

Automated Receiving With RFID

A United States' based manufacturer sells products to a variety of boutiques and large boxed retailers. The products are mostly produced in Asia and received at the customer's facility in California. The receiving process, prior to the RFID implementation, consisted of manually opening and counting the contents of each carton. This required dedicated employees to waste countless hours ensuring the right product quantities matched the purchase order. Often there was a variance resulting in inaccurate inventory, write off to the bottom line and a backlog of products to be processed.

After a study of current processes and testing the viability of Radio Frequency Identification (RFID) with the customer's products, a plan was jointly developed to achieve a rapid return on investment. This plan consisted of the customer's manufacturing partners to tag each item with a GS1 compliant RFID tag, to automate the receiving process via RFID fixed readers and to provide a reporting dashboard. The main objective of the solution was to minimize the time and manpower to accurately receive products. Also, since the solution involved partners located in Asia, it had to be accessible and easy to use.

The software portion of the solution allowed the manufacturing partners to upload shipment reports to the system via a web interface. The reports generated barcodes that were affixed to each carton displaying the purchase order number and carton number providing an electronic checklist that could be used during the receiving process. Also, the software controlled the reading of cartons as they passed through a read zone along a conveyor. Lastly, the solution has a web-based dashboard that shows variances and reports for each received order down to the SKU level. Any carton showing a variance would alert the management to re-run the product through the RFID conveyor or to be manually recounted. All information was stored in a cloud-based database allowing for the dashboard to be utilized from any location.



The turn-key solution utilized a Zebra Technologies fixed RFID reader, FX7500, and a fixed barcode scanner. The hardware was mounted along a conveyor where the read-zone was confined within a tunnel so that non-targeted items were not read. The reading of a carton was triggered by a photo-eye that was directly integrated into the fixed reader. When the software detected a variance between the items read versus the information uploaded into the system, a red light was activated alerting the operator of a receiving mismatch. The fixed barcode scanner was used to scan the carton number allowing the system to know the specific items and their quantities that are in the carton. Also used are Zebra RFID printers at the receiving facility. The software allows the customer to print any specific SKU level RFID tag in case of a return or source tagging error.

Since the deployment of the project in 2015, the customer has received thousands of products saving them time and money. Further, the system has been expanded to allow for cycle counting of cartons that are stored in the warehouse. Cycle count data is presented in the dashboard allowing for a reconciliation to their host system.