

DSPX - TECHNICAL DATA								
MODEL SOLEIL DSPX	90	110	220	250	330	440	500	660
DC INPUT SPECIFICATIONS								
Input Power [kWp]								
Nominal	80	100	220	225	297	400	450	594
Max	109.2	136.2	270.1	304.2	401.5	541.4	608.3	803.0
Input Voltage [V]								
Operating range	460 - 930							
MPPT (full power) range	460 - 780							
Max	980							
Min / Startup	460							
Input Current Nominal [A]	199	248	492	554	731	986	1108	1463
Number of input	8							
Number of MPPT	1							
Pole grounding	Positive or negative, configurable on field							
AC OUTPUT SPECIFICATIONS								
Active Power [kW]								
Nominal (Pn)	80	100	200	225	300	400	450	600
Max	89	111	222	250	330	445	500	660
Maximum Power Smax [kVA]	89	111	222	250	330	445	500	660
Output Voltage [V]								
Nominal (Vn)	280							
Min for operation	85%Vn							
Max for operation	115%Vn							
Output Current [A]								
Nominal	183	229	458	515	680	918	1031	1361
Max	204	254	509	573	756	1019	1146	1512
Frequency Range [Hz]								
Nominal (fn) ²⁾	60							
Max	fn - 12%							
Min	fn + 10%							
Efficiency [%] ¹²⁾								
Max	97.3	97.3	98.1	98.1	98.1	98.1	98.1	98.1
Weighted (CEC/Euro)	96.45	96.45	97.3	97.3	97.3	97.3	97.3	97.3
THD% I (at Nominal Power)	<3							
Stand-by losses [W]	<50							
Power Factor	0.0 to 1.0 (leading and lagging)							
System wiring	3phase+ground							
ENVIRONMENTAL SPECIFICATIONS								
Cooling	Forced air							
Temperature [°F] / [°C]								
Full power range	+23°F to 113°F / -5°C to +45°C							
Power derating range	+113°F to +122°F / +45°C to +50°C							
Max for operation	122°F / 50°C							
Storage	-4°F to 122°F / -20°C to +50							
Maximum altitude (with no derating)	3280ft / 1000m							
Environmental Category	Indoor unconditioned							
Pollution Degree	PD3							
Thermal protection	Present							
Overvoltage protection (DC input)	Class II							
Overvoltage protection (AC output)	Class III							
Relative humidity	0-95% non condensing							
Noise emissions [dBA]	64	64	68	68	68	68	68	68
MONITORING AND CONNECTIVITY								
User interface	4" wide display with touch screen, 320 x 240 dots							
Serial ports								
User	1 x RS485 (Modbus RTU)							
DC junction box monitoring	1 x RS485							
Service (maintenance)	1 x USB (type B)							
Wireless kit (external, optional)	Composed by: <ul style="list-style-type: none"> GPRS modem with embedded multiport switch Protocol converter (RS485 to TCP) High gain antenna with coax cable 							
Monitoring SW (optional)	SCADA-based web server application featuring: <ul style="list-style-type: none"> Inverter and DC junction box diagnosis, alarm recording and real-time notification through e-mail and SMS PV system performance monitoring (graphical power production trends, report .csv files with statistics and efficiency calculation) Meteo data collection 							
STANDARDS								
Product Marking	CE							
	(2004/108/EC, European Directive for EMC)							
	(2006/95/EC, European Directive for Safety)							
Safety	EN 62109-1:2010, IEC 62109-2:2011, EN 50178:1997							
Grid code and connection	CEI021, CEI016, Terna Annex A70 and Annex A68, VDE AR-N 4105							
EMC	EN 61000-6-3:2007, EN 61000-6-1:2007							
Power quality	EN 61000-3-12:2005, EN 61000-3-11:2005							
MECHANICAL SPECIFICATIONS								
Enclosure rating	IP20 (indoor operation)							
Dimensions (W x D x H) [inches] / [mm]	43.30" x 32.28" x 76.77" / 1100mm x 820mm x 1950mm							
	59.05" x 39.37" x 78.74" / 1500mm x 1000mm x 2000mm							
Weight [lbs] / [kg]	771.62lb / 350kg	992lb / 450kg	1653.5lb / 750kg	1763.7lb / 800kg	1873.9lb / 850kg	3196.7lb / 1450kg	3351lb / 1520kg	3527.4lb / 1600kg



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BENEFITS

- High System ROI due to outstanding conversion efficiency.
- High MTBF because of state-of-the-art components and technology.
- Ease of installation, low MTTR.
- Remote monitoring through advanced connectivity platform.
- Efficient Service and Support Network.
- Suited for Soleil PSxxx containerized “plug & play” solution for outdoor operation.

