



AeroScout Exciter EX3200

User Guide

EX2-UG-051106-03

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Table of Contents

Introduction.....	5
Application and Industry Examples.....	5
Features	6
EX3200 Hardware.....	7
LED Indications.....	7
Connectors Panel.....	8
Connecting the EX3200 to the Network and Power Source.....	9
Power Supply Options.....	9
Chaining EX3200s	11
Resetting the EX3200	12
EX3200 Configuration.....	12
Configuring the EX3200 via System Manager.....	12
Mounting the EX3200.....	12
EX3200 Specifications	13

Introduction

The AeroScout EX3200 is a component of the AeroScout suite of enterprise visibility solutions that enables location-based applications. The EX3200 extends the AeroScout suite to provide robust and sophisticated RFID detection capabilities, using the same AeroScout tags that can also be accurately located in real time by the AeroScout system.

The EX3200 triggers AeroScout's T2 tags as they pass through a choke point, and those transmit a message to AeroScout Location Receivers or compatible Access Points in range.

This provides instant acknowledgment that a tagged asset passed through a gate, doorway or some other well-defined area. The detection capabilities of the EX3200, combined with the location features of the AeroScout Visibility System, make the AeroScout suite the most sophisticated enterprise visibility solution for a wide variety of industries.

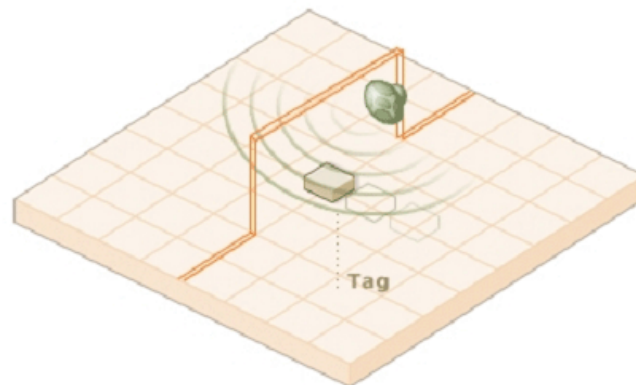


Figure 1: EX3200 positioned at choke point triggering a tag

Application and Industry Examples

High value asset tracking

Health care facilities and general enterprises can tag valuable assets that are intended to stay within a certain area. The AeroScout system can track the location of those assets, and if they leave through an exit or enter a restricted area, the EX3200 triggers a tag message.

Process control

Manufacturing and supply chain facilities can track the location and presence of equipment and in-process inventory as it moves through the production process. This gives an enterprise a real-time view of which (and how many)

assets have passed each step in the process, enabling better supply chain management.

Inventory management

Logistics and manufacturing enterprises can automatically update inventory records as inventory enters and leaves the warehouse, ensuring real-time knowledge of levels without manual checks or physical scanning.

Security applications

Government agencies and enterprises can tag secure assets and people that are restricted to certain areas or require historical location tracking. If those assets leave through an exit or enter a restricted area, EX3200 triggers a tag message.

Features

RFID detection of AeroScout T2 Tags

Triggering the tags to transmit as they pass through a defined area, EX3200s reach up to a 3 meters (9.84 ft) range, enough to cover typical door or gate areas. EX3200s can also be chained one to another, thus increasing the RFID detection range for accommodating even very large areas.

Tag behavior modification:

- Wireless activation and deactivation of tags. Tag battery life can be extended further by switching the tags off when they leave a defined tracking area through a gate or doorway.
- Change of tag transmission rate temporarily or indefinitely to accommodate different usage patterns in various physical spaces.

Message Programming functions

Provide the ability to use the EX3200 to store messages on the tag for later transmission. Message transmission can later be triggered by other EX3200s, enabling sophisticated process control functions.

EX3200s can trigger a tag to:

- Transmit up to 10 bytes of data sent to it by the EX3200
- Transmit one of 10 pre-stored messages
- Transmit and store up to 10 bytes of data sent to it by the EX3200

Network connectivity

Enables remote programming, monitoring and software updates by the AeroScout Engine. In addition, the EX3200 can work in offline mode disconnected from the network, thus eliminating the need for a physical network feed. In this mode, remote configuration and monitoring is not enabled.

EX3200 Hardware

The AeroScout EX3200 includes:

- Three RJ-45 interfaces
- Single power connector
- Power adapter



Figure 2. AeroScout EX3200

LED Indications

A red-green dual LED indicates statuses.



Figure 3. Red-green dual LED

- Green LED indicates that the unit is ON and connected to a power source.
- Blinking Green LED (according to transmission interval) indicates that the EX3200 is transmitting.
- Red LED indicates a fatal error of the unit.

Connectors Panel

Figure 4 describes the EX3200 connector panel (bottom panel).



