

Installing the ExtremeWireless™ AP-PSBIAS-1P3-AFR Power Injector (1-Port Power-over-Ethernet)

Overview

This guide is intended for the technician responsible for installing the Power Injector. It assumes the technician is familiar with basic Ethernet LAN-based networking and device installation concepts. This guide provides specifications, procedures and guidelines to use during the installation process. This guide does not provide site-specific installation procedures. For detailed site-specific installation procedures, refer to the site-specific documentation derived from site survey and site network analysis.

Warning: Only qualified personnel should perform installation procedures.

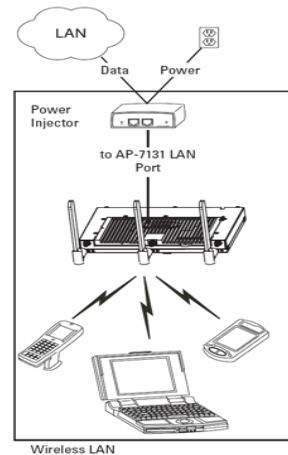
Introduction

When users purchase a WLAN solution, they often need to place access points in obscure locations. In the past, a dedicated 24-hour, 90-264 VAC power source was required for each access point in addition to the Ethernet infrastructure. This often required an electrical contractor to install power drops at each access point location. With the AP-PSBIAS-1P3-AFR power injector solution, centralized power can be provided for devices without a local power supply for each.

Product Description

The AP-PSBIAS-1P3-AFR power injector is a single-port, 802.3af compliant Power-over-Ethernet hub combining low-voltage DC with Ethernet data in a single cable connecting to an AP. The Power Injector's single DC and Ethernet data cable creates a modified Ethernet cabling environment eliminating the need for separate Ethernet and power cables.

Figure 1 AP-PSBIAS-1P3-AFR Power Injector



The Power Injector is a small lightweight unit with a RJ-45 Ethernet cord input connector from the hub on the front right-hand side of the unit and a RJ-45 data and power output connector to the AP on the front left-hand side of the unit. On the back of the unit is a 110-220 VAC power input.

A separate Power Injector is required for each access point comprising the network.

Caution: Using the Power Injector with an unsupported device could render the device inoperable and void your warranty.

The Power Injector has the following features:

- Independent power controller (SPEAR™), CPU controller and input (Data) and output (Data + Power) shielded RJ-45 connectors
- Supports standard 10/100 Base-T Ethernet networks over a standard TIA/EIA-568 Category 5 (or higher) cabling.
- Meets the IEEE 802.3af standard.
- Universal AC Input: 110/220 V, 60/50 Hz
- Minimum port output continuous allowable power of 15.4W at 48V (minimum 12.95W at the PDTE)
- Underload, overload, short-circuit & under/over voltage port protection
- Port status and Main power LED indicators
- Standalone or wall mount installation support
- Interconnection option with other Power Injector units

Technical Specifications

Dimensions

87.9 mm x 51.3 mm x 166 mm
3.46 in x 2.0 in x 6.53 in

Weight

0.771 lbs (350g)

Table 1 Environmental Specifications

Operating Temperature	0°C to 40°C (32°F to 104°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Operating Humidity	10% to 90% Non-condensing
Storage Humidity	10% to 95% Non-condensing
Operating Altitude	-1000 to 10,000 ft. (-304.8 to 3048 m)

Table 2 Electrical Specifications

AC Input Voltage	90 - 264 VAC
AC Input Current	1A @ 110-220 VAC
AC Frequency	47 to 63 Hz

Table 3 Ethernet Interface

Input (Data In)	Ethernet 10/100/1000 Base-T (RJ-45 female socket)
Output (Data & Power Out)	Ethernet 10/100/1000 Base-T, plus 48V DC RJ-45 female socket with DC voltage on pairs 7-8 and 4-5

Verifying the AP-PSBIAS-1P3-AFR Box Contents

Inspect the package contents and report any missing or damaged items to your sales representative. The packages should contain the following:

Table 4 Contents of the AP-PSBIAS-1P3-AFR Box

Quantity	Item
1	AP-PSBIAS-1P3-AFR Quick Reference Guide
1	Power Injector (Part Number # AP-PSBIAS-1P3-AFR)

Installing the AP-PSBIAS-1P3-AFR Power Injector

Preparing for Site Installation

The Power Injector can be installed free standing, on an even horizontal surface or wall mounted using the power injector's wall mounting key holes. The following guidelines should be adhered to before cabling the Power Injector to the Ethernet source and device:

- Verify the device receiving converged power and Ethernet from the Power Injector is an approved product.
- Do not block or cover airflow to the Power Injector.
- Keep the Power Injector away from excessive heat, humidity, vibration and dust.
- The Power Injector is not a repeater, and does not amplify the Ethernet data signal. For optimal performance, ensure the Power Injector is placed as close as possible to the network data port. Do not configure the cable length between the Ethernet network source, the Power Injector and the AP beyond 100 meters (333ft).

