Enterasys® Wireless

Outdoor Access Points

Installation Guide

WS-AP3765i
WS-AP3765e
WS-AP3767e

P/N 9034664-04

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About This Guide

The guide describes how to mount and connect cables to the Enterasys Wireless Outdoor WS-AP3765i, WS-AP3765e, and WS-AP3767e access points. In addition, this guide provides information on the product certifications and national approvals for these access points.

The WS-AP3765 is available in two versions: — one with internal antennas only (WS-AP3765i), and one with support for external antennas (WS-AP3765e). Each WS-AP3765 model provides one RJ-45 Ethernet port for LAN cable connections.

The WS-AP3767e is available in only one version that has support for external antennas. The WS-AP3767e provides two fiber optic SFP ports for LAN cable connections.

This guide documents installation, specifications, and certifications for all three models.

Note: This guide does not provide information on configuration of the access points. For information on how to configure the access points, see the *Enterasys Wireless Convergence Software User Guide*.

Who Should Use This Guide

The intended audience for this guide is professional installers who install the Enterasys Wireless Outdoor APs.

What Is in This Guide

This guide contains the following:

For...	Refer to...
An overview of the WS-AP3765 and WS-AP3767e APs and their physical characteristics.	Chapter 1, **Introduction**
Instructions for mounting the WS-AP3765 and WS-AP3767e APs.	Chapter 2, **Mounting the Outdoor Access Point**
Instructions for connecting cables to the WS-AP3765 and WS-AP3767e APs.	Chapter 3, **Connecting Cables to the Outdoor Access Points**
Specifications, environmental requirements, and physical properties of the WS-AP3765 and WS-AP3767e APs	Chapter 4, **Technical Specifications**
Certifications and national approvals for the WS-AP3765 and WS-AP3767e Outdoor APs.	Chapter 5, **Certification**

Related Documents

The manuals listed below, and other Enterasys product documentation, can be obtained from the World Wide Web in Adobe Acrobat Portable Document Format (PDF) at the following site:

http://extranet.enterasys.com/downloads/

- *Enterasys Wireless Convergence Software User Guide* provides information on how to use the wireless controller software to configure these access points.
- *Enterasys Wireless External Antenna Site Preparation and Installation Guide* provides information on how to install external antennas and connect them to access points.

Formatting Conventions

This document uses the following formatting conventions:

blue type	Indicates a hypertext link. When reading this document online, click the text in blue to go to the referenced figure, table, or section.
Lowercase x	Indicates the general use of an alphanumeric character (for example, 6x1xx, the x's indicate a combination of numbers or letters).
	**Note:** Calls the reader's attention to any item of information that may be of special importance.
	**Caution:** Contains information essential to avoid damage to the equipment. **Precaución:** Contiene información esencial para prevenir dañar el equipo. **Achtung:** Verweist auf wichtige Informationen zum Schutz gegen Beschädigungen.
	**Warning:** Warns against an action that could result in personal injury or death. **Advertencia:** Advierte contra una acción que pudiera resultar en lesión corporal o la muerte. **Warnhinweis:** Warnung vor Handlungen, die zu Verletzung von Personen oder gar Todesfällen führen können!
	**Electrical Hazard:** Warns against an action that could result in personal injury or death. **Riesgo Electrico:** Advierte contra una acción que pudiera resultar en lesión corporal o la muerte debido a un riesgo eléctrico. **Elektrischer Gefahrenhinweis:** Warnung vor sämtlichen Handlungen, die zu Verletzung von Personen oder Todesfällen – hervorgerufen durch elektrische Spannung – führen können!

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Phone	1-800-872-8440 (toll-free in U.S. and Canada) or 1-603-952-5000 To find the Enterasys Networks Support toll-free number in your country: www.enterasys.com/support
Email	support@enterasys.com To expedite your message, type the product or document part number in the subject line.

Before contacting Enterasys Networks for technical support, have the following information ready:

- Your Enterasys Networks service contract number

- A description of the failure
- A description of any action(s) already taken to resolve the problem (for example, changing mode switches or rebooting the unit)
- The serial and revision numbers of all involved Enterasys Networks products in the network
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load and frame size at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this a recurring problem)
- Any previous Return Material Authorization (RMA) numbers

Safety Information

Removing the Housing Cover

Warning: Danger from line voltage
Once you have removed the housing cover, there is the danger from line voltage in the area of the connecting terminate on the power supply adapter.

Only authorized personnel is permitted to open the device and carry out any work on the open device (for example, connection and disconnection of lines, operating the reset button).

Qualified Personnel

The device/system must be set up and used in conjunction with this documentation. Commissioning and operation of a device/system may be performed only by professionally qualified personnel. Within the context of the safety notes in this documentation qualified persons are defined as persons who are authorized to commission, ground and label devices, systems and circuits in accordance with established safety practices and standards.

Warning: The device/system must be installed and used strictly in accordance with this document.

Prescribed Usage

Note the following:

Warning: This device may be used only for the applications described in the catalog or the technical description and only in connection with devices or components from other manufacturers which have been approved or recommended by Enterasys Networks. Correct, reliable operation of the product requires proper transport, storage, positioning and assembly as well as careful operation and maintenance.

Warning: When installing this device/system in hazardous environments, you must strictly follow the Danger, Warning and Cautionary notes, and the procedures as stipulated in this document.

Biological Compatibility

With regard to the question of whether electromagnetic fields (for example in association with industrial wireless LANs) can put human health at risk, we refer to a publication of BITKOM (German Association for information Technology, Telecommunication and New Media e. V.), dated December 2003:

The same health guidelines apply to WLAN devices as to all other radio applications. These regulations are based on the protection concept of ICNIRP (International Council on Non-ionizing Radiation Protection) or the corresponding recommendation of the European Council.

The independent German radiation protection commission (SSK) was commissioned by the federal German ministry of the environment to investigate the possible dangers - thermal and non-thermal - resulting from electromagnetic fields and came to the following conclusions:

“The German Commission on Radiological Protection concludes that according to the latest scientific literature no new scientific research is available with respect to proven health hazards which would throw doubt upon the scientific evaluation which serves as the basis for the ICNIRP safety concepts and the recommendations of the EU commission”.

The SSK also concludes that below the current limit values, these is also no scientific suspicion of health risks.

This assessment agrees with those of other national and international scientific commissions and of the WHO (www.who.int/emf).

Accordingly and in view of the fact that WLAN devices are significantly below the scientifically established limit values, there are no health risks from the electromagnetic fields of WLAN products.

You will find further information on this topic under the following URL: www.bitkom.org

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Enterasys Networks has reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely,
Enterasys Networks cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

1

Introduction

This chapter introduces the WS-AP3765i, WS-AP3765e, and WS-AP3767e outdoor access points.

Product Overview

The Enterasys Wireless Outdoor WS-AP3765i, WS-AP3765e, and WS-AP3767e access points enable you to extend your Wireless LAN beyond the boundaries of indoor locations. They are resistant to harsh outdoor conditions and extreme temperatures. Using the advanced wireless distribution feature of the Enterasys Wireless LAN, the WS-AP3765i, WS-AP3765e, and WS-AP3767e access points can extend your Wireless LAN to outdoor locations without Ethernet cabling. A mounting bracket is available to enable quick and easy mounting of the access points to walls, rails, and poles.

The WS-AP3765 and WS-AP3767e models have two radios that support the 802.11n standard, and have full backward compatibility with legacy 802.11a/b/g devices. WS-AP3765 is available in two versions: — one with internal antennas only (AP3765i), and one with support for external antennas (AP3765e). The WS-AP3767e also provides support for external antennas. Both the WS-AP3765e and WS-AP3767e with external antenna connectors support a variety of antennas, providing range and coverage versatility.

The WS-AP3765i, WS-AP3765e, and WS-AP3767e inter-operate fully with the Enterasys Wireless LAN, including support for Enterasys VoWLAN, branch office mode, availability and mobility features.

The WS-AP3765 models provide one Ethernet RJ45 connector for LAN connectivity.

The WS-AP3767e provides two SFP fiber transceiver sockets for LAN connectivity. The AP uses one transceiver to connect upstream to the access controller and the local LAN. The second transceiver is optional and used only if the optical network has to be extended downstream from the AP.

Figure 1-1 Enterasys Wireless Outdoor WS-AP3765 and WS-AP3767e Access Points

Note: These access points require configuration and control from the Enterasys Wireless Controller.

Warning: The WS-AP3765 and WS-AP3767e access points must not be installed in an explosive atmosphere.

You do not have to carry out any extra configuration to work with the WS-AP3765 and WS-AP3767e access points. For configuration information, see the *Enterasys Wireless Convergence Software User Guide.*

Note: In this document, when the term “WS-AP3765” is used, it refers to both the “i” and “e” models. A specific model number is called out only when the information differs by model.

Package Contents

The following components are supplied with the WS-AP3765 and WS-AP3767e packages:

- Five caps for the cover screws
- Depending on the version, up to 8 plugs for sealing the housing.
- Depending on the version, up to 8 strain relief clamps
- One tooth washer for the ground terminal
- 24V DC cable connector (shipped installed in place in the AP housing)
- A printed copy of the *Quick Reference* for your access point model.

Confirm that each access point package is complete. If the package is not complete, contact your supplier or your local Enterasys sales office.

Accessories and Transceivers

Table 1-1 lists accessories for the WS-AP3765 and WS-AP3767e. You can order these products from Enterasys Networks.

Table 1-1 WS-AP3765 Accessories List

Accessory	Description	Enterasys Part Number
Power Module	Power Supply Adapter Input: 100-240V AC Output: 24V DC	WS-PS376X-MR
Mounting Bracket Set	Wall mounting bracket specifically for the WS-AP3765 and WS-AP3767e	WS-MB376X-01
Lightning Protector	Lightning protector N/N female/female	WS-CAB-LPM

Table 1-2 lists the industrial pluggable transceivers that can be used with the WS-AP3767e. These transceivers can be ordered from Enterasys Networks. Supported transceiver models are also listed in the data sheet at:

http://www.enterasys .com/products/transceivers-ds.pdf

Table 1-2 Pluggable Transceivers Supported for the WS-AP3767e

Part Number	Description
I-MGBIC-GLX	-40°C to +60°C, 1 Gb, 1000BASE-LX, MM - 550 m, SM - 10 km, 1310 nm Long Wave Length, LC SFP
I-MGBIC-LC03	-40°C to +60°C, 1 Gb, 1000BASE-LX, MM, 1310 nm, 2 km with 62.5 MMF, 1 km with 50 MMF, LC SFP
I-MGBIC-GSX	-40°C to +60°C, 1 Gb, 1000BASE-SX, IEEE 802.3 MM, 850 nm Short Wave Length, 220/550 m, LC SFP

For a list of certified external antennas, see "External Antennas" on page 4-4.

For a list of valid cables and connectors, see "WS-AP3765 / WS-AP3767e Cables and Connectors" on page 3-4.

Access Point LEDs

WS-AP3765 LEDs

The WS-AP3765 frontal view of the housing cover displays six LEDs. These LEDs provide information on operating status. For more information, see the *Enterasys Wireless Convergence Software User Guide*.

Figure 1-2 WS-AP3765 LEDs

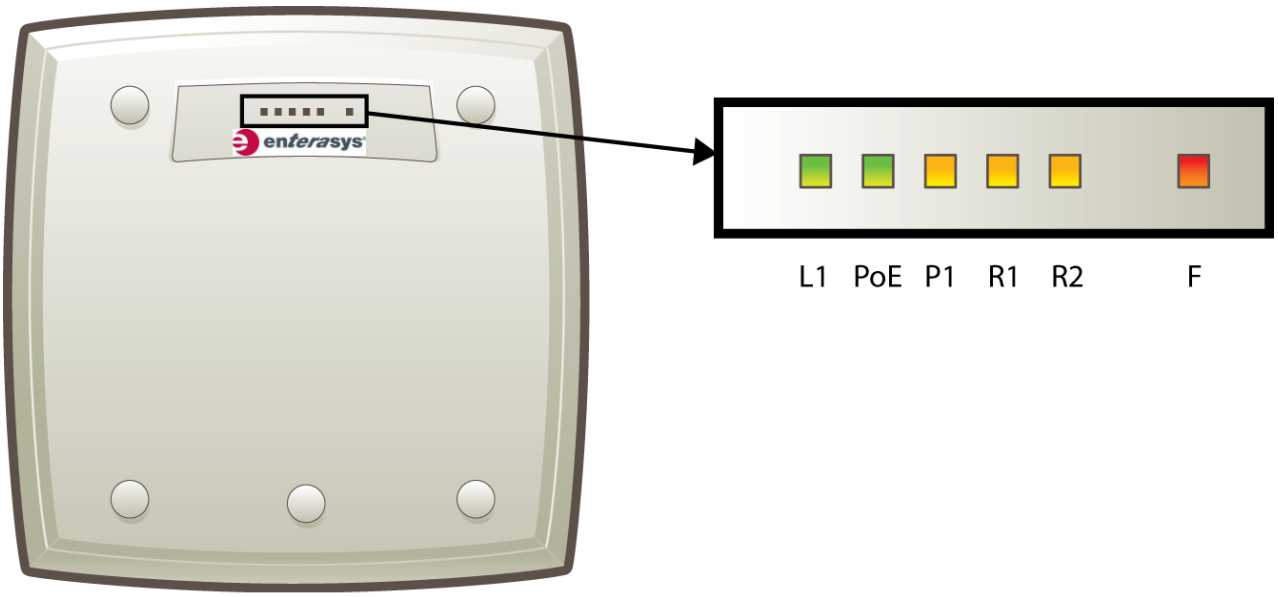


Table 1-3 WS-AP3765 LED Descriptions

LED	Color	Meaning
L1	Green	Power LED. When on, indicates AP power is sourced from power supply.
PoE	Green	PoE power LED. When on, indicates AP power is source from PoE.
P1	Green	Ethernet port 1 LED. When green on, indicates Ethernet port activity. When off, Ethernet is off, WDS is enabled.
R1	Green	WLAN Radio 1 LED. When green on, indicates Radio 1 is active.
	Amber	When amber on, indicates WDS up link.
R2	Green	WLAN Radio 2 LED. When green on, indicates Radio 2 is active.
F	Red	Error LED. When on, indicates error. When off, indicates normal operation, AP connected to controller.

WS-AP3767e LEDs

The WS-AP3767e frontal view of the housing cover displays six LEDs. These LEDs provide information on operating status. For more information, see the *Enterasys Wireless Convergence Software User Guide*.

