

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.