

ProSolar Central Solar Inverter

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The ProSolar central solar inverter is the latest development in inverters specifically designed for the solar industry. Part of GE's ongoing developments in power electronics technology, the ProSolar inverter builds on extensive experience of designing and installing over 26 GW of converters for the renewable energy industry. The installed base covers the full range of utility scale requirements, including converters to meet even very stringent grid code requirements in extreme environmental conditions.

1,500 VDC capability

Solar panel technology is continually evolving to help lower the cost of energy production. The next step in this trend is the 1,500 VDC panel which, by increasing the voltage level, enables higher output power capability by up to 50% - thus decreasing system losses and balance of plant costs.

Features

- 1,000/1,500 VDC voltage level
- Three-level inverter for higher efficiency
- Water-cooling system for less maintenance
- Indoor/outdoor configuration for greater flexibility
- Inverter only and complete power station configuration offerings

Advanced grid features

GE has always been at the forefront of grid support features, and its converters are compliant with the most stringent codes in the world. Our long-term collaboration with utilities and regulatory bodies provides an understanding of utility needs that forms the basis of the advanced grid features present in the ProSolar inverter.



Our solution ensures smooth integration of power produced into the grid and manages reactive power regulation at the grid connection point, meeting all the new BDEW (Bundesverband der Energie- und Wasserwirtschaft) grid requirements. This equipment can also manage battery storage.

Solar SCADA

Solar SCADA provides a broad set of intuitive tools for the operation and maintenance of solar plants. Our solar SCADA application is accessible from anywhere on the network. It can also be used remotely with a secure internet connection or telephone line.

To address the ever-growing security requirements in SCADA systems, user access control is integrated into the entire system and provides an audit trail of all activity. Comprehensive production and maintenance reports are available to enhance the owner's ability to drive productivity across all aspects of the plant operation.



