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Abstract

## Development of an intelligent rechargeable lithium-ion battery and charger system for military applications

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### Abstract

Development of a power system based upon lithium-ion technology for military applications requires expertise in cell, battery and charging systems to provide the optimum integrated power solution. To achieve this objective, Lincad Ltd. has teamed with SAFT (UK) to develop the Extended Capability Lithium-Ion Power System (ECLIPS). The first application for the ECLIPS solution is under a contract from the UK MoD for the development of a rechargeable lithium-ion battery and charger system for a new generation of portable electrical equipment for the British Armed Forces.

To satisfy this new requirement, which could replace current in-service primary and secondary power systems, the ECLIPS team proposed the 24 V; 12 Ah lithium-ion battery from the ECLIPS battery range. This is supported by the ECLIPS charger which provides for the fast charging of the ECLIPS battery and existing in-service nickel/cadmium batteries.

In addition to the key benefits provided by a lithium-ion solution, namely increased capacity, reduced weight and a more compact solution, other major factors are involved in the development of ECLIPS to fully satisfy the requirements of a military power solution. These factors include optimisation of cycle life, cell balancing and protection, high accuracy capacity gauging, communications to hosts and charger, also charging rates, all to meet the mission requirements of a military power solution.

The key development aspects associated with the development of the ECLIPS power solution through to the generation of the initial production of batteries and chargers will be discussed in the paper. © 2001 Published by Elsevier Science B.V.

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