



PVSA PHOTOVOLTAIC STRING INVERTERS

Conforming to the most advanced international standards, the PVSA satisfies the application demands of a market in constant technological evolution.

Our product represents the most advanced technology in the sector for controlling state-of-the-art industrial and civil PV plants. Maximum energy efficiency, long term reliability, plant monitoring and high-level professional service are the cornerstones of the PVSA range.

These inverters feature cutting-edge power components and advanced system controls that deliver superior.

- Maximum efficiency up to 98.5%
- IP -65 structure suitable for both indoor & outdoor installation
- Full power without derating up to 50°C ambient temperature.
- Natural ventilation minimizes breakdown & maintenance.
- Robust design and latest-generation power components with SiC technology.
- Maximum power point tracking, up to 3 MPPT trackers.
- Wide MPPT voltage range 350 to 800V.
- Large graphical display provides a easy, user-friendly operator interface.
- "Transformerless" versions for enhanced efficiency.
- String fault detection & DC fuses on both poles of string.
- Integrated DC circuit breaker under load.
- Tool free & maintenance free terminals on both DC & AC side.
- Integrated datalogger for operation and fault data logging.
- USB port for quick & handy saving of production and operation data.
- Integrated protections against overcurrent, overtemperature, reverse dc polarity, AC & DC overvoltage.
- Wire Box to allow separate access for easy and quick installation.
- 2 RS-485 ports for communication interface
- Integrated inputs/outputs: 3 analog inputs, 2 digital inputs, 2 digital outputs.
- Auxiliary 24 V out (500mA max) for connection of environmental sensors.

VERY HIGH CONVERSION EFFICIENCY LEVEL

Maximum efficiency up to 98.5% makes the PVSA string inverter one of the highest performing products on the market.

The use of SiC technology achieves high efficiency even with low input voltages. Choice of cutting-edge power components and its intelligent design of the conversion system demonstrate its attention to performance and ensure users the fastest and highest return on their investments.

SiC Silicon Carbide
Technology



PERFECT IN EVERY INSTALLATION CONDITION

Full power up to 50°C

The ability to work at high ambient temperatures without derating makes the PVSA ideal even in the harshest environments.

IP 65

PVSA is suitable for both indoor and outdoor installations thanks to its IP65 structure.

Natural ventilation

The absence of cooling fans not only increases conversion efficiency, it also minimizes breakdowns and maintenance related to their operation in harsh environments.



RIGHT ANSWER TO ALL ENGINEERING NEEDS

With a very wide range of modular configurations, the PVSA line of inverters ensures users not only the best technical solution but also the best price/performance ratio for every plant engineering need:

- AC power with variable j : 10-20kW, (25kW $\cos j = 1$)
- up to 3 MPPT trackers.



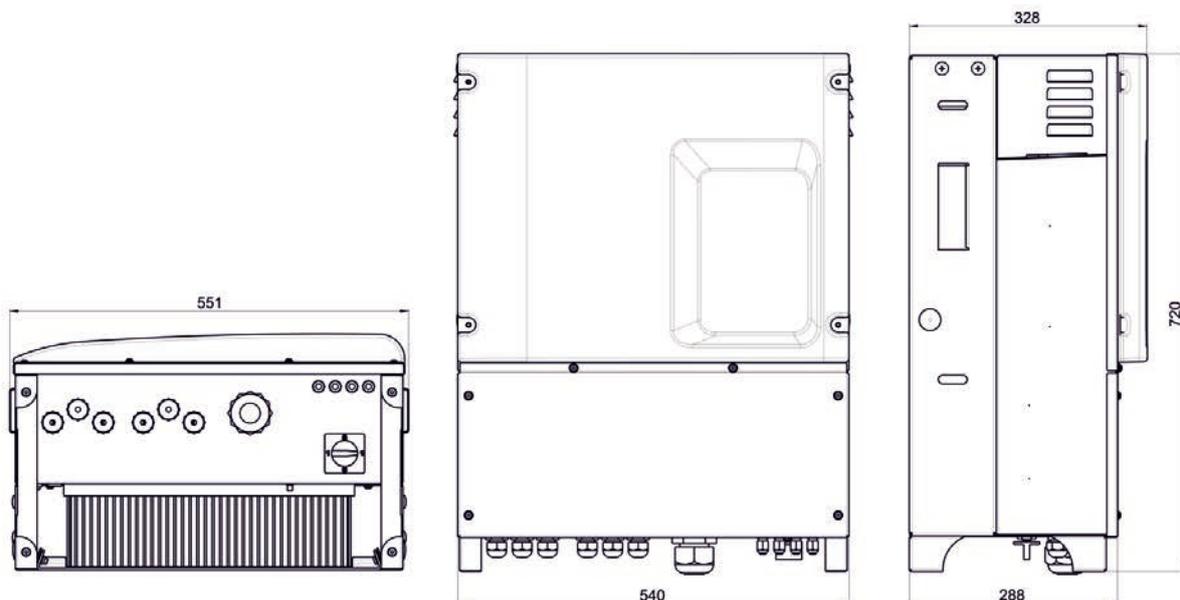
APPLICATION EXAMPLES

Advanced energy series PVSA (10/15/20/25 kW).
Maximum flexibility and performance even in systems with complex structure.

