SOLIS COMMERCIAL INVERTERS

SEGENSOLAR.

Formed in October 2015, SegenSolar (Pty) Ltd operates from offices in Johannesburg and Cape Town, South Africa, distributing and supporting high quality solar PV equipment across South and Southern Africa.

SegenSolar (Pty) Ltd is part of the Segen group, the UK's largest solar PV distributor. Founded in 2005, the company holds a very strong position in the UK, accounting for 35% of the UK rooftop solar market. The Segen group currently employs over 75 members of staff and is active in the UK and much of Europe which is serviced by SegenSolar GmbH in Cologne. Segen has been successfully selling the full Solis range in the UK since 2010.

SOLIS COMPANY OVERVIEW.

Ginlong Technologies, established in 2005, are one of the oldest and largest string inverter manufacturers in the world. Headquartered in Zhejiang, China. The company has representatives across the globe with sales and customer service offices in Europe, the United States, Australia, and Africa.

As one of the earliest manufacturers of grid–tied inverters in the world, Solis is renowned for their R&D Team with over 80 world class engineers from different countries. From their 40 000m² dedicated inverter manufacturing facility they have a 3GW annual capacity.

Solis is ranked in the Top 10 for Global PV Inverter Market Shares (by Shipments). The bankable and reliable Solis inverter is listed on the Approved Vendor List (AVL) of top US third-party owned solar integrators Sunrun.

ACHIEVEMENTS.

2015 No 1 inverter sales for distributed PV in UK
Top 12 inverter sales in Europe
Second inverter company to achieve UK G83 certification.
2016 Top 3 PV string inverter brand value in China.
Top 5 global single-phase string inverter market shares.
Awarded as Asia PV innovation company.
Awarded as the Best Distributed Inverter Brand.
2016/17 Top 3 energy storage inverter supplier in China.
2016/17 Awarded Top PV Brand by EuPD Research.
2017 Team of 600 Employees catering to International business across the World.
2017 Worldwide shipments exceed 3GW.
2018 Awarded Top PV Brand by EuPD Research.
2019 Ranked 3rd among Asian brands by Bloomberg NEF Bankability
Listed on Shenzhen Stock Exchange

EXCEPTIONAL QUALITY, COST-EFFECTIVE INVERTERS.

Most of the cost of inverters is in the components and the biggest factor in determining the expected life of an inverter is the life of the components. Inverters can be made cheaper using lower quality components, but they will not last as long. Solis only use top quality components, carefully selected, and qualified from top worldwide manufacturers.

Solis use highly automated manufacturing equipment and processes in their own ISO9001 certified factory in Ningbo, China, one of the largest renewable energy equipment manufacturing facilities in Asia. The company has machine and electrical product manufacturing expertise that spans more than 20 years. Solis introduced and further developed advanced manufacturing technologies for their production processes including.
Surface Mount Technology (SMT), Wave Soldering (WS), conformal coating of boards that are manufactured by Solis, state of the art production management and quality assurance systems.

The Solis R&D leadership includes several Ph.D. holders that direct a team of skilled and experienced product and manufacturing engineers who develop solutions for client's R&D and production needs. Some of these innovative solutions have resulted in new Solis patents that support the product line and innovative designs.

Every inverter that is made is heat cycle tested in the factory for **6 hours** to ensure it is fully functioning and robust when it leaves the factory.

The high quality and reasonable price make it a great investment for those who are looking for value for money whilst taking control of their future electricity price.

The 5-year warranty can be upgraded to 10 or 20 years. All the components of the Solis inverters are manufactured in-house resulting in significantly lower manufacturing costs, allowing the manufacturer to pass the savings onto you.

Solis inverters have an industry leading low failure rate of 0.5% measured over the more than one million sold and installed worldwide.

Duration Testing Heat Chamber

PRODUCT RANGE.

25-40kW 5G

400V: 25K/30K/33K/36K/40K.

25-40kW 5G three phase series string inverter adopt 3/4 MPPT design to provide a more flexible configuration scheme with a smaller environmental impact rate and higher generation efficiency.

Fanless	Four	WiFi/GPRS	200-1000V	IP65	App Store
Cooling concept	MPPT	Real time monitoring	MPPT voltage range	Ingress protection	IOS/Android

Leading Features

- 98.8% Max. efficiency
- DC input reverse alarm
- Wide voltage range and low startup voltage
- 3/4 MPPT design with precise MPPT algorithm
- THDi<3%, low harmonic distortion against grid
- Perfect commercial site monitoring solution
- Anti-resonance, supporting over 6MW paralleled in one transformer.
- Strings intelligent monitoring, Smart I-V Curve Diagnosis supported
- Fuse free design to avoid fire hazard.
- Type II surge arrester for both DC and AC
- Natural convection, Fan-less design, longer lifespan
- Leakage current repression technology
- Volt-watt work mode integrated.
- Integrated Export Power Manager (EPM)

50-60kW 4G

400V: 50K/60K-4G.

