Magnet-Triggered RFID Solution Lowers Costs at Müller Martini

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The Swiss manufacturer of bookbinding equipment automates the reordering of materials thanks to active RFID tags mounted on parts containers.

By Rhea Wessel

Mar. 9, 2009—C-parts (small screws, pegs and bolts used in production) represent a large portion of procurement costs for companies since it's difficult to order new C-parts at the right time to ensure the proper amount always remains on hand. To help make sure it always has the C-parts it needs, Müller Martini Bookbinding Systems—a developer and manufacturer of binding equipment for adhesive-bound books, located in Felben, Switzerland—has adopted an RFID system developed by C-parts supplier SFS unimarket and RFID solution providers Intellion and Identec Solutions.

SFS unimarket realized long ago that it needed to make it easier for customers to buy its wares. In order to support its sales, the company had been offering an automated solution for replenishing C-parts. The system employs a weighing scale to calculate the number of small parts on hand, then submits orders for refills. It frequently weighs the small containers, and calculates the number of parts stored in each container by subtracting the weight of an empty container from that of one filled with parts, then dividing by the average weight of an individual component.

Each parts container is fitted with an active RFID tag.

The system has drawbacks, however: Each storage area for containers must be outfitted with a weighing system that is expensive, time-consuming to implement and connected to the network via cables. Thus, if a company wants to move its storage racks, the cables need to be disconnected and reconnected—a labor-intensive and tedious process.

Considering these obstacles, SFS unimarket wanted to develop a wireless system that would be easy

to implement, and that would facilitate its customers' orders. To that end, the company teamed up with Intellion and Identec to develop turnLOG, which was implemented at Müller Martini in December 2007. Intellion designed and provided the system using Identec's RFID technology, and Müller Martini is now using it on approximately 8,000 containers. SFS unimarket won the Swiss Logistics Award in late 2008 for the turnLOG system.

At Müller Martini's warehouse, an active, battery-operated RFID tag from Intellion that functions at 868 MHZ is attached to one long end of each container of parts. The containers, which are rectangular and made of plastic, each fitted with an inner, plastic divider that can be set to different positions. After a container is loaded with a sufficient volume of small parts, it is set on the rack so the RFID tag is located at the back of the shelf.

When screws or pegs are running low on the front side of the divider, an employee turns the container around to access the parts on the opposite side. This triggers an automatic order to replenish the components. If temporary workers using the system are unaware of this, they require no additional training, says Stefan Schwiers, Identec's CTO, since the divider within the container forces them to turn it around in order to access the parts they need.

System designers mounted a strip of magnetic material on the front part of each shelf on the storage rack. When the active RFID tag is moved to the front of the shelf near the magnetic strip, the signal it transmits every two seconds changes due to the magnetic field. The single reader in the application picks up the altered signal and triggers a replenishment order. An LED light on the tag illuminates to notify the user that the replenishment order has been placed, and the part type is identified by the unique number transmitted by the RFID tag.

If a tag is damaged, its battery dies or the tagged container is moved out of the production area, then the tag's signal is not read at the regular interval, and the system thus identifies the problem. This sets off an alert for employees to check tags manually. The system also includes software that recognizes potential order errors, such as double orders or illogical order combinations.

According to SFS, the system offers several key advantages: It speeds up and automates the replenishment process, it enables companies to reorganize their warehouses without worrying about cable systems, and containers continue to be traced even when they're off the shelf. Moreover, the firm notes, users can save up to 50 percent on process costs.

Intellion is currently marketing turnLOG to other companies. Additional turnLOG users include Aebi & Co., a Swiss builder of machines for the public works sector, such as street cleaners and large grass cutters, and Steinemann, a Swiss maker of sanding machinery. Aebi uses 4,000 tagged containers, while Steinemann utilizes 1,000.