Figure 1-3 WS-AP3767e LEDs

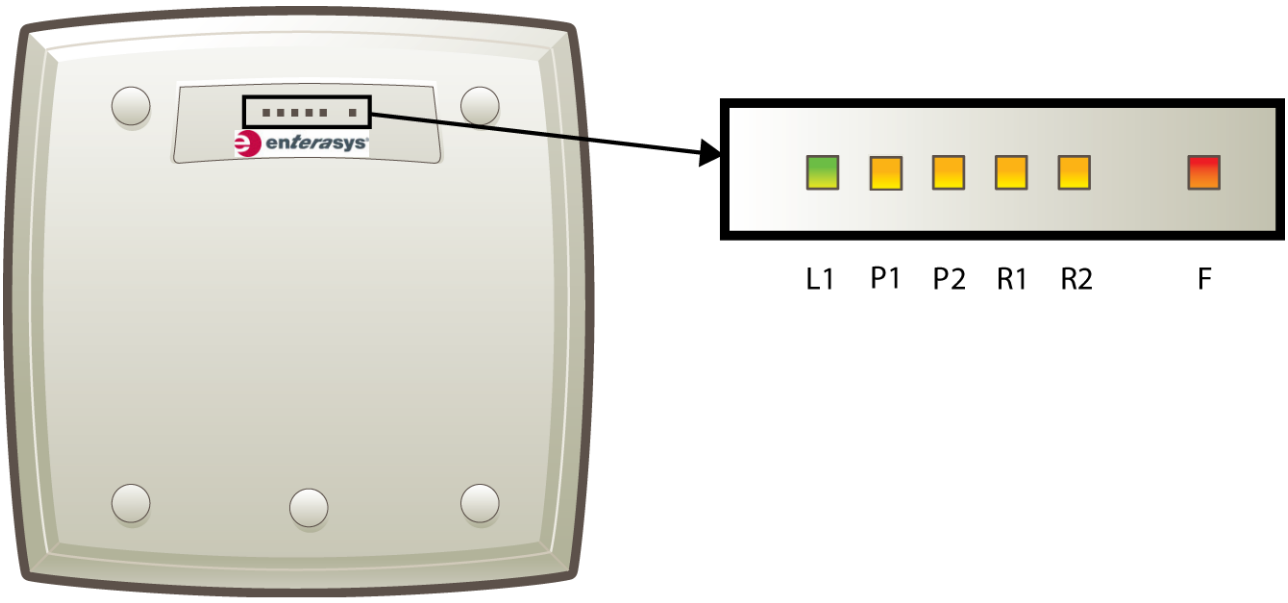


Table 1-4 WS-AP3767e LED Descriptions

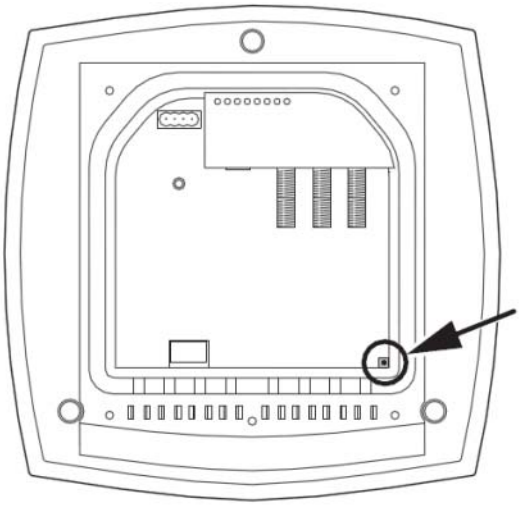
LED	Color	Meaning
L1	Green	Power LED. When on, indicates AP power is sourced from power supply.
P1	Green	SFP port 1 LED. When green on, indicates SFP port activity. When off, port is off, WDS is enabled.
P2	Green	SFP port 2 LED. When green on, indicates SFP port activity. When off, port is off, WDS is enabled.
R1	Green	WLAN Radio 1 LED. When green on, indicates Radio 1 is active.
	Amber	When amber on, indicates WDS up link.
R2	Green	WLAN Radio 2 LED. When green on, indicates Radio 2 is active.
F	Red	Error LED. When on, indicates error. When off, indicates normal operation, AP connected to controller.

Reset Button

The reset button is located below the housing cover beside the sockets for external antennas as depicted in Figure 1-4 on page 1-6. You must remove the housing cover to gain access to the reset button.

Warning: Turn off the power supply of the access point before you remove the housing cover. After you have removed the housing cover, turn the power on to use the reset button.

Figure 1-4 Reset Button, With The Housing Cover Removed



The reset button resets the access point to its factory defaults. Press the button quickly to restart the device. Press and hold the button to reset the device to its factory defaults.

Periodic Maintenance

The access point requires minimal periodic or preventive maintenance. When installed in an outdoor location, periodic inspections should be conducted in order to ensure that the access point is operating satisfactory. This section provides information about performing maintenance on an access point installed in an outdoor location.

Inspect the following items on a yearly basis and correct any defects found:

- Check that the weatherproofing tape is still covering the exposed connectors.
- Check for any holes, tears, or damage in the exterior tape.
- Check that there are no drips or drip marks indicating drips or liquid entry into the AP or exposed connectors and/or tape.
- Check that the AP cover is not loose, cracked, or damaged and the screws are properly torqued.
- Check that the AP bracket is not bent and is securely mounted.

2

Mounting the Outdoor Access Point

This chapter describes the following steps for mounting the outdoor access point:

Removing/Replacing the Housing Cover

You have to remove the housing cover to carry out any of the following activities:

- Mount the WS-AP3765 or WS-AP3767e to a wall or to the optional mounting plate
- Connect the power supply cables, Ethernet cable, or external antenna cables to the access points

Note: The torque values for all cable attachments is 0.6Nm (5.0 in-lb, or 5.8kgF-cm).

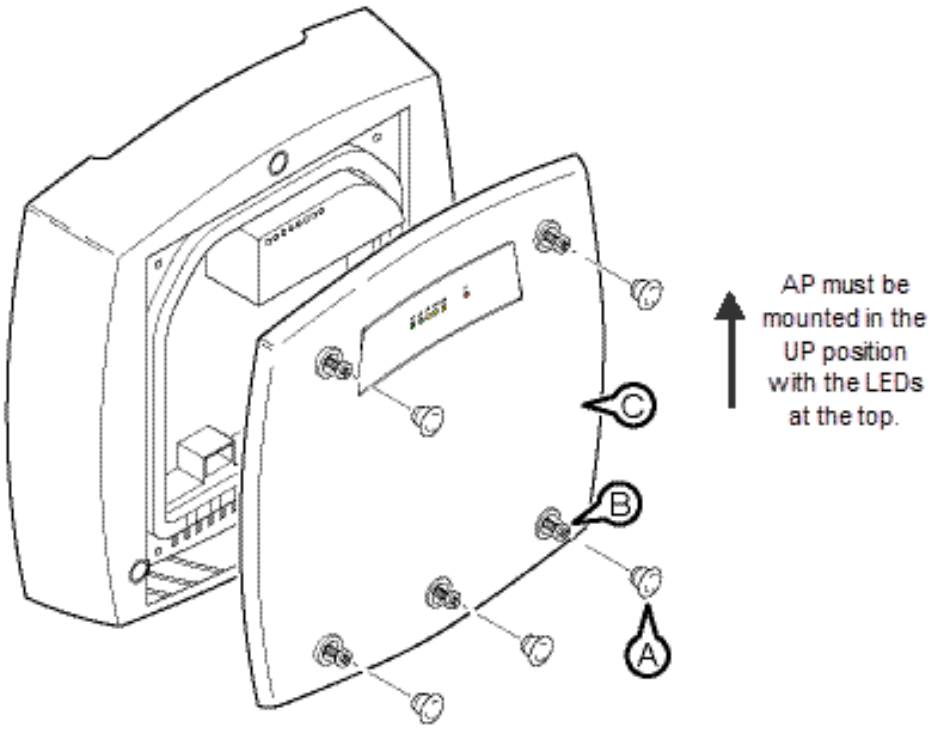
- Use the reset button on the access points

Warning: Remove the housing cover only after you have turned off the power supply to the WS-AP3765 or WS-AP3767e.

Warning: Danger from line voltage
Once you have removed the housing cover, there is the danger from line voltage in the area of the connecting terminate on the power supply adapter.

Only authorized personnel is permitted to open the device and carry out any work on the open device (for example, connection and disconnection of lines, operating the reset button).

Figure 2-1 Removing the Housing Cover



To remove the housing cover:

1. Remove the sealing caps from the housing cover (Position A in Figure 2-1)
2. Loosen the screws in the cover (Position B in Figure 2-1).

Note: These screws remain in the cover after they have been loosened (this design element prevents them from being lost). Never attempt to remove these screws from the housing cover using force, otherwise the housing cover will be damaged.

3. Remove the housing cover with the captive screws (Position C in Figure 2-1).

Replacing the housing cover is carried out in the reverse order of the sequential steps of removing the housing cover.

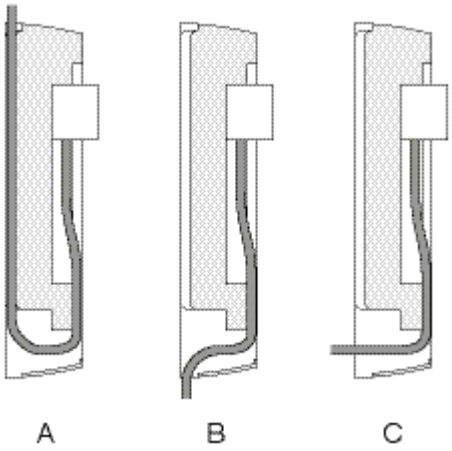
Note: The cover screws must be torqued to a value of 1.8Nm (15.9 in-lb, or 18.4kgF-cm).

Attaching Cables

Attaching Cables Prior to Mounting

Before you screw the WS-AP3765 or WS-AP3767e to a wall or to the optional mounting plate, you must connect the power supply cables, Ethernet cable, or external antenna cables to the access point.

Figure 2-2 Side View of Outdoor Access Point with Cables Entering from Different Directions



Note: The AP must be installed as shown in Figure 2-2 for maximum protection against outside elements.

The available options are as follows:

- The cables are inserted from above (Position A in Figure 2-2). The housing of the WS-AP3765 and WS-AP3767e has an opening at the top for this purpose.
- The cables are inserted from below (Position B in Figure 2-2). There is an opening at the bottom for this purpose.
- Cables inserted through a wall behind the AP (Position C in Figure 2-2). Mount the AP so that the opening in the wall is located above the lower edge of the device.

Note: The internal cable connections must be torqued to a value of 0.6Nm (5.0 in-lb, or 5.8kgF-cm).

Grounding Terminal

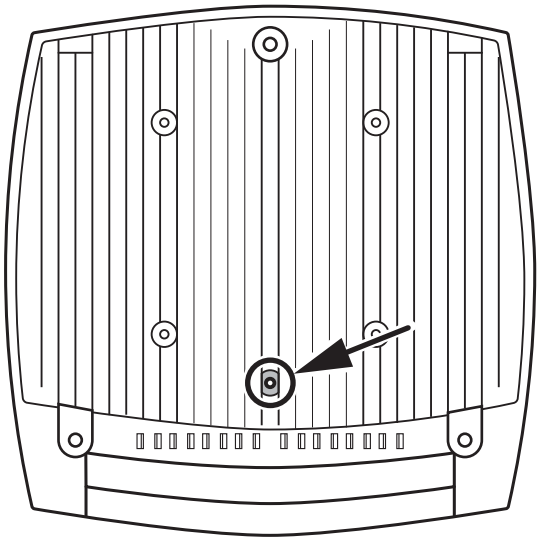
Warning: To operate the WS-AP3765 and WS-AP3767e safely, the chassis ground connector must have a suitable cable connected to it. Do not use the AP without a connected ground cable.

The chassis ground connector is located on the rear of the device (M4 thread). Connect the ground cable before you mount the AP on the wall or on the optional mounting plate. Once the AP is mounted, the connector is no longer accessible.

Place the supplied toothed washer directly on the rear of the device before screwing on the ground cable. This ensures that there is maximum contact with the screwed-on cable.

Note: The AP must be installed as shown in Figure 2-3 for maximum protection against outside elements.

Figure 2-3 Chassis Ground Connector on Rear of AP



Mounting Without a Mount Bracket (Wall Mounting Only)

Regarding Installation Location

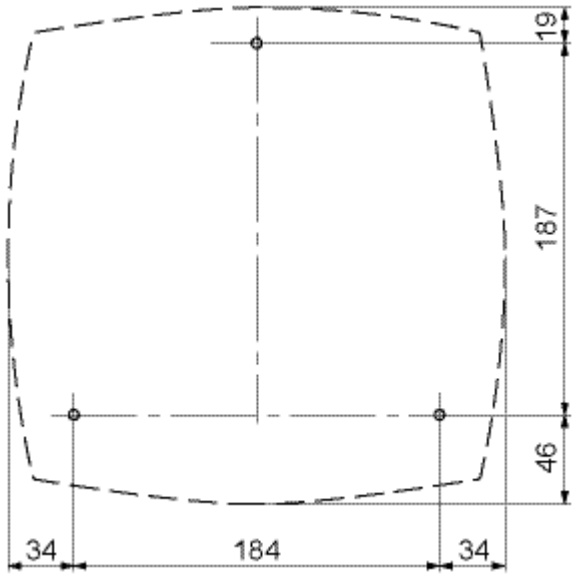
- Devices with an internal antenna must be aligned according to the characteristics of the internal antenna (refer to the technical specifications of the antenna “External Antennas” on page 4-4 and Radiation pattern diagrams “Internal Antenna Radiation Patterns” on page 4-5). Since the internal antennas are integrated in the housing, the location and alignment of the housing decides the radiation direction of the antennas.
- There are no restrictions relating to devices without internal antennas.

Drilling Template

The location of the holes for mounting the WS-AP3765 or WS-AP3767e on a wall without the wall mounting bracket is depicted in Figure 2-4. Measurements are in centimeters.

Note: The AP must be installed as shown in Figure 2-4 for maximum protection against outside elements.

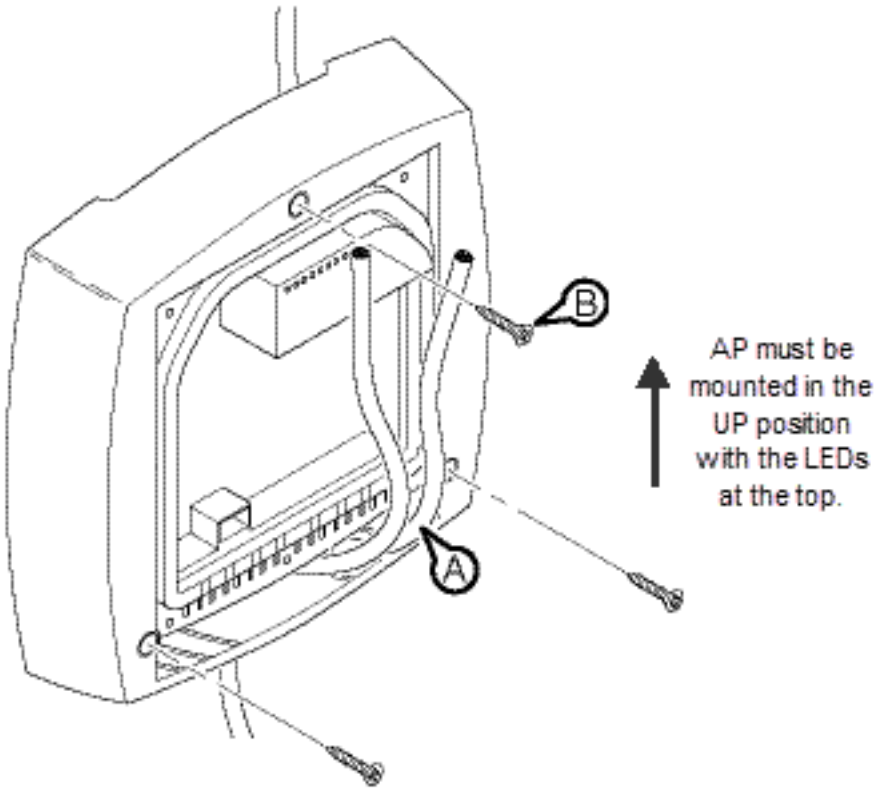
Figure 2-4 Drilling Template for Wall Mounting



To mount the access point without a mounting bracket (wall mounting only):

1. Lead the cables into the housing of the access point (Position A in Figure 2-5).

Figure 2-5 WS-AP3765 and WS-AP3767e Wall Mounting



2. Secure the AP to the wall with three screws (Position B Figure 2-5). The screws are not supplied with the device. The type and length of the screws depend on the type of wall.

Option: Threaded Holes on Rear of Housing

When a wall is extremely thin, it is often not possible to use wall plugs for the screws. To allow wall mounting in this situation, four M4 threaded holes are provided on the rear of the WS-AP3765. The drilling template is a square with sides 100 mm long. The device can therefore be mounted on a wall with bolts through the wall.

Note: There must be at least five complete threads in the AP and the screws must be torqued to a value of 1.1Nm (10.0 in-lb, or 11.5kgF-cm).

Mounting with Mounting Bracket

The mounting bracket (WS-MB376X-01) is optional and can be ordered separately. See Table 1-1 on page 1-3.

