

RFID tags

Written by Waleed Sorour

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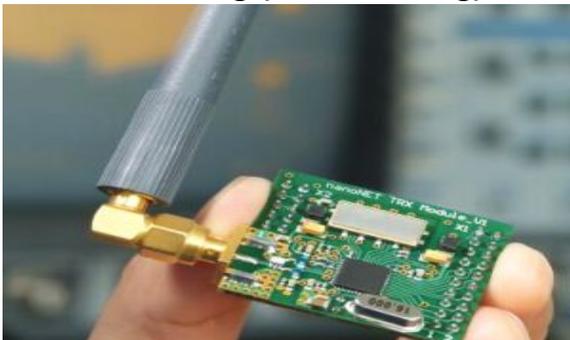
RFID tag is a microchip combined with an antenna in a compact package, the packaging is structured to allow the RFID tag to be attached to an object to be tracked.

The tag's antenna picks up signals from an RFID reader or scanner and then returns the signal, usually with some additional data (like a unique serial number or other customized information).

RFID tags can be very small - the size of a large rice grain. Others may be the size of a small paperback book.

There are two types of tags, Active RFID tag and Passive RFID tag (Some time you could find a 3rd type called Semi Passive RFID tag)

Active RFID Tag (or Active Tag)



An RFID tag is an active tag when it is equipped with a battery that can be used as a partial or complete source of power for the tag's circuitry and antenna. Some active tags contain replaceable batteries for years of use, others are sealed units. (Note that It is also possible to connect the tag to an external power source.)

Advantages of active RFID tags

- It can be read at distances of one hundred feet or more, greatly improving the utility of the device
- It may have other sensors that can use electricity for power.

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Disadvantages of an active RFID tag

- The tag cannot function without battery power, which limits the lifetime of the tag.
- The tag is typically more expensive, often costing \$20 or more each
- The tag is physically larger, which may limit applications.
- The long-term maintenance costs for an active RFID tag can be greater than those of a passive tag if the batteries are replaced.
- Battery outages in an active tag can result in expensive misreads.

Active RFID tags may have all or some of the following features

- longest communication range of any tag
- The capability to perform independent monitoring and control
- The capability of initiating communications
- The capability of performing diagnostics
- The highest data bandwidth
- Active rfid tags may even be equipped with autonomous networking, the tags autonomously determine the best communication path.

Passive RFID Tag (or Passive Tag)



A passive tag is an RFID tag that does not contain a battery, the power is supplied by the reader. When radio waves from the reader are encountered by a passive rfid tag, the coiled antenna within the tag forms a magnetic field. The tag draws power from it, energizing the circuits in the tag. The tag then sends the information encoded in the tag's memory.

Advantages of a passive tag

- The tag functions without a battery, these tags have a useful life of twenty years or more.
- The tag is typically much less expensive to manufacture.
- The tag is much smaller (some tags are the size of a grain of rice). These tags have almost unlimited applications in consumer goods and other areas.

Disadvantages of a passive rfid tag

- The tag can be read only at very short distances, typically a few feet at most. This greatly limits the device for certain applications.
- It may not be possible to include sensors that can use electricity for power.
- The tag remains readable for a very long time, even after the product to which the tag is attached has been sold and is no longer being tracked.