

Manage your COMPANY processes with RFID technology

RFID technology applied within a manufacturing company promotes the integration of processes, from the supply chain right through to the production process, the management of internal logistics, and the management of assets.

The common element is the link between the various processes and the RFID Tag which, when applied to the various stages of the manufacturing process, allows total control and traceability of every individual operation, from the arrival of the primary materials, through production, to delivery of the final product. There is no need for a continuity solution as the same technology and process is used throughout.

Logistics

RFID technology can be applied very effectively in the area of logistics, covering all the value-adding processes, from the arrival of the production materials, through storage, to running production processes and delivering the final product. The internal logistics management process is crucial to the success of a manufacturing company, determining production times and the quality and efficiency of the delivery service supplying the final product to the client.

RFID technology to improve the efficiency and quality of logistics

There are numerous difficulties which hinder the efficiency of a logistics process and therefore have knock-on effects on all other company processes. One of the most common problems is **tracing and locating products**, i.e. simply finding objects, products, parts or components within the company quickly, when it is not known exactly where they have been stored. Searching for them wastes time and resources.



RFID technology enables

Factory Automation

Modernize your company processes with RFID technology

- LOGISTICS
- PRODUCTION MANAGEMENT
- ASSET MANAGEMENT
- SECURITY

companies to identify goods, register their existence, trace their movements and keep account of where they are in the company when they are stored.

Eximia has developed highly effective solutions which optimize company processes and produce tangible benefits. Locating and registering materials means the whole process of picking, moving between warehouses and advancing production can be automated and thus made more reliable and efficient. Another related problem area is **managing delivery of products/packages/pallets**. RFID technology guides employees in locating and loading products to be delivered, without errors in packaging or destination, since the product has been located and identified in advance.

Management of production processes

With RFID technology, internal logistics systems are more efficient, and time and errors are reduced. Systems supplying materials and components to production lines benefit significantly from this effect. The **RFID RTL** (Real Time Location) system, applied to production or assembly lines, enables companies to follow the entire production process, supplying the control system with information on the **position and movements** of products as they advance along the production or assembly line, and integrating with the **component supply process in real time**.

In a continuous production process based on assembly 'islands' or production lines, it is essential that every phase of the final product's construction is



followed step by step. This ensures all operations are definitely carried out, that the product does not undergo modifications, and that the central system

controlling production, supply management, storage and delivery is informed of the state of the production line in real time, thus enabling precise planning of time and supplies required, availability of warehouse space and lead times for final products made to

order.

Processes of procurement, logistics, storage and delivery are **interoperative and integrated thanks to the RFID and RTL system.**

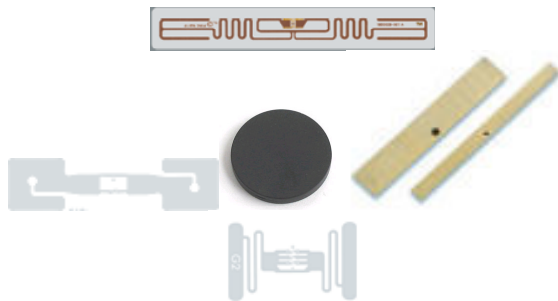
The return on investment is evident in all areas:

- **In procurement:** By knowing the state of production and of the warehouse in real time, it is possible to activate the procurement process with accuracy and thus keep stock down and save storage space.
- **In logistics:** Managing goods being sent and received quickly, using a faster storage and selection procedure, can have a significant effect on time and efficiency throughout the process, avoiding errors in storage or delivery, or time wasted in looking for materials and products.

Asset Management

The **Asset Management** solution enables companies to: simplify procedures covering inventories, logistics, allocation and maintenance of assets, and to increase efficiency in carrying out the inventory, as every object carries detailed information which assists in the management of assets and stocks, meaning an accurate inventory can be produced.

The methodology developed by Kyema in the Asset Management projects supplies every object to be entered onto the inventory and/or maintained with a RFID Tag, containing memory and a pre-printed identification number. Each section also has an RFID Tag identifying the area and its contents. The sections of the buildings covered by the inventory are supplied with gate antenna and connected to a network, and employees responsible for stocktaking and maintenance are given hand-held computers with an RFID interface and WiFi. A WiFi network is created in the building, as well as a detailed database of the inventory and maintenance.



Tag UHF in diversi formati

The RFID Tags attached to the objects are linked to the inventory number, the location (building, floor, room) or to the beneficiary (Mr Rossi) using the UID (Universal Identifier, a unique code that cannot be changed). In addition, in a series of "maintenance" records in the same database, all the maintenance activities relevant to the item are entered. As the inventory is carried out, reading takes place

by means of the handheld computer connected to the building's network via WiFi (wireless network, WLAN) or in batch mode. Where there are goods that need to be protected and traced, RFID Gates (antenna + reader) are positioned at important access points (corridors, entrances) to register if any of these goods have passed by.

RFID UHF Technology

RFID UHF technology, used to monitor objects at a distance of up to 2-4 metres, is based on the EPC-GEN 2 standard.

The passive tags can be registered within the field of an antenna from a few centimetres up to a maximum of 4-6 metres, using the power of 2 -Watt EIRP. The variability of the reading depends on the environmental conditions and the dimensions of the antenna and the tags. The 4-antenna reader can cover an area (field) several metres wide.

Readers, Antennas and Tags

The readers supplied by Kyema have an Ethernet port and can therefore operate with just a simple connection to the company's LAN.



Reader and UHF antenna

Kyema is able to supply the right tag for every material, surface and object. In order to tag items that are complex or contain lots of metal, such as PCs (notebooks, desktops, servers), the type of antenna used must be carefully selected to minimize interference with the metallic components and to maximize the distance at which the tag can be read.

RFID Middleware Software

Middleware software can integrate RFID readers from various producers using a driver model, in the same way supporting various standards of RFID Tag. The middleware supplies an abstraction of the hardware level (tag, reader, network), meaning 'back end' components do not need to take physical details into account.

E-RTL Location System

For the location and tracing of goods, people and vehicles in real time, Kyema offers a solution that is unique within Italy, based on the E-RTL (Exact Real Time Location) system, using UWB technology. Kyema's E-RTL system has already been applied to people and goods to resolve issues of security, traceability, production control and location of goods. For more information go to www.kyema.ch.