

## Introduction to RFID

### What is RFID?

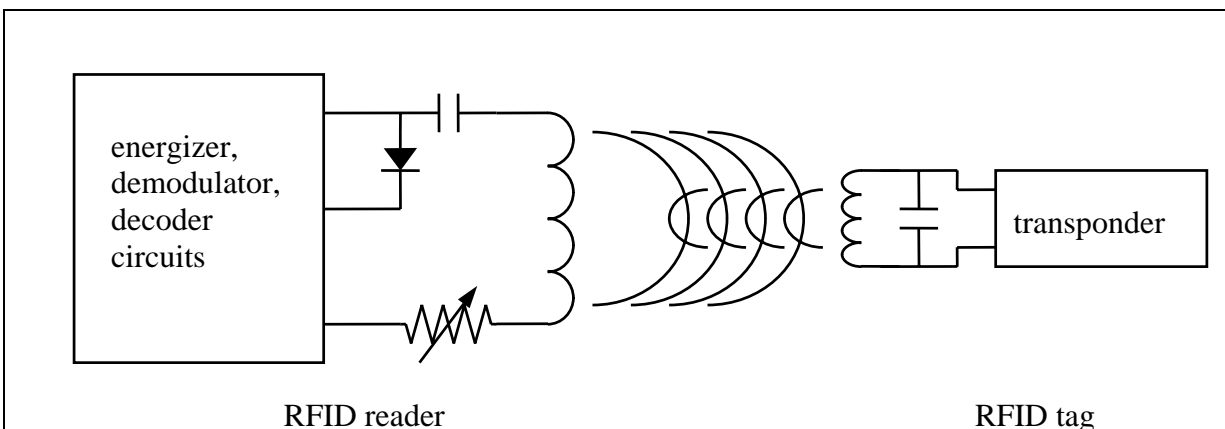
RFID, Radio Frequency IDentification, uses radio frequency communication to automatically identify, track and manage objects, people, or animals.

### How does it work?

A passive (no battery) low-frequency (125kHz) 'magnetically coupled' RFID system is made up of two parts - a reader and tag.

The tags are attached to objects or animals that require a unique identification number. The tags include an electronic circuit (transponder) and tuned antenna-capacitor circuit. The tags are small sophisticated radio transmitters and receivers. They are powered by the RF field generated by the reader. Upon being 'powered-up' the tag will continuously transmit, by damping the incoming RF power field, its data. By 'pulsing' the incoming RF power field some tags can be written to in the field.

The RFID reader has three main functions: energizing, demodulating and decoding. The reader, using a tuned antenna-capacitor circuit, emits a low-frequency radio wave field. This is used to power up the tag. The information sent by the tag must be demodulated (like an AM radio). The encoded information is decoded by the reader's on-board microcontroller. This information can then be used by a controlling computer.



In both the reader and tag, the antenna can be sized and shaped in different ways. Because of the small size of the tag, it can be formed to fit almost any situation. Since there is no contact or 'viewing' required, the RFID system allows great freedom of movement. Placement of the tag and reader are no longer critical.

# Introduction to RFID *continued*

## **Why use RFID?**

Compared to other identification technologies, passive RFID systems offer many advantages:

- Tags can be hidden (embedded) in most materials
- No batteries needed
- Different shapes and sizes
- No line of sight required
- No wear
- Tags can be read even if covered with dirt or even submerged
- Tags are almost indestructible
- Unalterable permanent serial code prevents tampering

## **Where is it used?**

RFID systems can be used almost anywhere. Some current uses of RFID are:

- Inventory control
- Access control
- Animal identification (from cows to birds)
- Waste management
- Laboratory analysis
- Time and place data logging
- Lap counting
- Vehicle identification
- Ticketing
- Customer 'loyalty'
- Building security
- Asset tracking

## **Who is Intersoft?**

Since 1991 Intersoft has been developing and manufacturing solutions for identification and control; first using contact memories and later RFID technology. Intersoft manufactures tags and readers and specializes in customizing both for specific applications. Based in Tennessee, we have provided customers worldwide with the technology and innovation they need to remain competitive. Our aim is to provide easy to use and inexpensive identification devices. No matter what your field is, if you need to track and identify -- we will help you succeed.

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*Specifications and functionality are subject to change without notice.*