

AeroScout Location Receiver



Robust and sophisticated Time Difference of Arrival (TDOA) location measurement capabilities packaged in small, easy to install devices

Overview

The AeroScout Location Receiver is a hardware component of the AeroScout Visibility System that enables location-based applications in a Wi-Fi wireless LAN environment. The AeroScout system can use either standard WLAN Access Points or AeroScout Location Receivers to determine location, depending upon the environment and customer needs. Location Receivers provide robust and sophisticated time difference of arrival (TDOA) measurement capabilities packaged in small, easy to install devices. The Location Receiver receives standard 802.11b messages and executes sophisticated radio signal measurements, enabling the AeroScout Engine software to accurately calculate the location of both AeroScout's Wi-Fi-based Active RFID tags and any Wi-Fi-enabled device.



The AeroScout Location Receiver stands out in several ways:

- **Locates any tagged asset, using AeroScout Tags.** AeroScout's small, rugged, battery-powered tags can be attached to people and to a variety of equipment, such as medical devices, containers, manufacturing equipment and retail shopping carts. Location Receivers receive and process tag information accurately from a long range.
- **Locates standard Wi-Fi clients without hardware or software modifications.** The AeroScout system also locates standard Wi-Fi clients such as laptops, PDAs and barcode scanners, without the need to tag these assets or introduce client software. This eliminates a major management challenge and enables simple implementation.
- **Accurate real-time location as well as sophisticated RFID choke-point detection.** The AeroScout system uses time difference of arrival (TDOA) algorithms to determine accurate location. With the AeroScout Exciter, the same system also enables tags to be detected, reprogrammed or transfer data messages as they pass through doorways, gates or other choke points.
- **Indoor, outdoor and mixed operation.** The AeroScout System is suitable for use in indoor, outdoor and mixed environments, from corporate offices to harsh industrial areas.

AeroScout Location Receiver:

- Robust Measurement Capabilities
- Easy-to-install Form Factor
- Wi-Fi Compliant
- Wide range of antenna options
- Rugged Form-factor Options

Key Benefits

Low infrastructure requirement

Location Receivers communicate with the AeroScout Engine software via standard Ethernet or wirelessly over a Wi-Fi network – no dedicated location network cabling is required. Also, because Location Receivers have a long read range (600 feet outdoors), large installations can be covered with much less infrastructure than standard RFID systems.

Ease of installation

Configuration is simple: The installer executes all setup tasks from the AeroScout Engine's System Manager software, which records the placement of a Location Receiver with a single mouse click. Location Receivers also support Power over Ethernet, eliminating costly electrical installation.

Performance

AeroScout's expertise in wireless signal measurement has led to the development of a range of patented algorithms and techniques. Embedded in the Location Receiver, these measure the TDOA of standard 802.11b messages to the nanosecond. The AeroScout Engine processes this TDOA data to produce accurate and reliable location data suitable for mission-critical visibility applications. Each Location Receiver can process over 300 location measurements per second, enough to satisfy even the most demanding applications. Location Receivers can also process presence-based location for areas where fewer than three Receivers are available.

Choke-point and Telemetry Functions

When used together with the AeroScout Exciter, Location Receivers enable multiple sophisticated tag functions. These include instant RFID detection at a choke-point (such as a gate or doorway) and tag message and data retrieval for telemetry applications.

Wi-Fi Compliance

All AeroScout products are fully compliant with Wi-Fi and IEEE 802.11b standards. Location Receivers do not interfere with the wireless local area network. Even when set up with a bridge to provide location measurement data wirelessly, the volume of traffic they generate is insignificant.

Security

Location Receivers do not accept any Wi-Fi client associations, so they need not be placed on secure Ethernet ports and pose no security risks.

Variety of Configurations

Location Receivers are available in a variety of configurations to fit all implementation scenarios, including rugged configurations fit for outdoor and harsh environments. In addition, wired or wireless configurations are available.

> Additional Options

Antenna options include:

- Omni-directional antennas (2dBi, 5.5dBi, 8dBi)
- Directional antennas (5dBi, 8 dBi)
- Omni-directional diversity antenna (2dBi)
- Directional diversity antenna (6.5 dBi)

Further options include antenna cables, power adapters and a surge lightning adapter to fit a variety of installation needs.



Rugged Location Receiver

Location Receiver Specifications

LOCATION

Outdoor range: Up to 200m (600 feet)

Indoor range: Up to 60m (180 feet)

Over 300 measurements processed per second per Receiver cell (system capacity also dependent on server processing power)

Patent-pending signal-processing algorithms

Supports standard Wi-Fi (802.11b) clients and AeroScout Tags

PHYSICAL AND MECHANICAL

Dimensions: 140mm x 110mm x 35mm
(5.51" x 4.33" x 1.38")

Weight: 295g

EXPLOSION PROOF VERSION

Explosion Proof Zone 1 Rugged Location Receiver: ATEX certified, II 2 G EEx d [ia] IIC T5

RADIO

2.4GHz direct sequence spread spectrum 802.11b radio

Supports all worldwide Wi-Fi channels 1-14 subject to local regulations

Transmission power: 15 dBm

INTERFACES

Ethernet: 10/100 base-T Ethernet (RJ-45)

External antenna: SMA connectors

Compatible with standard wireless bridges

ANTENNAS

2 omni-directional dipole antennas (2dBi) included

MANAGEMENT

All settings configured remotely using AeroScout System Manager

ENVIRONMENTAL SPECIFICATIONS

Temperature: 0°C to +50°C (32°F to 122°F)

Humidity: 0 to 95%, non-condensing

Optional NEMA 4X housing available (see AeroScout Rugged Location Receiver Data Sheet for further information)

POWER SUPPLY

5VDC 1.5A wall unit adapter, auto-sensing 100/240 VAC

Power-over-Ethernet: 802.3af compliant

CERTIFICATION

Radio: FCC Part 15, sub-part C class B, sub-part B
EN 300-328, EN 300-330, EN 301-489

RSS 210 (Canada)

ARIB STD-T66 (Japan), ARIB STD-33 (Japan)

Safety: CE, cTUVus (EN60950)

WARRANTY

One year limited warranty

Ordering Information

For ordering and pricing information contact AeroScout at info@aeroscout.com and refer to: BWH1000-02 (AeroScout Location Receiver), BWH1100-X (AeroScout Explosion Proof Location Receiver)

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