Regarding Installation Location

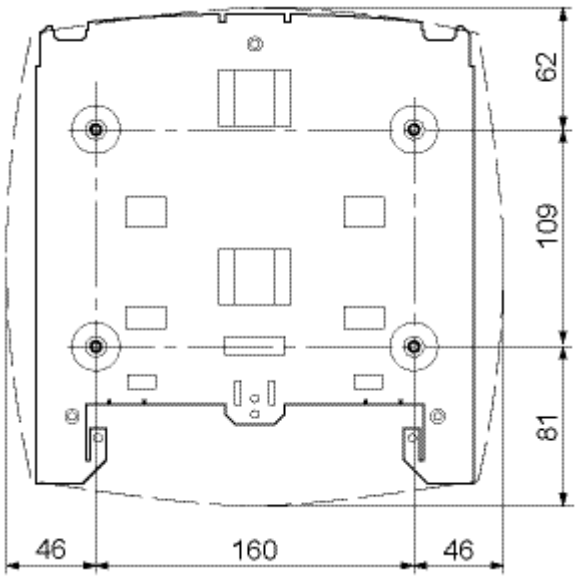
- Devices with an internal antenna must be aligned according to the characteristics of the internal antenna (refer to the technical specifications of the antenna "External Antennas" on page 4-4 and Radiation pattern diagrams "Internal Antenna Radiation Patterns" on page 4-5). Since the internal antennas are integrated in the housing, the location and alignment of the housing decides the radiation direction of the antennas.
- There are no restrictions relating to devices without internal antennas.

Fitting the Mounting Bracket to a Wall

The locations of the holes for fitting the mounting bracket to a wall are depicted in Figure 2-6. Measurements are in centimeters.

Note: The AP must be installed as shown in Figure 2-6 for maximum protection against outside elements.

Figure 2-6 Drilling Template for Fitting the Mounting Bracket to a Wall

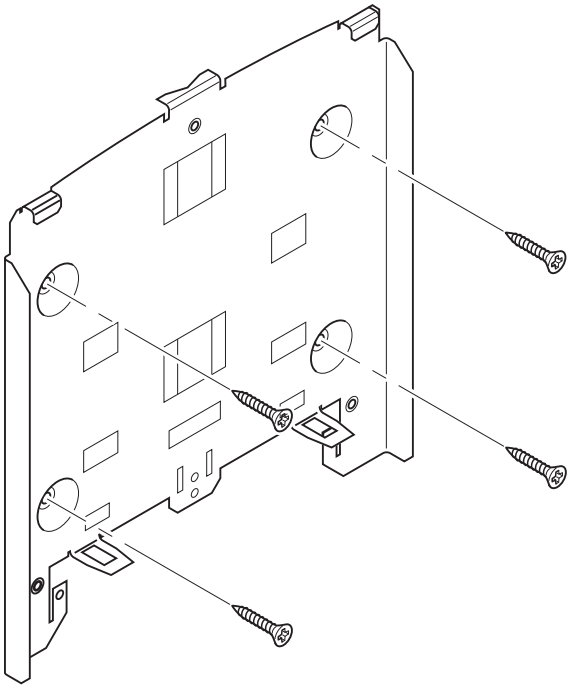


To fit the mounting plate to a wall:

- Secure the mounting plate to the wall with four screws. Screws are not supplied with the AP. The type and length of the screws depend on the type of wall.

Note: The AP must be installed as shown in Figure 2-7 for maximum protection against outside elements.

Figure 2-7 Fitting the Mounting Plate to a Wall



Attaching the Cover Plate to the Mounting Plate

The cabling of the WS-AP3765 and WS-AP3767e is led out of the rear of the device. The housing seal is effective only when it is not subjected to spray water. If the device is mounted on a wall, no further measures are necessary. When mounted in any other way, an additional cover plate must be screwed to the mounting plate.

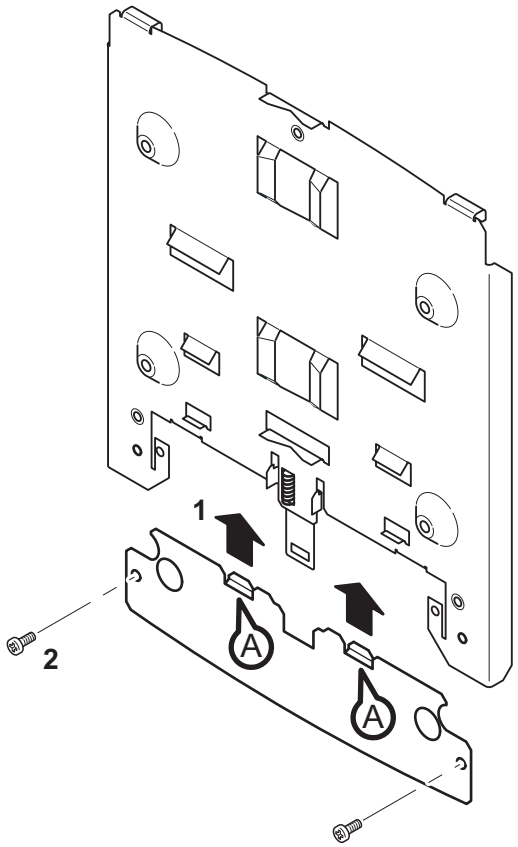
Warning: If the cable feed through on the rear of the device is exposed to spray water, degree of protection IP65 no longer applies. In this case, water can penetrate the device and establish a live connection to the line voltage. There is then a risk of electric shock. Ensure that you use the cover plate for the cable feed through if you are not mounting the access point on a wall, that covers the cable entrance.

To screw the cover plate to the mounting plate for the cable feed-through:

1. Fit the cover plate on the mounting plate from below until the two lugs (Position A in Figure 2-8) engage the lower edge of the mounting plate.

Note: The AP must be installed as shown in Figure 2-8 for maximum protection against outside elements.

Figure 2-8 Fitting and Securing the Cover Plate for the Cable Feed Through



2. Secure the cover plate to the mounting plate with two M4 screws. The screws are supplied with the mounting kit.

Note: The mounting screws must be torqued to a value of 1.5Nm (13.5 in-lb, or 15.5kgF-cm).

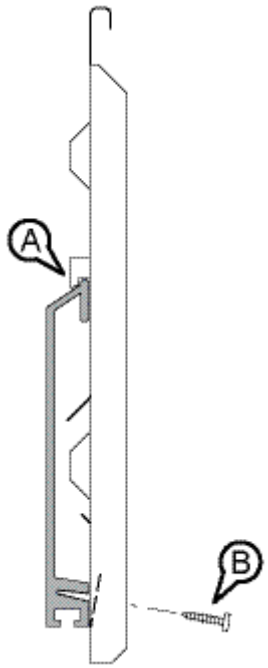
Fitting the Mounting Plate to an S7-300 Standard Rail

To fit the mounting plate to an S7-300 standard rail:

1. Place the mounting plate with the two protruding catches on the top edge of the S7-300 standard rail (Position A in Figure 2-9).

Note: The AP must be installed as shown in Figure 2-9 for maximum protection against outside elements.

Figure 2-9 Side View of a Mounting Plate on an S7-300 Standard Rail



2. At the bottom, the mounting plate has two lugs with holes. Screw the lugs to the S7 standard rail (position B in Figure 2-9). The required screws are supplied with the mounting plate.

Note: The screws must be torqued to a value of 1.0Nm (8.9 in-lb, or 10.2kgF-cm).

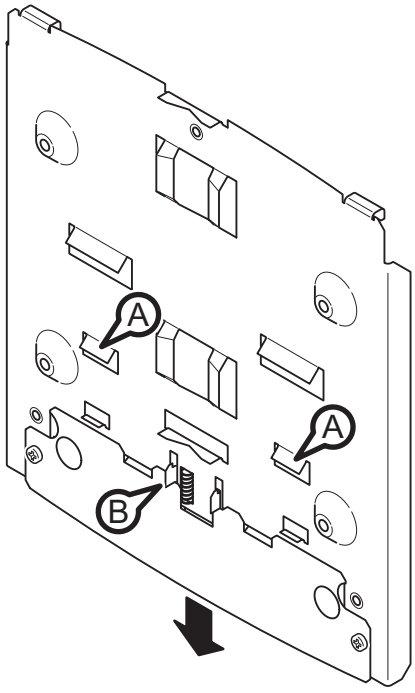
Fitting the Mounting Plate to a DIN Rail

To fit the mounting plate to a DIN rail:

1. Place the mounting plate with the two catches (Position A in Figure 2-10) on the upper edge of the DIN rail.

Note: The AP must be installed as shown in Figure 2-10 for maximum protection against outside elements.

Figure 2-10 Mounting Plate with Fittings for DIN Rail Mounting



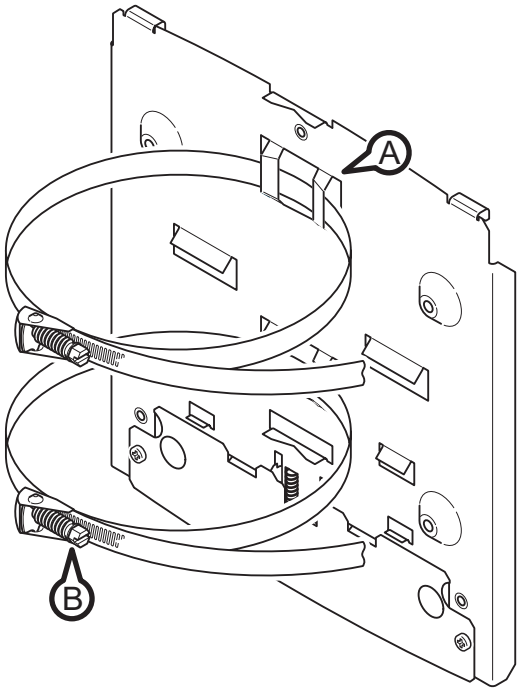
2. Pull down the DIN rail sliding catch (Position B in Figure 2-10) and press the mounting plate against the DIN rail until the sliding catch engages.

Fitting the Mounting Plate to a Mast

To fit the mounting plate to a mast:

1. Feed the fastening straps through the openings in the mounting plate (position A in Figure 2-11).

Figure 2-11 Mounting Plate with Fittings for Mast Mounting



2. Place the fastening straps around the mast at the required position.
3. Feed the free end of the strap through the quick-release fastener. You can twist the tensioning screw (Position B in Figure 2-11) to the side to adapt a fastening strap to the diameter of the mast.
4. Press the tensioning screw against the fastening strap and tighten the tensioning screw.

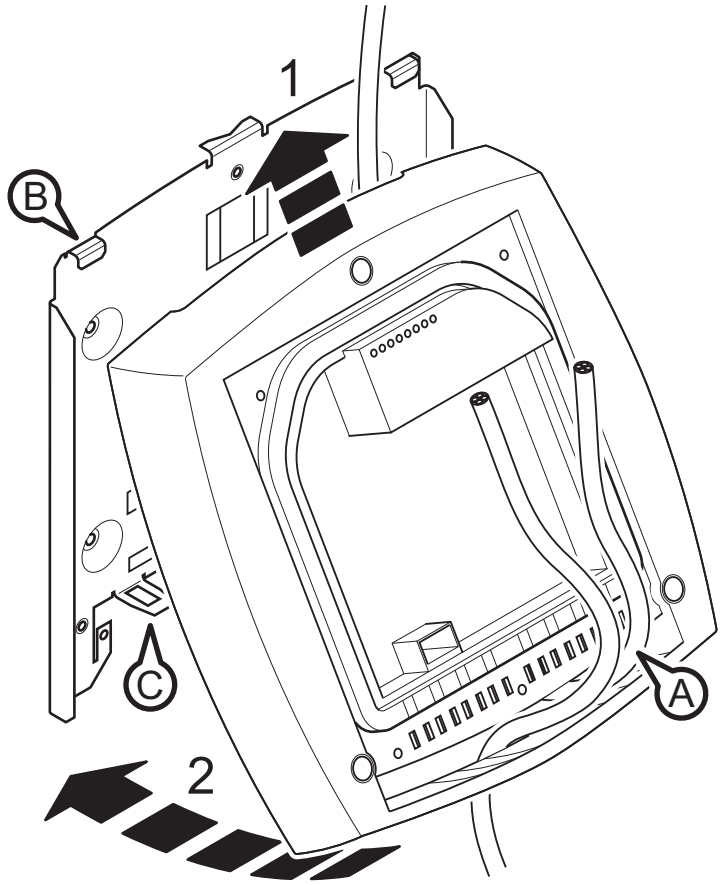
Note: The tensioning screw must be torqued to a value of 4.5Nm (39.8 in-lb, or 45.9kgF-cm).

Fitting the AP to a Mounting Bracket

To fit an WS-AP3765 or WS-AP3767e to a mounting bracket:

1. Lead the cables into the housing of the AP (Position A in Figure 2-12). For more information, see Chapter 3, **Connecting Cables to the Outdoor Access Points**.

Figure 2-12 Fitting the AP to a Mounting Bracket



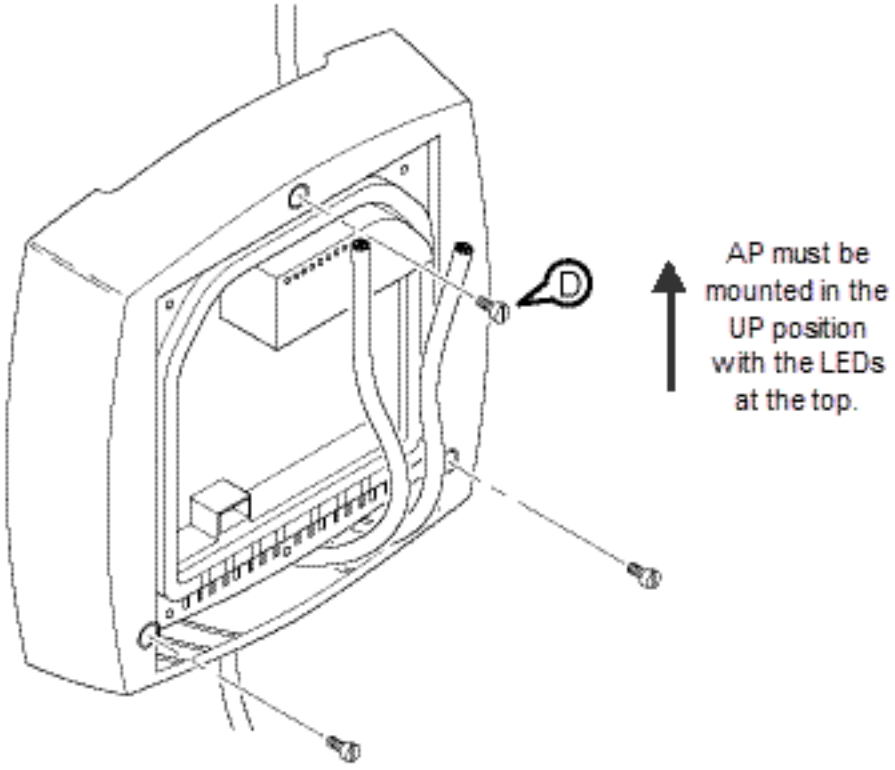
2. Fit the AP so that the upper edge of the rear of the housing is below the two catches of the mounting plate (Position B in Figure 2-12).

Note: The AP must be installed as shown in Figure 2-12 for maximum protection against outside elements.

3. Push in the AP until it engages in the notches at the lower edge of the mounting bracket (Position C in Figure 2-12).
4. Screw the AP using the three M4 screws supplied with the mounting bracket (Position D in Figure 2-13), tightening torque 1.8 Nm.

Note: The M4 screws must be torqued to a value of 1.8Nm (15.9 in-lb, or 18.4kgF-cm).

Figure 2-13 Screwing WS-AP3765 or WS-AP3767e to a Mounting Plate



To remove the AP:

1. Loosen the screws (position D in Figure 2-13) between the AP and mounting plate.
2. Using a screwdriver or similar tool, press down the two lugs on the lower edge of the mounting plate (position C in Figure 2-12 on page 2-12) and release the AP from the recesses.
3. Pull out the lower edge of the AP to the front and then release it from the two clips on the mounting plate (position B in Figure 2-12 on page 2-12).

3

Connecting Cables to the Outdoor Access Points

This chapter provides the following information about connecting cables to the WS-AP3765 and WS-AP3767e access points.

Safety Notices

General

Warning: FM, UL, ATEX

WARNING - Explosion Hazard – Substitution of components may impair suitability for Class I, Division 2 or Zone 2.

Warning: Cat. Nos. EAP-Wx-yy-zx (Canadian installation only):

- TC cable type and manufacturer shall be specified: Listed (QPOR), Type JZ-604 TC manufactured by Helukabel GmbH.
- The TC cable for the power supply must be installed in areas of industrial establishments that are inaccessible to the public and in a manner that meets the requirements in Rule 12- 2202(2) of the CEC: Installed in conduit, other suitable raceway, or direct buried, when not in cable tray. Provided with mechanical protection where subject to damage either during or after installation.Installed only where qualified persons service the installation.

