LUMEL
EVERYTHING COUNTS

10 YEAR WARRANTY

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 and performance with rapid returns on investments.

- Maximum efficiency up to 98.3%
- IP65 structure suitable for both indoor & outdoor installation
- Full power without derating up to 50°C ambient temperature.
- Natural ventilation of power processing elements 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
- Integerated inputs/outputs: 3 anlog inputs, 2 digital inputs, 2 digital outputs.

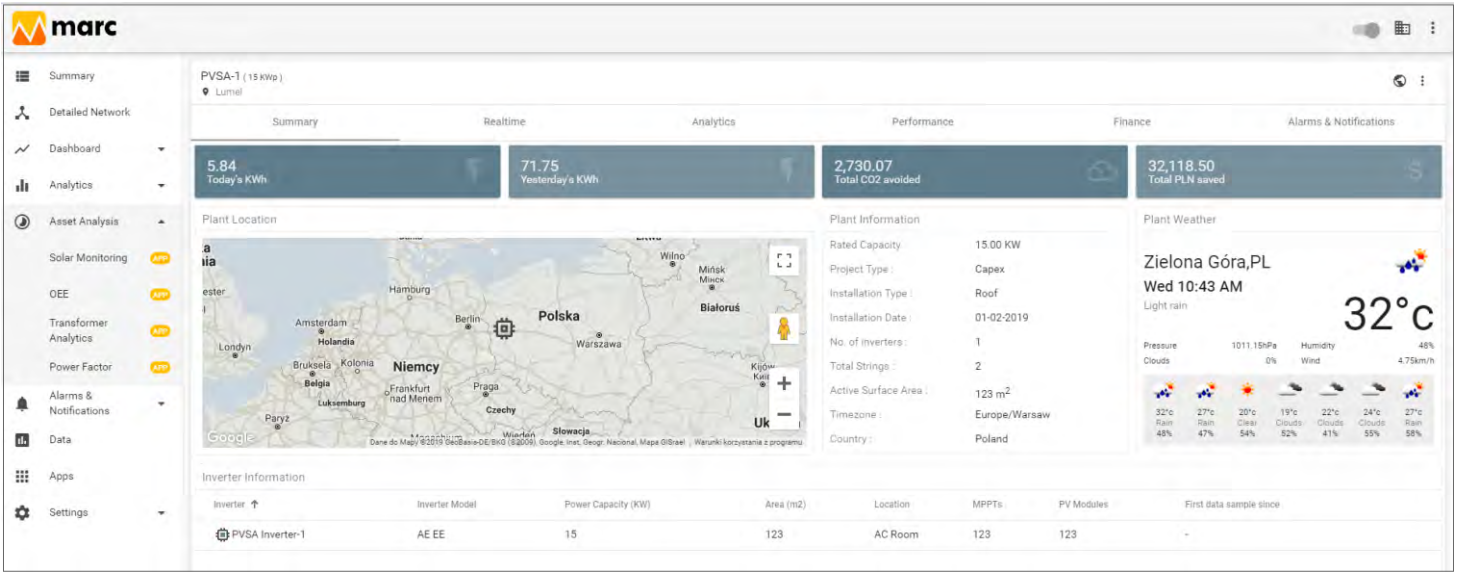
ON-GRID

10kW | 15kW | 20kW | 25kW | 34kW

RS-485 | Ethernet* | GSM*

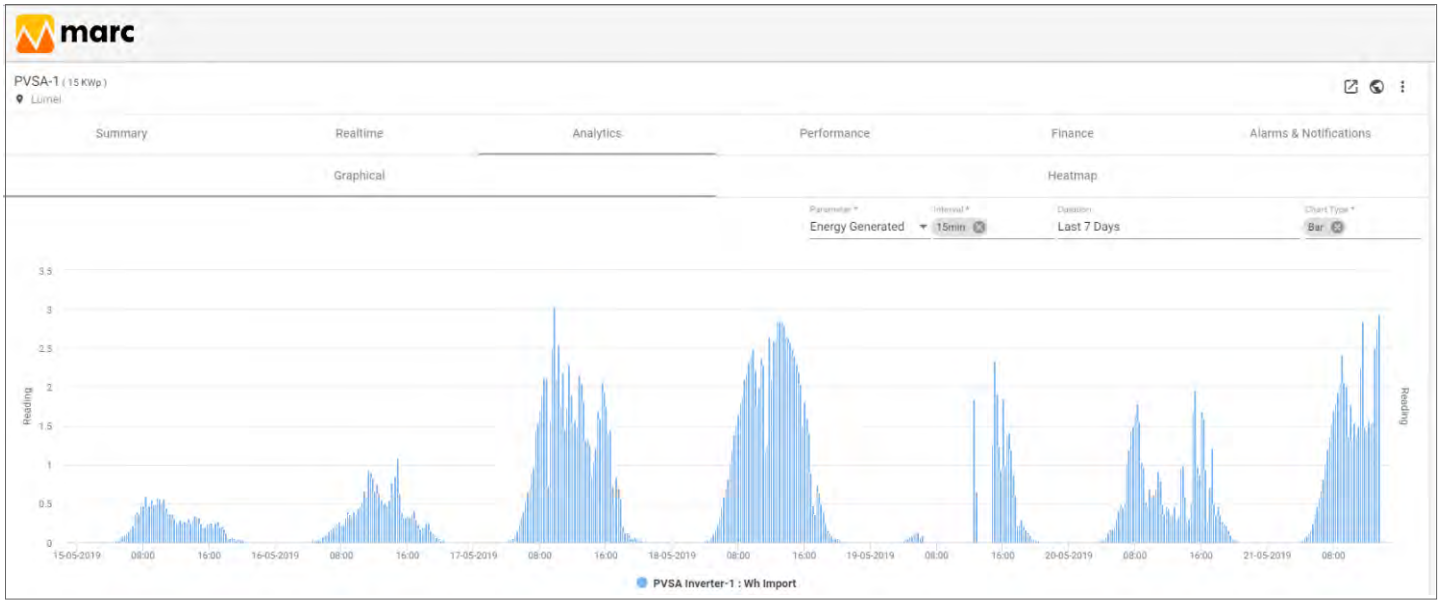
* **Remote monitoring** via the optional **SM61IoT** module  or built-in **GSM module.** 

