PC/104 DC/DC Supplies Provide Complete Power Management for Renewable Energy Sources for Off-Grid Computing

WinSystems [1] introduced PC/104 and PC/104-*Plus* highly integrated, “green energy” power supply modules for remote applications requiring renewable power sources. The PS394 series of DC/DC supplies support two inputs from solar panels, wind turbines, or other DC sources. Also included is a controller for battery charging and uninterruptable power supply (UPS) operation. These products are designed for applications not able to run off the standard AC power grid. They require only convection cooling and do not require a fan or heat sink while operating from -40° to +85°C.

“Embedded computers often operate where the electrical grid is not available or unreliable,” said Robert Burckle, Vice-President of WinSystems. “Particularly in remote areas, systems can benefit from using alternative energy sources with battery backup. For applications such as telemetry, pipelines, outdoor signage, military, transportation, and security, these boards are cost-effective, highly-integrated, and extended temperature solutions.”

The PS394 series modules provide a complete power management solution for embedded computers by directly powering the device from one of the dual DC inputs as well as providing smart battery charging and switching to battery power when the input voltage(s) drop below operational levels. The battery charging controls support 6V or 12V batteries including Lead Acid, Li-Ion/Polymer, LiFePO, and SLA chemistries. The UPS feature provides a fast switchover which is free of oscillations between the two external sources and battery. Multiple options are available for setting charge times, float voltages, and charge current monitoring. The charger also has built in state-of-charge (SOC), bad battery detection, preconditioning, and end-of-charge (EOC) features as well as an optional thermistor to monitor the battery’s temperature. Maximum Power Point Tracking (MPPT) is

supported for solar panels for more efficient charging during cloudy or low-light conditions.

The power supplies are available in three standard configurations with custom engineered solutions also available. Each of the 90 x 96mm board options accept voltages from the dual 9 – 32 volt DC input sources and automatically selects and converts the highest one to the output voltage(s).

The PPM-PS394-533 [2] is a PC/104-*Plus* module with +5V@5A and +3.3V@5A [3] outputs. The PCM-PS394-500 [4] is a PC/104 module with a single +5V@10A output. The ISM-PS394-533 [5] is a standalone dual output +5V@5A and +3.3V@5A [3] unit without the PC/104 connectors populated.

Website http://www.winsystems.com [1]

September 21, 2012

Source URL (retrieved on *12/11/2013 - 11:20pm*):
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