50-60kW three phase series string inverters are suitable for the installation of three-phase input PV systems of commercial and industrial size PV plants.

Four	HF SWITCH	WiFi/GPRS	THDi	Ingress protection	App Store
MPPT	High switvh frequency	Real time monitoring	<3%	IP65	IOS/Android

Leading Features

- 99% Max. efficiency
- Intelligent redundant fan-cooling
- Wide voltage range and low startup voltage
- Perfect commercial site monitoring solution
- 4 MPPT input, each rated current is Max Input current 28.5A / Max Short Circuit current 44.5A compatible with high power module
- THDi<3%, low harmonic distortion against grid
- Anti-resonance, supporting over 6MW paralleled in one transformer.
- 5 years standard warranty, 20 years optional upgrade

80kW 5G

80K-5G - 400V: 80K

80kW three phase series string inverter adopt 9 MPPT design to provide a more flexible configuration scheme with a smaller environmental impact rate and higher generation efficiency. Anti-resonance, supporting over 6MW paralleled in one transformer Strings intelligent monitoring, Smart I-V Curve Diagnosis supported.

Intelligent redundant fan-cooling Cooling concept	9 MPPT	WiFi/GPRS Real time monitoring	180-1000V MPPT voltage range	IP66 Ingress protection	App Store IOS/Android

Leading Features

- 98.7% Max. efficiency
- DC input reverse alarm
- Wide voltage range and low startup voltage
- 9 MPPT design with precise MPPT algorithm
- THDi<3%, low harmonic distortion against grid
- Perfect commercial site monitoring solution
- Anti-resonance, supporting over 6MW paralleled in one transformer
- Strings intelligent monitoring, Smart I-V Curve Diagnosis supported
- Intelligent redundant fan-cooling
- Fuse free design to avoid fire hazard
- Leakage current repression technology
- Volt-watt work mode integrated
- Optional anti-PID function integrated
- Integrated DC switches, AC switch optional
- Type II surge arrester for both DC and AC

110kW 5G

Solis-(110) K-5G-SA - 400V: 110K

110kW 5G three phase series string inverter adopts a 10 MPPT design to provide a more flexible configuration scheme with a smaller environmental impact rate and higher generation efficiency. Max. 26A per MPPT (13A per string), 150% DC oversizing capability. Remote & local intelligent IV scan function.

Intelligent redundant fan-cooling Cooling concept	10 MPPT	WiFi/GPRS Real time monitoring	180-1000V MPPT voltage range	IP66 Ingress protection	App Store IOS/Android

Leading Features

- 98.7% Max. efficiency
- Intelligent redundant fan-cooling
- Leakage current repression technology
- Volt-watt work mode integrated.
- DC input reverse alarm
- Optional anti-PID function integrated
- Wide voltage range and low startup voltage
- 10 MPPT design with precise MPPT algorithm
- THDi<3%, low harmonic distortion against grid
- Anti-resonance, supporting over 6MW paralleled in one transformer
- Strings intelligent monitoring, Smart I-V Curve Diagnosis supported
- Type II surge arrester for both DC and AC, Type I/II surge arrestor also available
- Integrated DC switches, AC switch optional

The larger Solis three-phase range is ideally suited to the Southern African market with multiple tracker products ranging from 25kW to 110kW to enable any size of commercial system to be cost-effectively designed. High Voltage inverters up to 255kW per single unit which SegenSolar can supply on a project specific basis for direct connection to an on-site transformer also available.

Ginlong Solis inverters are compact and light weight with IP65 enclosures for outdoor installations virtually at any site. The high quality and attractive price make it a great investment for those who are looking for value for money whilst taking control of

their future electricity price

BENEFITS OF MULTIPLE MAXIMUM POWER POINT TRACKERS (MPPT).

There are many commercial inverters in the market with single MPPTs. These tend to be low cost but have a number of disadvantages compared to multiple tracker inverters like the Solis.
The two biggest advantages of multiple MPPT inverters are design flexibility and overall efficiency.
All panels in an array will perform as per the poorest performing module and without multiple MPPT's this will have a major impact on the performance of the plant as a whole.

- PV modules with same ratings coming out of one production line in a factory do not possess identical current–voltage characteristics for many reasons. This inequality causes PV modules to compromise on common voltage and current when they are connected in series or parallel in an array.

- Most module manufacturers guarantee a minimum output and often a 320W module for instance will actually be measured as a 325W module. With a multiple MPPT inverter it is possible to take advantage of this extra power by sorting the modules at the same of installation, grouping modules of a similar actual power onto the same inverter input.

