

RFID technology

RFID (Radio Frequency Identification) is a relatively new technology; its first applications were developed in the 1980s. By means of a system with RFID equipment, people, assets or animals can be identified and tracked without direct contact or line of sight. This technology is very efficient in harsh environments such as are found in industrial applications. This makes RFID technology very suitable also for vehicle identification, because it is not restricted by weather conditions of any kind – it operates well in rain, snow, dirt and low temperatures.

For access control applications RFID technology brings many benefits. Mechanical keys and locks are replaced by electronic RFID identifiers (transponders and tags) and readers, which leads to cost savings and to better security, because entering and exiting the building can be better controlled. It is possible to collect, analyze and store access control data. RFID identification does not require physical contact between the reader and the identifier, which means that there will not be need to replace mechanical parts because of breaking or wear. It is also very easy to control access rights. If an identifier gets lost, the locks do not need to be replaced, as would be the case if a mechanical key disappears. The access rights for that single identifier are just removed from the system.

RFID technologies can be categorized by frequency: 125 kHz, 13.56 MHz and UHF technologies are commonly used. The 125 kHz technologies are low frequencies with a lower data transmission speed. These technologies are often used in closed systems that are not compatible with each other. The 13.56 MHz frequencies already have common standards and are becoming more popular. They offer some benefits when compared to lower frequencies; for instance, they enable greater security by offering the possibility of encryption. It is possible to use 13.56 MHz transponders for many applications, since they offer the possibility to divide the memory of the transponder into sectors. It is also possible to store data on transponders during transactions.

UHF (Ultra High Frequency) technologies are used for applications requiring longer (2-4-meter) identification distances. UHF technologies are often used in logistics applications like pallet identification. Automated vehicle identification or electronic vehicle registration as an area of application for UHF technology is growing rapidly. With this technology, a vehicle can be identified without stopping, even at high speed. Until recently, longer identification distances have required active transponders, with a power supply inside. Now longer identification distances are possible also with passive UHF technology, by means of transponders that get their operating power from the carrier signal generated by the reader. This leads to cost savings because the transponders last practically forever. They don't need to be replaced because the battery dies.