



Case Study



Automated Inventory Barcode System

When wire is braided together, it's much stronger and more effective than if used separately. Montgomery Wire, a division of Global Wire, used the same type of closely wound partnership to transform its inventory control system from a tedious, manual operation into a highly accurate, real-time automated system guaranteeing customers they get the product they ordered.

Headquartered in Littleton, NH, Montgomery Wire manufactures specialty wire for stranded conductors, tinsel conductors, and flat-wire products. Its wires may subsequently be braided together for shielding in airplanes, extruded by another manufacturer for use in audio speakers or used in computer equipment and telephone cords.

"We manufacture many different wires to customers' specifications," says Laura Smith, IT Technician. Even to a trained eye, it's difficult to distinguish the different wires by visually looking at them. As a result, Montgomery Wire's manual tracking system was subject to human error and was time consuming. To ensure proper product shipments, the 100-year-old firm recently replaced it with a



Inventory Control Partnership Ties All Systems Together | Montgomery Wire ships right first time; cuts inventory counting hours in half

highly accurate inventory tracking system. The critical tools in this new system are a partnership of wireless data collection and barcode tracking equipment. The successful project design and installation were a true partnership on a higher level between the user, a systems solutions provider and an expert in radio frequency (RF) installations.

Smith and Montgomery's Brian Currier, system analyst programmer, worked closely with the system solutions integrator, Winco Identification Systems, and the RF expert, Compsee. Winco is a NH-based, worldwide leader in automatic identification solutions and the manufacturer of high quality labeling

systems. Compsee is a NC-based national data collection systems firm with certified radio frequency data collection engineers. Together, they installed the new system in an 80,000-square-foot main warehouse and manufacturing facility.

The project and teamwork paid off as expected for Montgomery Wire. "RF (radio frequency data collection or RF/DC) is very fast; it's real-time. In addition, the highly accurate barcode system eliminated a lot of handwriting. As a result, our inventory is accurate and we're shipping accurate orders to our customers," says Smith.



Specialized Knowledge Brings Best Solution

Each team member, from Montgomery Wire to Compsee to Winco Identification, brought special knowledge and skills to the project.

Carrier designed the programming for the finished goods, inventory management database and the interrelated production and quality control database systems. Because the handheld RF scanners only run a telnet program, Carrier also designed a program to integrate the scanners with the databases and installed the Winco-selected handheld terminal emulation software. Wiring was performed by onsite electricians.

Compsee, which can provide total system integration services, in this case brought its radio frequency integration expertise to the project. It conducted the RF site survey with RF certified engineers to determine the number of RF access points needed for transmitting the radio signals and their location. It made sure that there was no interference and guaranteed that handheld RF scanners used anywhere in the building could transmit and receive signals accurately.

Winco, as a full-service solutions provider, scheduled and coordinated the entire installation. In its systems integrator roll, Winco brought in Compsee for its RF/DC expertise and Symbol Technologies products to create a best-of-breed solution. Winco also:

- Selected the specific RF scanners and terminal emulation software for them
- Supplied and installed the critical barcode labeling equipment such as its quality 2-inch by 4-inch thermal transfer label stock and SATO M84Pro printers
- Installed the RF antennas and transceivers

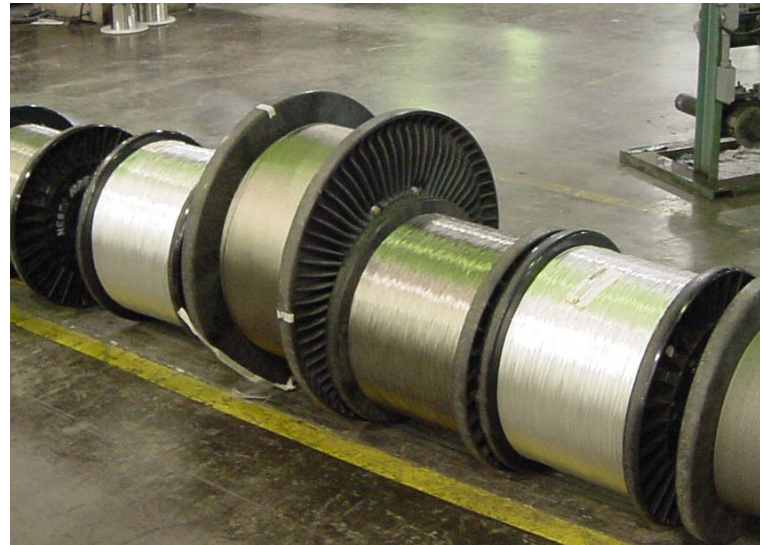
As a regional VAR, Winco is always available to Montgomery Wire for post-sales support and hands-on needs.