Model Code	ProSolar Central Inverter @ 1,000 VDC (OC) (outdoor & indoor)		ProSolar Central Inverter @ 1,000 VDC (OC) (outdoor & indoor)		ProSolar Central Inverter @ 1,000 VDC (OC) (outdoor & indoor)		ProSolar Central Inverter @ 1,000 VDC (OC) (outdoor & indoor)		ProSolar Central Inverter @ 1,500 VDC (OC) (outdoor & indoor)		ProSolar Central Inverter @ 1,500 VDC (OC) (outdoor & indoor)		ProSolar Central Inverter @ 1,500 VDC (OC) (outdoor & indoor)	
	PSC - 490 MV - L - QC		PSC - 575 MV - L - QC		PSC - 600 MV - L - QC		PSC - 680 MV - L - QC		PSC - 725 MV - L - QC		PSC - 800 MV - L - QC		PSC - 1,000MV - L - QC	
Input side														
Max. allowable DC voltage $U_{dc,max}$	1,100	V	1,100	V	1,100	V	1,100	V	1,500	V	1,500	V	1,500	V
Rated Input DC voltage $U_{dc,r}$	440	V	510	V	540	V	595 **	V	650	V	720	V	900	V
DC MPP Range $U_{mppmin} - U_{mppmax}$	440-1,000	V	510-1,000	V	540-1,000	V	595-1,000 **	V	650-1,300	V	720-1,300	V	900-1,300	V
$I_{dc,max}$	1,200	A	1,200	A	1,200	A	1,200	A	1,200	A	1,200	A	1,200	A
MPP Tracker	1	unit (s)	1	unit (s)	1	unit (s)	1	unit (s)	1	unit (s)	1	unit (s)	1	unit (s)
Output side														
Rated AC operating voltage $U_{ac,r}$	270	V	315	V	330	V	375	V	400	V	440	V	550	V
AC operating voltage range	±10	%	±10	%	±10	%	±10	%	±10	%	±10	%	±10	%
Max AC current $I_{ac,max}$	1,050	A	1,050	A	1,050	A	1,050	A	1,050	A	1,050	A	1,050	A
AC rated power $P_{ac,r}$ @ $U_{ac,r}$ $U_{mppmin} - U_{mppmax}$	490	kW	575	kW	600	kW	680	kW	725	kW	800	kW	1,000	kW
Grid frequency f_i +/- 5 %	50 / 60	Hz	50 / 60	Hz	50 / 60	Hz	50 / 60	Hz	50 / 60	Hz	50 / 60	Hz	50 / 60	Hz
Power factor $\cos\phi$ @ $P_{ac,r}$	1		1		1		1		1		1		1	
$\cos\phi$ range	0-1 ind. or cap.		0-1 ind. or cap.		0-1 ind. or cap.		0-1 ind. or cap.		0-1 ind. or cap.		0-1 ind. or cap.		0-1 ind. or cap.	
Feed in phase / Connection phase	3 / 3		3 / 3		3 / 3		3 / 3		3 / 3		3 / 3		3 / 3	
Self-consumption during night-time	100	W	100	W	100	W	100	W	100	W	100	W	100	W
Efficiency														
Max. Efficiency	97,7	%	97,9	%	97,9	%	98,1	%	98,2	%	98,3	%	98,4	%
EU efficiency	97,1	%	97,4	%	97,5	%	97,8	%	98,0	%	98,1	%	98,2	%
System data														
Width, Height, Depth (W/H/D) [mm]	1,800 (2,800*) / 2,000 (2,200*) / 600	mm	1,800 (2,800*) / 2,000 (2,200*) / 600	mm	1,800 (2,800*) / 2,000 (2,200*) / 600	mm	1,800 (2,800*) / 2,000 (2,200*) / 600	mm	1,800 (2,800*) / 2,000 (2,200*) / 600	mm	1,800 (2,800*) / 2,000 (2,200*) / 600	mm	1,800 (2,800*) / 2,000 (2,200*) / 600	mm
Weight [kg]	<1,500	kg	<1,500	kg	<1,500	kg	<1,500	kg	<1,500	kg	<1,500	kg	<1,500	kg
Aux. consumption in operation (PACnom)****	<1,750	W	<1,750	W	<1,750	W	<1,750	W	<1,750	W	<1,750	W	<1,750	W
Communication interfaces														
Standard	Ethernet, Modbus TCP		Ethernet, Modbus TCP		Ethernet, Modbus TCP		Ethernet, Modbus TCP		Ethernet, Modbus TCP		Ethernet, Modbus TCP		Ethernet, Modbus TCP	
Optional	Profibus, Can		Profibus, Can		Profibus, Can		Profibus, Can		Profibus, Can		Profibus, Can		Profibus, Can	
Equipment														
Earth-fault monitoring	optional		optional		optional		optional		optional		optional		optional	
Heating	yes		yes		yes		yes		yes		yes		yes	
E-Stop pushbutton	yes		yes		yes		yes		yes		yes		yes	
Circuit breaker AC	motorised operation		motorised operation		motorised operation		motorised operation		motorised operation		motorised operation		motorised operation	
Switch-disconnector DC	motorised operation		motorised operation		motorised operation		motorised operation		motorised operation		motorised operation		motorised operation	
Service PC - remote monitoring & control	optional		optional		optional		optional		optional		optional		optional	
Standards														
EMC	EN 61000-6-2, EN 61000-6-4		EN 61000-6-2, EN 61000-6-4		EN 61000-6-2, EN 61000-6-4		EN 61000-6-2, EN 61000-6-4		EN 61000-6-2, EN 61000-6-4		EN 61000-6-2, EN 61000-6-4		EN 61000-6-2, EN 61000-6-4	
Grid monitoring (BDEW - certified)	✓		✓		✓		✓		✓		✓		✓	
CE - Conformity	yes		yes		yes		yes		yes		yes		yes	
Ambient operating conditions														
IP protection class	IP 54; IP65 (outdoor) ***		IP 54; IP65 (outdoor) ***		IP 54; IP65 (outdoor) ***		IP 54; IP65 (outdoor) ***		IP 54; IP65 (outdoor) ***		IP 54; IP65 (outdoor) ***		IP 54; IP65 (outdoor) ***	
Ambient temperature*	-10°C to +50°C	°C	-10°C to +50°C	°C	-10°C to +50°C	°C	-10°C to +50°C	°C	-10°C to +50°C	°C	-10°C to +50°C	°C	-10°C to +50°C	°C
Humidity	5-100	%	5-100	%	5-100	%	5-100	%	5-100	%	5-100	%	5-100	%
Max. height above sea-level	2,000	m	2,000	m	2,000	m	2,000	m	2,000	m	2,000	m	2,000	m

