

Features

- Wide input range: 9V to 32VDC
 - Dual fused inputs accept solar panel, wind turbine, or other DC sources
 - Automatically selects best input source and provides rapid switchover
- UPS operation with battery pack
- Battery charger supports Lead Acid, Li-Ion/Polymer, LiFePO, and SLA chemistries
 - MPPT charging supported for solar panels
 - NTC thermistor input to monitor temperature
 - Jumper configurable EOC and Float voltage
- Voltage output: +5V @ 10A
 - No minimum load required for regulation
 - Outputs have short circuit/overload protection
- Six LEDs provide visual indication of the DC power inputs, battery, and charger status
- No fan or heat sink required
- -40° to +85°C operation supported
- Small size 3.6 x 3.8 inches (90 x 96mm)
- RoHS compliant



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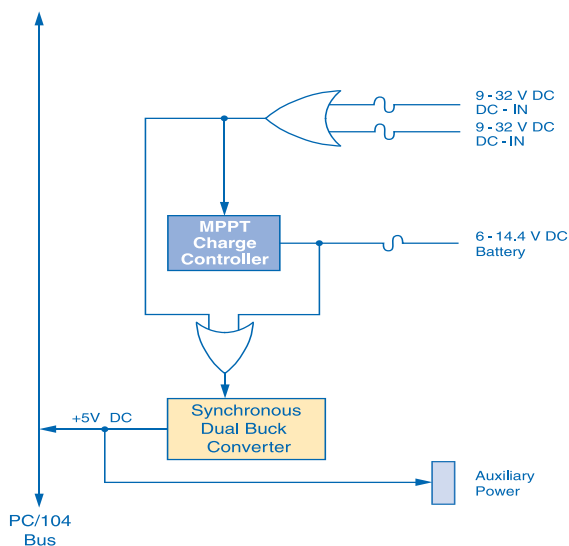


Product Description

WinSystems' PCM-PS394-500 is a +5VDC output, wide input range, DC/DC converter with a built in battery charger and uninterruptible power supply (UPS) controller. It provides power to a single board computer (SBC) from a wind turbine, solar panel, battery or other DC source. This product can be used for off grid applications in harsh temperature ranges from -40° to +85°C.

WinSystems' PCM-PS394 is designed to sit between one or two 9 – 32 volt power sources and convert them to a +5V output to power a PC/104 system. The supply also simultaneously charges a 6 or 12 volt battery with a maximum power point tracking (MPPT) battery charger for Lead Acid, Li-Ion/Polymer, LiFePO, and SLA chemistries. Power is available on the PC/104 and auxiliary connectors.

The supply continuously monitors the two external DC inputs and takes power from the source with the highest voltage. If both inputs drop below 9VDC, the control module automatically switches to an external battery input and continues to provide uninterrupted power to the 5V output. When one or both external DC inputs are restored, the supply switches input back to the source with the highest input voltage and begins charging the battery until either the charge current drops below 200mA or a user configured end of charge (EOC) time limit is exceeded. A 10KΩ NTC thermistor can be mounted at the battery which will shut down the charger if the battery temperature is too high or too low.



PCM-PS394-500 Block Diagram

PCM-PS394-500: PC/104 DC/DC Power Supply

The UPS feature provides a fast switchover which is free of oscillations between the two external sources and battery. Switching is accomplished in less than 500nS and hysteresis prevents oscillation.

The battery charger employs a CC/CV charging characteristic and is capable of charging a variety of different battery chemistries. The charger float voltage and charge termination schemes are user programmable allowing batteries as low as 6V and as high as 12V to be used. The battery charger is a maximum 2A charger that features MPPT for use with solar panels and can servo the output current based on a preset maximum power point voltage to increase charging efficiency. The charger has built in state-of-charge (SOC), bad battery detection, preconditioning, and EOC features. Six LEDs provide visual DC input, battery, and charge status.

Protection - The PCM-PS394 has three user replaceable fuses on the inputs. All fuses are rated for 7A. Each output is short circuit protected and current limited. A minimum load is not needed to bring the supply into regulation.

Rugged - The board is populated with low-profile, soldered down, surface mount components which keeps the overall height of the board low.

Another feature of this board is that it does not require additional heat sinks to meet the extended operating temperature range. This keeps the weight of the unit down and does not require a fan to generate air flow.

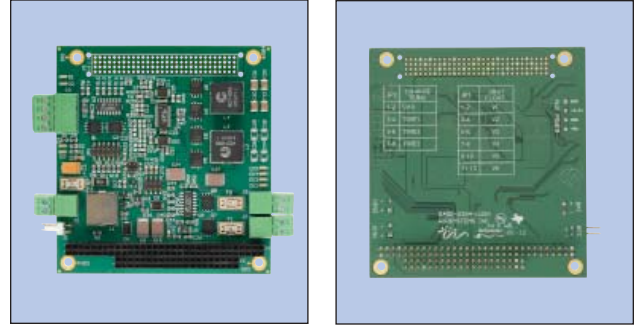
Input Connectors - Phoenix Combicon-type connectors are used on the board. It allows for power cables to be easily yet securely brought to the board with a quick way to remove it if necessary.

PC/104 Connector - The ground, power and control signals are wired directly to their respective pins on the connectors. The control, address, and data lines are passed up the stack.

Auxiliary Output Connector - Ground and power are available at a 4-pin, 3.81mm pluggable connector.

Other Standard Configurations - WinSystems offers two additional versions. The PPM-PS394-533 is PC/104-Plus module which supports +5V and +3.3V outputs. The ISM-PS394-533 also supports dual, +5V and +3.3V, outputs and does not include either PC/104 or PC/104-Plus connectors. Both operate over the temperature range of -40° to +85°C without a fan or heat sink.

Custom Configurations - Should your application need a special configuration, contact our Applications Engineers to discuss your requirements. We look forward to working with you.



Front and Back Picture of PCM-PS394-500

Technical Specifications

Electrical

Input Voltage	9V to +32VDC, each input has a 7A user replaceable fuse
Battery Charger Output Voltage	Onboard with user replaceable fuse +5V @ 10A

Connectors

V _{IN}	Two, two-pin 3.81mm pluggable
PC/104	16-bit stackthrough (feed through only)
Auxiliary Battery	One, four-pin 3.81mm pluggable One, two-pin 3.81mm pluggable

Environmental

Operational	from -40°C to +85°C
Random Vibration Testing	MIL-STD-202G, Method 214A, Condition D, 0.1g/Hz (11.95g rms), 20 minutes per axis, 3 axis
Mechanical Shock Testing	MIL-STD-202G, Method 213B, Condition A, 50g half-sine, 11ms duration per axis, 3 axis
RoHS compliant	

Mechanical

Dimensions	3.6 x 3.8 inches (90 x 96mm)
Weight	3.1 oz. (87.1 gm)
PC board	0.078 inches, four layer FR4

Ordering Information

PCM-PS394-500	PC/104 single output, DC/DC power supply with battery charger
PPM-PS394-533	PC/104-Plus dual output, DC/DC power supply with battery charger
ISM-PS394-533	Dual output, +5V and +3.3V, DC/DC power supply with battery charger

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