

Sensing New RFID Opportunities

Companies are beginning to examine the benefits of semi-active RFID tags that can support onboard sensors, to monitor the conditions of products and assets.

By Mark Roberti

Jan. 16, 2006—I got an e-mail the other day from Toby Rush, president of [Rush Tracking Systems](#), regarding my predictions for 2006. Toby, a skilled integrator with a lot of experience and RFID Journal's partner in the [RFID Alliance Lab](#), didn't agree with all my predictions. In fact, he had some interesting ones of his own. He doesn't, for instance, feel the big software companies will have as much of an impact this year, as I had suggested. He also believes end users will start reading semi-passive tags with standard Gen 2 Electronic Product Code interrogators. "This opens up a whole new world to RFID!" he writes.

While I stand by my prediction about the software companies, I agree that we're going to see a lot more interest in semi-passive RFID systems, as well as semi-passive and active RFID tags with integrated sensors. In fact, this goes back to what I was saying last week, that end users in 2006 will get beyond just thinking about complying with mandates and start looking at how RFID can be used to benefit their businesses (see [Forecasts for RFID in 2006](#)).

A semi-passive tag is an RFID transponder that reflects RF energy back to the reader the way a passive tag does, but it also has a power source onboard to run the chip circuitry and, potentially, an onboard sensor. This allows for longer read range and the ability not only to determine the location of an item but also its state, such as the temperature of goods.

The coming issue of our magazine will have a feature on the benefits of using RFID combined with sensors in the fresh produce industry, to improve the shelf life of products. Sensors have many other applications, as well. [Infratab](#) has an innovative RFID sensor designed specifically for tracking fresh-cut flowers, which also have a short shelf life. The pharmaceutical industry needs to keep certain drug products within certain temperature ranges for them to be effective. And blood, organs for transplant and other items within a hospital need to be kept cold.

Temperature loggers and sensors already exist, of course, but RFID sensors offer several potential advantages over most existing systems. They can be less expensive (or, at least, that's the goal of many vendors developing RFID sensors). They can be placed on individual packages, instead of tracking entire shipments, as is often done now. They can be read remotely. And they can be more accurate.

The problem with systems that require manual intervention is that people often forget to check temperature loggers to see if a shipment has gone out of a certain range. With RFID, abnormalities are reported automatically when the tags are interrogated as the goods move through the supply chain.

[EPCglobal](#) established a group last year to begin exploring the need to develop a standard for Class 3 semi-passive EPC tags. Toby Rush says the growing number of pilots involving temperature tracking in 2006 will put pressure on EPCglobal to step up its efforts to create a Class 3 protocol, and that a standard could be

approved in 2007.

The Gen 2 EPC protocol was designed to support higher classes of tags, such as semi-passive tags, so the foundation for a Class 3 protocol has already been laid. I hope EPCglobal will move quickly to create a standard, because companies don't necessarily want to be passive when there's a return on investment to be had.

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