Figure 4. AeroScout EX3200 Connectors Panel

- 1. Ethernet LAN Connection** – RJ-45 interface. In a configuration that uses physical Ethernet cable connection to the LAN, the network cable is attached here. Permanent connection to a wired network is not mandatory. However you must have a wired connection for configuring the EX3200. In addition, some of the monitoring functions will not be available if the EX3200 is not wired. This connection is also used for Power over Ethernet (PoE, 802.3af).
- 2. Power jack** – Accepts an input voltage of 12V DC. When PoE is used, this connection is not used.
- 3. Chain IN Connector** – RJ-45 connector. This connector is used for receiving power, serial interface and data from chained EX3200s.
- 4. Chain OUT and Control Connector** – RJ-45 connector. This connector is used for distributing power, serial interface and data to chained EX3200s.
- 5. Master/Slave Switch** – This Switch set the EX3200 role in a chain Master or Slave.

Connecting the EX3200 to the Network and Power Source

The following is a brief summary of available powering and networking options:

Usage option	Description
Single EX3200 – not connected to network	EX3200s can be used as standalone devices that function independently without any network connection. In this case you need to connect the EX3200 to the power supply only.
Single EX3200 – connected to network	EX3200s can be remotely controlled (for configuration and monitoring purposes) through the local area network. In this case you need to connect it to both a power source and the network. AeroScout EX3200s also support power-over-Ethernet (PoE), which supply both power and network services via a single connection.
Chained EX3200s - not connected to network	EX3200s can be connected to each other in a chain and receive the power/data from one Master EX3200 in the chain. This configuration does not require any network connectivity. Up to 8 EX3200s can be connected in a chain. Up to 3 EX3200s can use the same power source (depending on the source's power)

Power Supply Options

The various power supply options for powering up the EX3200 are described below.

PoE Switch

If your network has a Power-over-Ethernet infrastructure, you can connect a CAT-5 Ethernet cable from the PoE switch to the EX3200's LAN connector (connector 1 in Figure 4). This supplies both the power and the network connection.

Note

PoE standard 802.3af class 0 allows power for not more than 2 EX3200. In addition, the LAN connectivity that the PoE supplies will not be utilized for slave EX3200s in a chain.

110/220 VAC to 48VDC PoE Single-Port Injector

The PoE Single Port Injector converts 110/220VAC to 48VDC. In addition, it can receive a network connection and enable the installer to run a single cable to the EX3200's LAN connector, thus supplying both power and network connectivity.

When using this injector, the power jack of the EX3200 will not be used.



Figure 5. Single-Port Injector

The injector's IN connector is connected to the network. The injector's OUT connector is connected to the EX3200's LAN connector (connector 1 in Figure 4).

The injector can be used for both networked and non-networked EX3200s. In case of a non-networked EX3200, the IN connector on the injector is not used.

Note

An injector can provide enough power for 2 EX3200 only. In addition, the LAN connectivity that the injector supplies are not utilized for slave EX3200s in a chain.

12V DC Power Supply Adaptors

A 12VDC adaptor (current limited) is used to convert 110V AC or 220V AC inputs to 12V DC.

The adaptor is connected to the EX3200's power jack (connector 2 in Figure 4). The network should be connected separately to the EX3200's LAN connector (connector 1 in Figure 4). This adaptor is most common for chained EX3200s.

Note

Use only certified power supply listed class 2 which provides power limitation according to clause 2.5.

Chaining EX3200s

When an EX3200 solution needs to be applied at a point where the required coverage is more than a single EX3200 can actually cover, you can chain several EX3200s to each other, thus extending the coverage area. For example, a large entrance gate that is 8m wide will require 3 EX3200s chained to one another.

The chained EX3200s will be treated by the system as a single entity, and in addition their transmissions will not interfere one with the other.

Note

The EX3200s' transmission ranges and physical positions should be set in a manner that will allow overlapping between neighboring EX3200s' coverage areas.

Figure 6 illustrates chained EX3200s and shows the connections.