PLANTS WITH NON-UNIFORM STRINGS



EXTERNAL DIMENSIONS



GENERAL CHARACTERISTIC

Integrated protection
 Overtemperature protection
 Overcurrent protection
 DC and AC Overvoltage protection
 Reverse DC polarity protection
 Ground fault monitoring
 Anti-islanding
 Interface protection
 DC Injection control.

Integrated datalogger
 PVSA is equipped with an integrated logger for operating and fault data.

Wide screen display
 Large display gives instantaneous view of all the relevant information

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 Large display gives instantaneous view of all the relevant information

Rapid installation
 Tool-free and maintenance-free terminals on input and output side.

Wire Box
 Wiring zone with separate access designed to allow quick and easy installation.

USB port
 Quick and handy for saving production and operating data and to update software.

DC fuses and string fault detection
 Fuses on both poles of each string +
 Current sensors for each string.

Communication interfaces
 2 RS485 ports
 USB (standard)

DC circuit breaker under load

Integrated Inputs / Outputs
 3 analog inputs (environmental sensors)
 2 digital inputs (0-24V)
 2 digital outputs (0-24V)
 24V OUT (500 mA MAX)
 relays with open contact (single contact).

TECHNICAL DATA

PVSA			10k-AE-TL-2	15k-AE-TL-2	20k-AE-TL-2	20k-AE-TL-3	25k-AE-TL-2
Input data	Maximum DC voltage	V _{DC max} [V]	1000				
	MPPT Range(@ maximum power)	[V]	350..800	390..800	350..800		450..800
	Start- up voltage	[V]	>200				
	Rated DC link voltage	V _{nom} [V]	650				
	MPPT number	No. MPPT	2	2	2	3	2
	Number of strings per each MPPT	No.	2	2	3	2	3
	Maximum DC current per MPPT	I _{DC max} [A]	22.5	22.5	33.7	22.5	33.7
output data	Rated AC Power	P _{NOM AC} [kW]	10	15	20	20	25
	AC rated current/Max current	I _{AC max} [A]	14.4/16	21.6/24	28.9/32	28.9/32	36.2/37
	AC voltage	V _{AC} [V]	400V 3 - phases + Neutral (output voltage range 320..480 ¹⁾)				
	Rated AC frequency	f _{AC} [Hz]	50/60Hz (Output frequency range 47..53/57..63) ¹⁾				
	Grid connection		TN-C/TN-S/TN-C-S/TT				
	THDi	THD grid [%]	≤3				
	Power factor (settable)	cosphi	± 0.8				
Efficiency	Maximum efficiency	[%]	98.1	98.2	98.3	98.3	
	European efficiency (Euro ETA)	[%]	97.7	97.8	98	97.6	
Protections	Interface protections(grid monitor)		Integerated				
	Anti-islanding		Integerated (Where required by local regulations)				
	Insulation control		Integerated				
	Residual current monitoring		Integerated				
	Reverse DC polarity protection		Integerated				
	AC/DC overvoltage		Type 3 SPD standard with thermal protections & DC side indication overvoltage category III (AC), II (DC)				
	DC injection control		Integerated				
	DC circuit breaker		Circuit breaker under load				
	DC fuses & string failure detection		12A fuses on both poles of each string + current sensors for each string				

⁽¹⁾ The output voltage and frequency interval may vary according to the network connection standard.

TECHNICAL DATA

PVSA					
	10k-AE-TL-2	15k-AE-TL-2	20k-AE-TL-2	20k-AE-TL-3	25k-AE-TL-2
Dimensions	Width x Height x Depth: 551 x 720 x 328 mm				
Weight (kg)	71	71	76	76	76
Temperature Range	-20...+60°C (derating over 50°C)				-20...+60°C (derating over 40°C)
IP protection degree	IP 65				
Cooling	Natural convection				
Approvals	CE; VDE V 0126-1-1, VDE-AR-N 4105; CEI 0-21, CEI 0-16 ed. III; RD 661 – Rd1699; South African Grid code, NRS 097-2-1.(1)				

ORDERING CODE

	PVSA-	XXk	XX	TL	X	SFXX	X	X
Inverter power:								
25 kW		25k						
20 kW		20k						
15 kW		15k						
10 kW		10k						
Model:								
Advanced Energy			AE					
Transformer:								
not included				TL				
MPPT numbers:								
2 MPPT					2			
3 MPPT					3			
Version:								
standard						SFXX		
Language:								
polish/ english							M	
Acceptance tests:								
without additional quality requirements								0
with an extra quality inspection certificate								1
acc. to customers request *								X

* after agreeing with the manufacturer

