

# BRIGHT SPARKS

With battery power becoming the handler's choice, status monitoring is highly desirable



If your operation uses battery power, then remote battery monitoring offers the next logical step, writes Alwyn Brice.

One of the biggest questions in the market for industrial machines and electric vehicles is understanding what is happening in the machine – and gathering as much information as possible to quickly correct any malfunction, declares Marco Righi, CEO of Kaitek Flash Battery.

To give an example: one day, a user of a piece of industrial machinery has the impression that the battery is discharging more rapidly. Thus, the search begins. Why did it happen? Who should be called? There are many possible reasons for this, including simply that the battery is subject to greater usage. A common situation is the one in which the word passes around from one factory foreman to another, only to reach the Service Manager with a slip that reads “battery not working”.

It is virtually impossible to challenge a faulty assumption like this with traditional batteries. Take lead-acid batteries, for example. This would call for a visit to the customer's premises to perform (with the proper equipment) discharging and charging tests to prove that everything was operating correctly. Moreover, the maintenance cost related to these operations is high and can hardly be billed to the final customer.

## A solution

To answer this type of need, Flash Battery brought two major innovations. The first is the so-called Flash Data Center, which is effectively a portal that was created to archive data on battery use. The data it stores can

be accessed over the Web by the customer's technical assistance department and by the producer of the machine itself.

Second, the Automatic Alert System is a system that automatically reports possible malfunctions, which enables timely intervention to deal with critical situations before they occur.

The Flash Data Center was designed to first monitor, on a daily basis, the exact usage of each single lithium battery installed in every industrial machine or electric vehicle. Major progress in this area was made within the space of two years: the R&D of the Italian company fine tuned a Web portal that provides full data on the operation of each Flash Battery, including charge status, Ah delivered, cycle duration and the temperatures attained. Automatic data monitoring is thus one fundamental feature of the Flash Data Center.

A software, fully developed by Kaitek Flash Battery, monitors and analyses the battery operation data received daily and notifies the Flash Battery Service Department of any warnings, faults or user abuse.

This means that faults are prevented as soon as the software detects misleading reports or operation anomalies, which includes even those hidden to the user. In this way Flash Battery runs a constant preventative action, avoiding malfunctioning or vehicle stops, even before the customer becomes aware of the situation.

Moreover, manufacturers working with Flash Battery batteries can experience an additional competitive edge: day and night, Flash Data Center monitors the machine's usage data.

This enables OEMs to know and analyse how the industrial machines and electric vehicles equipped with Flash Battery lithium batteries are being used, their actual discharge times, charge times, days of use, their average consumption and temperatures reached.

## Technology users

Many manufacturers of industrial and electric machines have realised how important this information is and use the data from Flash Data Center to significantly improve machine performance.

ATA, an Italian manufacturer of tow tractors for airport and industrial applications, baggage tractors and equipment



Marco Righi  
CEO, Kaitek Flash Battery

for ports and airports, recently performed tests on its new Zac100E pushback vehicle equipped with 80 V 400 Ah Flash Battery solutions at Venice airport, in Italy. The vehicle is used for moving aircraft through the parking area and it represented the first vehicle of this type to be powered by a lithium battery.

Last October two tests were performed: the Zac100E pushed a 75 tonne, fully loaded Air Portugal aircraft and a 65 tonne loaded Aeroflot aircraft over 200 metres in the aircraft parking area to the taxi-way, where the aircraft is able to operate autonomously. A vehicle with no load also covered a

distance of two kilometres to reach the charging station.

Flash Battery engineers were remotely connected through the 3G router installed on the battery. The remote control was used to monitor the battery in real time as well as to import data for the optimisation of the serial production of the application. ATA has been able to receive data automatically and daily through the Flash Battery portal during every charging and discharging cycle, thus avoiding transfer costs and on-site maintenance. Furthermore, Flash Battery technicians provided real-time assistance, being able to monitor the battery remotely.

Remote control assisted ATA during the field test. "By monitoring the behaviour of the battery in real time, Flash Battery technicians were able to check the real parameters and optimise the choice of the most suitable components for our application," explained Francesco Bergamini, ATA's Managing Director. "This allows us to fine tune the customisation of the battery on the specific application, reducing lead time. It was a great satisfaction to see on the field that our new Zac100E vehicle, as the first lithium-powered machine, respected the parameters that we had defined upstream in the design phase," he concluded. **ghi**

### A REVOLUTION IN THE MAKING

"The introduction of lithium batteries has completely revolutionised the world of battery-related services. We have gone from reactive services, with the previous battery technology, to proactive services. The technology developed by our partner Flash Battery doesn't just allow us to remotely monitor the health status of lithium batteries, it also provides a series of preventative alerts on future situations. This results in our work being always one step ahead of any unexpected situation that could potentially occur.

"For end users, this technology customised by Flash Battery provides a sense of complete control over the machinery installed at their facility, even if they should find themselves thousands of kilometres and several time zones away. The choice to embrace Flash Battery lithium batteries allowed us to reduce downtimes to a minimum, to carry out targeted maintenance thanks to the remote troubleshooting capability, and to plan support operations well in advance. All this has lowered service costs to the point of being almost non-existent."

These are comments from Matteo Raccanelli, Customer Service Director of Elettric 80, a recognised force in automated logistics, to which Flash Battery supplies lithium battery power for its Laser Guided Vehicles.



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