MACHINETalker®

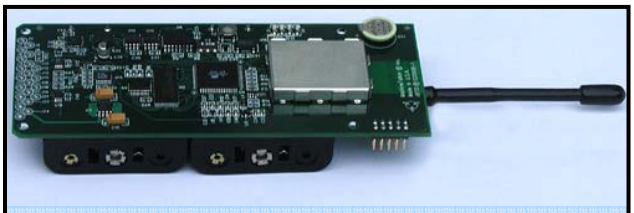
iRFID™
Specification

Q4 2006

iRFID™ - Intelligent Radio Frequency Identification Device

Overview: The iRFID is an active, Intelligent Radio Frequency Identification Device designed for cargo container logistics and general shipping applications. **The iRFID** is packaged as a robust, hardened and shock-proof device to withstand the harsh environments encountered in transit and outdoor depots. When activated, the **iRFID** in proximity with other MachineTalker® units, will automatically form wireless mesh networks to facilitate communication of logistics and sensor data among themselves and to present information to Community Access Points, or CAPs®, that link to Wide Area Networks like the Internet.

Rugged plastic enclosure.
Dimensions are L-9.15" x W-2.61" x H-1.30"



Radio, Processor and Accessories

Specifications

Processor: ATmega128, 8MHz RISC; w/64K Memory; 256K EEPROM; and Real-Time Clock (GMT).

Radio: 868MHz or 915MHz ISM Band. Whip antenna, range is 200 meters in free air, unobstructed.

External Connection: None.

Power Requirement: Internally mounted AA Batteries providing 4.5vdc under circuit PC Board. Battery life can be > 2 years, depending upon the "sleep time" that is User-determined.

Environment: Operating Temperature -20°C to 70°C; Relative Humidity 20% - 80%.

Controls: Diagnostic LED Indicators and On-Board integrated Sensors for Temperature, Battery Level, Vibration and Incident Light Detection. Crossing pre-set Temperature Thresholds, Detection of Vibration or of Incident Light produce processor interrupts so that the occurrence can be reported by radio.

Embedded Software: Each member of the MachineTalker family of products runs the **SMMP®** Operating System software that permits groups of iRFIDs to automatically form mesh networks or "Communities" wherein they operate as intelligent peers, each with a pre-programmed purpose. Talkers® can be field-programmed over wireless link from a CAP connected to a PC, Laptop, or PDA. The API, a Java-based Application Programming Interface, is used to configure general operating parameters, including power management profiles, sensor/alarm thresholds, mesh network routing profiles, and radio frequency selection.

Applications: Via wireless connection, data may be stored and retrieved from mobile or stationary **iRFIDs** mounted in cargo containers, on pallets or shipping crates, aboard vehicles or attached to any type of asset. Data may include freight manifests, itineraries or any information up to 256Kbytes in size (additional storage capacity available). Manifest and itinerary data may be edited from a remote source, or locally updated to reflect offloading or scheduling changes. Sensor data gathered by **iRFIDs** in transit may be logged and reported on command, or alarm profiles may be configured to 'push' data (alarms) out when limits are approached or exceeded. **iRFIDs** monitor their own power sources and send alerts when battery maintenance is required. **iRFIDs** may also be configured to log encounters with other **iRFIDs** or other **MachineTalkers®** for use in logistics management.

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