optional:
- additional DC cubicle (W=600mm)
for 6-10 pairs of DC inputs
**** at 25°C

* Cooling cubicle and plinths
added for Outdoor application
*** IP65 excluding overpressure
testing

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testing

* Cooling cubicle and plinths
added for Outdoor application
** 595 V Umppmin requires AC
transformer with <= 375 V
voltage at nominal power
*** IP65 excluding overpressure
testing

* Cooling cubicle and plinths
added for Outdoor application
*** IP65 excluding overpressure
testing

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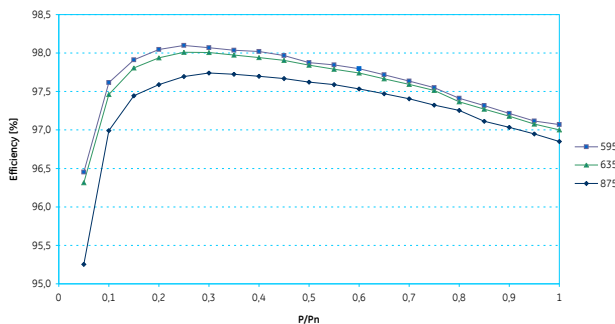
Minimizing risk, maximizing productivity

Power Conversion services include all support for utilities and farm operators to protect assets, keep critical processes running, minimize risk and maximize productivity. We deliver original equipment spares around the world as well as repair, refurbish and upgrade customer systems with the latest

technology. We offer risk protection through performance-based contracts based on our system experience and sophisticated application calculations. Through advanced digital platforms, we deliver expert onsite and remote emergency 24/7 support, interventions and planned maintenance customized to meet unique customer requirements.

Lower balance of system costs

The ProSolar central solar inverter allows higher voltages at panel level, offering lower balance of system costs. The three-level topology of the power electronics is based on IGBT technology. Input voltages of 1,500 V increase the output power by up to 50%. The power plant is also optimized in terms of layout, resulting in minimizing investment costs for cables, buildings, combiner boxes, fuses, inverters and transformers.



Efficiency curve

Contact information

Brazil +55 31 3330 5800
China +86 21 6414 6080
France +33 1 77 31 20 00
Germany +49 30 7622 0
India +91 44 4968 0000
United Kingdom +44 1788 563 563
United States +1 412 967 0765

Technical data

Output (AC)

Power Range:

490 KVA–680 KVA @ 1,000 VDC
725 KVA–1,000 KVA @ 1,500 VDC

Operating voltage:

3 AC 270 V–375 V (+/-10%) @ 1,000 VDC
3 AC 400 V–550 V (+/-10%) @ 1,500 VDC

Output (DC)

DC MPPT:

450 V–1,100 V @ 1,000 VDC
650 V–1,300 V @ 1,500 VDC

DC voltage: 1,000 V, optional 1,500 V
Max. DC current: 1,200 A

AC current distortion: <2% THD at Pnom

Frequency: 50 Hz / 60 Hz

Efficiency: >98%

Possible reactive power support: 0–1 ind. or cap.

Enclosure: IP 54, IP 65 (outdoor)

Ambient temperature: -10°C to 50°C

Optional: -25°C to 50°C

Interfaces: Ethernet, Modbus TCP



imagination at work

www.ge-energy.com/electrifyingchange