Monitoring of PVSA operation through dedicated cloud software (MARC Solar Software)



PVSA - PHOTOVOLTAIC STRING INVERTERS

LUMEL
EVERYTHING COUNTS

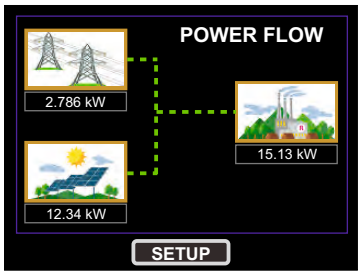


SPC5 ▶

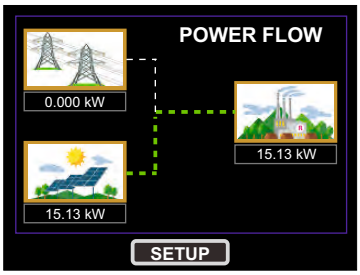
DEDICATED REVERSE POWER CONTROLLER - additional equipment

SPC5 is designed to control the power in the inverter, preventing energy export to the power grid.

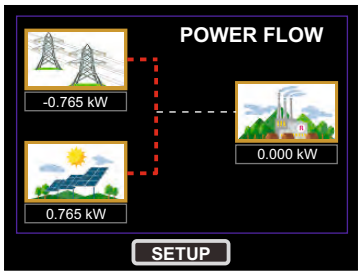
Power Control



Load consuming both Solar and Grid power.

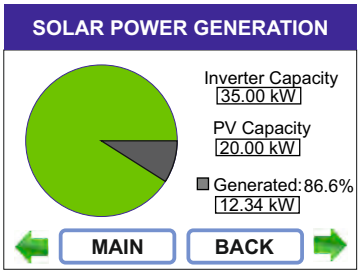


Load consuming only Solar power.

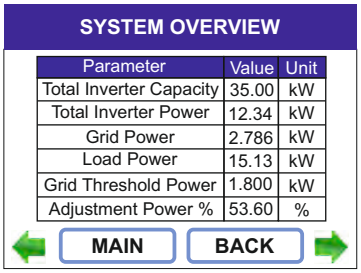


Total Solar power being exported to grid.

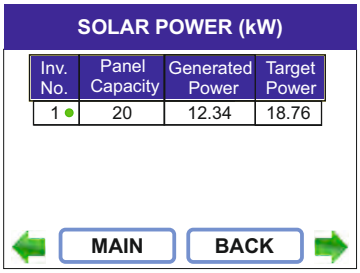
Monitoring of solar system parameters.