Warning: FM, UL, ATEX

WARNING: DO NOT OPEN WHEN ENERGIZED.

Warning: Notices FM, ATEX

While operating or servicing the WS-AP3765 or WS-AP3767e in hazardous environments, you must strictly follow the warning notices given below:

- WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR DIVISION 2.
- WARNING: DO NOT DISCONNECT EQUIPMENT WHEN A FLAMMABLE OR COMBUSTIBLE ATMOSPHERE IS PRESENT.

Notes on Lightning Protection

Warning: Antennas installed outdoors must be within the area covered by a lightning protection system. Make sure that all conducting systems entering from outdoors can be protected by a lightning protection potential equalization system.When implementing your lightning protection concept, make sure you adhere to the VDE 0182 or IEC 62305 standard.

A suitable lightning conductor is available to order for the WS-AP3765 and WS-AP3767e:

Lightning Protector part number: WS-CAB-LPM

Warning: Installing this lightning protector between an antenna and an WS-AP3765 or WS-AP3767e is not adequate protection against a lightning strike. The lightning protector only works within the framework of a comprehensive lightning protection concept. If you have questions, consult a qualified specialist company.

Note: The requirements of EN61000-4-5, surge immunity tests on power supply lines, are met only when a Blitzductor is used with 12V DC to 24V DC:
• 12V DC: VT AD 24V type no. 918 402
Manufacturer: DEHN+SÖHNE GmbH+Co.KG Hans Dehn Str.1 Postfach 1640 D 92306 Neumarkt, Germany.

Safety Extra-Low Voltage

Warning: The WS-AP3765 and WS-AP3767e access points are designed for operation with a directly connectable safety extra-low voltage or with the power supply adapters available as accessories (available only for WS-AP3765 and WS-AP3767e devices). Therefore, only safety extra-low voltage (SELV) with limited power source (LPS) complying with IEC950/EN60950/VDE0805 may be connected to the power supply terminals (exception: Power supply adapter for 100 - 240 V AC for the WS-AP3765 and WS-AP3767e).
The power supply unit to supply the WS-AP3765 and WS-AP3767e must comply with NEC Class 2 (requirements of class 2 for power supply units of the “National Electrical Code, table 11 (b)”) or SELV with LPS (Limited Power Source) EN 60950-1. If the power supply is designed redundantly (two separate power supplies), both power supplies must meet these requirements.
Exception:

- Power supply with PELV (according to VDE 0100-410 or IEC 60364-4-41) is also possible if the generated rated voltage does not exceed the voltage limits 25V AC or 60V DC.

Grounding

Caution: There must be no potential difference between the following parts, otherwise there is a risk that the device will be destroyed:

- Housing of the WS-AP3765 or WS-AP3767e and the ground potential of the antenna.
- Housing of the WS-AP3765 or WS-AP3767e and the ground potential of a device connected over Ethernet.
- Housing of the WS-AP3765 or WS-AP3767e and the shield contact of the connected Ethernet cable.Connect both grounds to the same foundation earth or use an equipotential bonding cable.

Warning: DO NOT DISCONNECT EQUIPMENT WHEN A FLAMMABLE OR COMBUSTIBLE ATMOSPHERE IS PRESENT.

Warning: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2 OR ZONE 2.

Warning: DO NOT OPEN WHEN ENERGIZED.

Power/Cables

Caution: Damage to the Ethernet interface

Repeated fast removal and insertion of the Ethernet cable when using Power-over-Ethernet and when there is a redundant power supply can cause damage to the Ethernet interface.

Avoid repeatedly removing and inserting the Ethernet cable when using Power-over-Ethernet and a redundant power supply.

Warning: Cat. Nos. EAP-Wx-yy-zx (US installation only):

- PLTC cable type and manufacturer shall be specified: Listed (QPTZ), Type 5240U1 (Waterdog PLTC-ER) manufactured by Belden.
- The PLTC cable for the power supply must be installed in a manner to avoid tensile stress at the termination fittings in accordance with Article 501.10 (B)(1)(4) of the NEC.
- The PLTC cable for the power supply must be installed in accordance with Article 725.154 (D)(1) through (D)(4) of the NEC.

Warning: Cat. Nos. EAP-Wx-yy-zx (Canadian installation only):

- TC cable type and manufacturer shall be specified: Listed (QPOR), Type JZ-604 TC manufactured by Helukabel GmbH.
- The TC cable for the power supply must be installed in areas of industrial establishments that are inaccessible to the public and in a manner that meets the requirements in Rule 12- 2202(2) of the CEC: Installed in conduit, other suitable raceway, or direct buried, when not in cable tray. Provided with mechanical protection where subject to damage either during or after installation.Installed only where qualified persons service the installation.

Notice for USA/Canada (UL Requirements)

When an external antenna or the device itself is located outdoors:

- The Ethernet port (RJ45) is considered a TNV-1 circuit (according IEC 60950-1). Connected Ethernet circuits must fulfill TNV-1 requirements. (SELV circuits are not sufficient.)
- The device must be properly earthed at the chassis earthing terminal.

- The 12-24V power supply lines of the device are considered a TNV-1 circuit. Connected power supply circuits must fulfill TNV-1 requirements.
- The WS-PS376X-MR power supply may be connected directly to 100-240V AC primary circuits. The 100-240 AC wiring system must be conducted in conduits. This wiring system (including conduits) shall be secured before installation of the product, for example by using an outlet box, according to NEC or CEC.

When the device is located indoors:

- The Ethernet port (RJ45) is considered a SELV circuit (according IEC 60950-1). All connected Ethernet circuits must fulfill SELV requirements and shall be entirely contained within a single low-voltage power distribution and within a single building.
- Do not connect any external LAN-circuit, power supply, or antenna coming from outdoors.

Hazardous Areas (UL-Hazloc)

Warning: Notices cULus haz.loc

This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D; Class I, Zone 2, Group IIC or non-hazardous locations.

WARNING - Explosion Hazard – Do not disconnect while circuit is live unless area is known to be non-hazardous.

ATEX

Warning: ATEX

Take measures to prevent transient voltage surges of more than 40% of the rated voltage. This is the case if you only operate devices with SELV (safety extra-low voltage).

NEC/CEC

Warning: For areas subject to NEC or CEC:

Safety notice for connectors with LAN (Local Area Network) marking:

A LAN or LAN segment, with all its associated interconnected equipment, shall be entirely contained within a single low-voltage power distribution and within single building. The LAN is considered to be in a “environment A” according IEEE802.3 or “environment 0" according IEC TR 62101, respectively.

Never make direct electrical connection to TNV-circuits (Telephone Network) or WAN (Wide Area Network).

WS-AP3765 / WS-AP3767e Cables and Connectors

Cable Specification

The following table lists the requirements for Ethernet and power cables for outdoor APs.

Note: The torque values for all cable connections inside the AP must be torqued to a value of 0.6Nm (5.0 in-lb, or 5.8kgF-cm).

Table 3-1 Cable Specification

Application	Specification
Direct 24V DC supply	• Round cable cross-section with 6 to 8 mm diameter. • Two-core cable with 0.82 -1.5 mm^2 (AWG18 - AWG15) cross-section of the individual cores. • Permitted tensile load at least 100 N. • UL listing: Type PLTC or ITC
Power supply adapter 100 to 240 VAC	• Round cable cross-section with 6 to 8 mm diameter. • Three-core cable with 0.82 -1.5 mm^2 (AWG18 - AWG15) cross-section of the individual cores. • Permitted tensile load at least 100 N.
Ethernet	1. IE FC TP standard cable GP 2 x 2 (type A) 2. IE TP torsion cable 2 x 2 (type C) 3. IE FC TP trailing cable 2 x 2 (type C) UL listing: Type PLTC or ITC (the three named types have this approval)

Warning: If temperatures in excess of 158 degrees F (70 degrees C) occur on the cable or at the housing socket, or the temperature at the branching points of the cables exceeds 176 degrees F (80 degrees C), special measures need to be taken.

If the device is operated at an ambient temperatures of 131 degrees F – 158 degrees F (55 degrees C – 70 degrees C), make sure that you use cables with a permitted ambient temperature of at least 194 degrees F (90 degrees C).

Antenna Connectors

WS-AP3765e and WS-AP3767e models are designed for attachment of external antennas, and have six R-SMA ports for this purpose. The R-SMA ports are identified as:

- R1 Left, R1 Middle, R1 Right for the 5GHz radio
- R2 Left, R2 Middle, R2 Right for the 2.4GHz radio

The WS-AP3765e and WS-AP3767e do not have built-in lightning protectors. Additional parts (pigtail connectors) are needed to connect Reverse Type N antennas to the R-SMA AP ports. Table 3-2 is a list of available parts that can be ordered from Enterasys:

Table 3-2 Reverse Type N Antenna Connector Parts

Part Number	Description
WS-CAB-LPM	Lightning Protector Type-N Jack
WS-CAB-PT20J	20 In. Pigtail Type-N Jack
WS-CAB-PT20P	20 In. Pigtail Type-N Plug
WS-CAB-L200C20	LRM200 - 20 Ft. Cable Type-N Plug
WS-CAB-L400C06	LRM400 - 6 Ft. Cable Type-N Plug
WS-CAB-L400C50	LRM400 - 50 Ft. Cable Type-N Plug
WS-CAB-L400C75	LRM400 - 75 Ft. Cable Type-N Plug
WS-CAB-L600C25	LRM600 - 25 Ft. Cable Type-N Plug

Table 3-2 Reverse Type N Antenna Connector Parts (continued)

Part Number	Description
WS-CAB-L600C50	LRM600 - 50 Ft. Cable Type-N Plug

External Antennas

For a list of the external antennas certified for use with the WS-AP3765e and WS-AP3767e, see "External Antennas" on page 4-4.

Pluggable Transceivers

The WS-AP3767e provides two SFP ports for LAN connections. For information about the industrial grade SFP pluggable transceivers supported on the WS-AP3767e, see Table 1-2 on page 1-3 and the datasheet at http://www.enterasys.com/products/transceivers-ds.pdf.

Connecting the Cables

Warning: If the housing is not perfectly sealed and the WS-AP3765 or WS-AP3767e is subjected to spray water or dampness, you will endanger your life. Ensure that you adhere to the following safety rules.

- Before connecting up, turn off the power supply.
- The sealing of the cable feedthroughs of the WS-AP3765 / WS-AP3767e is assured only when the cable has a suitable diameter and adequate tensile strength. Use cables that meet the specifications as mentioned in "WS-AP3765 / WS-AP3767e Cables and Connectors" on page 3-4.
- Never wrap insulating tape, adhesive tape or other materials around thinner cables to achieve the required diameter. In this case, neither the housing seal nor the strain relief clamps can fulfill their function.
- Close all unused openings in the housing seal with the sealing plugs supplied with the WS-AP3765 and WS-AP3767e. Do not use fillers or any other material under any circumstances.

This section contains the following subsections about connecting cables:

Connecting a Power Supply to the WS-AP3765 and WS-AP3767e

Possible Power Supplies

The following power source is suitable for the WS-AP3765 only:

- Power over Ethernet (PoE)

If an eight-wire Ethernet cable is used, it is possible to supply power over the four wires that are not used as the data lines. As an alternative the voltage can be modulated onto the data lines (“phantom power”).

If Fast-Connect Ethernet connectors are used to allow assembly in the field, only four-wire cables can be used. In this case, only phantom power is possible. This does not represent a restriction for the user since PoE-compatible power supply equipment must always provide both options.

The following power sources are suitable for the WS-AP3765 and one or the other is required for the WS-AP3767e:

- 24V DC direct voltage

  Use the two-pin connector supplied with the WS-AP3765 / WS-AP3767e.

- 100 - 240V AC alternating voltage

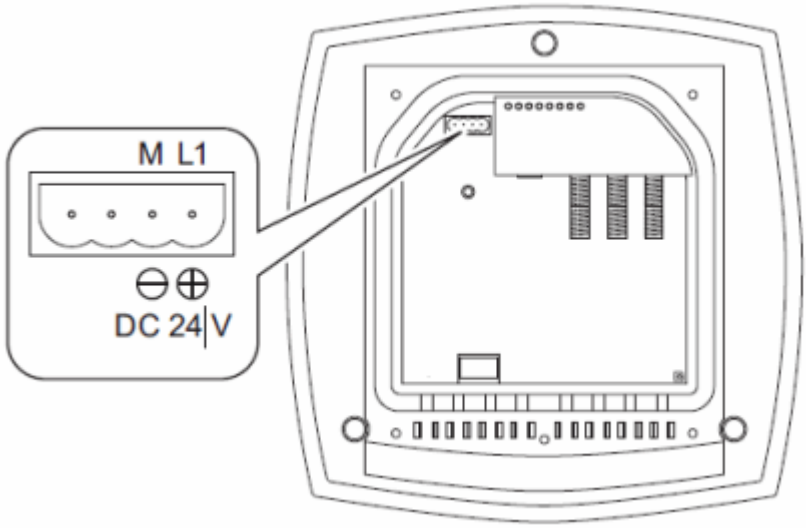
  Requires the optional power supply adapter WS-PS376X-MR, ordered from Enterasys.

To connect a 24V DC cable to the access points:

Note: The 24V DC cable connector is shipped with the WS-AP3765 and WS-AP3767e, already installed in the socket as described below. When the connector is installed in the socket, you need to perform Step 3 only.

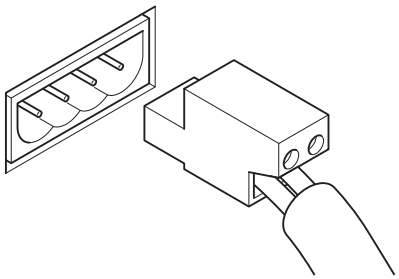
1. Connect the supplied connector to the 24V DC cable. Figure 3-1 shows the location of the socket in the housing and the contact assignment. The connector is safe against polarity reversal and can only be inserted in the right-hand half of the housing

Figure 3-1 Position of the Opening in the Housing for the Power Supply with the Housing Cover Removed



When connecting the cores, the connector must be oriented as depicted in Figure 3-2.

Figure 3-2 Position of the Connector When Inserted in the Socket of the Housing



2. Press the connector into the socket in the housing until it engages.
3. Secure the power cable with a strain relief clamp.

Fitting a Power Supply Adapter

The WS-AP3765 and the WS-AP3767e can be powered from a 100-240V AC power source, with use of a separately orderable power supply adapter (WS-PS376X-MR). This adapter is necessary for connecting a 100-240V AC power supply to the WS-AP3765 or WS-AP3767e.

Note: The Enterasys 100-240V AC power supply adapter (WS-PS376X-MR) is shipped with the part number on the label.

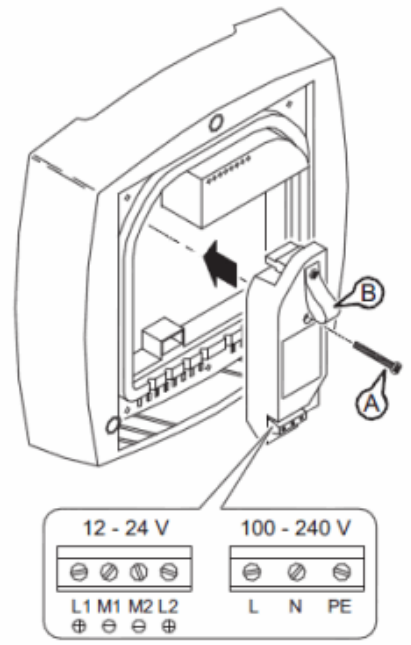
Warning: Power supply cables may be connected only when the power is turned off. Start up the AP only after screwing the housing cover in place again so that protection from touching live parts is restored.

To fit and connect a power supply adapter:

Note: The WS-AP3765 and WS-AP3767e are shipped with a 24V DC cable connector installed in the socket. If you are going to use a 100-240V AC power supply, remove the DC cable connector from the power socket and install the power supply adapter as described below.

1. Fit the power supply adapter in the access point, as depicted in Figure 3-3. The connector on the rear of the power supply adapter must engage fully in the socket of the housing. The entire rear surface of the power supply adapter must make contact with the inner surface of the access point.

