

Make the sun **your energy source.**



sinvert SOLAR



SIEMENS

Roll, connect and play

Siemens SINVERT solar units are very quickly operational: roll the unit into place, make the DC and three-phase connections, switch on and forget about it.

Qualification

As a series product, the SINVERT solar carry the CE mark and meet important international standards (DIN VDE, EN, IEC). The EMC-oriented design allows operation even in areas sensitive to interference.

System integration

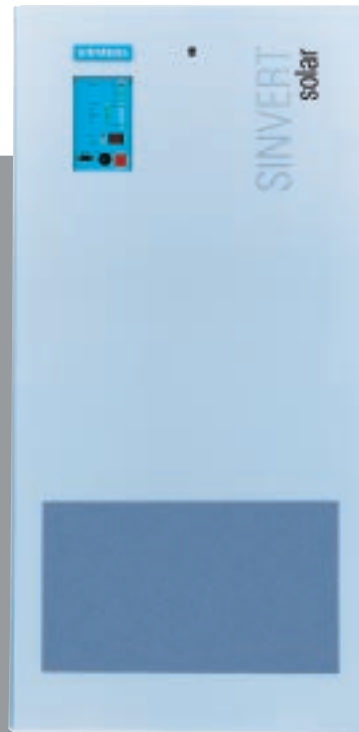
The integral DC and three-phase distribution allows compact, inexpensive system integration. The SIMATIC S7 PLC, also provided, ensures highly flexible system management and standardized interfaces (RS232/RS485/ MPI/PROFIBUS-DP).

Operator control

Operator control and diagnostics of the SINVERT solar can take place locally at the clearly arranged operator panel, with PC and PowerProtectsolar or by remote interrogation via communication bus or telephone modem.

Visualization

PowerProtectsolar, the operator control and monitoring software, contains a great number of controls, supervisory, monitoring and diagnostic functions and is available for all the usual operating systems. The software is supplied on CD-ROM with each SINVERT solar.



Options

- EMC to EN 50081-1 and EN 50082-1
- Reactive power control
- Communication via PROFIBUS-DP
- Operator control and monitoring with PV WinCC
- Telephone modem, fax alarm
- Degree of protection IP21 and IP31
- Dust filter on the air intake side
- Data logger with mini webserver
- Large external display
- String fault monitoring
- Weather station
- 5 year gaurantee
- 20 year service contract
- Container for inverters
- Medium voltage substation

Interfaces for system integration

- RS232
- RS485
- PROFIBUS-DP

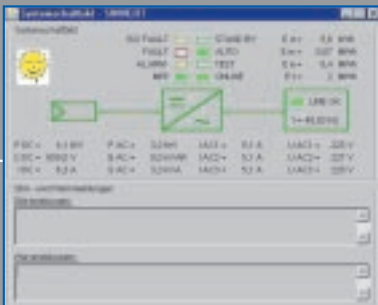
PowerProtectsolar – Software for visualization, monitoring, service and remote supervision at the PC

PPsolar on CD-ROM is the software solution for visualization, monitoring, start-up and service. Available on a PC connected either directly or via modem is a great number of functions which continually provide information on the status of the PV plant. The menu-driven user interface allows access to:

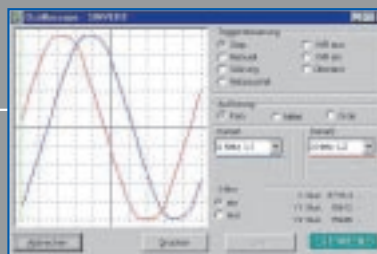
- Active system schematic diagram
- Control panel
- Oscilloscope
- Events memory
- Process data
- Data storage
- Analysis

Warning and fault messages of SINVERT solar are automatically relayed to the service personnel or to the customer.

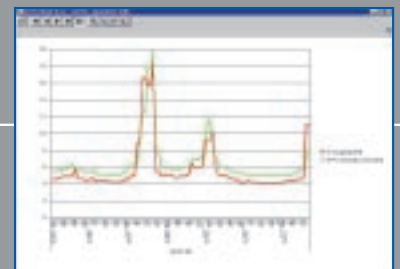
The software is supplied free of charge for each SINVERT solar on CD-ROM.



The system schematic diagram menu provides information at a glance on the most important operational parameters and measured values.



The oscilloscope is an effective tool for supply system and load analysis.



The PowerProtectgraph function enables displaying of the archived plant data. Many parameters can be archived for the entire period of operation.

Visualization in a new dimension: PV WinCC, the operator control and monitoring system of the professional power plant standard

PV WinCC (Photovoltaic Windows Control Center) is the professional software for visualization and control of the PV plant; it is capable of bidirectional communication with process and power plant control systems.

Based on the Windows 2000/NT/XP operating system and the GUI graphics user interface, it is easy to operate.

The many configuring functions allow the implementation of almost any plant size, and subsequent expansion is straightforward.

