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Solar inverter PVS-50/60-TL

The PVS-50/60-TL is FIMER's cloud connected three-phase string solution enabling cost efficient large decentralized photovoltaic systems for both commercial and utility applications.

From 50 to 60 kW

The PVS string inverter family, with 3 independent MPPT and power ratings of up to 60 kW, has been designed with the objective to maximize the ROI in large systems with all the advantages of a decentralized configuration for both rooftop and ground-mounted installations.

Compact design
Thanks to technological choices aimed at optimizing installation times and costs, the product design features the power module and wiring box enclosed in a single compact chassis thus saving installation resources and costs.
The inverter comes in multiple versions also allowing the possibility to connect to third-party DC string combiners.

Ease of installation
The horizontal and vertical mounting possibility creates flexibility for both rooftop and ground mounted installations.
Moreover the cover is 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.

Advanced cloud connected features
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.

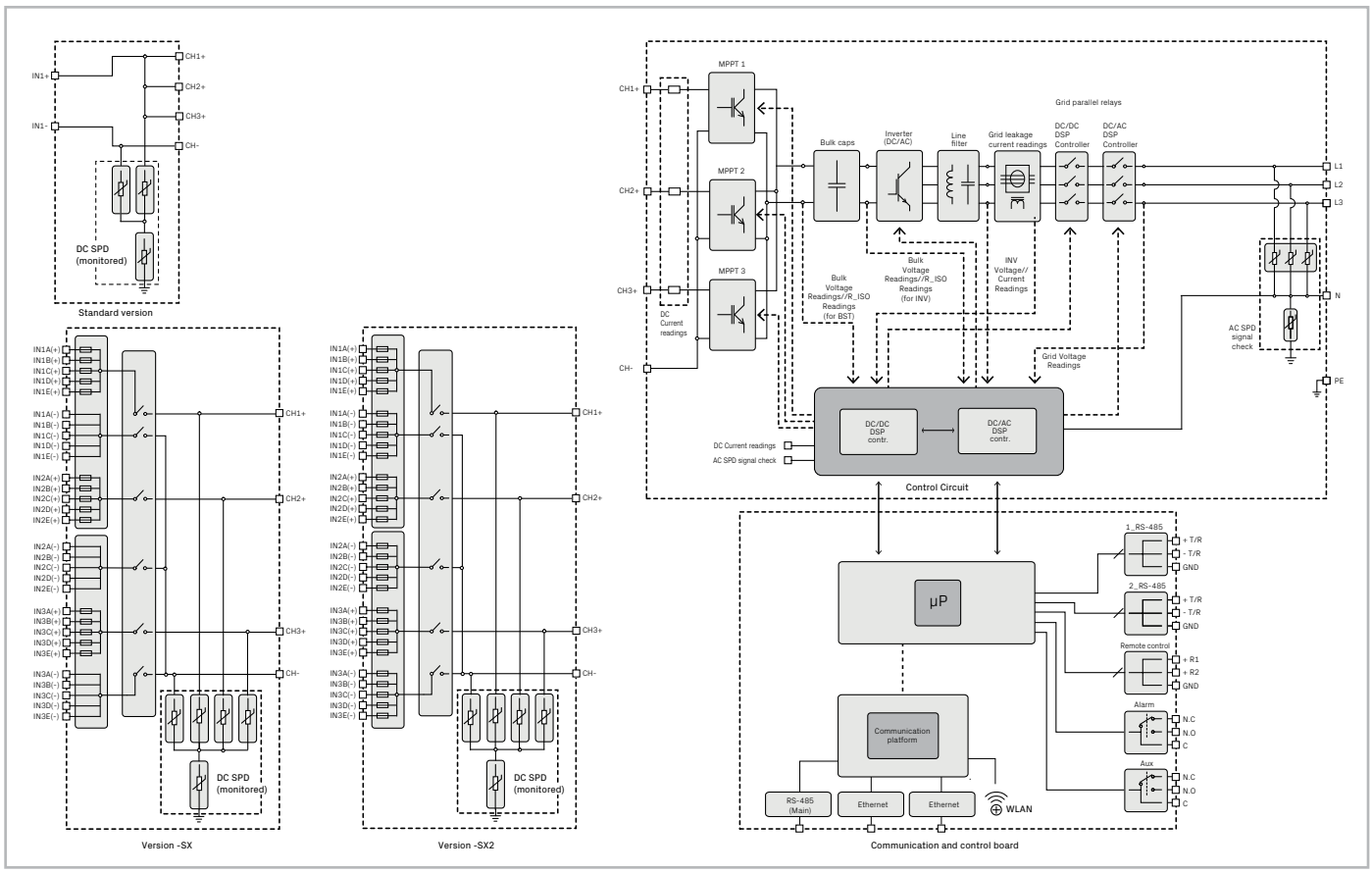
The Installer for Solar Inverters mobile app and configuration wizard enable a quick multi-inverter installation, saving up to 70% commissioning time.