Safety Information

Before operating any equipment, review this document for any hazards associated with installation and use of the device. Also, review standard practices for preventing accidents.

- Only trained and qualified personnel should install and remove the Power Injector
- A power cord is not supplied with the device. Use only a correctly rated power cord that's certified, as appropriate, for the country of operation.
- The power cord must be a three-conductor type (two current carrying conductors and one ground conductor) terminated on one end by an IEC 60320 appliance coupler (for Power Injector connection) and on the other end by a plug containing a ground (earth) contact.
- The power cord must be rated for a minimum of 250VAC RMS operation, with a minimum rated current capacity of 5A [or a minimum wire gauge of 18AWG (0.75mm²)].
- The AC wall-socket outlet must be near the Power Injector and easily accessible.
- The Power Injector Data and Data & Power interfaces are qualified as SELV (Safety Extra-Low Voltage) circuits according to the IEC 60950. These interfaces can only be connected to SELV interfaces on other equipment.

Warnings

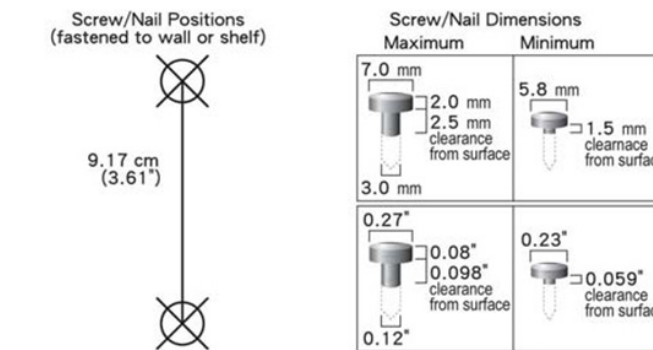
- Read the installation instructions before connecting the Power Injector to a power source.
- Follow basic electricity safety measures whenever connecting the Power Injector to its power source.
- This product relies on the building installation for short-circuit (over current) protection. Ensure a fuse or circuit breaker no larger than 120 VAC, 3A U.S. (240VAC, 1.5A international) is used on the phase conductor.
- A voltage mismatch can cause equipment damage and could pose a fire hazard. If the voltage indicated on the label is different from the power outlet voltage, do not connect the Power Injector to that particular outlet.
- The Power Injector Data In and Data & Power Out ports are shielded RJ-45 sockets. Only RJ-45 data connectors should be connected to these sockets.

Mounting the Power Injector

To mount the Power Injector:

- 1 Install two screws in the wall or shelf as shown below:

Figure 2 Screw and nail positions



- 2 Align the PD-70016 mounting slots to capture the surface screws.

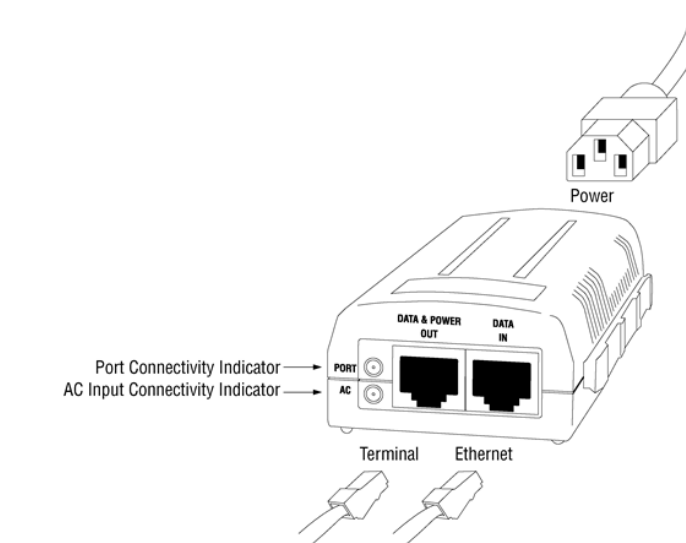
Cabling the Power Injector

To install the Power Injector to an Ethernet data source and device:

Caution: Ensure AC power is supplied to the Power Injector using an AC cable with an appropriate ground connection approved for the country of operation.

- 1 Connect the Power Injector to an AC outlet (100 VAC to 240 VAC).
- 2 Connect RJ-45 Ethernet cable between the network data supply (host) and the Power Injector Data In connector.
- 3 Connect a RJ-45 Ethernet cable between the Power Injector Data & Power Out connector and the device receiving converged power and Ethernet.
- 4 Ensure the cable length from the Ethernet source (host) to the Power Injector and Extreme device receiving converged power and Ethernet does not exceed 100 meters (333 ft).

Figure 3 Cabling the Power Injector



The Power Injector has no On/Off power switch. The Power Injector receives power and is ready for device connection and operation as soon as the AC power is applied.

