

RFID



UHF RFID Readers : A Short Buyer's Guide

Portability, Power, Performance,

With UHF tags gaining increasing acceptance, how should users approach selecting the readers that they will use in their RFID solutions? This short guide looks at some of the options available and the factors that need to be considered.

Types of UHF RFID Reader

There are four main classes of UHF RFID reader.

1. Standalone devices that can collect tag data and upload it later
2. Portable computer based readers
3. USB attached peripheral readers
4. Network attached peripheral readers

The choice between these will generally be governed by the nature of the application but, in general, peripheral readers, especially those that are purpose built or with a separate antenna will deliver the highest reading performance.

Reading performance needs to be considered in three main areas; the speed with which tags can be read; the distance over which tags can be successfully read; and the success/drop-out rate (that is the extent to which a tag will be missed by any reading attempt).





Reading performance is not only determined by the reader, however. It is also affected by the tags involved, the objects that the tags are mounted on, the orientation of the tag to the reader and the tag's direction of travel relative to the reader. Also, if a reader has a separate antenna, the positioning and design of this can make a big difference too. For that reason, performance (especially if the application requirements are at the edges of the performance envelope) is often best determined by a pilot application rather than by relying on the specifications of tags, readers and antennas.

On the following page we give examples of a number of UHF tag readers in each of the main classes above.

In addition to these units all of which are readily commercially available and easily implemented, there are separate modular components that can be combined to create a specialised reading station. Example of these components include ruggedised, waterproof, reader modules for outdoor installation and OEM component reader unit boards for embedding within other products. Antennas are also available in a wide range of types with different reading capabilities. Core RFID is happy to advise on the selection and sourcing of these specialised items. .



OEM style UHF reader/antenna module with TTL interface for product integration.

	<p>Stand-alone Reader</p> <p>The I-Poll is a stand alone, hand-held, data-logger that can store up to 10,000 UIDs. These can subsequently be sent to a host computer. It has excellent anti-collision capabilities, which allow it to read dozens of tags simultaneously and can read tags from up to 80cm away. The I-Poll uses rechargeable Lithium-Ion batteries, providing for 1.5hours of continuous usage. With a simple user interface of 4 navigation buttons, 2 scan buttons, and a multi-line LCD display, the I-Poll can be used in many workplace environments. Data is transferred using a Bluetooth link or via a USB cable.</p>
	<p>Hand-held Computer with Integrated Reader</p> <p>The ATID870 is a fully programmable, hand-held, computer running Microsoft Windows Mobile. It has an integrated UHF RFID reader and antenna (as well as optional barcode reading capability) and can read tags from up to 200cm. The ATID is able to be equipped with GPS capability so that its location can be determined as part of a tag checking application, for example. The ATID870 has Bluetooth, USB and wifi interfaces, allowing it to load data to or from other systems.</p>
	<p>USB Connected Peripheral Reader</p> <p>The EVO USB Desktop Reader is a small, handy and simple RFID Reader that can connect to USB equipped PC's and Laptops. It is able to work with standard ISO18000-6 B/C tags including Class1 Gen2 tags.</p> <p>EVO is a read / write device which comes with full SDK and MS Windows based application although it can also be used in conjunction with Linux systems. The EVO has its own built in antenna and can read tags from a distance of up to 50cm.</p>
	<p>Network Attached Peripheral Reader</p> <p>The ThingMagic reader can be network attached using Ethernet or wifi connectivity. Its compact box enclosure contains an antenna but the reader can have an external antenna as well. It can read or write standard ISO18000-6 B/C tags including Class1 Gen2 tags with a read range of up to 900cm (further using an external antenna) and a performance of up to 190 tags / second.</p> <p>Thing Magic readers can be configured and monitored over the network from a web browser using the reader's on-board systems management software.</p>

Regional Differences

UHF RFID systems follow different standards in different countries / geographic regions. Different frequencies are used and different power settings are allowed. As a result of these different standards, it is important to be sure that the readers planned for use in a particular region will operate on the frequencies required and power allowed by the legislation in the territory concerned.

About CoreRFID

Contact us today:

CoreRFID Ltd, Dallam Court, Dallam Lane, Warrington, U.K. WA2 7LT

T: +44 (0) 845 071 0985 F: +44 (0) 845 071 0989 W: www.corerfid.com E: info@corerfid.com