

RFID Tags

RFID tags can be categorized as passive tags, semi-passive tags and active tags. Also, they are divided into four main frequency bands: low-frequency tags, high-frequency tags, UHF tags and microwave tags. Passive RFID tags work without an internal power supply. The power for the CMOS integrated circuit is provided by the small electrical current induced in the antenna by the incoming radio frequency signal. For passive tags, it is necessary that the design of the antenna be such that it not only collects power from the incoming signal but also transmits the outbound backscatter signal. Since there is no onboard power supply these tags are very small and practically invisible. The device can be as small as 0.4 mm x 0.4 mm, and a sheet of paper is thicker than the device. This lets the device be embedded under the skin. These devices are simple to design and can have an unlimited life span. The difference between passive RFID tags and semi-passive RFID tags is that the semi-passive tags have a small battery. This battery ensures that the integrated circuit will remain constantly powered. Hence, the device is dependant on the antenna to collect the power. The plus point of semi-passive RFID tags is that they are faster in response, as the antennas are optimized for backscattering the signals. As opposed to passive tags, active RFID tags have an internal power source with a battery life of up to 10 years. It is used to power ICs and generate the outgoing signal. They also have the advantage of longer range and larger memories. But with the battery, the size of device increases. The smallest active tags are the size of a coin. The active tags are also more expensive. But the accuracy and performance of active tags is better than the passive tags.

About the Author

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