



Energy Storage Systems

BACKGROUND

Most battery packs in the Energy Storage Market consist of multiple lithium ion cells packaged with an individual module, several of which are connected in a battery. The modules within the battery are arranged in such a way as to maximize energy output while conserving space. Efficient energy storage depends on the Battery Management System (BMS) to provide data on a real time basis to the controller.

The primary role of the Battery Management System (BMS) is to guarantee that no cell in the battery pack is consumed by anything other than shelf life expiration. The ideal BMS will measure all facets of battery performance; voltage, amperage/current, battery temperature and even charging history.

PROBLEM

The BMS of today needs to be as small and as lightweight as possible due to their use in space-constrained electric vehicles, UPS systems and other “green” applications. The space constraints in these applications mandate the use of the smallest battery post connections, module to rack connectors, input/output connectors and HVIL circuitry. As small as these interconnects are, they must be capable of carrying the amperage necessary for the proper functioning of the application.

AIO SOLUTION

Amphenol Industrial Operations has a unique mix of products designed specifically for use within the battery modules and the BMS itself. Looking at the BMS as a self-contained system, we have a variety of connector designs that will “blind-mate” as in a line replaceable module concept. For the positive and negative post connections, we offer overmolded RADSOK® single pin jumpers in red or black or bus bars, rigid or flexible that connects the poles in either series or parallel circuits. Circular GT receptacle pigtails connect the module’s positive and negative poles to overmolded harnesses on the outside of the battery case leading to the controller. At every critical connection point, the high amperage, low resistance, low T-rise RADSOK® contact technology is employed for the performance modern electronic systems have come to expect. Our value added capabilities, our breadth of product and our experience in this market makes Amphenol the only connector manufacturer to call for interconnect solutions.