

RFID In Distribution

Saving Costs & Improving Customer Service

Knowing what went where and when is a critical success factor in any business that is involved in distributing products. It matters, whether products are being shipped to eventual end-users or distribution partners, being sent between company sites or being sent out on a hire basis for subsequent return, being able to connect a particular item to a particular shipment destination. However, keeping track can involve costly and error prone manual records.

Fortunately, radio frequency identification (RFID) can help automate many processes in distribution. Goods are identified automatically as they enter or leave a warehouse. It can just as easily track the carriers, containers and pallets used to move goods. The data that RFID systems provides can be used to reduce asset costs, save on lost goods and packaging and provide automatic shipment data for customers, so improving service.



A ceiling mounted RFID reader can track items entering or leaving a goods handling area or monitor assets stored in a single location.

The success of RFID in distribution operations has led many large organisations to use it to simplify the management of supply chains that extend across multiple companies. Now though, developments in RFID technology with improved performance, wider cost alternatives and better standardisation has made the potential offered by RFID a realistic proposition for organisations of all sizes.

The Problem

Distribution processes in many businesses activities are characterised by multiple stages, multiple checks and - often - multiple manual operations.

Checking in received goods, breaking consignments down for onward use, collecting up new shipments, checking quantities held, all usually involve largely manual processes. Many organisations use paper and pencil records. Even where handheld computers or barcoding is used manual intervention is sometimes needed. Manual intervention causes three problems. Firstly, it is costly, secondly it carries with it the risk of errors and thirdly it means that the data held in systems is always out of step with what is happening in the real world.

In addition, while there may be robust systems for keeping track of the goods themselves, many organisations struggle with keeping track of related assets such as pallets and containers which can represent a large asset value.

Barcode labelling methods have been widely used but have limitations that have prevented success in some areas. For example, barcode labels do not survive well if goods or their carriers are exposed to the elements – a common problem in logistics associated with building, construction and engineering. Barcode labelling is also limiting where a number of items needed to be checked together: validating that all the expected items are present on a pallet may require manual scanning of individual items, for example. It may also not perform well where an item is repeatedly used and needs to be quickly checked out from a location and back in again each time.

In all of these areas, RFID tags can help. They can be read automatically, simultaneously and without line of site visibility as items pass into, out of or through a warehouse or packing facility. As a result, RFID systems can offer a highly cost-effective way of managing both goods and assets in the distribution chain, reducing the costs of keeping track of goods and assets and, at the same time, providing up-to-date data on the availability of goods or carriers.



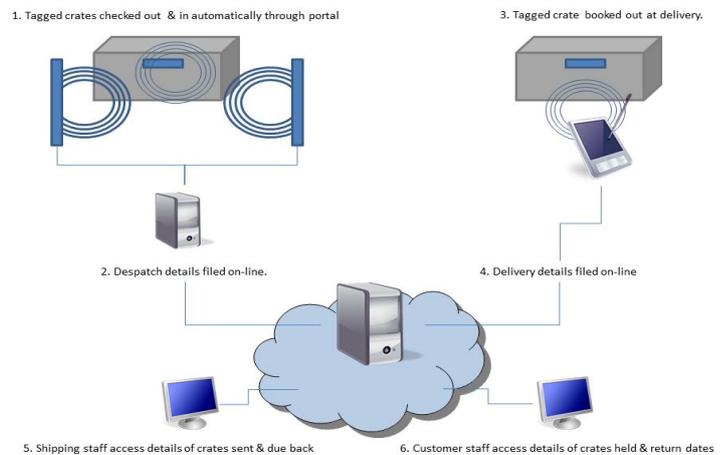
How Does RFID Help?

RFID helps in distribution systems by immediately and automatically identifying stock items or assets such as pallets, containers or carriers.

Differing sorts of tags offer different performance and are suited to identifying different items. For example, wooden items and metal items need different tags which take account of the different radio frequency absorption characteristics of the material being tagged. Different tags offer different levels of resilience, some being suited to high temperature exposure or environments where harsh chemicals are used or where weather resistance is needed. All tags hold identification data – international standards can provide the basis of unique product numbering systems like those used in the barcode space for retail items.

The most common type of RFID used for distribution is based on ultra-high frequency tags. This is because UHF tags can be read over greater distances (typically up to 10 meters) can be read more rapidly than other tag types (within a few milliseconds) and allow for readers that can sense moving tags and multiple tags simultaneously, allowing for tag read rates of hundreds of tags per second.

These characteristics are exploited by RFID portals; electronic gateways that detect tags passing through them. Portals can take the form of an RFID tag reader and antennas arranged around an existing doorway or a reader and antenna positioned beside an unloading conveyor, for example. As tags pass the fixed-point reader their identity is collected and transmitted on to a system that records the movement. Modern RFID readers can sense that a tag is moving in a particular direction, so enabling automation of check in or check out as needed.



An example of an RFID based distribution system

Taking Advantage of RFID in Distribution Applications

Users of RFID based distributions systems have been able to gain a range of business benefits. In 2005, the US Department of Defense mandated all suppliers to use UHF RFID tags in order to simplify the Department's in-house storage and handling operations. Recently, Delta Airlines decided to move to RFID tagging for baggage handling as a way of reducing baggage handling errors across the 120 million bags it handles each year. On a smaller scale, Lowe Refrigeration uses an RFID portal to monitor tagged refrigeration units leaving its premises on hire. This has allowed them to eliminate manual recording and reduce the number of lost items.

Similarly, Industrial Chemicals Ltd attaches RFID tags to the intermediate bulk containers (IBC's) that it uses to ship products to clients. This allows it to provide proof of delivery to clients and has helped to reduce the costs of lost IBC's across the £400,000 asset base.

CoreRFID is able to provide fully supported RFID solutions including software customisation, integration and support service as well as supply of necessary hardware, installation and commissioning working directly for you or in collaboration with other logistics systems providers. And they can be used alongside bar code and other identification technologies.

Benefits

Distribution RFID systems provide:

- Cost savings in carriers and returnables
- Proof of shipment for rental businesses.
- More accurate data on goods received and despatched
- Immediate information that can be shared with customers and / or suppliers.
- Faster / more accurate auditing of distribution assets.