Figure 3-3 Using a Power Supply Adapter



Caution: Use the loop (Position B in Figure 3-3) to remove the power supply adapter from the AP. This prevents the connector skewing on the back of the power supply adapter and breaking off.

2. Connect the power supply adapter and the AP with the screw supplied with the power supply adapter (position A in Figure 3-3).
3. Connect the cable from the power supply. The assignment of the contacts is depicted in Figure 3-3.
4. Secure the power supply cable with a strain relief clamp. See "Using Strain Relief Clamps on Cable Connections" on page 3-13 for more information.

Removing the Power Supply Adapter

To remove a power supply adapter from the access point:

1. Disconnect the power supply cable from the power supply adapter.

Warning: Disconnect power supply cables only when the power to the power supply adapter is turned off!

2. Loosen the securing screw of the power supply adapter (Position A in Figure 3-3).
3. Pull the loop (Position B in Figure 3-3) to remove the connector on the rear of the power supply adapter from the socket in the housing and remove the power supply adapter.

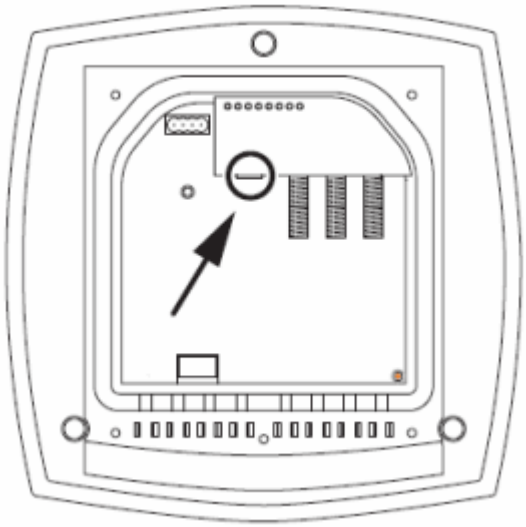
Connecting an Ethernet Cable to the WS-AP3765

You can connect the Ethernet cable to the RJ-45 jack of the WS-AP3765.

To connect an Ethernet cable to the WS-AP3765:

1. Insert the connector of the Ethernet cable in the corresponding socket of the AP. The location of the socket for RX and TX is depicted in Figure 3-4.

Figure 3-4 Position of the Ethernet Port with the Housing Cover Removed



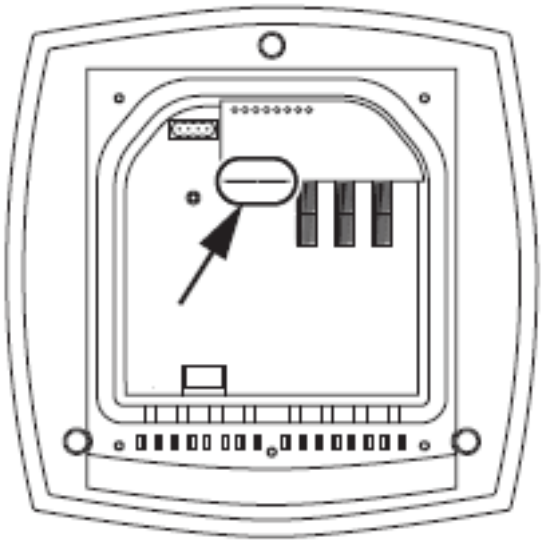
2. Secure the Ethernet cable with a strain relief clamp. See "Using Strain Relief Clamps on Cable Connections" on page 3-13 for more information.

Installing an SFP Transceiver

The WS-AP3767e provides two SFP ports for LAN connectivity. Their location is shown in Figure 3-5 on page 3-10.

Warning: SFP transceivers may be connected only when the power is turned off. Start up the AP only after screwing the housing cover in place again so that protection from touching live parts is restored.

Figure 3-5 Position of SFP Ports with Housing Cover Removed



Warning: Fiber-optic SFPs use Class 1 lasers. Do not use optical instruments to view the laser output. The use of optical instruments to view laser output increases eye hazard. When viewing the output optical port, power must be removed from the network adapter.

Advertencia: Los SFPs de fibra optica usan lasers de clase 1. No se debe usar instrumentos opticos para ver la potencia laser. El uso de los instrumentos opticos para ver la potencia laser incrementa el riesgo a los ojos. Cuando vean el puerto de la potencia optica, la corriente debe ser removida del adaptador de la red.

Warnhinweis: SFPs mit Fiber-Optik Technologie benutzen Laser der Klasse 1. Benutzen sie keinesfalls optische Hilfsmittel, um die Funktion des Lasers zu überprüfen. Solche Hilfsmittel erhöhen die Gefahr von Sehschäden. Wenn sie den optischen Port überprüfen möchten stellen Sie sicher, dass die Komponente von der Spannungsversorgung getrennt ist.

Avertissement: Les émetteurs-récepteurs en fibre optique enfichables ne fonctionnent qu'avec des lasers de classe 1. N'utilisez aucun instrument d'optique pour observer la sortie du laser. L'utilisation d'instruments d'optique augmente les risques de blessure aux yeux. L'alimentation de l'adaptateur de réseau doit être coupée lorsque vous inspectez le port optique de sortie.

Caution: Carefully follow the instructions in this manual to avoid damaging the SFP and AP.

The SFP and AP are sensitive to static discharges. Use an antistatic wrist strap and observe all static precautions during this procedure. Failure to do so could result in damage to the SFP and AP. Always leave the SFP in the antistatic bag or an equivalent antistatic container when not installed.

Precaución: Siga las instrucciones del manual para no dañar el SFP ni del AP, puesto que son muy sensible a las descargas de electricidad estática. Utilice la pulsera antiestática y tome todas las precauciones necesarias durante este procedimiento. Si no lo hace, podría dañar el SFP o del AP. Mientras no esté instalado, mantenga el SFP en su bolsa antiestática o en cualquier otro recipiente antiestático.

To install an SFP:

1. With an antistatic wrist strap attached to your wrist, remove the transceiver from its packaging. If there is a protective dust cover in the transceiver connector, do not remove it at this time.
2. Hold the transceiver so that the connector will seat properly.
3. Carefully align the transceiver with the port slot.
4. Push the transceiver into the port slot until it “clicks” and locks into place.

Connecting Fiber-Optic Cables to an SFP Port

Each fiber-optic link consists of two fiber-optic strands within the cable for Transmit (TX) and Receive (RX). The transmit strand from a device port connects to the receive port of a fiber-optic 1-Gigabit Ethernet device at the other end of the segment. The receive strand of the applicable LC port connects to the transmit port of the fiber-optic 1-Gigabit Ethernet device.

Caution: Do not touch the ends of the fiber-optic strands, and do not let the ends come in contact with dust, dirt, or other contaminants. Contamination of cable ends causes problems in data transmissions. If the ends of the fiber-optic strands become contaminated, use a canned duster to blow the surfaces clean. A fiber-port cleaning swab saturated with optical-grade isopropyl alcohol may also be used to clean the ends.

Precaución: No toque los extremos de los cables de fibra óptica y evite su contacto con el polvo, la suciedad o con cualquier otro contaminante. Si los extremos de los cables se ensucian, es posible que la transmisión de datos se vea afectada. Si nota que losextremos de los cables de fibra óptica se ensucian, utilice aire comprimido paralimpiarlos. También puede limpiarlos con un estropajo embebido en alcohol isopropílico.

To connect an LC cable connector to an SFP port connector:

1. Remove the protective covers (not shown) from the uplink port SFP and from the connectors on each end of the cable.

Note: Leave the protective covers in place when the connectors are not in use to prevent contamination.

2. Insert the cable connector into the SFP connector until it clicks into place.
3. Plug the other end of the cable into the appropriate port on the other device. Some cables may be terminated at the other end with two separate connectors, one for each fiber-optic strand. In this case, ensure that the transmit fiber-optic strand from the AP is connected to the receive port of the other device, and the receive fiber-optic strand on the AP is connected to the transmit port of the other device.
4. Repeat this procedure for the other SFP port, if needed.
5. If an SFP port is unused, install a dust cover.

Note: To ensure an IP65 degree of protection, use outdoor fiber cable with a diameter of at least 8 to 10 mm. Strain relief clamps can be used with this type of cable. However, strain relief cables should not be used with fiber cables of smaller diameters since the smaller cables can be damaged by mechanical stress.

Connecting External Antenna Cables to the WS-AP3765e and WS-AP3767e

For each WLAN port, there are two R-SMA sockets on the AP to connect external antennas. Figure 3-6 shows how the R-SMA sockets are assigned to the WLAN ports.

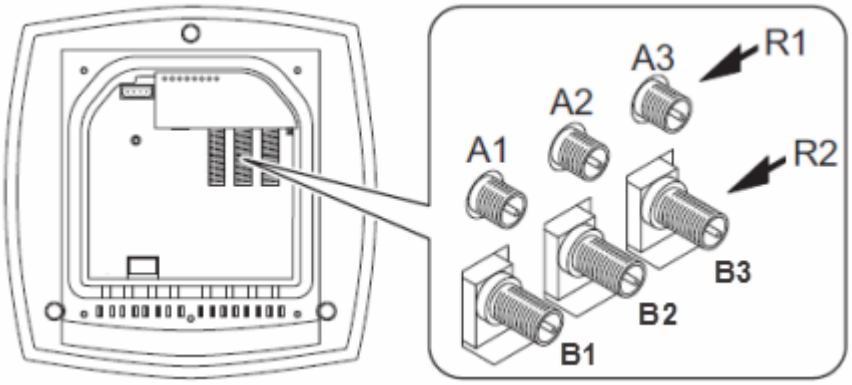
Note: This section applies to the WS-AP3765e and WS-AP3767e access point models only.

To connect an external antenna cable to the access point:

1. Insert the connector on the antenna cable into the R-SMA socket and tighten the sleeve nut on the socket (key size SW8), tightening torque 0.6 Nm (5.0 in-lb or 5.8kgf-cm).

Note: First connect the cable for antenna “B” if you want to use two antennas for an interface. Once the cable for antenna “A” is connected, it is difficult to reach socket “B”.

Figure 3-6 Ports for External Antennas, with the Housing Cover Removed



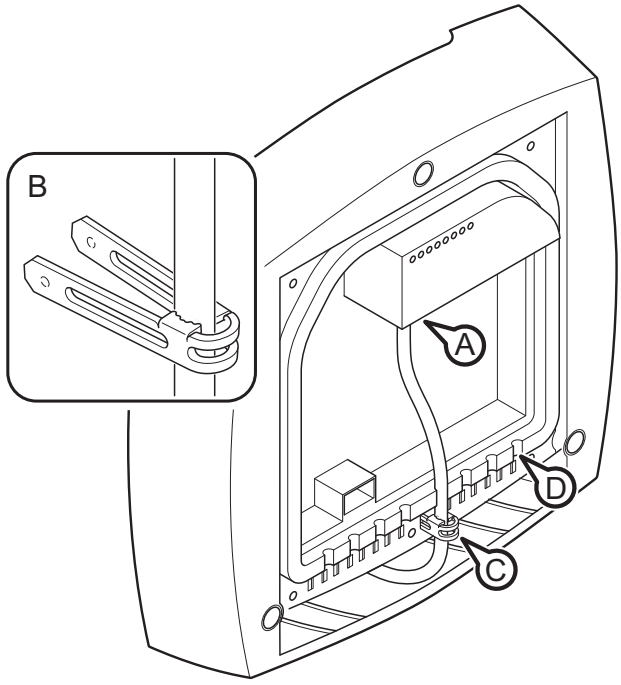
Note: "R1" is mapped to Radio 1 and "R2" is mapped to Radio 2 on the user interface of the Enterasys Wireless Controller.
The Antenna "A1" and "B1" connectors are mapped to the Left antenna and the Antenna "A2" and "B2" connectors are mapped to the Middle antenna on the user interface of the Enterasys Wireless Controller. The "A3" and "B3" connectors are mapped to the Right antenna.

2. Screw a terminating resistor to the unused socket if you use only one antenna on a port.
3. Secure the antenna cable(s) with a strain relief clamp.

Using Strain Relief Clamps on Cable Connections

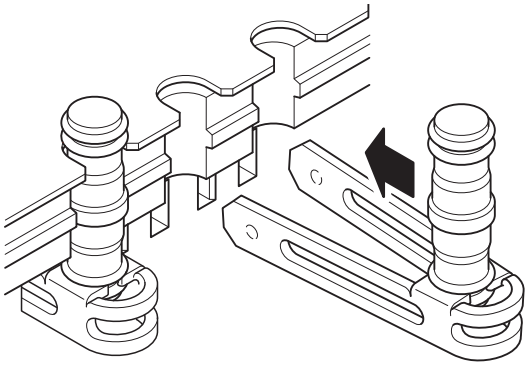
Use strain relief clamps (included with the AP) on cable connections to prevent cables from becoming disconnected due to strain on the cables. In Figure 3-7, the cable is connected at position A, but clamped with the strain relief clamp (B) at position C.

Figure 3-7 Connecting a Cable and Fitting the Strain Relief Clamps



1. Connect cables with a pre-assembled connector (Ethernet, antennas) by inserting the connector into the appropriate socket. Secure antenna cables by tightening the sleeve nut of the connector (key size SW8).
2. Fit a strain relief clamp to the connected cable. The toothed part of the clamp must enclose the cable completely (is depicted by Position B Figure 3-7).
3. Press the strain relief clamp into the housing until the cable is located completely in the opening in the housing seal (Position C in Figure 3-7).
4. Seal all openings not required for cables with sealing plugs (Position D in Figure 3-7).
5. Fit these sealing plugs in a strain relief clamp. The lower surrounding notch must be enclosed by the strain relief clamp (as depicted in Figure 3-8). Press the strain relief clamp into the housing until the sealing plug is located completely in the opening of the housing seal.

Figure 3-8 Securing a Sealing Plug with a Strain Relief Clamp



Note: Keep unused sealing plugs and strain relief clamps for later use.

Weatherproofing the Antenna Connections

Enterasys recommends that all connections between the AP and antennas are weatherproofed using one of the following weatherproof kits (not supplied):

- Wireless Weatherproofing Kits:
  - 3M (WK-100)
  - Scotch (WK-101)

  Each weatherproofing kit includes 3/4 inch vinyl tape, 2 inch mastic tape, and 2 inch vinyl tape.
- Cold Shrink Kits:
  - 3M Cold Shrink Sealing Kit CXS (CXS-4).
  - 3M Cold Shrink EDPM Connector Insulator (8426-9M)

  The cold shrink kit includes one tube of vinyl mastic, and 2 inch mastic tape.

Weatherproofing Kit Instructions

The following guidelines should be followed to ensure proper installation:

- The weatherproofing tape must be wound tightly over the connectors.

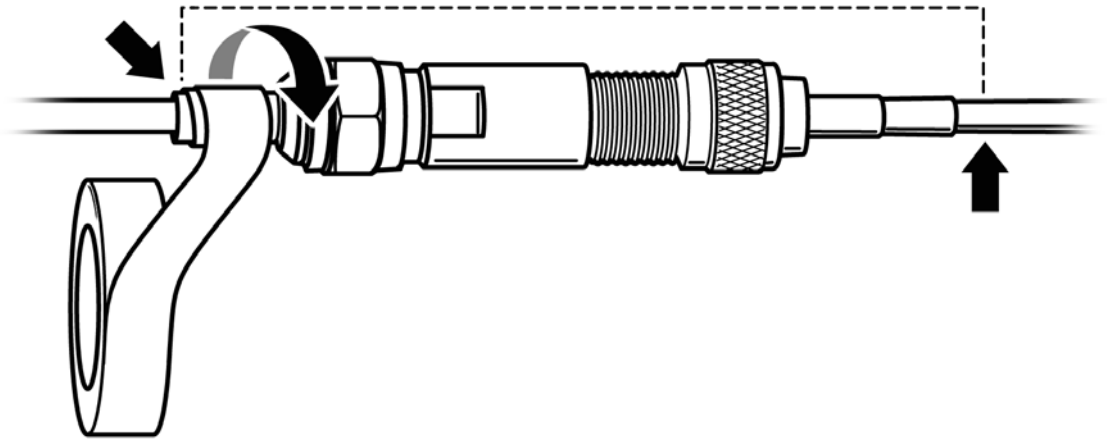
- Care should be taken to ensure that no areas around the edges are exposed.
- Each layer of vinyl and mastic tape must extend on the cable 1 inch beyond the prior layer of vinyl or mastic tape.
- All tape layers must cover half of the tape applied (apply tape at 45 degree angle)

Note: Installation instructions are provided with each Weatherproofing Kit and are included here for reference only.

