

BATTERY MANAGEMENT

The Intelligent Battery Charger is a high-efficiency converter that takes its power from an unregulated, wide-ranging input voltage and current source. The unit charges the battery using a firmware-programmable current limit entered by a software command via an RS232 interface. The current limit can be set between 2 and 20 amps, up to a maximum of 500 watts.

Features:

- ◆ **VOLTAGE/CURRENT CONTROL:** Output as required by batteries
- ◆ **MAXIMUM VOLTAGE OUTPUT:** Temperature compensation algorithm controls the maximum voltage between 24V and 30V
- ◆ **CURRENT OUTPUT:** Current limit adjustable between 2A to 24A via firmware command
- ◆ **CHARGING CAPABILITY:** 500W Maximum
- ◆ **REMOTE ENABLE/DISABLE:** TTL signal supplied by customer turns the battery charger on or off. Additionally, the charger can be managed through software control.
- ◆ **SOFTWARE CONTROLLED BATTERY MANAGEMENT (OPTIONAL):**
 - Float Voltage
 - Recharge
 - Temperature Compensation
 - Low Voltage Disconnect
 - High Voltage Disconnect
 - Equalize

MAXIMUM POWER POINT TRACKING (MPPT):

Normally, switching power supplies go into current limit mode when the available power exceeds the load request. Unless the load is reduced, the power supply will continue to protect itself. However, for power applications that can operate with a variable input source, Pioneer's unique, embedded, menu-drive application, which runs on our microcomputer controller (ICON™) inside the power supply, elegantly solves this problem.

The PMI ICON™ constantly monitors the input source and dynamically delivers the MAXIMUM power available to the load, regardless of the actual load demand. The Maximum Power Point firmware works throughout the entire operating range of the power supply, from minimum output, to the full 6.5 kw rating. As power is delivered, the power supply efficiency climbs quickly to 95%.

The embedded application provides full profile management, allowing the customer easily to tailor the supply to their specific application. With so many configurable options, the PMI ICON™ really offers the customer many power supplies in one.

Example: Battery Management

The power intake for the battery charger is controlled by a Maximum Power Point Tracking (MPPT) scheme provided by the built-in Intelligent Controller PMI ICON™ Model PM1703. The MPPT is such that the input power for the battery takes precedence over the main power supply output, hence at very low available power levels the input power to the battery is maximized while the main output is shut down. Only after the available power exceeds the power demanded by the battery charger is the Main Output enabled and MPPT applied to the Main Output.