- A multiple MPPT inverter allows for strings to be connected that might have 320W modules in the one string and 330W modules in the other string without having to compromise on the performance.
- A design can have different string lengths depending on the roof requirements.
- Installations are possible on multi-facetted roofs with different pitch and orientation angles. Even a few degrees can make a big difference on larger commercial roof tops that are not perfectly identical.
- Shading on parts of the array will only affect panels on one tracker and not the entire array.
- Panels degrade at different rates over time, even if it is from the same manufacturer and the same batch and the output of all modules on one tracker will always be as per the poorest performing module.

- Soiling can drastically affect the performance of individual modules and more so in low rain fall areas. On average there is a daily efficiency reduction of 0.2% in days without rainfall in dry weather. Annual losses caused by this trend due to soiling ranges from1.5% to 6.2% depending on the location of the PV plant. For larger ground mounted systems, the bottom row of the modules can be separated from the rest of the sub-array when using an inverter with multiple MPPT's to ensure the overall performance is not effect.

EXPORT LIMITATION

Export Power Manager
EPM1/EPM3/EPM3-PLUS

The Solis export power manager is the ideal solution for smart energy management for both residential and commercial systems. The unit allows you to adjust export values to satisfy local network regulatory requirements.

Energy management with the Solis export power manager allows for higher self-consumption and efficient use of the locally generated PV power.

Leading Features

- Simultaneous control of 80 X Solis inverters Realizing reactive compensation of the system, which ensure the power factor of the system is up to standard
- Simultaneously monitor the operating data of the 80 X Solis inverter, saving the cost of the monitoring system the control accuracy is up to 3%, which improves the system's spontaneous use rate
- Supports simultaneous access of Solis inverters with different power outputs. Monitor power generation and load consumption at all times

ULTIMATE PROTECTION FOR YOUR SOLIS SYSTEM - DC PROTECTION AND COMBINER BOXES.

Not only is the composition of your electrical balance of plant regulated by law, but this is also probably the most complex part of an installer's project and if done incorrectly, more often the most dangerous.

As part of our constant commitment to be a responsible supplier, SegenSolar now offers DC Protection and Combiner boxes. Our design tool will suggest the correct DC box for your needs to ensure your installation is safe, complete, and compliant.

This solution combines all the DC electrical critical parts of your installation from DC disconnectors and/tripping devises to DC PV fuses and surge protection devises.

WHY DC PROTECTION EQUIPMENT IS REQUIRED IN YOUR PV SYSTEM.

- As an installer you are bound by a few standards and regulatory and conformance requirements.
- You are required to supply a COC of your installation.
- You have to prove that you have done everything humanly possible to ensure a safe and reliable installation.
- Insurance companies are requiring the proof that protection systems are implemented.
- Inverter manufacturers require protection of the system - Warranty purposes.
- The Occupational Health and Safety Act and SANS 10142 Part 1,2 and Draft Part 3 required the implementation of wire codes and Part 3 PV System Requirements.
- Remember – DC is DANGEROUS, it is a hazard and should be treated as such.
- As the installer you are responsible.

Leading Features

- The range will cover Dc Voltages up to 1000Vdc.
- Built in DC Surge protection – Versions available with Type 1 & 2 or Type 2 Only Combo.
- DC Protective device incorporated in the form of a DC MCB suitably Rated to Both the DC Voltage and Current rating.
- Current Rating of up to 63Amp.
- Combiner boxes also equipped with DC Fuses.
- All Enclosures are IP65.
- All enclosures are Double Insulated as per Standard Requirement.
- All Enclosures have Smokey coloured swing doors for easy access.
- All versions are supplied with M6 Internal/External IP65 Earth Stud.
- All Field PV String entries via Certified MC 4 Connectors.
- Protection Box out via MC 4 Connection, Combiner Output Via Compression Gland.
- Applicable warning labels fitted.
- Inputs and Outputs appropriately Marked.
- All version available with DC Load Test Certificate.

MONITORING SOLUTION

The online Solis monitoring portal helps spot problems immediately. Solar panels are very reliable, but faulty wiring issues do occasionally occur.

With real-time monitoring, the owner knows the moment panels have an issue. Installers can quickly pinpoint which part of the solar array has stopped producing, and a technician can come out and fix the issue quickly making sure the owner does not miss out on any electricity cost savings.

Real-time production tracking minimizes downtime, saving money over the life of the system.

Tracking software shows daily, monthly, and annual savings at any time.