FEATURES SUMMARY

- 3-phase/3-wires (Neutral-free) connection.
- 1000V DC connection ready.
- Direct Connection to Medium Voltage Step-Up transformer.
- Dual supply for internal aux systems (control, fans): self powered or externally fed.
- Transformerless.
- Built-in AC automatic switch.
- Built-in DC switchgear for up to 1000V connection.
- Built-in SPD on DC input and AC output.
- Positive and Negative DC pole groundability.
- Built-in cabinet heaters.
- DSP-based control platform.
- Precise power derating function on ambient temperature.
- Grid-support advanced functions (LVFRT, real and reactive remote power management).
- Overcurrent and thermal protection.
- Ground fault integrated protection.
- LCD touch screen for user interface and parameters set-up.
- Compliant with the most advanced European Grid Code regulations.
- CE marking.

INVERTER SOLEIL DSPX

Soleil DSPX is a family of high efficiency, grid-tie, transformerless, PV inverters for Utility Scale, indoor application and direct connection with a Medium Voltage feeder.

State-of-the art technology, advanced design and robustness, merge together and make **Soleil DSPX** the inverter of choice for energy harvesting, large-scale, Utility grade power plants.

Its IGBT-based architecture enables achievement of outstanding performances (up to 98.1% peak conversion efficiency) and enhances reliability of the system, thus assuring a secure and quick Return On Investment.

An advanced, full digital, control platform, makes the inverter capable of delivering clean power to the mains by efficiently controlling the harmonic content of the currents, meeting the most stringent normative and regulations in terms of conducted emissions. Power generation takes advantage of an innovative and efficient MPPT algorithm to make possible, under any weather fluctuation, the maximum energy harvest from PV panels and delivery to the grid.

Soleil DSPX features all the state-of-the-art grid-support functions (according to most advanced European Standard), such as:

Low Voltage Failure Ride Through (LVFRT) capability. Reactive Power capability (full circular P-Q diagram, 0.0 to 1.0 pf, leading and lagging).

Real Power limitation through remotely sent reference signal.

Reactive Power generation through remotely sent reference signal.

Automatic Real Power smoothing depending on frequency (droop function).

Automatic Real Power limitation depending on line voltage.

Automatic Reactive Power generation depending on voltage ($Q=f(V)$) and real power ($\cos\phi=f(P)$).

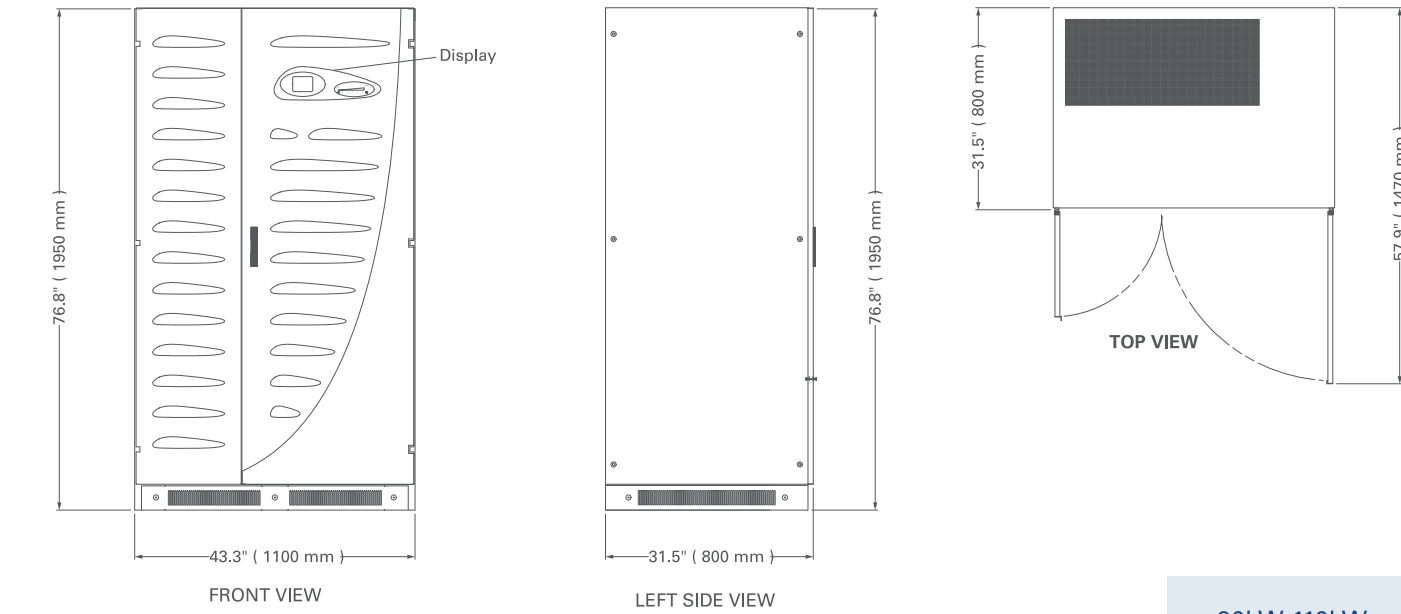
The compact enclosure and its light weight, are the

key features for a quick, space-saving installation, still keeping the ease of operation for Maintenance and Service: the unit can be easily lifted with forks and relied on a concrete platform (cables entrance is from the bottom of the cabinet) without the need of any support frame.