PV WinCC makes the energy flow of the plant transparent: it displays the latest statuses, messages, measured values and reports. All data occurring in the plant are automatically organized and stored. You have access at all times to the reliable Microsoft SQL Server 2000 data archive, and thus have continuous evidence of all events and measured values in the plant. Communication between the PV plant and the WinCC terminal takes place quickly and reliably via Industrial Ethernet or PROFIBUS.

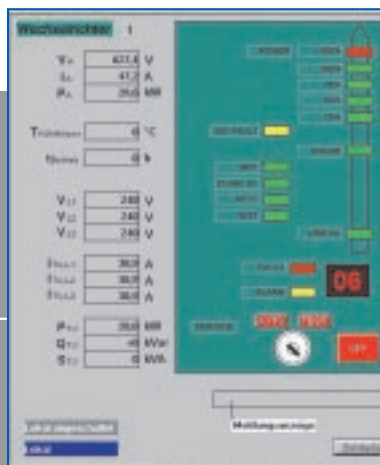
The open system architecture and the integral OPC (OLE for process control) interface also allow incorporation in complex automation systems.

Summary of PV WinCC:

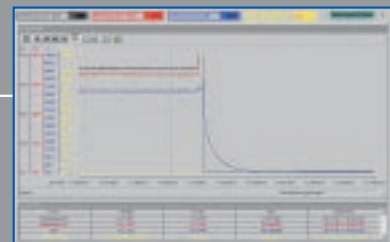
- Easy-to-operate user interface
- Easy to configure with simple tools
- Scalable from small plants to PV plants in the MW region
- Utilization of existing software standards
- Integral Microsoft SQL Server 2000 database
- Integral OPC interface
- Web Navigator (internet)
- Worldwide service and support from Siemens



The clearly arranged plant display covers all the parameters relevant to system management, even for large PV power plants with several SINVERT solar units.



The image of the SINVERT solar operator panel always indicates the current status, allowing authorized persons to operate the SINVERT solar as though they were on site.



All data are transferred quickly and reliably via Industrial Ethernet or PROFIBUS, and archived in standard databases. The graphic representation allows a continuous overview of all plant data and processes.

SINVERT solar: Grid-compatible PV IGBT inverter units

SINVERT solar inverter units are the professional solution when it comes to safety, reliability, grid compatibility, EMC, system integration and economy.

The SINVERT solar series is based on UPS units, meeting the demands for standardized modular systems with typical UPS reliability. Plants of any size can be assembled with master-slave combinations (30 kVA – 1.6 MVA).



SINVERT solar –

from 30 kVA to 1.6 MVA

Rated power:	kVA	30	40	60	80	100	150	200	300	340	400			
Recommended PV power ¹⁾ Max. PV power ¹⁾	kWp	28 31	37 40	60 70	75 85	95 105	135 150	190 210	300 320	340 370	400 450			
Max. input current:	A DC	65	85	150	175	220	305	440	700	750	1000			
Operating voltage:	V DC	450 – 780 (low voltage versions on request)												
Max. input voltage:	V DC	880 (inverter will not start operation)												
Grid interface:		400V AC, 50Hz, 3 phases and PEN												
Dimensions (HxWxD)	mm	1325 x 650 x 850		1725 x 950 x 850			1902 x 1604 x 602		1902 x 2204 x 602		1902 x 2504 x 602		2000 x 2700 x 800	
Weight:	kg	420	445	620	735	770	1020	1550	1800	2025	2540			
Efficiency:	η_{10} η_{25} η_{50} η_{75} η_{100}	%	80 92 94 95 95	84 93 95 95 94	85 93 95 96 95	83 92 94 95 96	86 93 95 96 95	87 93 94 96 96	88 94 95 96 96	90 94 96 96 96	91 95 96 97 96	91 96 96 97 96		
Combinations: (further combination on request)														
Single block:	kVA	30	40	60	80	100	150	200	300	340	400			
M/S combinations:	kVA	60	80	120	160	200	300	400	600	680	800			
M/S/S combinations:	kVA				240	300	450	600	900	1020	1200			
M/S/S/S combinations:	kVA					400	600	800	1200	1360	1600			

¹⁾for a site in Southern Germany

The information provided in this brochure contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

Significant features

- Standardized series product with CE mark
- EMC-tested, EN 50081, EN 50082, EN 61000-3-2 (Class x = 1 optional)
- International standards: DIN VDE, EN, IEC
- Optimized for reliability and long product life
- Self-controlled IGBT sinewave inverter with pulse width modulation (PWM)
- Compact design and very simple installation
- Integral DC and three-phase distribution
- Integral unit protection against overcurrent and overvoltage
- Integral feedback protection for the PV generator
- Reactive power control in the three-phase system
- Insulation monitoring
- Bus communication via RS232/RS485/MPI/PROFIBUS-DP interface for incorporation in management systems
- Remote monitoring via telephone/internet, fax alarm
- PowerProtectsolar visualization or PV WinCC
- Data logger with mini webserver (WEB'log)