



Engineering Design & Development

Designing and Developing Lithium Polymer Charging Circuits for a Military Robot Manufacturer

OUR CUSTOMER'S ISSUE

A manufacturer of military robots approached Safco to custom design an array of AC/DC and DC/DC dual chargers to simultaneously charge both their robots and control units.

SAFCO'S ROLE

Safco engineers worked closely with the customer's product managers to fully understand the requirements and the relevant charger design elements.

- The battery technology was lithium polymer.
- The batteries needed to be fully charged in less than 2 hours, even in the field.
- The customer wanted one charger assembly capable of charging both the robot and the control unit – this would require a dual charging circuit.
- The completed assembly needed to be designed to pass UL, CE, cUL and FCC standards in addition to withstanding harsh operating environments (battlefield).
- The military's delivery schedule was very tight and time was of the essence.
- Made in the USA was a critical criterion.

PROJECT DETAILS

Safco's engineers became an extension of the customer's engineering and product development team in order to design, develop and manufacture the desired charging assemblies.

- Safco's PCB layout expertise and knowledge of lithium polymer battery technology facilitated a quick turnaround on the circuit schematic to be approved by the customer.
- New in-line housings were designed to meet space restrictions.
- Safco utilized its longstanding partnerships in China to craft a dual manufacturing strategy leveraging low cost PCB production in China and domestic value added assembly in Skokie, IL to meet the Made in the USA requirement.
- Safco managed the agency submittals and approval processes for the customer which streamlined the total elapsed approval time.
- To bridge the gap between existing units in the field and these new charging assemblies, the customer needed a conversion assembly. Within a week Safco presented a solution and within another 10 days, production samples were delivered to the customer.

ABOUT SAFCO

Safco is a full-service partner in the design, manufacturing and delivery of custom, low-voltage DC power supplies. Our experience, service and commitment to quality enable us to produce a low-voltage power assembly that offers superior performance and longevity, allowing our customers to focus more on what they do best.

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