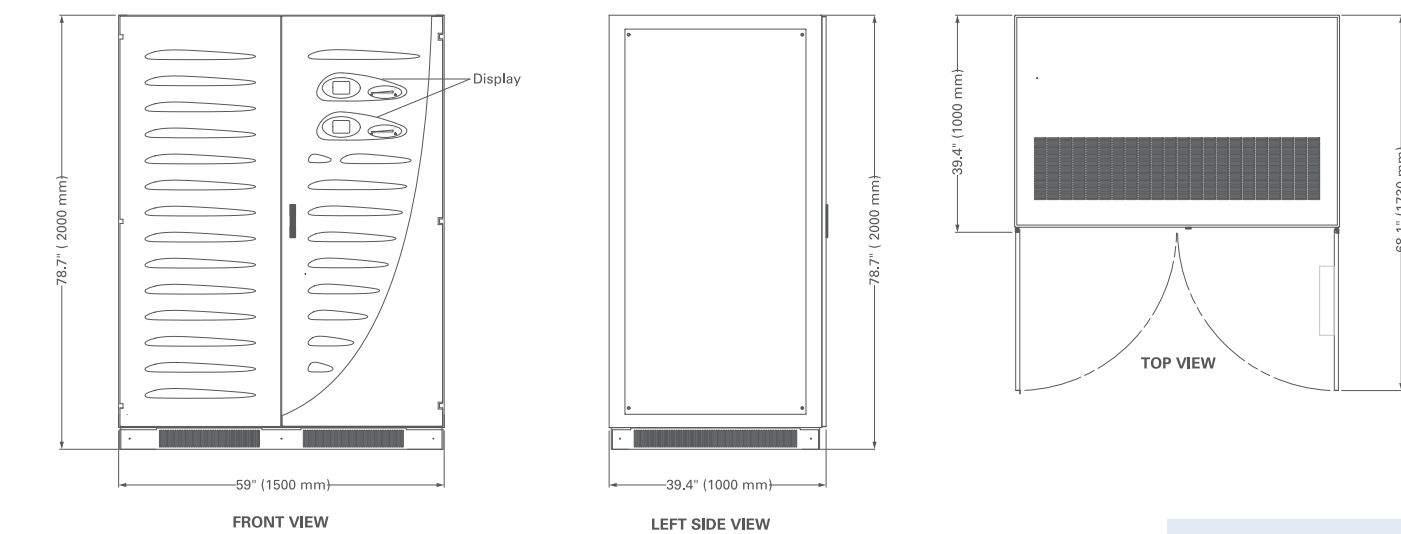
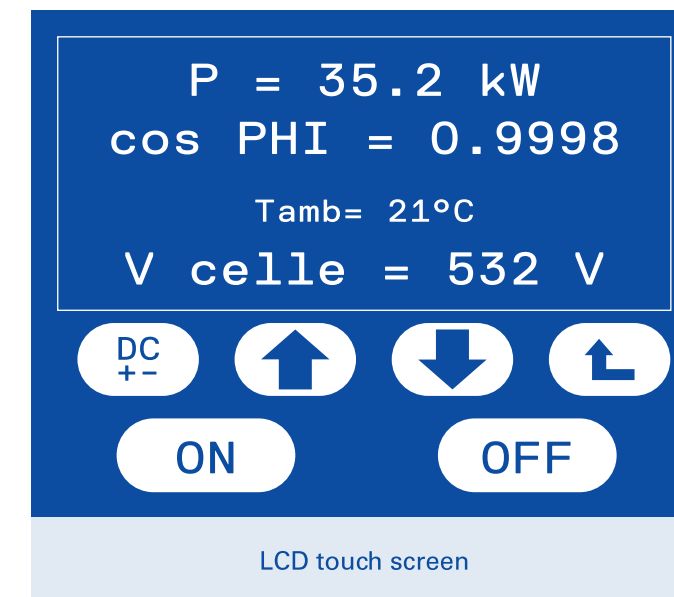
A containerized solution from 400kW up to 2MW (models Soleil PS400 up to PS1980), is also available for outdoor operation, allowing an immediate connection of the inverters to the MV feeder. By integrating all necessary Hardware to insure a safe and direct connection to the Medium Voltage feeder (MV switchgear, Step-Up MV transformer, Air conditioning system, Revenue meters), Soleil PSxxx is actually the Power Station of choice for a ‘plug & play’ approach to fast-growing power capacity plants.

Uptime and performance insight are fundamental to guarantee profitability of the investment. Basic functionalities of the inverter are monitored through a 4” LCD panel located on the front door, which is used for the set-up of the main parameters of the inverter. For remote control and monitoring, an advanced communication system is available, composed by an external wireless kit and a SCADA-based SW running onto a server. This system provides Internet connectivity, not only to the single inverter but to the PV system as a whole (several inverters, DC junction boxes, meteo station), allowing the user to access a large set of data (real-time alarm notification, graphs, index of performance) through a common web browser on a PC.

An efficient Service Network and Help desk assure nationwide coverage and responsiveness for repairing and maintenance and fast commissioning of the product.



90kW-110kW



220kW-660kW