

Focus on RFID

By Vivek Bapat

RFID on the Plant Floor: Reaping the Benefits

Until recently, most of the mandate- or regulation-driven RFID implementation efforts were focused at the end of production lines—a strategy that manufacturers realized had very few positive benefits for them. Today, the central issue for manufacturers is how to convert the potential of RFID into a business strategy that results in a sizable return on investment (ROI). Many manufacturers now believe that the plant floor presents a vast, untapped opportunity for recovering investments, creating value, and gaining a strategic advantage.

The biggest challenge, however, is how to capture and make use of the wealth of information on the plant floor from RFID readers, controllers, sensors, and other smart devices. To deploy RFID technology incrementally across the plant floor and deeper into the production process, manufacturers must integrate the new information captured by RFID into existing reliable and industrially hardened control, visualization, and information infrastructure to minimize costs and reduce production disruption.

Simply deploying an RFID network is of little or no value unless the information it provides can be accessed, managed, and acted upon using reliable, synchronized communication networks.

By fully integrating RFID technology into the plant floor infrastructure, manufacturers can consolidate data associated with a product or component from each stage of production: once a tag is placed on an object, the product and the associated data can be tracked from production through distribution.

Existing manufacturing execution systems (MES) can then be updated to deliver and take action based on robust and reliable real-time information to synchronize execution. Only by synchronizing an RFID-enabled plant floor with the RFID-driven supply network will

a manufacturer achieve the true benefits across the supply chain and on the plant floor.

RFID application on the plant floor can help manufacturers uncover several opportunities for ROI through:

- Improved asset utilization by tracking reusable assets and providing visibility into their location.
- Improved quality control by tagging raw material, work-in-progress, and finished goods inventory.
- Improved production execution and supply chain performance by providing accurate, timely, and detailed information to enterprise resource planning and MES.
- Improved inventory tracking and visibility with real-time tracking and automatic synchronization.
- Surgical precision in product tracking and genealogy by collecting historical information on product ID, time stamp, and lot number at each step of the manufacturing process and across the supply chain.
- Support of 21 CFR Part 11 compliance with complete tracking, verification, and validation processes. (Title 21 of the Code of Federal Regulations describes the government regulations that govern the food, drug, biologic, and device industries. Part 11 outlines creation and maintenance of electronic records.)
- Reduction of scrap and increased line performance by controlling line operations based on tag information.
- Improved maintenance, repair, and overhaul operations by providing accurate, timely, and detailed information to computerized maintenance management software applications.

The potential benefits to large suppliers deploying RFID on a wide scale across the supply network are now well documented. The ROI to manufacturers is still in question. How manufacturers strategically embrace RFID as part of their production processes will play a pivotal role in securing future competitive advantage.

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