

## ***Frequently Asked Questions & Answers***

### **General**

**Q. Is the product certified for use in Europe at 868 MHz?**

**A.** Products are certified for use in Europe and North America.

**Q. Tags may be fitted to assets that travel between Europe and North America or vice versa. How can the different frequency bands be handled?**

**A.** The same tag can be configured to operate at different frequencies, e.g. 868 MHz in Europe and 915 MHz in North America. Tags could be re-configured to the new frequency before, during or after shipping.

**Q. Why do we use the 900MHz ISM band?**

**A.** This band is well suited to long ranges, and low power applications. It is also, unlicensed; making it more cost effective for the end-users.

**Q. We have other radio frequency systems on site. Will that impact the RFind system?**

**A.** Other radio frequency systems may interfere with the RFind system if they are operating at the same frequency. A site survey would determine whether any such interference will impact the RFind system.

**Q. Do you use frequency hopping (FHSS)?**

**A.** No, we use spectrum selection.

**Q. Does the system use Received Signal Strength (RSS) or Time of Arrival (ToA)?**

**A.** The RFind system is a Received Signal Strength (RSS) system.

**Q. Can we do power over Ethernet (POE)?**

**A.** POE can be supported using a third party module. Different modules are available depending on your existing network hardware.

**Q. Can the system be installed in multi-storey facilities?**

**A.** Extra care must be taken when installing the system on multiple storeys to avoid bleed between different levels. Bleed could be reduced by increasing the number of reference tags, reducing the power of reference and asset tags.

**Q. How does a changing environment affect the system?**

**A.** The RFind system is designed to cope with a changing environment. Even if a tag is partially shielded by metal (for example, if a forklift drives in front of it), so that it can no longer communicate with all the nearby reference tags, it can still be located from responses from other reference tags. In a highly dynamic environment, the density of reference tags and gateways can be increased to improve coverage.

**Q. How often do you have to calibrate the system?**

**A.** The RFind system does not need to be calibrated.

**Q. What are the warranty terms?**

**A.** A one year warranty is provided.



## Tags

**Q. Are reference and asset tags interchangeable?**

A. Yes, it is possible to configure the same tag either as a reference tag or as an asset tag.

**Q. Is it necessary to have reference tags in play if a specific location is not needed?**

A. If no precise location is required, no reference tags are needed. The RFind system would then be able to tell which site an asset is on, but not where it is at that site.

**Q. Can I add reference tags after deployment?**

A. Yes, the system is flexible in that should more granularities be required, additional reference tags can easily be added and zones or regions reconfigured.

**Q. How easy is it to add more reference tags to improve the accuracy of an existing system?**

A. More reference tags can easily be added to an existing system. It is simply a matter of installing them then commissioning them.

**Q. Can you use a barcode scanner to read/associate the tags into the system?**

A. Yes, each tag has a barcode that can be scanned to enter the tag ID in Expedito. We suggest using an off the shelf scanner.

**Q. Can multiple tags be configured at the same time?**

A. Expedito allows you to configure up to 100 reference tags at one time.

**Q. What is the size of our data packet tag to tag?**

A. Varies, but always less than 64bytes.

**Q. Can data be stored on the tags?**

A. The tags do not support user data storage. This is generally better handled by storing information in the database.

**Q. Is it possible to change the sensitivity of the tags to motion?**

A. Yes, the sensitivity of the motion detection can be set to one of five settings.

**Q. Do the tags and gateways have heartbeats to let the system know that they are still alive?**

A. Yes, both have configurable heartbeats.

**Q. Do you have a temperature sensor on the tag?**

A. Our tag products are not designed for temperature tracking and therefore we do not have an onboard sensor.

**Q. Will the system alert me when a tag is missing?**

A. Yes, tags have heartbeats, which can be configured to communicate with the server every 0 to 18 hours.

**Q. Can asset tags be configured differently for different assets?**

A. Yes, asset tags can be configured differently during system setup.

**Q. What is the size of the mounting hole on the tag?**

A. The mounting hole is approximately 3/16" in diameter and 1 1/4" long

**Q. What blink options are available?**

**A.** Asset tags can be set to blink once a second for up to four minutes. You can choose to blink an asset tag for 10 seconds, 20 seconds, 30 seconds, 1 minute, 2 minutes or 4 minutes.