To Install the Weatherproofing Kit (WK-100 or WK-101):

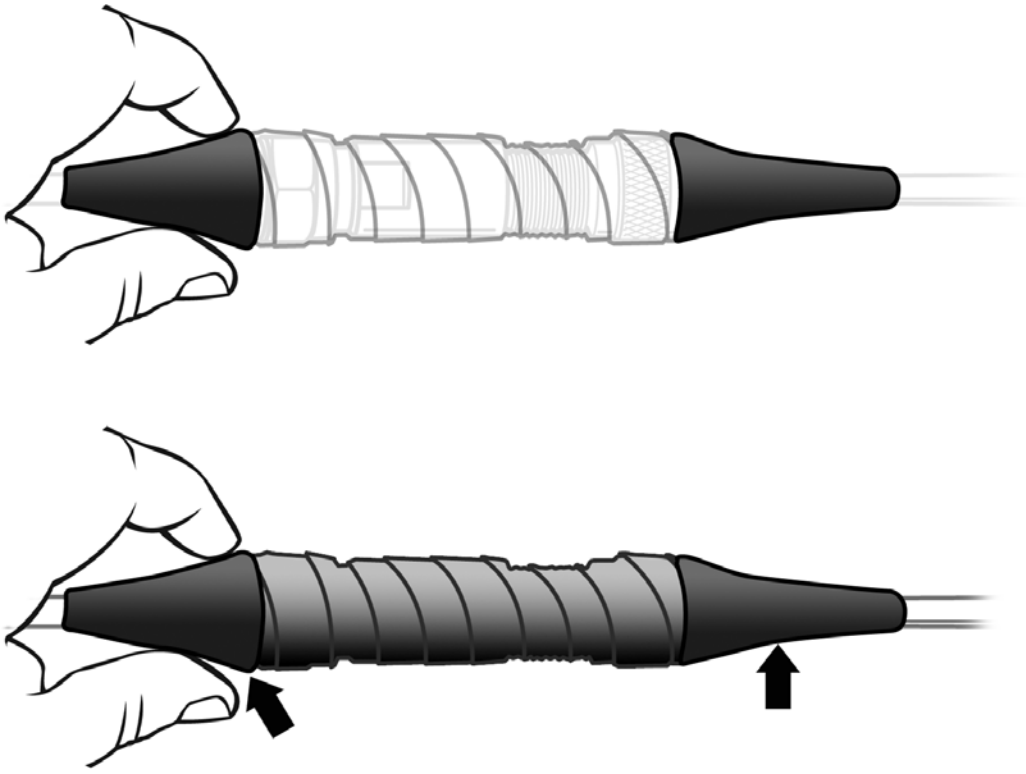
1. Cover entire connection with 3/4 inch vinyl tape. Extend vinyl tape 1 inch beyond the connector bodies as shown in Figure 3-9.

Figure 3-9 Cover Connection with 3/4 Inch Vinyl Tape



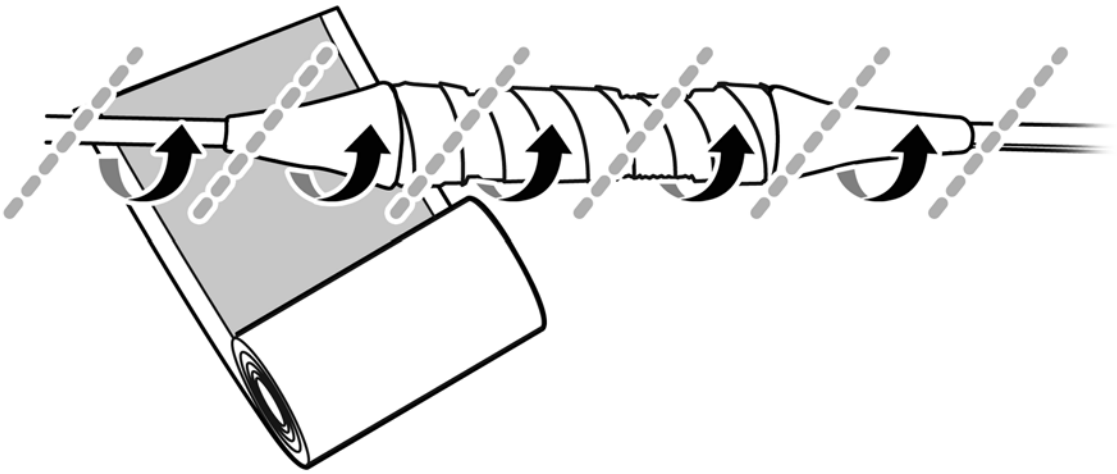
2. Use 2 inch mastic tape to build up taper to largest diameter of connector body.Smooth mastic tape by hand as shown in Figure 3-10.

Figure 3-10 Build Up Taper to Largest Diameter of Connector



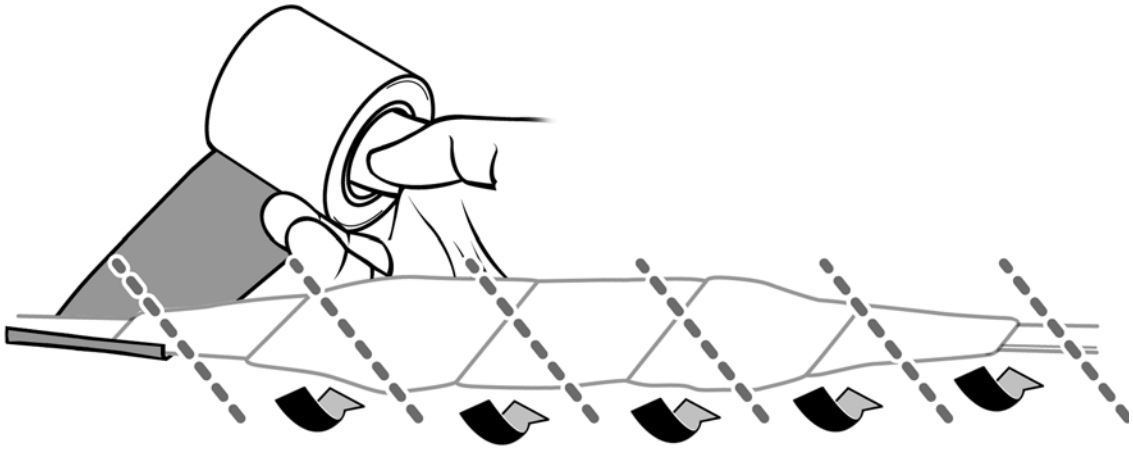
3. Cover cable and mastic tape with 1 layer of mastic tape to create water tight seal. Extend mastic tape 1 inch beyond mastic tape taper. Smooth mastic tape by hand as shown in Figure 3-11.

Figure 3-11 Cover Cable with Mastic Tape



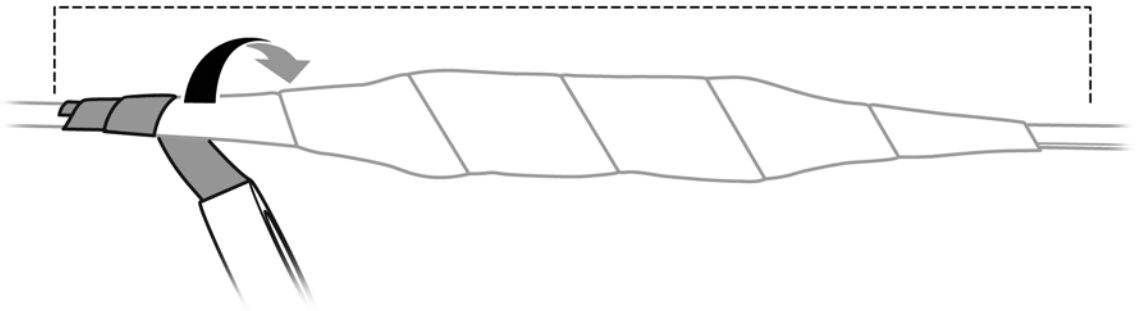
4. Cover cable and mastic tape with 1 layer of 2 inch vinyl tape. Extend vinyl tape onto cable 1 inch beyond mastic tape as shown in Figure 3-12.

Figure 3-12 Apply layer of 2 Inch Vinyl Tape



5. Cover 2 inch vinyl tape with 3 layers of 3/4 inch vinyl tape. Extend each layer of vinyl tape onto cable 1 inch beyond prior layer of vinyl tape as shown in Figure 3-13.

Figure 3-13 Apply Layers of 3/4 Inch Vinyl Tape



Cold Shrink Sealing Kit Instructions

Note: Installation instructions are provided with each Cold Shrink Sealing Kit and are included here for reference only.

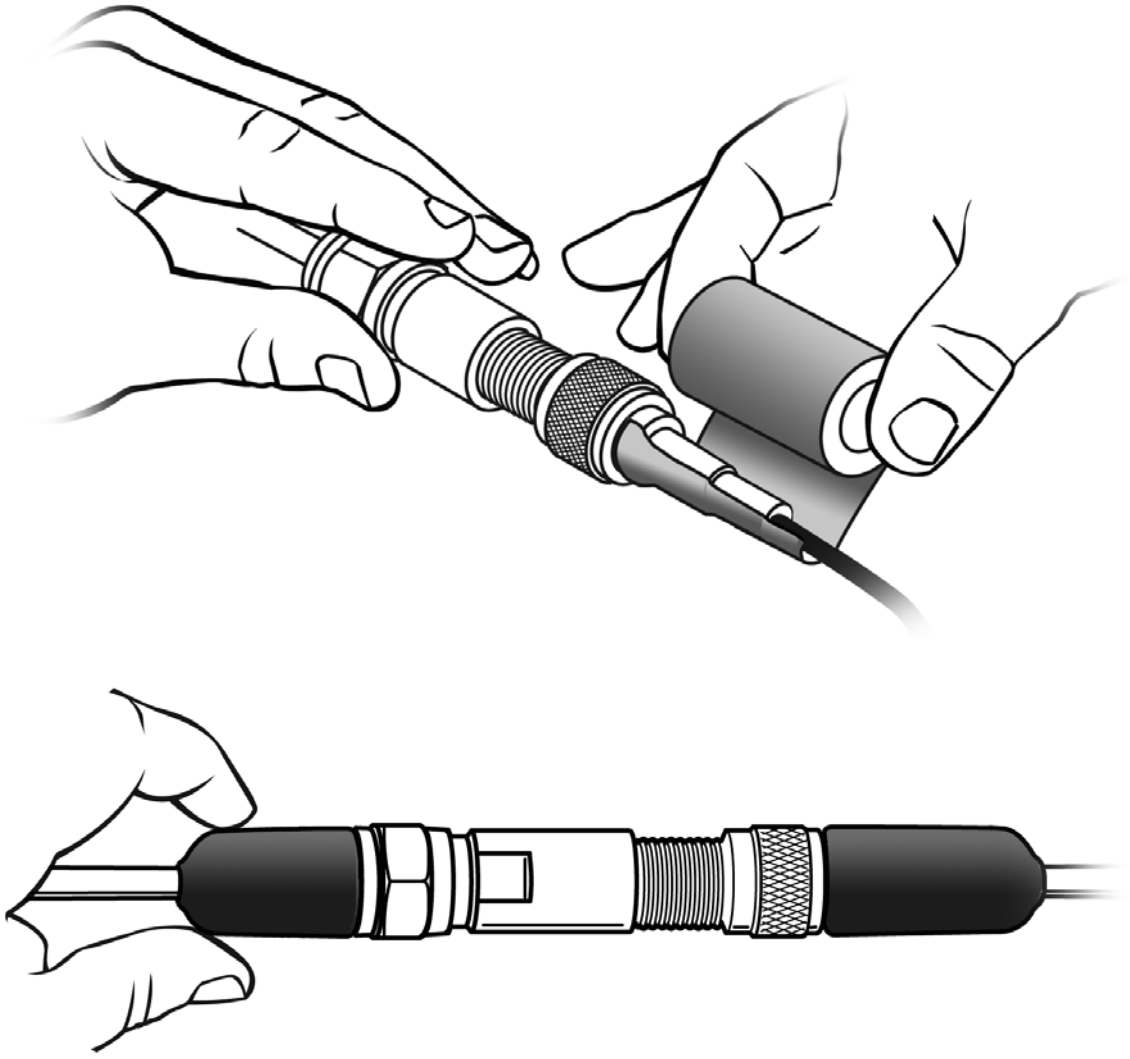
To Install the Cold Shrink Kit (CXS-4 or 8426-9M):

The following guidelines should be followed to ensure proper installation:

- The cable must be smooth, round and clean in the seal areas.
- Remove all extrusions and clean off all wax or dirt.
- Care should be taken to ensure that no areas around the edges are exposed.

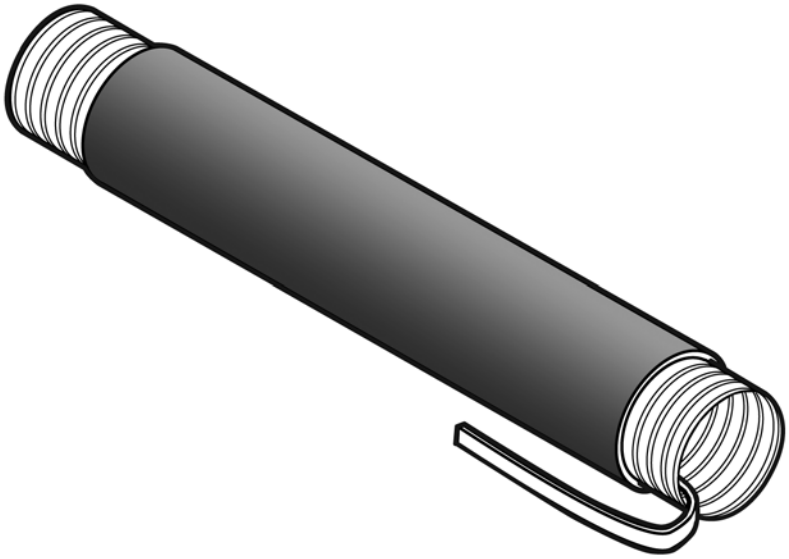
1. Measure 4 inches from center of connector and apply one strip of vinyl mastic onto each cable as shown in Figure 3-14.