Solar power generation compared to the total PV(Panel) capacity.



The total Capacity, Power consumption, threshold and adjustment power for all the inverters combined.



The connectivity, panel capacity, generated power and target power (Adjustment Power as % of Inverter Capacity) for individual inverter.

PVSA - PHOTOVOLTAIC STRING INVERTERS

LUMEL
EVERYTHING COUNTS

VERY HIGH CONVERSIONEFFICIENCY LEVEL

Maximum efficiency up to 98.3% 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.

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:

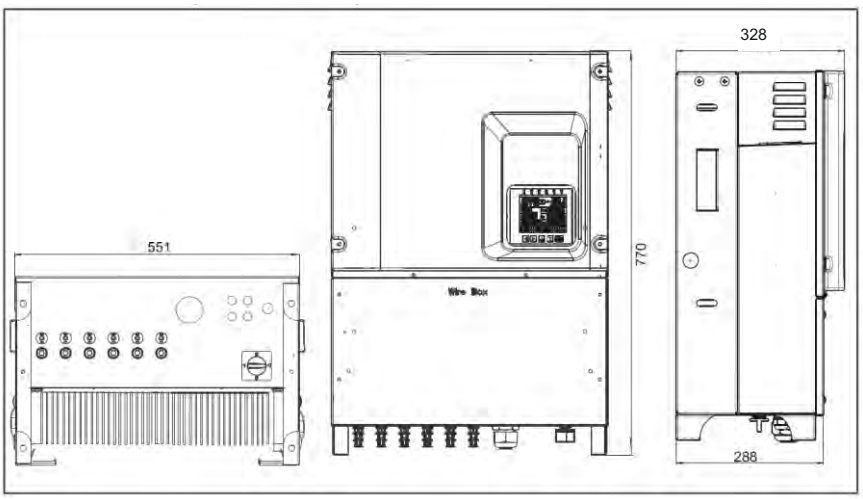
- AC power with variable j : 10-34kW
- up to 3 MPPT trackers.

APPLICATION EXAMPLES

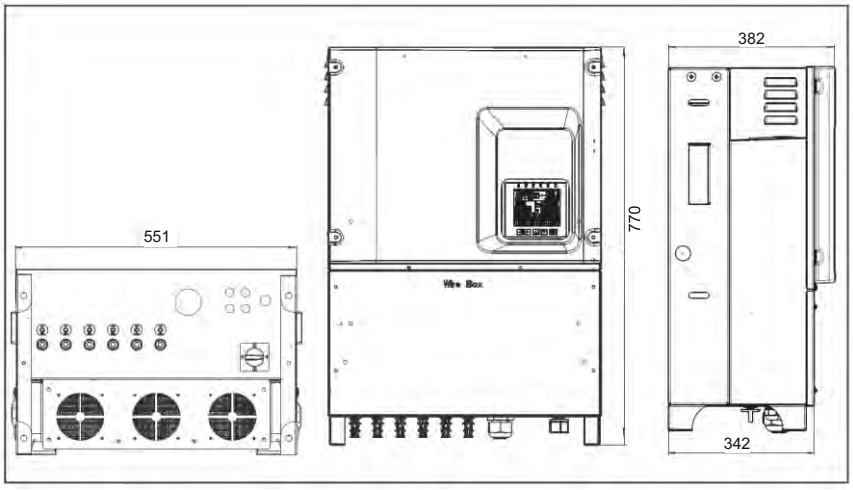
Advanced energy series PVSA (10 kW/15 kW/20 kW/25 kW/34 kW).
Maximum flexibility and performance even in systems with complex structure.

PLANTS WITH NON-UNIFORM STRINGS

EXTERNAL DIMENSIONS



Inverters up to25kW



Inverters up to 34kW

PVSA - PHOTOVOLTAIC STRING INVERTERS

LUMEL
EVERYTHING COUNTS

GENERAL CHARACTERISITIC

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

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

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

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.

Communication interfaces
2 RS485 ports
USB (standard)

DC circuit breaker under load

Integrated Inputs / Outputs
3 analog inputs (0-10V)
2 digital inputs (0-24V)
2 digital outputs (0-24V)
24V OUT (500 mA MAX)
relays with open contact (single contact).