**Q. Can tags be refurbished if damaged or if the battery is low?**

**A.** Yes, tags can be refurbished.

**Q. What is the battery life on asset tags?**

**A.** The range depends on the frequency of tag movement and frequency of tag blink. The life of the battery can therefore vary from 2-5 years.

**Q. What is the battery life of a reference tag?**

**A.** As Reference tags stay stationary and are not asked to blink so their life is longer than an asset tag.

**Q. Will the system alert me when a tag battery is low?**

**A.** Yes, tag batteries will be monitored in two ways: (i) tag transmissions will be monitored to allow the system to predict when batteries are likely to run out; (ii) battery voltages will be measured directly to allow the system to check whether batteries are low.

**Q. What kind of battery is it?**

**A.** We use a lithium battery.

**Q. Can we track or determine battery strength?**

**A.** We monitor the number of transmissions a tag performs.

**Gateways**

**Q. Can the gateway be mounted in the open?**

**A.** The gateway is IP54. For extra protection, it can be installed in an external enclosure to increase the rating.

**Q. Can the gateway be operated on 220 VAC?**

**A.** Yes, the Gateway power supply is rated to operate between 110-240VAC.

**Q. What is the maximum and optimum length of cable from Gateway to antenna?**

**A.** Ideally, the antenna should be attached to the gateway directly without a cable. If a cable is required, we recommend LMR-195 or RG-58 length 3 - 5 feet. Cables as long as 20 feet could be used, but the range of the gateway will be reduced in this case.

**Q. Does the gateway store data from the tags if the network connection is down?**

**A.** Yes, the gateway stores the data from the tags and sends it to the server when the network connection is restored.

**Q. How do other manufacturers' tags appear to the RFind gateway?**

**A.** Different manufacturers use different propriety protocols, so other manufacturers' tags will be ignored by the RFind gateway, and vice versa. It will be possible to change the channel used by RFind gateways and tags to avoid interference from other manufacturers' hardware.

**Q. What is the range of the gateway in open air?**

**A.** 1640feet/500m

**Q. What height above the ground is optimum for gateways and tags?**

**A.** Gateways should be mounted as high as possible for maximum coverage. A height of 15 feet gives good coverage. Reference tags should be mounted high enough for good coverage but low enough for accurate location. A height of 8 feet is a good compromise.

**Q. How many communications can the Gateway handle from the tags?**

**A.** The gateway can handle a continuous stream of back-to-back transmissions.

**Q. Does the gateway have blind spots where tags cannot be located?**

**A.** When operating at full power, tags should not be closer than 3m/10ft from the gateway.

**Q. What happens where there is overlap between gateways?**

**A.** If a message from an asset tag is received by more than one gateway, both copies are stored in the database. The RFind middleware recognises that the same message has been received twice and ignores the duplication. So there is no problem with overlap between gateways.

**Q. What type of addressing is required by the gateway?**

**A.** You can use dhcp or static. We prefer static, but either works.

**Q. Is DNS required?**

**A.** DNS is not required.

**Q. How does the gateway communicate with the database over the network?**

**A.** Communicates xml messages sent via TCP/IP Ethernet link.

**Q. What is the amount of data/number of packets exchanged with database server during a normal transaction?**

**A.** A normal transaction will be a single packet around 34bytes.

## **Software**

**Q. What language is Expeditor 2D written in?**

**A.** The RFind API (Application Programming Interface) is available as a DLL or web service. It supports third-party software written in C, C++, C# and many other languages, under .NET, J2EE and many other frameworks.

**Q. Does Expeditor support multiple users?**

**A.** Yes, Expeditor is browser-based and supports any number of users viewing locations or accessing any other data at the same time.

**Q. What are Expeditor's Software interface requirements?**

**A.** SQL Server 2005

**Q. Can our software interface to the RFind software to find x, y locations?**

**A.** Yes, the RFind software has a complete API, available either as a DLL or as a web service. The API allows third-party software to do anything that Expeditor does. For example, you can find the x, y location of a tag through the Get Tag Location function.