Figure 3-14 Apply Vinyl Mastic



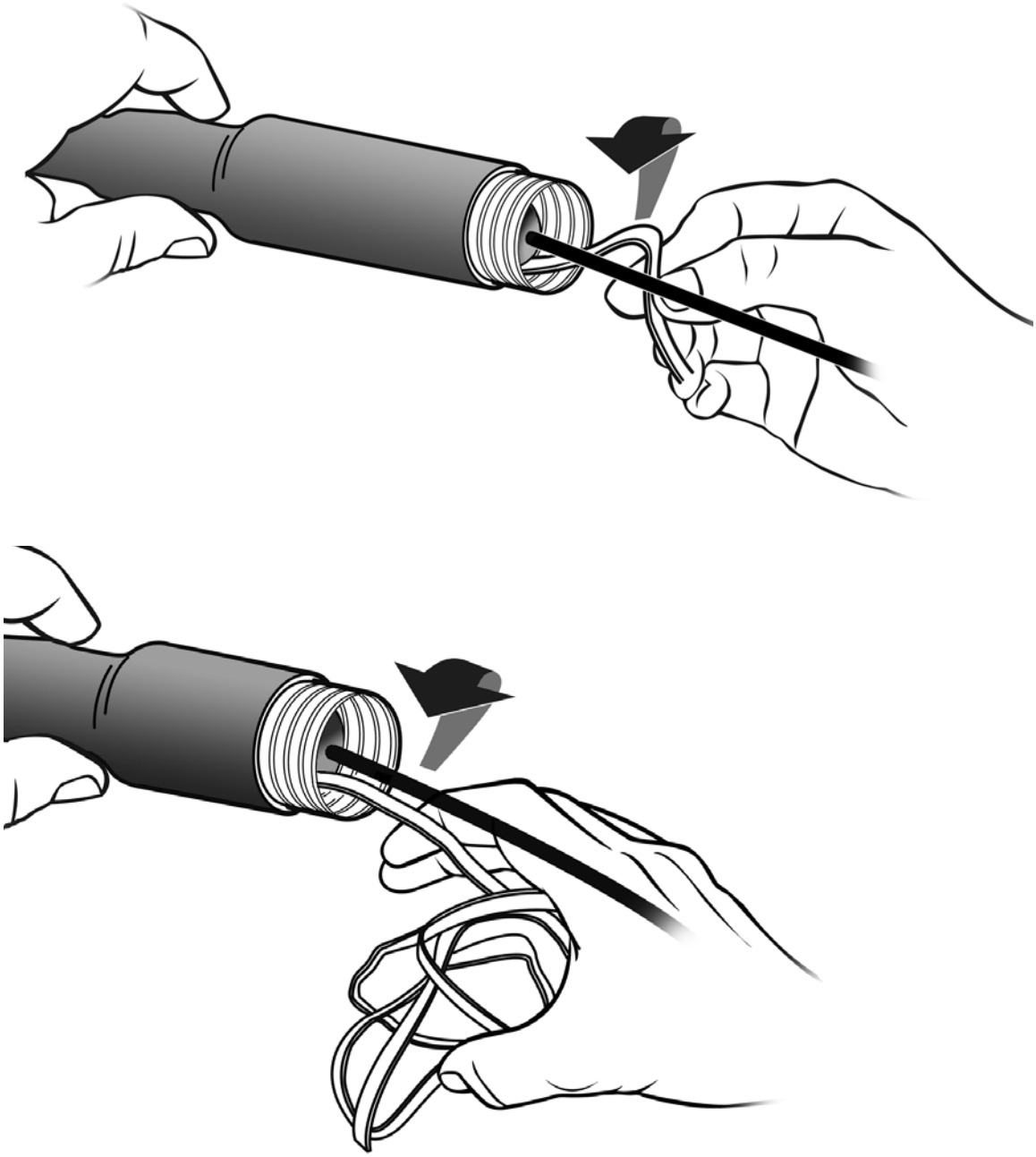
2. Slide the assembly over the area to be weatherproofed so that the tubing is centered over the connection point as shown in Figure 3-15.

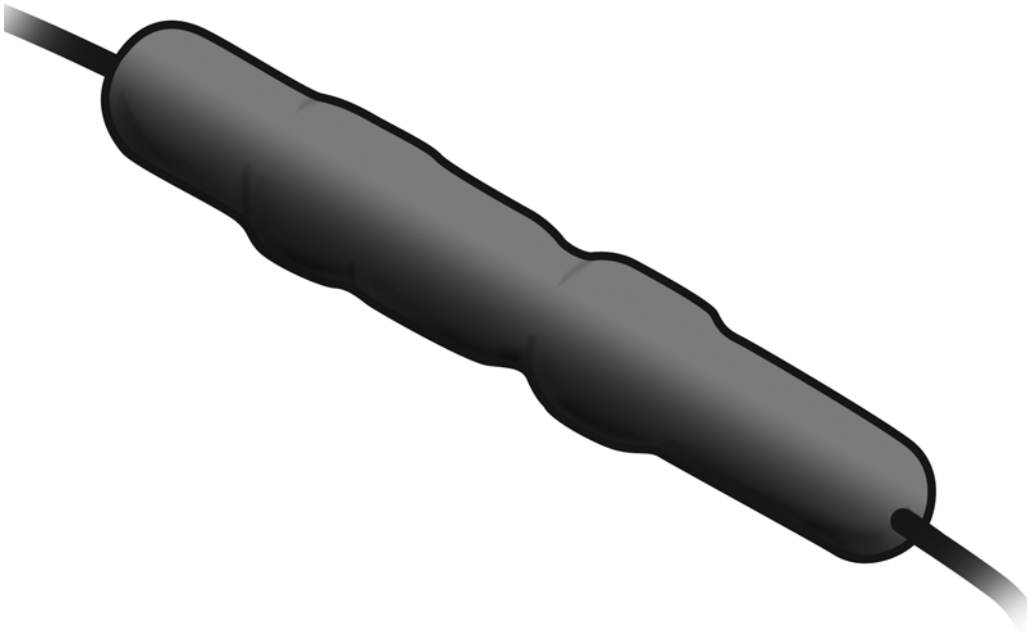
Figure 3-15 Slide Assembly Over Connection Point



3. Unwind the core by pulling exposed strand in a counter clockwise direction as shown in Figure 3-16.

Figure 3-16 Unwind the Core



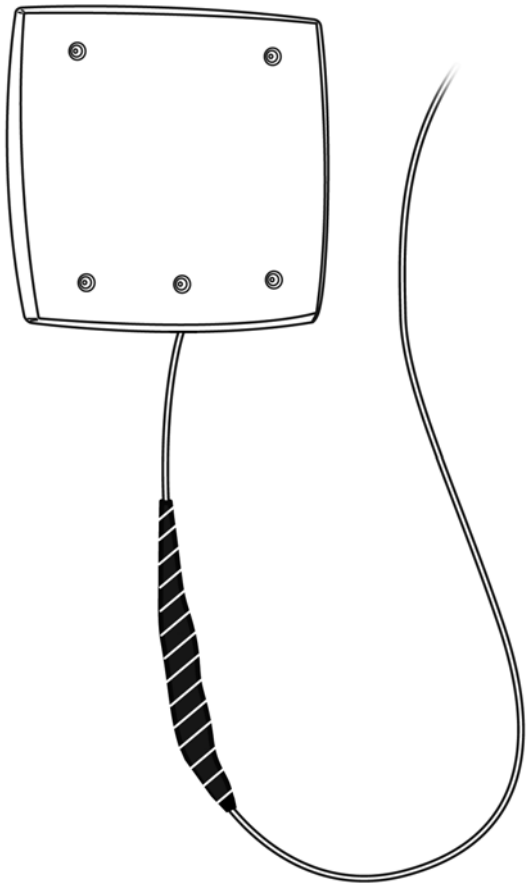


Forming a Drip Loop for Cables

Once the cables have been connected to the AP and the connections have been weatherproofed, gather each cable below the AP, and form a drip loop as show in Figure 3-17.

Note: The drip loop prevents water from entering the AP by channelling water down and away from the connection points. Drip loops are required to ensure proper operation of the AP.

Figure 3-17 Drip Loop for the WS-AP3765 and WS-AP3767e



Configuring AP Channel Settings

The WS-AP3765e must be installed by a professional installer. Before starting the installation, the installer needs to determine/configure the following:

- Determine the Antenna Model
- Configure Radio RF Port
- Configure Radio Channel
- Configure Radio Transmit (Tx) Power

Determine the Antenna Model

The professional installer needs to determine antenna models and the number of antenna ports for that model. The number of ports can be determined from visual inspection of the antenna or from the antenna model name as follows:

- If the antenna model name contains a **T** or **X** (for example PRO-AO-x**T**xxxxx or AO-x**X**xxxxx), it is a triple port antenna.
- If the antenna model name contains a **D** (for example PRO-AO-x**D**xxxxx), it is a dual port antenna.
- If the antenna model name contains an **S** (for example PRO-AO-x**S**xxxxx), it is a single port antenna.

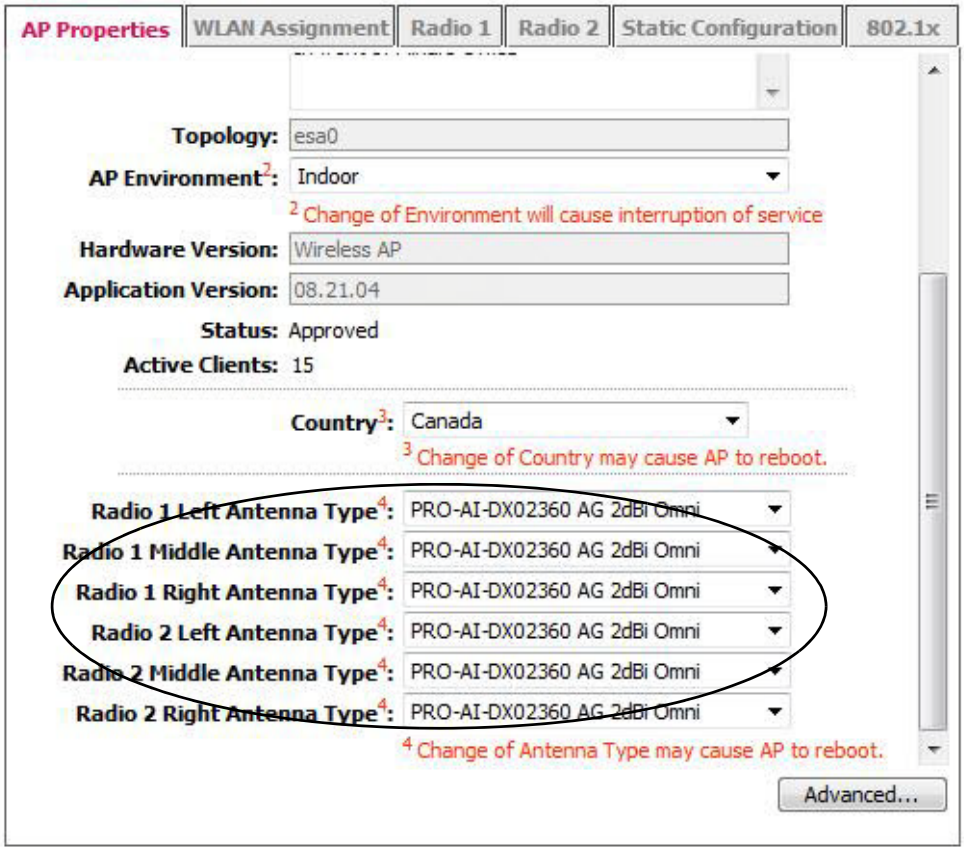
Configure Radio RF Port

The professional installer configures Radio RF ports where antenna ports will be connected.

Note: All professional antenna model names are prefixed with **PRO**.

To Configure Radio RF Ports through the Enterasys Wireless Assistant

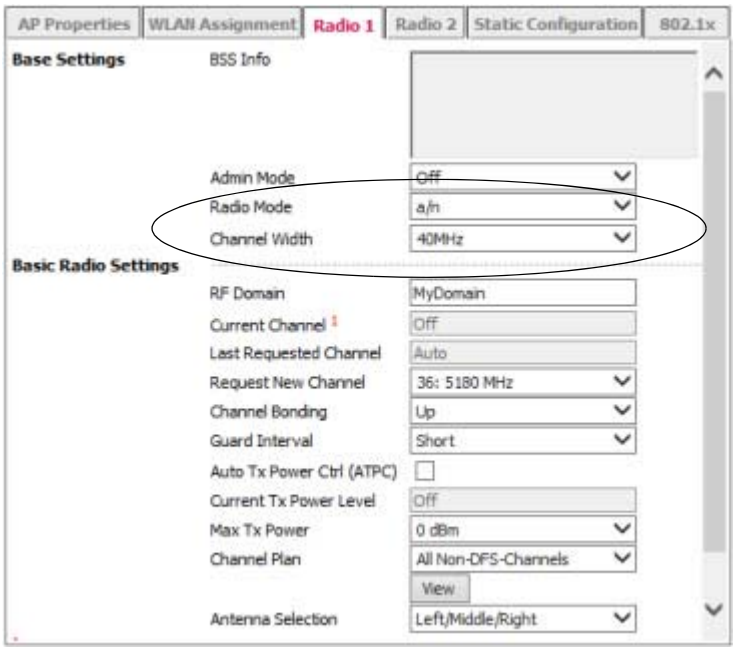
1. Log into the Wireless Assistant.
2. From the top menu, click **Wireless AP**. The Wireless AP screen is displayed.
3. Click the APs button in the left pane, then in the Wireless AP list, click the Wireless AP whose properties you want to modify. The **AP Properties** tab displays Wireless AP information.



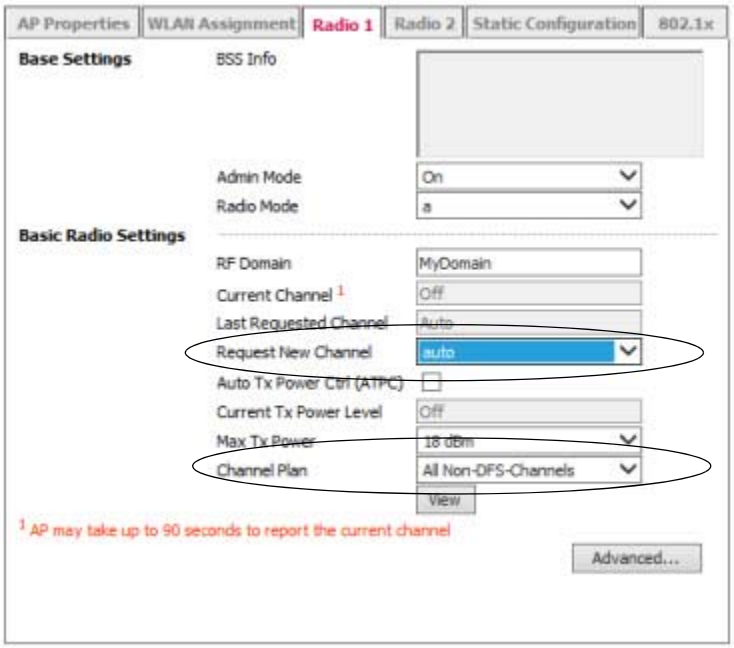
4. Under Antenna Type:
   - If attaching triple port antennas, all three RF port should be configured with the same antenna type.
   - If attaching dual port antennas, two of the radio RF ports should be configured with the same antenna type and the third (non-active port) should be configured to **None**.
   - If attaching single port antennas, radio ports where antenna should be connected has to be set to the antenna type and non-active port should be set to **None**.
5. Install a terminator (rf 50 Ohm) on all ports where an antenna is not connected.

Configure Radio Channel

1. Click the APs button in the left pane, then in the Wireless AP list, click the Wireless AP whose properties you want to modify. The **AP Properties** tab displays Wireless AP information.
2. Click the **Radio 1** tab.
3. Configure the desired **Radio Mode**, and **Channel Width** (20MHz or 40MHz).



4. From the **Request a New Channel** drop-down menu, select a channel according to the site channel plan.
5. Request the AP to auto select the channel from the channel list set in the **Channel Plan** setting.

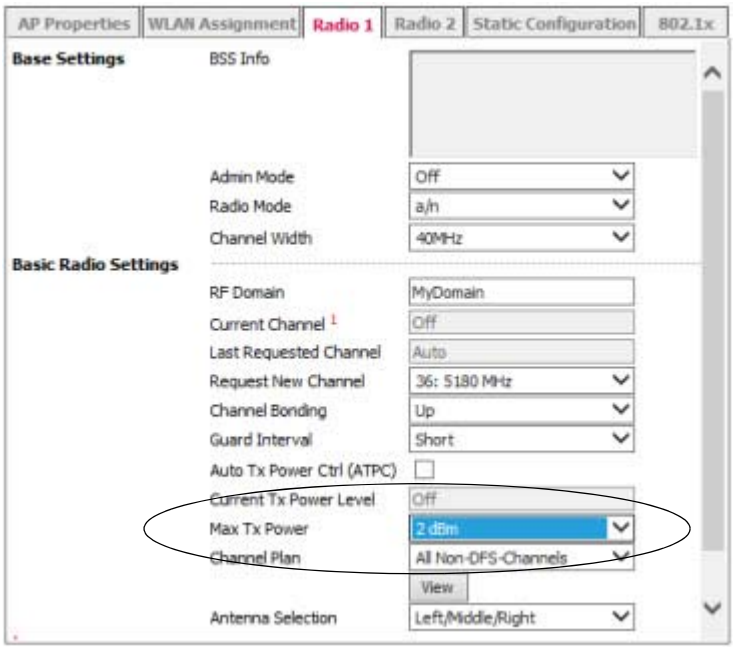


6. Repeat the process for **Radio 2**.

Configure Radio Transmit (Tx) Power

Based on the configured mode, channel, channel plan, and channel width for the specific antenna, the professional installer must enter the corresponding Transmit Power (Tx Power) for the desired Radio using the Enterasys Wireless Assistant.

