic cable lugs
5) As per IEEE 802.11 b/g/n standard, 2.4 GHz
6) Check your sales channel for availability of the applicable grid standard for your country
7) The Inverter cannot verify the photovoltaic array isolation resistance before connection during Night time. When this accessory is present, the inverter must be installed and operate in "restricted areas (access limited to qualified personnel)" according to IEC 62109-2
8) Cannot operate simultaneously with the night mode

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

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