

SOLAR GENERATION AND MONITORING SOLUTIONS



What products do we sell?

CP-250: This is our second generation microinverter with high efficiency and rugged design. It can accommodate any 60-cell PV module from 190 W to 300 W and outputs a continuous 250 W of AC power without clipping.

Gateway: It is our iPad-like device that has a full-color screen to monitor the solar array without the need to log into the cloud from any device.

Cloud Monitoring: This is a service that can be accessed from anywhere with an internet connection. It allows customers and installers to monitor the various PV arrays they have access to.

Who is Chilicon Power?

Chilicon Power, LLC was started in 2009 in Southern California by two seasoned engineers / entrepreneurs with the long term vision of powering humanity with clean solar energy.

The company is still privately held by the two founders Alex Kral and Dr. Christopher Jones.

The manufacturing plant is located in Simi Valley, California and all our products are made in the USA. They are also designed exclusively in Southern California.

We also believe that solar energy is a 20+ year trend that is only just beginning. A resident of Southern California need only look across the sun drenched roof line of their neighborhood or office to grasp the opportunity. Therefore, our business, like our products, is based on sustainability.

Why Chilicon Power?

There are many reasons to go with Chilicon Power.

1. **No Activation Required: Simple Installation with Free Remote Assistance.** Our system automatically detects and binds the inverters to the Gateway and automatically registers them on the Cloud. Its Remote Control capability also enables installers to be assisted in real-time by the Chilicon Power support team whenever they need help. This is a huge bonus for installers because they can hit the ground running without the need for expensive or time-intensive training.
2. **Power Line Communication That Always Works.** We have invested a substantial amount of time and money to perfect our power line communication technology and it works in every home or commercial building. Our communication system is much more robust than that of competitors like Enphase.

3. **Deluxe Monitoring Gateway.** Hang it on the wall like an iPad, the Chilicon Power Gateway is not only the most beautiful monitoring device (with its colorful, high-res LCD screen), it is also the most useful laden with tons of features from Wi-Fi to zWave wireless and USB extension ports (to add cellular communication, for instance). It contains 4 GB of solid state memory to record years of rich monitoring data. In addition, it makes the installer's life way easier by providing visual help to setup the configuration and operation of the array.
4. **Reliability by Design.** Our microinverter has the utmost quality components like film capacitors vs electrolytic capacitors. For instance, Enphase's products contain the latter components, which are known to limit the life of power systems. In addition to this, our design incorporates an integrated heatsink in the form of the enclosure which enables a much cooler design. Enphase must use potting inside their unit to dissipate excess heat.
5. **Made in USA.** All our products (Microinverter, Gateway, and Cloud) are made in the USA. We believe in cutting down on pollution and improving the community by using local manufacturing and products as much as possible.
6. **Bankability.** Chilicon Power is a profitable company that is here to stay. It has the financial backing of a multi-billion dollar component distributor and operates in the most efficient way.
7. **25 Year Warranty.** We offer a 25 year warranty on our microinverters. This means that they are more cost-effective compared to string inverters over a 25 year period since string inverters on the market typically have a 10 year warranty. In effect, that means the end-user will end up buying at least two string inverters during the life of the system.
8. **Enhanced ROI.** Microinverters are not only cheaper than strings in the long-term, they also generate more energy over time according to several impartial studies, even when there is no shading. This is because every panel is optimized on its own and there is a decent variance in panel production due to manufacturing differences, dirt accumulation, and slight orientation differences.
9. **Safety.** Installing Chilicon Power Microinverters is much safer than using regular string inverters because the highest voltage on the roof never exceeds about 240 Vac vs. up to 1000 Vdc for the string inverters. That is the difference between life and death if an installer or any roofer (for instance, one fixing a chimney) touches the conductors inside the live cables.
10. **Monitoring.** Individual monitoring of each panel is a huge benefit that saves lots of time when it comes to detecting faulty panels or sub-par production due to shading, among other aspects of production monitoring.
11. **Remote Upgrades.** Both the Gateway and the Microinverter are field-upgradable. This enables new functionality to be added on a regular basis. It enables new standards and regulations to also be implemented if the hardware permits it.
12. **Peak Demand Savings Through Load Control.** Thanks to our smart Gateway, we are able to measure both electricity generation and local consumption. The Gateway can control loads like HVACs to ensure the peak demand does not exceed a certain value, thereby keeping the billing within a certain tariff bracket.

This can make the difference between a \$25 and a \$800 monthly bill for commercial installations.

13. **Extended Range.** Our microinverter is capable of operating in extended voltage and frequency ranges. This is very useful in certain locales where the grid is not as well regulated.
14. **Open APIs.** Our cloud monitoring also provides APIs that open up our data monitoring to other application and monitoring solutions to be used on the data harvested from the microinverters, thereby preventing any lock-in of the customer in a system.

What is our bankability to service warranty claims?

The ability to service warranty claims is what makes the warranty valuable. Given the very long warranty terms in the industry, it is crucial for companies to generate positive cash flow for the long term (remain profitable in other words).