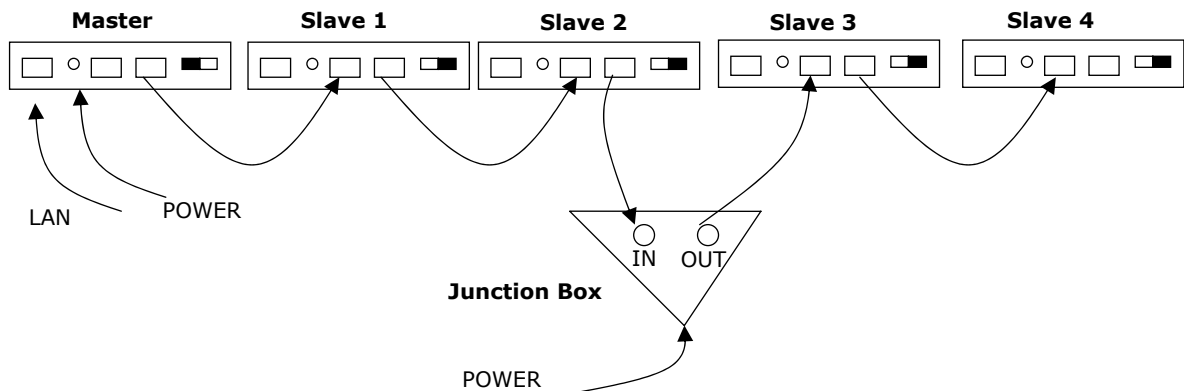


Figure 6. EX3200 chaining

Resetting the EX3200

You can reset the EX3200's IP address to the factory defaults by pressing the IP Reset button using a thin, pin-like object. The Reset button is located on the LAN side of EX3200.

EX3200 Configuration

Configuring the EX3200 via System Manager

EX3200s are configured using the AeroScout System Manager. The configuration settings consist of device installation and network definitions. The configuration procedure involves the following steps (for more information please refer to AeroScout System Manager user guide):

1. Connect all EX3200s with a wired Ethernet connection to a dedicated segment.
2. Add the EX3200s with the AeroScout System Manager (select the EX3200 type), configure their parameters and define their IP settings (The preconfigured IP is supplied per EX3200).

If you wish to later change the IP settings (IP, subnet, gateway or ports) you can do so by right-clicking on the EX3200 and selecting IP Settings.

3. Check that the EX3200's status is OK by right clicking on the EX3200 icon and selecting Status. Also verify in the status window that the firmware versions (DSP and Second Boot) are compatible with the current installed Engine version and EX3200 hardware version. Consult AeroScout Support regarding the appropriate firmware versions.
4. Position the EX3200 in the site according to site survey recommendations, and mount it.
5. Align the EX3200s' positions according to the required area coverage.
6. If you wish to define the EX3200 as an offline EX3200 not connected to the network, you should approve the above configuration, wait for a confirmation, define the EX3200 as disconnected from network from the Properties window, approve the settings again and disconnect the EX3200 from the network.

Mounting the EX3200

The EX3200 can be fixed on a surface with two screws inserted through the mounting holes on the device enclosure.

EX3200 Specifications

Range

- Adjustable range up to 3 m (9.84 feet)
- Supports AeroScout T2 Tags

Physical and Mechanical

- Dimensions: 130mm (5.1 inches)x 65mm (2.6 inches) x25mm (1 inch)
- Weight: 100g (3.52 oz.)

Network Interface

- Ethernet (RJ-45)

Power

- Input voltage: 12VDC
- PoE (802.3af) – 48VDC
- Maximum power consumption: 6W

Environmental Specifications

- Operating temperature: -20°C to +60°C (-4°F to 140°F)
- Humidity: 0 to 95%, non-condensing

LF Channel

- 125kHz
- Modulation: ASK

Certification

- Radio:
FCC Part 15, Sub-part B, Class B, Sub-part C
EN 300-330, EN 301-489
RSS210 (Canada)
- Safety:
CE, cTUVus (EN60950)

Safety and Warnings

FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- a) Reorient or relocate the receiving antenna.
- b) Increase the separation between the equipment and receiver.
- c) Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- d) Consult the dealer or an experienced radio/TV technician.

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- a) This device may not cause harmful interference
- b) This device must accept any interference received, including interference that may cause undesired operation.

FCC Warning

Modifications not expressly approved by the manufacturer could void the user authority to operate the equipment under FCC Rules.

Instructions concerning human exposure to radio frequency electromagnetic fields.

To comply with FCC Section 1.307 (b)(1) for human exposure to radio frequency electromagnetic fields, implement the following instruction: A distance of at least 20 cm between the equipment and all persons should be maintained during operation of the equipment.

Warranty

Hardware. AeroScout Inc. ("AeroScout"), warrants that commencing from the date of delivery to Customer, and continuing for a period of one year the Hardware will be free from defects in material and workmanship under normal use. The date of shipment of a Product by AeroScout is set forth on the packaging material in which the Product is shipped. This limited warranty extends only to the original user of the Product. Customer's sole and exclusive remedy and the entire liability of AeroScout and its suppliers under this limited warranty will be, at AeroScout's or its service center's option, shipment of a replacement within the period or a refund of the purchase price if the Hardware is returned to the party supplying it to Customer, if different than AeroScout, freight and insurance prepaid. AeroScout replacement parts used in Hardware repair may be new or equivalent to new. AeroScout's obligations hereunder are conditioned upon the returned of affected articles in accordance with AeroScout's then-current Return Material Authorization (RMA) procedures.

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