

CES 2012 Signals Emergence Of Solar Inverters For Consumer Products

by Ashok Bindra, Technology Writer, Technika

The International Consumer Electronics Show (CES) in Las Vegas is a harbinger of new trends in consumer products and technologies. While there were many innovative gadgets unwrapped this year at CES 2012, the one that is of interest to power designers is the solar power inverter. The growth potential for these products is strong and, therefore, more suppliers are entering this space. Three startups showcasing their widgets at CES this year were Wagan Tech, Goal Zero, and SolarFocus.

Wagan Tech's two solar generators, ePower Cube 1500 and ePower Case 450, are both self-contained solutions that include an AGM/Gel hybrid battery and dc-ac inverters. The company calls them plug-and-play solutions that require no other external parts.

The 1500-W inverter is the larger of the two models introduced at CES. It includes a 55-AH battery that can be wheeled from one place to another. The inverter's solar panels unfold and slide out to provide 80 W for charging the on-board battery.

Likewise, the 450-W inverter comes with a 26-AH battery in a metal case with a shoulder strap. Attached to the side, the inverter's solar panels provide 40 W for charging the battery. In case higher power is needed for charging, the solar panels in these units can be expanded to generate more power.

For charging mobile devices like iPhones, tablets, portable DVD players, and other such products, Goal Zero launched the Sherpa 50 portable charger (Fig. 1), which was an Innovations Award winner at CES 2012. Capable of storing 50 WH of power, the unit weighs only 14 ounces, and is 30% lighter and smaller than the previous version. The unit's monocrystalline solar panels can generate 10 W for charging the lithium-ion battery. The unit's lightweight panels can be easily folded for portability.



Fig. 1. Sherpa 50's monocrystalline solar panels can generate 10 W for charging the lithium-ion battery. The solar panels will charge Sherpa 50 in 5 to 8 hours, depending on the quality of the sunlight.

According to Goal Zero, the solar panels will charge the Sherpa 50 in 5 to 8 hours, depending on the quality of the Sunlight. However, this product is also designed to charge from the outlet in about 3 to 4 hours. The Sherpa 50 will be available in June, Goal Zero's marketing manager Scott Sorensen said.

To enable users to charge laptops directly from the unit, it offers a power port. In addition, it also offers a dc-ac inverter output port and an upgraded USB port with 1-A capability.

Another inverter from Goal Zero, the Yeti 1250, is a higher-capacity portable recharger offering 1250 WH of energy. The unit measures 16 (H) x 11.6 (W) x 14.5 (L) inches, and weighs 103 pounds and provides a variety of output ports, which include ac, USB, and two 12-Vdc outputs with different current ratings. These features make the Yeti 1250 suitable for a wide array of electronic products, ranging from mobile devices and lighting to refrigerators at home.

Bundled with a lithium-ion battery, it takes 20 to 22 hours of sunlight to fully charge the Yeti 1250. However, plugging it into a wall outlet will do the job in about 16 to 20. But, if you need a faster charge time in sunlight, then more solar panels must be chained together. For example, according to the supplier, using four Boulder 30 panels will fully charge the Yeti 1250 in 12 hours of good sunlight.

As per the description provided by Goal Zero, Boulder 30 solar panels are sturdy monocrystalline panels encased in a strong aluminum frame with tempered glass. These panels produce 30 watts of power per hour and provide a 12-Vdc, 2-A output port. The Yeti 1250 power pack has the capacity to hold 1,250 WH of power (100 AH) and has a variety of output ports including ac, dc and USB.

According to the developer, when fully charged, the Yeti 1250 can power a laptop for at least 30 hours, or keep a full-sized refrigerator working for more than two days. Volume production is slated for May 2012.

Similarly, from SolarFocus, a solar power solution for Amazon's Kindle e-reader was another novel inverter at the show. Called SolarKindle, also a recipient of CES 2012 Innovation Award, it is a flexible lightweight solar panel built directly into the cover of the e-reader (Fig. 2).



Fig. 2. SolarKindle is a flexible lightweight solar panel built directly into the cover of the e-reader.

According to SolarFocus, it is designed to fully charge Kindle, with charging times varying depending upon the availability and intensity of the light source. For back-up, a reserve battery is built into the cover, which is also charged with the panel. This battery can also be charged via a USB connection.

Product specs indicate that to fully charge the 1500-mAH reserve battery requires about eight hours of direct sunlight, which provides up to 80% of backup power to the Kindle.

About The Author



Ashok Bindra is a veteran writer and editor with more than 25 years of editorial experience covering RF/wireless technologies, semiconductors and power electronics. He has written, both for print and the web, for leading electronics trade publications in the U.S, including Electronics, EETimes, Electronic Design and RF Design. Presently, he has his own technical writing company called Technika through which he does writing projects for different trade publications and vendors. Prior to becoming an editor, Bindra worked in industry as an electronics engineer. He holds an M.S. degree from the Department of Electrical and Computer Engineering, Clarkson College of Technology (now Clarkson University) in Potsdam, NY, and an M.Sc (Physics) from the University of Bombay, India. He can be reached by email at [bindra1\[at\]verizon.net](mailto:bindra1[at]verizon.net).