We have now been in business for 5 years and thanks to our efficient company structure, we have been able to remain cash flow positive every year since we started production of the CP-250. Our philosophy is to remain cash efficient by keeping a low fixed burn rate and reinvesting in the technology and inventory.

In terms of reserves, we keep an inventory size of at least 5% of all our installed units and our plan is to keep on doing so. This is to ensure that we always have stock to swap out defective units when needed. To date, the failure rate on the latest version of the CP-250 is < 1% because it is now a mature product with a refined manufacturing process and stable firmware. In addition, our film capacitor architecture should withstand the test of time a lot better than those designs using electrolytic capacitors (like Enphase).

Regarding cash flow, in addition to being cash flow positive, Chilicon Power has the financial backing of a multi-billion dollar component distributor called Arrow Electronics. This enables more efficient use of our cash flow.

What does our logo mean?

Our logo is made of a yin-yang symbol with sun rays around it. The sun rays don't need explaining since we are a solar company. The yin and yang can be thought of as complementary (rather than opposing) forces that interact to form a dynamic system in which the whole is greater than the assembled parts. In this case, the yang is the orange color and represents energy. The yin is the green color and represents ecology. At Chilicon Power, we strive to create products to harness the power of the sun to power a green future for humanity.

What does our name mean?

Our name is a concoction we hope that people can remember because of its slight eccentricity. Chilicon is pronounced like Silicon and Chilis are hot like the sun from where all power on earth is derived (save uranium ore and geothermal, but this is a conversation about our name). Some people love our name while others think it means we aren't that serious about ourselves. To those people we say, when it comes to building quality power electronic devices, *we could not be more serious.*

How do we compare to others?

Parameter	Chilicon Power	Enphase	Power One	SMA	Enecsys
Capacitor	Film	Electrolytic	Film	?	Film
Output Power	250 W	240 W	250 W	240	240
Best Web Price					
CEC Efficiency	96%	96%/96.5%	96%	96%	96%
Communication and Reach	PLC >400 ft	PLC ~ 100 ft	Wireless ~ 100 ft	PLC	ZigBee Wireless
Monitoring Interface	65000 Colors Touch Screen 800 x 480 pix.	Monochrome 2 lines x 40 chars	Bicolor (red & green) 2 lines x 16 char	None	Monochrome Small display
Compatibility	60 cell	60 cell	60-72 cell	60 cell	60 cell
Warranty (years)	25	25	10	10	25
Manufacturing	USA	China	USA	Germany	China

Notes:

Capacitor: this is important because the type of capacitor has a direct impact on the lifespan of the inverter.

Additional Notes:

Rumors have it that Enecsys may be closing its doors. The website news and media portions have not been updated in a while which is another sign of winding down.

How do we compare to DC Optimizers?

The advantages of Microinverters compared to string inverters are:

1. **Scalability and Ease of Design.** Microinverters do not need much design effort contrarily to DC optimizers that depend on the voltage range of the string inverter. For instance, one can theoretically design a system as small as one solar panel with microinverters and build upon it over time. That is not feasible with DC optimizers for instance because the string inverter always requires a certain amount of voltage.
2. **Flexibility.** With microinverters, any configuration of any amount of panels is possible. DC Optimizers are ultimately tied to the string inverter which typically requires a certain range of panels to be connected to it. It is not as flexible as using microinverters. Since string inverters also only exist in certain power increments, this further contributes to a lack of flexibility (e.g. SolarEdge inverters models are 3kW, 3.8kW, 5kW, 6kW, 7.6kW, 10 kW, 11.4 kW).
3. **Speed of Installation.** DC optimizers take longer to install because they require the installation of a DC optimizer on each solar module as well as the installation of a standard string inverter. The string inverter is supplied by a high voltage DC bus that has more stringent NEC (National Electric Code) regulation than the lower voltage AC bus from the microinverters..
4. **Safety.** With DC optimizers, the customer has a lethal 600 V to 1000 V on his roof. This can easily kill a worker on the roof. On the other hand, microinverters use the normal AC grid and don't generate dangerous voltages. This is important for roof maintenance and firefighters. The National Electric Code and local firefighter regulations are becoming more and more stringent on the high voltages on the roof and this ultimately leads to higher installation costs.
5. **Gateway / Communication.** DC Optimizers do not provide a graphically-rich user interface inside the home like our Gateway does. Chilicon Power has the best customer facing user interface device that is always on in the home. It is truly an appliance in that sense. DC Optimizer communication is limited to the outside of the house where the inverter resides.
6. **Higher Energy Yield.** Based on a [side-by-side study between micros and optimizers](#), the energy yield was superior for micros by about 1.1 % over the 2-month evaluation period.
7. **SolarEdge acquisition:** Rumours are that SolarCity is in talks with SolarEdge to acquire the company. SolarCity has acquired rail manufacturer Zep Solar and has brought the product inside closing its availability to other customers. Chances are they will do the same with SolarEdge to keep exclusivity and that product won't be readily available to other installers anymore.