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## RFID Glossary

The following is a list of terms utilized in this website as well as additional industry-standard terminology:

**Active Tags:** RFID tags that use an embedded battery to provide power and a radio signal. These generally cost between \$10 and \$100. They are much more expensive than passive tags, but possess greater data capacity and range.

**AutoID Center:** The private/academic consortium associated with the Massachusetts Institute of Technology (MIT) that invented the concept of the electronic product code (EPC). Many major global retailers and manufacturers were members before this group became EPCGlobal.

**Antenna:** Structures that radiate and receive radio energy. These are built into both RFID readers and tags.

**Frequency:** The speed that a radio signal cycles through its minimum and maximum values during a given time period. RFID tags operate at different frequencies. EPC operates in frequency bands around 868 MHz (Europe) or 915 MHz (United States).

**Interference:** Anything that prevents radio waves from traveling between a tag and reader correctly and causes the tag to be read incorrectly. Interference is sometimes caused by other radio signals or by some physical objects – metals and liquids – that absorb or reflect the radio signals.

**Orientation:** Whether or not a tag is aligned with the reader. Read ranges are generally longer when this is the case.

**Passive Tags:** RFID tags without batteries. These tags get energy directly from the radio waves transmitted by a reader. They tend to be very inexpensive (less than 50 cents), hold limited data (typically less than 256 bits) and have a shorter read range than active tags. EPC is focused on passive tags.

**Programming:** The act of writing data to an RFID tag.

**Protocol:** A standard way of talking (or communicating) between a reader and a tag.



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**Protocol Speed:** The speed at which tags and readers can speak to each other. Varies by protocol, but is typically hundreds of tags per second.

**Read-Only Tag:** A tag with data that is programmed at the factory and cannot be changed. Class 0 is a read-only tag.

**Read Range:** The distance where a tag is read by a reader without any objects between the two. This distance varies depending on the reader and tag used, but can be up to 20 feet with the best performing readers and tags.

**Reader/Writer:** A device designed to read data from or read data to an RFID tag.

**RFID – Radio Frequency Identification:** A technology that uses radio waves to uniquely identify tagged items.

**RFID Chip:** The small computer, almost as small as a grain of sand, which is the heart of every RFID tag. The two main parts of an RFID tag are the chip and the antenna.

**Smart Label:** Printed labels that include an RFID tag built into the label.

**Tag:** An RFID chip packaged so that it can be applied to an item to allow it to be tracked.

**Transponder:** This is the technical name for a tag.

**Write Once Read Many (W.O.R.M) Tag:** A tag that is designed to be written or programmed once and only once and then read many times throughout its life – when it is applied to an object.

**Writeable Tag:** A tag where data can be written and rewritten many times.

**Write Range:** The distance where a tag is written by a reader/writer without any object between the tag and the reader/writer. Normally, write range is lower than read range.