Multiple Power Injector Installations

Each Power Injector has a coupling rail designed to connect Power Injectors together to support multiple device installations. Align the power injectors and slide the units together using the coupling rail to connect the units. Cable each device as described in the *Cabling the Power Injector* section of this document. Only one Extreme device (AP 100, AP 200, AP 300 or AP-5131) can be powered from a single Power Injector.

Power Injector LED Indicators

The Power Injector demonstrates the following LED behavior under normal and/or problematic operating conditions:

Figure 4 Power Injector LED Indicators

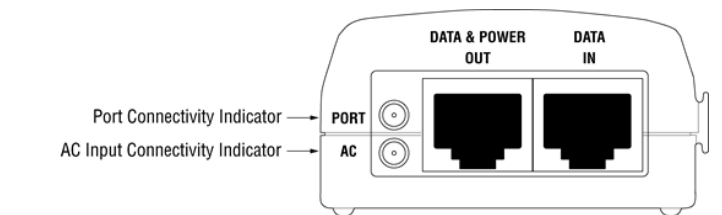


Table 5 LED Indicators

LED	AC (Main)	Port
Green (Steady)	Power Injector is receiving power from AC outlet	Indicates a device is connected to the Power Injector's outgoing Data & Power cable
Green (Blinking)	Output voltage source is out of range	The Power Injector is overloaded or has a short circuit

Troubleshooting

The following potential power injector problem scenarios should be addressed as follows:

Power Injector does not power up properly

- 1 Verify the power cord is operational and for the intended country of operation.
- 2 Verify the voltage at the power inlet is between 100 and 240 VAC.
- 3 Remove and reapply power to the Power Injector and verify the LED behavior during the powering sequence.

A Power Injector port indicator is not illuminated and the AP does not operate

- 1 The Power Injector did not detect the AP and thus the port is not enabled.
- 2 Ensure you are using a standard 5/5e/6, straight-wired cable with four pairs.
- 3 Verify the input Ethernet cable is connected to the Power Injector Data In port.
- 4 Verify the AP is connected to the Power Injector Data & Power port.
- 5 Reconnect the AP to a different Power Injector. If the AP receives power, there is probably a faulty port or RJ-45 connection on the Power Injector.
- 6 Verify there is not a short over any of the twisted pair cables or over the RJ-45 connectors.

Access Point receives power but no Ethernet

- 1 Verify the Ethernet cable is connected to an active hub or switch port on the network.
- 2 Verify the port indicator on the front panel is continuously illuminated.
- 3 Verify you are using a standard UTP/FTP Category 5 straight (non-crossover) cabling with all four pairs.
- 4 Ensure the Ethernet cable length is less than 100 meters from the Ethernet data source to the Power Injector.
- 5 Reconnect the Motorola AP to a different Power Injector. If the AP receives power, there is probably a faulty port or RJ-45 connection on the Power Injector.

Regulatory and Compliance Information

This guide applies to the AP-PSBIAS-1P3-AFR model Power Injector.

All Extreme devices are designed to be compliant with rules and regulations in locations where they are sold and will be labeled as required.

Local language translations are available at the following website:
www.extremenetworks.com/support/

Any changes or modifications to Extreme equipment, not expressly approved by Extreme, could void the user's authority to operate the equipment. When Extreme Networks devices are professionally installed, the Radio Frequency Output Power will not exceed the maximum allowable limit for the country of operation.

EMI Compliance:

Category 5 foiled twisted-pair cables must be used to ensure compliance with Class B emission limits.

Radio Frequency Interference Requirements

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 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:

Reorient or relocate the receiving antenna

Increase the separation between the equipment and receiver

Connect the equipment to an outlet on a circuit different from that to which the receiver is connected

Consult the dealer or an experienced radio/TV technician for assistance

CE Marking and European Economic Area (EEA)

Statement of Compliance

Extreme hereby declares that this device is in compliance with all applicable directives, 89/336/EEC, 73/23/EEC. A Declaration of conformity may be obtained from <http://www.extremenetworks.com/>

European Waste Electrical and Electronic Equipment (WEEE) Notice



In accordance with Directive 2012/19/EU of the European Parliament on waste electrical and electronic equipment (WEEE):

- 1 The symbol above indicates that separate collection of electrical and electronic equipment is required.
- 2 When this product has reached the end of its serviceable life, it cannot be disposed of as unsorted municipal waste. It must be collected and treated separately.
- 3 It has been determined by the European Parliament that there are potential negative effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment.
- 4 It is the users' responsibility to utilize the available collection system to ensure WEEE is properly treated.
For information about the available collection system, please contact Extreme Customer Support at 353 61 705500 (Ireland).

Extreme Wireless™ Power Injector

Quick Reference

AP-PSBIAS-1P3

Notice

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