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.

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.

Highlights
- Up to 3 independent MPPT
- Two power ratings: 50 kW at 400 V_{ac} and 60 kW at 480 V_{ac}
- Horizontal and vertical installation
- Easy access to wiring box thanks to hinges and cam latches positioned on cover
- Power module and wiring box in a single compact chassis
- Wi-Fi interface for commissioning and configuration
- Reactive power management capability
- Remote monitoring and firmware upgrade via Aurora Vision cloud platform (logger free)
- Provides 10% extra power in case of limited ambient temperature
- Improved operating altitude. Can work up to 4000 mt.
- Built-in dynamic export limitation control algorithm
- Energy communities ready

PVS-50/60-TL string inverter block diagram



Technical data and types

Type code	PVS-50-TL	PVS-60-TL
Input side		
Absolute maximum DC input voltage ($V_{max,abs}$)	1000 V	
Start-up DC input voltage (V_{start})	420...700 V (Default 420 V)	420...700 V (Default 500 V)
Operating DC input voltage range (V_{dcmin}...V_{dcmax})	0,7xV_{start} ...950 V (min 300 V)	0,7xV_{start} ...950 V (min 360 V)
Rated DC input voltage (V_{dcr})	610 Vdc	720 Vdc
Rated DC input power (P_{dcr})	52000 W	61800 W
Number of independent MPPT	3 (version SX and SX2) / 1 (standard version)	
Maximum DC input power for each MPPT ($P_{MPPTmax}$)	19300W@30°C / 17500W@45°C	23100W@30°C / 21000W@45°C
MPPT input DC voltage range ($V_{MPPTmin}$ ... $V_{MPPTmax}$) at P_{acr}	480-800 Vdc	570-800 Vdc
Maximum DC input current (I_{dcmax}) for each MPPT	36 A	
Maximum input short circuit current for each MPPT	55 A (165 A in case of parallel MPPT)	
Number of DC input pairs for each MPPT	5 (SX and SX2 versions), 1 (standard version)	
DC connection type	Screw terminal block (Standard version) or PV quick fit connector [1] (SX and SX2 version)	
Input protection		
Reverse polarity protection	Yes, from limited current source	
Input over voltage protection for each MPPT	Type 2 / Type 1 + 2 (option)	
Photovoltaic array isolation control	According to local standard	
DC switch rating for each MPPT	75 A / 1000 V for each MPPT (SX and SX2 version)	
Fuse rating (version with fuses) / max fuse rating	15 A, 20 A, 25 A [2]	
Output side		
AC grid connection type	Three-phase (3W+PE or 3W+N+PE), grounded WYE system only	
Rated AC power (P_{acr} @cosf=1)	50000 W	60000 W
Maximum AC output power (P_{acmax} @cosf=1)	55000 W up to 30°C [3]	66000 W up to 30°C [3]
Maximum apparent power (S_{max})	55000 VA up to 30°C [3]	66000 VA up to 30°C [3]
Rated AC grid voltage ($V_{ac,r}$)	400 V	480 V
AC voltage range	320...480 V [3]	384...571 V [4]
Maximum AC output current ($I_{ac,max}$)	80 A	
Contributory fault current	92 A	
Rated output frequency (f_r)	50 Hz / 60 Hz	
Output frequency range (f_{min}...f_{max})	47...53 Hz / 57...63 Hz [5]	
Nominal power factor and adjustable range	> 0.995; 0...1 inductive/capacitive with maximum Sn	
Total current harmonic distortion	<3%	
Maximum AC cable	95mm2 copper or stranded aluminum	
AC connection type	Screw terminal block, cable gland (admitted cable diameter 25...44mm)	
Output protection		
Anti-islanding protection	According to local standard	
Maximum external AC overcurrent protection	100 A	
Output overvoltage protection	Type 2	
Operating performance		
Maximum efficiency (ηmax)	98.4%	98.6%
Euro efficiency	98.2%	98.4%
Communication		
Embedded communication interfaces	3x RS-485, 2X Ethernet (RJ45), WLAN (IEEE802.11 b/g/n @ 2,4 GHz)	
Communication protocol	Modbus RTU / TCP (Sunspec compliant); Aurora Protocol	
Remote monitoring services	Standard level access to Aurora Vision monitoring portal	
Advanced features	Integrated Web User Interface; Embedded logging and direct transferring of data to Cloud	

