

Case Study | Portable Power



Palladium Energy Battery Pack Revives Wireless Credit Card Scanner

Wireless point-of-sale scanning devices are making big inroads in the credit-card transaction arena. These handheld units improve businesses' productivity by eliminating time-consuming trips back to a counter to process a transaction. But to do this, they have to perform reliably, and that means the battery pack that powers them has to be matched to the demands of the application. When a major manufacturer encountered battery performance problems with a new mobile scanner, they turned to Palladium Energy.

CUSTOMER PROBLEM: BATTERY UNRELIABILITY WAS HINDERING SCANNER PERFORMANCE

The scanner's existing battery pack design, though low in cost, was not reliable. The "generic" battery design was neither tailored nor tested for the specific application. Problems with the battery circuitry included insufficient capacity, ineffective protection circuitry and inadequate real-time reporting of current, voltage, and temperature. Performance was satisfactory only when the battery was new and operated at room temperature. As a further complication, the battery pack's safety testing and certifications had never been completed.

The scanner's engineering team needed rapid solutions to the design problems, and also immediate certification for the UL, CE, and DOT standards.

PALLADIUM SOLUTION: LITHIUM-ION PERFORMANCE WITH SMART CAPABILITIES

The Palladium team selected a lithium-ion cell because of space requirements and performance. Lithium-ion batteries squeeze big power capacity into a small space and are often the product of choice where factors related to power, form, fit, function and safety have to be balanced.

The Palladium engineers developed a "smart battery" solution around the lithium-ion technology. A "smart" battery includes a microchip that communicates with the battery charger and the scanner circuitry. Battery fuel-gauge technology senses the power remaining in the battery, and a protection circuit module guards against over charging to ensure safe and consistent operation.

After the design was completed, it was ready for agency approval. Because Palladium has an independent, UL 1642 and UL 2054 accredited and CTIA authorized testing facility—IQ Laboratories (IQL)—the approvals were completed in half the time compared to an external, independent lab.

SAFE, RELIABLE BATTERY PACK POWERS A SUCCESSFUL PRODUCT LAUNCH

Modern "smart" battery pack solutions include circuit protection, safety components, fuel-gauge power sensing, and battery management capabilities. The lithium-ion smart battery pack provided a safe, reliable power source that was custom-fit to the task that the device had to perform. Revitalized by the Palladium solution, the new mobile scanner proceeded to a successful launch.