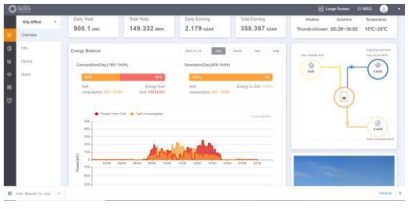
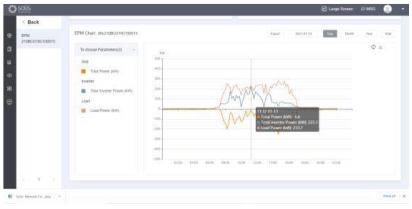
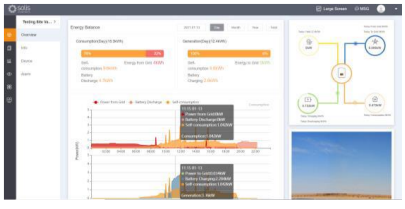
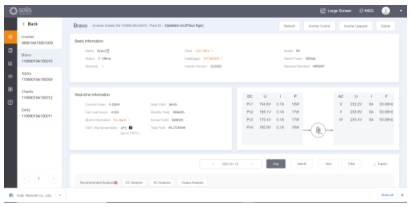
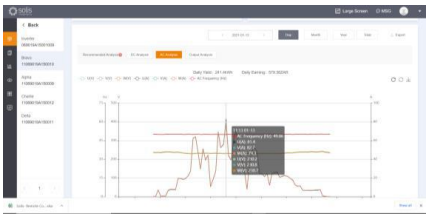
Solis Platform SolisCloud

Platform Availability	Web/IOS/Android
No of Users	1 x Installer with sub installers /1 x Owner (End User) + guests
Update Time	4 to 5 min
Alarm Scanning	All alarms per 1 min scan reporting all alarms every 5 min
Consumption Monitoring	1 and 3 Phase
Energy Flow Display	Web and Mobile Platform
Maintenance Task Assignment	Yes
AC / DC Analysis	Full function Incl IV curve Scanning
Device Control	Certain functionality Available via SolisCloud Solis. Aftersales only at the moment Grid standard
Full function Overview Screen	Full Energy balance display including Consumption and Production graphs
Device information	Easily navigate to device information - firmware, inverter type and power Analysis of devices
String level alarming	Available for 5th Generation inverter series
Specific Yield Ranking	Yes
Report Export	Single or all plant, Yield and Device data
3rd Party Device Data Input	Available with Solis API (Q2 2021) will include 3rd party devices such as weather stations etc
Large Screen Display Option	Large Screen Display available by Plant or Total plant display
Platform Ownership	Solis Inverters owned and developed, faster changes and customer driven development

GET IT ON Google Play

Download on the App Store

Download the Solis app today!


REFERENCE SITES.

VOLKSWAGEN - SELECTED BY VOLKSWAGEN FOR 20MW CAR PORT.

Ginlong Solis inverter powers the world's largest solar canopy at Shanghai Volkswagen car plant. Ginlong Solis 36kW string inverter is the Inverter of Choice for this gigantic high profile 55 MW solar canopy for 20,000 parking spaces and the size of about 20 soccer fields.

EIFFEL TOWER - RELIABILITY & INNOVATION IS THE KEY TO SUCCESS OF GINLONG SOLIS INVERTER.

Two Ginlong Solis inverters were chosen to provide the electrical solutions for two sets of UGE wind turbine systems on the Eiffel Tower as part of a high-profile renovation and upgrade to the monument. Not only that, Ginlong controllers were also selected to rectify the wild AC from turbines and particularly control the turbines at high win

Although Ginlong Technologies has become one of the world's most competitive manufacturers of PV and wind inverters and maintains a strong investment in R&D and continual improvements in production methods, customer service remains a primary focus and a key to the company's success. By establishing local after-sales and technical support centers around the globe, Ginlong has been able to provide its customers with real time support to resolve any query that may be presented.

We can provide design assistance with sizing, electrical design, and export limitation. Solis also have a fully trained 'Authorised Service Partners' in South Africa to provide fault diagnosis and replacement services.

AUTHORISED SOLIS SERVICE PARTNER.

Local pre-and post-sales technical support. Local warranty replacement.

Dedicated pre- and post-sales technical support provided by SegenSolar staff based in South Africa, with replacement inverter stock available for immediate dispatch.

SegenSolar has a dedicated technical support team operating out of Johannesburg and Cape Town who can providing pre-sales advice and design support for Solis commercial systems.

JOHANNESBURG
245 Masjien Street
Strijdompark,
Randburg
Gauteng, 2194

CAPE TOWN
1 Gulfstream Avenue
Matroosfontein,
Cape Town
Western Cape, 7490

CONTACT US
Email: info@segensolar.co.za
Cape Town: +27 21 001 9375
Johannesburg: +27 11 085 2600