"Working together, we extended Montgomery Wire's network and requirements to a flexible RF system that lets employees roam anywhere to capture data, yet instantaneously transmits the movement of hundreds of wire reels to the finished goods inventory management system," says Steve Wright, Winco account executive.

Following the success of the main plant's installation, the inventory control system is being installed in a manufacturing facility in Jewett City, CT, and then into a third plant in North Carolina.

How It Works

The new barcode tracking system starts in the quality control department. Once the manufactured wire is inspected and approved, quality control experts enter the product's shop



order number into the homegrown finished goods inventory management system. It then issues a reel identification number, tied to the shop order to identify the manufacturing process the wire went through. This initiates the printing of two barcode labels in Code 39 symbology from a SATO M84Pro barcode printer. One tag goes inside the reel and one on the outside of the reel. The self-designed label is printed on standard 2-inch by 4-inch thermal -transfer label stock supplied by Winco.

"Code 39 was chosen because it can be read by the majority of barcode readers, is the most commonly used barcode symbology and is required by our customers requiring bar-coding," says Smith. The SATO printer was selected because of its work history at other Montgomery Wire plants. "They are an industrial 'Work Horse' available at a great price and rarely ever need service," says Smith.

Once reels are labeled, shipping/warehouse personnel scan the barcode, weigh the reel and key enter the weight, location and date into the inventory record. Product type and customer automatically determine the stocking location where the wire reel remains until shipped.

When an order is received to ship the reel, a picking ticket tells a forklift driver where to get the reel. Its ID tag is scanned which pulls up the weight on the screen on the Symbol Technologies' PDT 6840 handheld RF terminal/scanner. The worker visually verifies the weight to make sure it is the size shown on the terminal. The reel is put on a pallet for shipping and the RF system immediately removes the product from inventory. The shipping supervisor inputs the number of labels needed per order as determined by the number of reels or packages being shipped and the customer's shipping label is printed. Label style, often determined by the customer, depends on who the shipper is. Regardless of the printer used, the label stock comes from Winco.



"Winco has supplied us with all the label printers and we've always gotten our label supplies from them. We chose them because of our history with them. Winco gives us a good deal. They provide good service and have reliable products with reasonable pricing," says Smith. "They also back all equipment they sell."

Besides helping to ship the right product, the RF system improves Montgomery Wire's inventory control process. Instead of manually writing what is in each location, workers simply scan the reel's bar-coded ID tag and bar-coded location. After an inventory has taken place, any reel can be compared against a printed version of the inventory or can be traced through the user interface to determine when the reel was put into the inventory.

The Benefits

Order accuracy and its resulting improved customer service were among the first evident benefits. The real-time barcode system guarantees the right reel is chosen for each order. That also cuts down on return costs that include re-receiving, re-put-way, re-picking, and re-shipping.

"Before, because we have so many different products, it was very easy to ship something incorrectly. There could be just a slight difference in the product so it's not visually possible to differentiate," says Smith. Now the barcode application applied immediately upon quality control inspection prevents those errors.

Improvements were also seen with inventory accuracy. "On the third inventory scanning, every item we showed we had in our database, we did have. We could physically put our hands on everything we thought we had," says Smith.

"That means less chance of overrunning shipments. If we know we have it, we won't reorder extra, or, the reverse doesn't happen where we think it is there, but then don't have it to send," says Smith.

Other Benefits Include:

- Warehouse workers, instead of hand writing labels, just ask a computer to print a label for a specific ID number. As a result, more stock is put up faster.
- Inventory tracking is faster. Where it used to take six people 10 hours to conduct an inventory of the wire reels, now it



- takes only three people 10 hours to do it.
- No longer are six people needed to hand write what is in stock and another five people, working over five hours, needed to key enter that information into the finished goods inventory management database. It all happens automatically as the goods are scanned and the RF system transmits the data to the finished goods MySQL Database System on a Linux Server. This is the same server that the handhelds telnet to. The server determines the correct application by the login and password of the user. Carrier programmed and maintains this system. Smith, meanwhile, manages the data stored in the database to maintain its integrity.
 - Montgomery Wire has always double-checked its inventory report. It still does, but now, instead of taking four hours, it is done in 45 minutes.
 - Saving time in office and warehouse operations meant personnel could be moved to higher priority tasks or workloads reduced. For example, the person who used to key in inventory now does backup for the payroll department and the receptionist when needed, decreasing the load on office personnel.

It took a variety of experts to make sure the variety of wires get to a variety of end users. However, it was this partnership of equals, just like braided wires, that created a system of superior results.

SATO AMERICA CORPORATE

10350-A Nations Ford Rd
Charlotte, NC 28273
Phone: (704) 644-1650
Fax: (704) 644-1662
sales-sallc@sato-global.com

LABEL MANUFACTURING, SERVICE & SALES

UNITED STATES MEXICO CENTRAL AMERICA
CANADA CARIBBEAN