Gun Maker Hits the Mark with RFID

FN Manufacturing has complied with the DOD's RFID mandate by integrating RFID with its back-end systems.

By Beth Bacheldor

March 31, 2007—Weapons manufacturer FN Manufacturing is using radio frequency identification to help track and manage all its shipments of guns and parts to the U.S. Department of Defense (DOD). The Columbia, S.C., company initiated its RFID project to comply with the DOD's contractual requirement that all cases and pallets of goods received from suppliers be embedded with UHF RFID tags. It then integrated the technology with its back-end systems to make the process more efficient.

FN Manufacturing is using about 5,000 passive UHF Gen 2 tags from UPM Raflatac each month, says Ed Benincasa, vice president of IT at FN Manufacturing. The company affixes the tags to wooden crates packed with machine guns and other weapons. This implementation includes UHF Gen 2 tags from Avery Dennison, used on cases of spare parts, and Identitrak Technologies' MasterLink Edge RFID middleware. This software was designed to help companies manage RFID devices, filter and collect EPC data, comply with tagging mandates and automate business processes around RFID-enabled product tracking.

Although FN Manufacturing needed to meet the mandate in order to tag its shipments of goods with RFID, the company is doing more than affixing tags on cases and pallets before products leave the manufacturing plant. "As material comes down [production] lines," Benincasa says, "it all gets allocated to specific contracts and specific orders, and gets packed based on that."

To ensure the manufacturing operation wasn't disrupted, the company had to integrate RFID throughout the processes. That meant integrating FN Manufacturing's enterprise resource planning (ERP) system with a Printronix printer-encoder to encode the RFID tags embedded in labels, then print human-readable text onto those labels. With that integration done, the company can now automatically create associations in its ERP system between a product's bar code (each gun has a bar code number), the unique ID number on the RFID label to be used on a crate (weapons are packed in wooden crates, which are similar to pallets, with the number of weapons per crate dependent on the size and shape of the weapons being packed) and sales orders.

The association is made as a factory employee scans the bar codes on the weapons to be packed, creates the RFID label and packs the crate. Once the RFID number is associated with a specific order, FN Manufacturing can automatically create advance shipping notices (ASNs), which are sent electronically to the Defense Department location receiving the order.

"We think it's the right long-term decision," Benincasa says of FN Manufacturing's decision to build links between its ERP system and RFID early on. "It wasn't easy, but we wanted to make our flow standard, and wanted the labels to kick out automatically. And you have to send DOD ASNs, and you can either manually key in all the serial numbers if you wanted, or you can automatically create the ASN files."

FN Manufacturing has set up two RFID portals in its operation. One is used to read the tags on the crates as

they move into a staging area, pre-shipping area. Another has been set up to interrogate the tags at the loading dock. In addition, the system includes three handheld interrogators (readers) that employees can use to verify the tags on cases used to ship spare parts, and to create an association between the tags on the individual cases, which are then packed on a crate and tagged.

FN Manufacturing began investigating how RFID works and how it could be implemented in its factory several years ago. The company began testing different tags and implementing the necessary hardware and software about a year ago, according to Benincasa. He says tag testing and installing the RFID portals, readers and middleware was fairly straightforward. The greater challenge was building the links between FN Manufacturing's ERP system and the RFID data. "The hard part," he notes, "is getting your key systems to work with the RFID data, and then getting that data to the government."

RELATED_ARTICLES That said, FN Manufacturing did have to try several different tags. The company worked with Identitrak to test several dipole UHF tag designs. Some of the tags delivered low read rates because of interference caused by metal, while some could not be read at all. Ultimately, UPM Raflatac's Rafsec Frog UHF tag performed the best, providing 100 percent read rates during project testing and implementation. "We aren't seeing any problems with our tags," Benincasa says.

For now, FN Manufacturing plans to keep its RFID implementation as is. However, the company may replace its current practice of manually scanning bar codes affixed to the finished weapons—which is done as crates are packed—with automated RFID reads. In addition, the company may create even tighter integrations between its ERP system and the tag data collected, to verify shipments and ensure order accuracy.