

Ford Deploys RFID-Enabled Chargers

At its North American plants, the automaker is rolling out a battery-charging system for its electric forklifts that uses RFID to transmit data about the forklifts and their batteries.

By Claire Swedberg

Jan. 19, 2005—Ford Motor Co. has begun rolling out a battery-charging system for electric forklift trucks that will use radio frequency identification (RFID) technology to transmit data about the vehicles and their batteries. The plan, according to the charging system's manufacturer, [AeroVironment](#), will be more environmentally conscious and could also streamline transmission of data about the battery-powered vehicles throughout the company's 42 manufacturing plants.

To add RFID-based data management capabilities to the charging system, AeroVironment, of Monrovia, Calif., partnered with [I.D. Systems](#), a wireless asset-tracking company based in Hackensack, N.J. The initial order includes 500 RFID-based data monitoring devices, according Gregory Smith, the director of marketing at ID Systems.

Electric forklifts, while operating more cleanly than gas-powered ones, require frequent recharges to their batteries. To accomplish this, forklift operators have had take the vehicle to a charging room repeatedly throughout the day and remove one battery, set it to be charged and place another battery in the vehicle.

With AeroVironment's PosiCharge system, forklift truck operators need only drive up to a PosiCharger, plug it into the device and recharge it there during breaks, lunches and shift changes. While forklift's battery is being charged, another wire connection plugged in by the operator carries data about the functioning of the battery and the vehicle itself (based on the battery's functioning) to the charger. The charger stores that data for use by Ford employees. Prior to installation of the RFID system, employees have been retrieving the data by connecting a laptop to the charger and downloading data they need. However, sending employees with laptops directly to the chargers on a regular basis to retrieve data is an added expense.

For the past four years, Ford has been using an older version of the PosiCharge system at several of the company's plants. This year AeroVironment's PosiCharge division teamed up with ID Systems, The result is the new PosiChargers that now each come with a Charger Monitoring Point (CHAMP), an RFID device that will transmit data up to 1,000 feet from the charger across a low-power, narrow ISN band at varying selectable frequencies.

Each CHAMP consists of a miniature computer and an RFID antenna. Every CHAMP has a unique ID number for tracking of its location and activity. The CHAMP transmits its ID number along with data about the truck's battery to ID Systems' fleet management gateways. Several gateways, which can process and store data and are programmable with their own firmware, will be deployed at each plant, according to Smith. With an Ethernet connection, the data is then routed to a database that Ford employees can access. The data they access can tell them each charger's activity and location and the batteries of the forklifts that were charged.

"Over the past few years, Ford foresaw a value in using RFID to gather data about the charger and the

battery," says Jordan Ramer, director of venture and business development at AeroVironment. With that RFID system, Ford can retrieve real-time information about the batteries and the charger itself, including the battery status, charger faults, battery temperature, frequency of charges and time between charging. By using RFID, the system allows individual tracking of chargers and their activity and position, and makes data accessing faster and less expensive.

Ford is the first PosiCharge customer and has been with the company since 2000, says AeroVironment's vice president of sales, Steve Ache. "We already had the chargers in many [Ford] plants," Ache says. Ford decided then to take the system enterprise-wide to all its North American plants, eliminating its gas-powered forklifts. This process will take place in two phases throughout 2005, Ache says. By using the RFID system for the first time to make data available to Ford employees, Ache says, the company has the ability to more quickly understand how the trucks are being used.

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