Technical data and types

Type code	PVS-50-TL	PVS-60-TL
Environmental		
Ambient temperature range	-25...+60°C (-13...140 °F) with derating above 45 °C (113 °F) with derating above 45 °C (113 °F)	
Relative humidity	4%... 100% condensing	
Sound pressure level, typical	75 dB(A) @1 m	
Maximum operating altitude	4000 m (13123 ft) with derating above 2000 m / 6561 ft	
Physical		
Environmental protection rating	IP65	
Cooling	Forced air	
Dimension (H x W x D)	750 mm x 1100 mm x 257 mm / 29.5" x 43.3" x 10.12"	
Weight	70 kg / 154 lbs (SX version)	
Mounting system	Single mounting bracket	
Safety		
Marking	CE	
Safety and EMC standard	IEC/EN 62109-1, IEC/EN 62109-2, EN 61000-6-2, EN 61000-6-3, EN 61000-3-11, EN 61000-3-12 EN 62311, EN 301 489-1, EN 301 489-17, EN 300 328	
Grid standard (check your sales channel for availability)	CEI 0-21, CEI 0-16, DIN V VDE V 0126-1-1, VDE-AR-N 4105, G59/3, DRRG/DEWA, EN 50438, RD 1565, RD 413, UTE C15-7-712-1 P.O. 12.3, AS/NZS 4777.3, BDEW, NRS-097-2-1, MEA, PEA, IEC 61727, ISO/IEC Guide 67 (System 5) IEC 61683, VFR-2014, IEC 62116, Synergrid C10/11, IRR-DCC-MV, CLC-TS-50549-1/-2, G99, EN 50549-1/-2	
Available product versions		
Input connections with terminal blocks + surge arrester Type 2 in both DC and AC sides	PVS-50-TL	PVS-60-TL
15 quick Input connections + fuses (single pole) + DC switch + surge arresters Type 2 in both DC and AC sides	PVS-50-TL-SX	PVS-60-TL-SX
15 quick Input connections + fuses (both poles) + DC switch + surge arresters Type 2 in both DC and AC sides	PVS-50-TL-SX2	PVS-60-TL-SX2
Available options		
SPD Type 1 + 2 on the DC side	Only for SX2 version	Only for SX2 version
Display	For all versions	For all versions
Additional plug-in		
PVS-50/60-GROUNDING KIT	Available	Available

1) Please refer to the document "String inverters – Product manual appendix" available at www.fimer.com for information on the quick-fit connector brand and model used in the inverter.
2) 25 A fuses can be used with a limited number of inputs, only up to 3 per channel. The inverter equipped with the desired fuse size can be ordered through dedicated part.
3) Due to country specific regulation this value can be automatically limited to the rated value (50kW for PVS-50-TL, 60kW for PVS-60-TL). This limitation can also be set manually through the integrated Web User Interface.
4) The AC voltage range may vary depending on specific country grid standards.
5) The Frequency range may vary depending on specific country grid standards.

Remarks:
- **Designed and manufactured in Italy**
- **Features not specifically listed in the present data sheet are not included in the product**

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For more information please contact your local FIMER representative or visit:

fimer.com

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