PVSA - PHOTOVOLTAIC STRING INVERTERS

LUMEL
EVERYTHING COUNTS

TECHNICAL DATA

PVSA									
	Inverter type			10k-AE-TL-2	15k-AE-TL-2	20k-AE-TL-2	20k-AE-TL-3	25k-AE-TL-2	34k-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	520...800
	Start- up voltage		[V]	>200					
	Rated DC input voltage		[V]	650					
	Max. Recommended PV Power (balanced input)		[kWp]	12	18	24		30	40.8
	MPPT number			2	2	2	3	2	2
	Number of strings per each MPPT			2	2	2	2	3	3
	Maximum DC current per MPPT	I_{DC} max	[A]	22.5	22.5	33.7	22.5	33.7	33.7
Output data	Rated AC power	P_{NOM} AC	[kW]	10	15	20		25	34
	AC rated current/ max current	I_{AC} max	[A]	14.4/16	21.6/24	28.9/32		36.2/37	49.1/50
	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)]					
	Gird connection			TN-C/TN-S/TN-C-S/TT					
	THDi	THD grid	[%]	≤3					
	Power factor (settable)	cos φ		0,8 ind - 0,8 cap					
Efficiency	Maximum efficiency		[%]	98.1	97.8	98.3		98.3	98.1
	European efficiency (Euro ETA)		[%]	97.7	98.2	98	97.6	98	97.6
Protections	Interface protecions (grid monitor)			Intergrated					
	Anti-islanding			Intergrated (where required by local regulations)					
	Insulation control			Intergrated					
	Residual current monitoring			Intergrated					
	Reverse DC polarity protection			Intergrated					
	AC/DC overvoltage			Type 3 SPD standard with thermal protecions & DC side indication					Type 2 pluggable DC SPD
				CAT III (AC), II (DC)					
	DC injection control			Intergrated					
	DC circuit breaker			Circuit breaker under load					
	DC fuses & string failure detection			12 A fuses on both poles of each string + current sensors for each string					
	Night consumption (standby loss)			0W - Inverter is mechanically disconnected from the grid.					

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

PVSA - PHOTOVOLTAIC STRING INVERTERS

LUMEL
EVERYTHING COUNTS

TECHNICAL DATA

PVSA							
	Inverter type	10k-AE-TL-2	15k-AE-TL-2	20k-AE-TL-2	20k-AE-TL-3	25k-AE-TL-2	34k-AE-TL-2
Interface	Display	KA =- 100 x 100mm. graphic display with keyboard					
	Communication	2 x RS485 (with isolated input/ output); 1 x USB (USB for software updates and archival data download) GSM communication module (optional)					
	Inputs/ outputs	3 x analog input (0...10V) 2 x digital input (0...24V) 2 x digital output (0...24V) output 24V (500mA max) 2 relays (30V d.c.; 25V a.c./2A)					
	Cooling	Natural convection					forced convection
Environmental conditions	Temperature range	-20…+60°C					
		derating over 50°C				derating over 40°C	derating over 50°C
	Vibes	1G					
	Protection grade	IP 65					
	Environmental conditions	climatic class acc. to IEC 60721-3-4					
	Maximum allowable relative humidity, without condensatio	100%					
	Polution level	acc. to EN 60721-3-4. The inverter should not be exposed to direct sunlight. This will prevent a rise in temperature inside the inverter and a decrease in performance.					
	Maximum mounting height above sea level	up to 2000m; 1,2% derating over 1000m					
Weight	Weight (kg)	66	72	72	76	76	94
Standards	Standards	NC RfG; EN 50438; PN-EN 50549-1:2019; EN 61000-6-4:2007; EN 61000-6-2:2005 EN 61010-1:2010; EN IEC 63000:2018; IEC 60068-2-1/2/14/30; IEC 61727; IEC 62109-1/2; IEC 62116; IEC 61683; IEC 60529; IEC 61000-6-3/2; 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)					

PVSA - PHOTOVOLTAIC STRING INVERTERS

LUMEL
EVERYTHING COUNTS

ORDERING CODE

	PVSA	XXk	AE	TL	X	XXXX	M0
Inverter power:							
34 kW		34k					
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:							
with Ethernet SM61IoT communication module and MARC Solar license						SIOT	
with GSM communication module and MARC Solar license						SGSM	
Language:							
polish/ english							M0

* concerns 20 kW version

LUMEL S.A.
ul. Słubicka 4
65-127 Zielona Góra, Poland
tel.: +48 68 45 75 100
www.lumel.com.pl

Export department:
tel.: (+48 68) 45 75 130, 45 75 131, 45 75 132
e-mail: export@lumel.com.pl