1. Log into the Wireless Assistant.
2. From the top menu, click **Wireless AP**. The Wireless AP screen is displayed.
3. Click the APs button in the left pane, then in the Wireless AP list, click the Wireless AP whose properties you want to modify. The **AP Properties** tab displays Wireless AP information.
4. Click the **Radio 1** tab.
5. For **Max Tx Power**, enter the Power setting from the Power Table (after adjusting for any losses, if any). For more information on the maximum allowable power settings, see "FCC/IC Power Setting Tables" on page 4-7 and "ETSI Power Setting Tables" on page 4-11.



Notes:
If the channel is set to **Auto** (ACS), use power setting specified under **Auto Select** from the Table if the user selects the **Auto** channel selection and lets the AP select the final channel, and if the Channel Plan includes DFS channels (when the AP operates on DFS channels, it may trigger Auto channel selection if Radar interference is detected).

If there are additional losses (cable, attenuator) after the Radio RF port, increase the power from the table by the amount of the loss before entering the value into **Max Tx Power**.

if you need to change the Antenna model after Step 5, you will need to repeat all steps starting from Step 1.

6. Repeat the process for **Radio 2**.

4

Technical Specifications

This chapter provides the following specifications.

Outdoor Access Point Technical Specifications

This section provides the technical specifications for the WS-AP3765i, WS-AP3765e, and WS-AP3767e outdoor access points. Unless otherwise noted, the specifications for all three models are the same.

Data Transfer

Table 4-1 Data Transfer

Item	Specification
Ethernet Transfer Rate	1 Gbps
Wireless Transmission Rate	450 Mbps
Power Supply Standards Supported	IEEE 802.3at type 2, IEEE 802.3af (IEEE 802.3at type 1)

Interfaces

Table 4-2 Interfaces

Item	Specification
Power	• 24 V DC direct power supply: min. 19.2V DC, max. 28.8V DC via supplied connector (not electrically isolating) • 12 to 24V DC: min. 9.6V DC, max. 28.8V DC via supplied connector (not electrically isolating) • RJ-45 jack Power over Ethernet (48V DC): min. 36V DC, max. 57V DC via RJ-45 jack, electrically isolated according to IEEE802.3at, dielectric resistance > 2 Mohm • 100 - 240V AC with optional power supply adapter
Data	• WS-AP3765i RJ-45 jack for Ethernet 6 internal antennas • WS-AP3765e RJ-45 jack for Ethernet 6 R-SMA antenna sockets • WS-AP3767e Two SFP ports for fiber optic transceivers 6 R-SMA antenna sockets

Electrical Data

Table 4-3 Electrical Data

Power	Type	Specification
Maximum power consumption	POE	15.6 W
Power consumption	12 -24V DC	1400 - 700 mA
	100 to 240 VAC	264 to 144 mA
Typical power consumption	2 wireless cards (radios)	24V DC: 15 W

Construction

Table 4-4 Construction

Measurement	Specification
Dimensions (WxHxD)	251 mm x 251 mm x 72 mm
Weight	2.24 kg

Permitted Ambient Conditions

Table 4-5 Permitted Ambient Conditions

Condition	Temperature
Operating Temperature	-40° F to 140° F (-40°C to +60 °C)
Operation with AC power supply	-40° F to 140° F (-40°C to +60 °C)
Transport/Storage Temperature	-40° F to 158° F (-40°C to +70 °C)
Degree of Protection	Tested to IP65
Maximum ambient temperatures for WS-AP3767e with the following SFP modules:	
• I-MGBIC-GLX	• 50°C (122° F)
• I-MGBIC-LC03	• 55°C (131° F)
• I-MGBIC-GSX	• 60°C (140° F)

Note: Ensure that the temperature ranges specified in the approvals are maintained.

MTBF Information (mean Time Between Failure)

Table 4-6 MTBF Information

Device	MTBF
WS-AP3765i and WS-AP3765e	41 Years
WS-AP3767e	38 years

Specifications for Power Supply Adapter

Table 4-7 shows technical specifications of the optional power supply adapter (Enterasys part number WS-PS376X-MR).

Table 4-7 Power Supply Adapter Specifications (WS-PS376X-MR)

Item	Specification
Dimensions (length x width x height)	133 x 45 x 30 mm
Weight	209 g
Line power input	AC 100 ... 240 V, 45 ... 65 Hz
Rated current	170 mA ... 70 mA
Efficiency, typical	82.2 %
Power supply buffering	> 20 ms
Output voltage	DC 18 V
Output current	0.8 A

Table 4-7 Power Supply Adapter Specifications (WS-PS376X-MR) (continued)

Item	Specification
Accuracy of output voltage	< + / - 4 %
Stability on load change 0-100%	< + / - 1 %
Inrush current	16 A, after 5 ms < 8A
Current limitation	2.5 x I_{rated}
Sustained short-circuit proof	yes
Base load	None
No load proof	yes
Residual ripple	< 3% of UA

External Antennas

Table 4-8 lists the certified external antennas for AP3765e and WS-AP3767e. For more detailed specifications and radiation pattern diagrams, see the *Enterasys Wireless External Antenna Site Preparation and Installation Guide*.

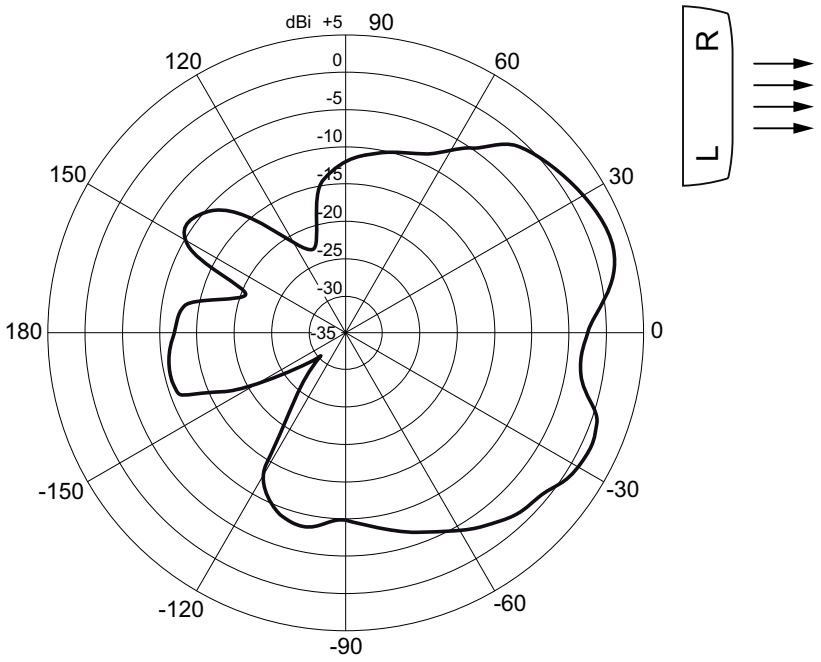
Table 4-8 Certified External Antennas for WS-AP3765e and WS-AP3767e

Model	Application	Description	Gain (dBi)	Frequency (GHz)	Connector Type
WS-AO-DX13025	outdoor, stadium	Directional MIMO Panel	12.5 11.5	2400-2500 5100-5900	Reverse Polarity Type-N Plug
WS-AO-5D16060	outdoor, sector	Dual-polarization Panel 802.11a/bg	16	5150-5875	Reverse Polarity Type-N Jack
WS-AO-5D23009	outdoor, point-to-point	Dual-polarization Panel 802.11a	23	5000	Reverse Polarity Type-N Jack
WS-AO-DT05120-1	outdoor, sector	120 Degree Sector, Triple-Feed	5	2300-2700 4900-6100	Reverse Polarity Type-N Plugs
WS-AIO-2S18018	indoor/ outdoor	Panel	18	2300-2500	Reverse Polarity Type-N Jack
WS-AO-2S10360	outdoor	Omni-Directional	10	2400	Reverse Polarity Type-N Jack
WS-AO-5S10360	outdoor	Omni-Directional	10	5000	Reverse Polarity Type-N Jack
WS-AO-DS05360	outdoor	Omni-Directional Baton	5	2400-2500 5150-5350	Reverse Polarity Type-N Jack

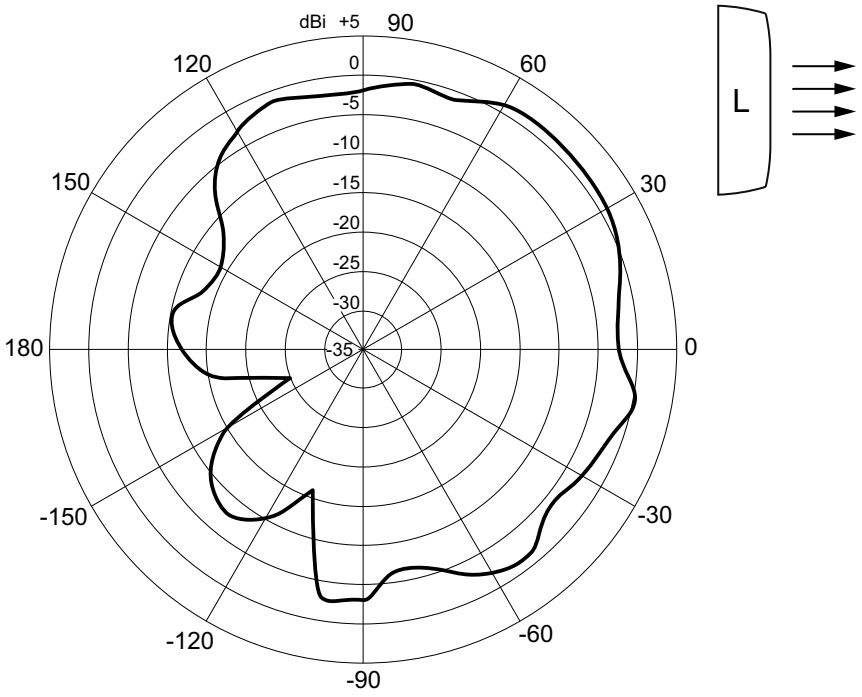
Internal Antenna Radiation Patterns

The following radiation patterns apply to the antennas in the AP3765i only.

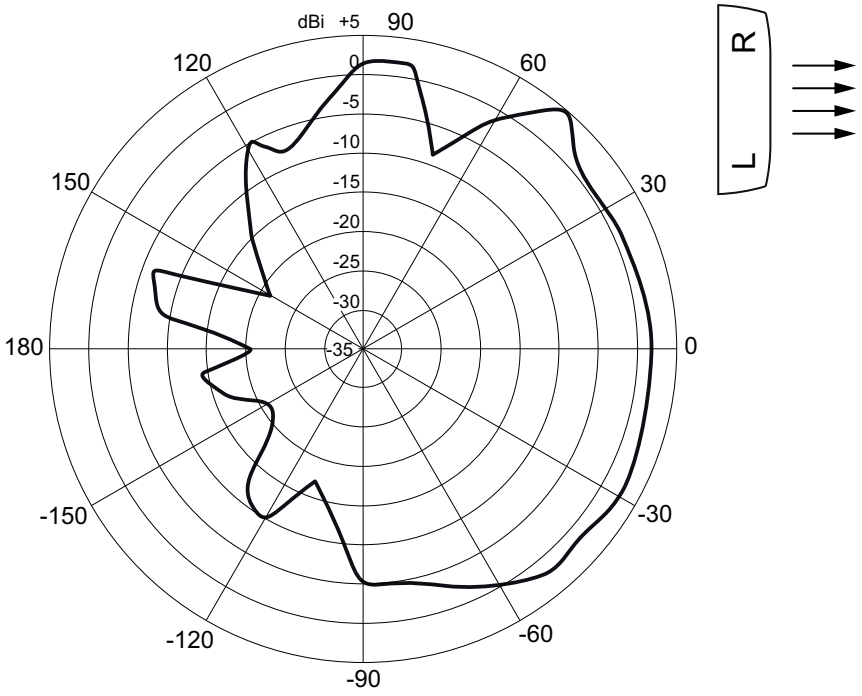
Horizontal Radiation Pattern 2500 MHz



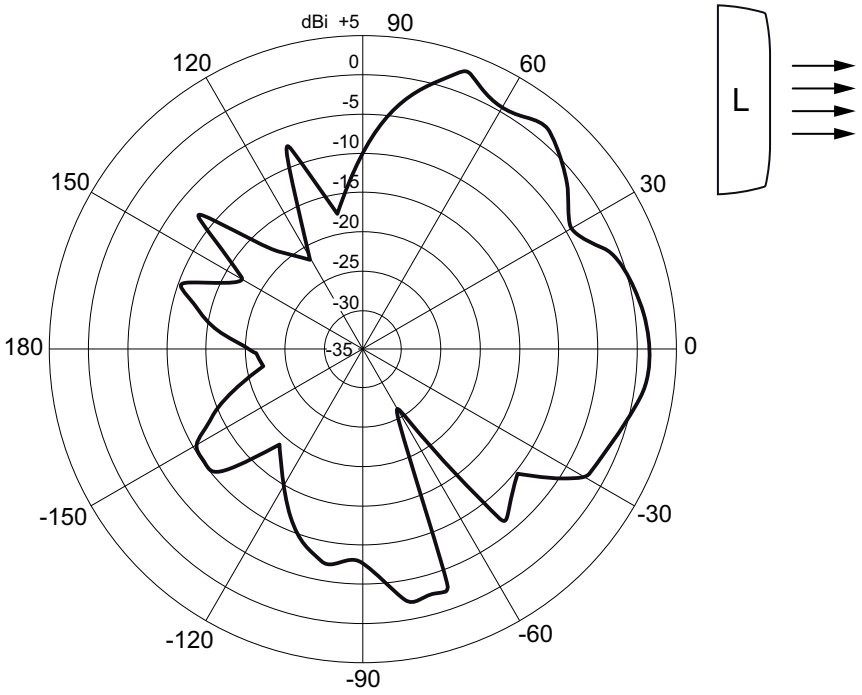
Vertical Radiation Pattern 2500 MHz



Horizontal Radiation Pattern 5800 MHz



Vertical Radiation Pattern 5800 MHz



Antenna Channel Power Settings

FCC/IC Power Setting Tables

Note: The following Power Settings Tables are used to configure the Max Tx power settings for the AP3765 and AP3767e. For more information, see “Configuring AP Channel Settings” on page 3-22.

Table 4-9 shows the necessary FCC/IC-required software power settings for each certified antenna, in each 802.11 mode for WS-AP3765i, WS-AP3765e, and WS-AP3767e.

Table 4-9 FCC/IC Antenna Channel Maximum Allowable Power Settings, Modes B, G, GN-HT20, GN-HT40

802.11 Mode	Channel	AP3765i Internal	Antenna #1 AO-DT05120-1	Antenna #2 AO-DS05360	Antenna #3 AO-2S10360	Antenna #4 AO-DX13025	Antenna #5 AIO-2S18018
B	1	20	23	17	13.5	16.5	9.5*
	2	20	25	19	13.5	16.5	19.5*
	3	20	25	19.5	13.5	19.5	19.5*
	4	20	25	19.5	13.5	19.5	19.5*
	5	20	25	19.5	13.5	19.5	19.5*
	6	20	25	19.5	16.5	19.5	19.5*
	7	20	25	19.5	13.5	19.5	19.5*
	8	20	25	19.5	13.5	19.5	19.5*
	9	20	25	19.5	13.5	19.5	19.5*
	10	20	24.5	19.5	13.5	16.5	17*
	11	20	18	14	13	16	9.5*
	AUTO SELECT	20	18	14	13	16	9.5*

Table 4-9 FCC/IC Antenna Channel Maximum Allowable Power Settings, Modes B, G, GN-HT20, GN-HT40

802.11 Mode	Channel	AP3765i Internal	Antenna #1 AO-DT05120-1	Antenna #2 AO-DS05360	Antenna #3 AO-2S10360	Antenna #4 AO-DX13025	Antenna #5 AIO-2S18018
G	1	15	17.5	13	11.5	12.5	7.5*
	2	17	20	14	13.5	15.5	8*
	3	18.5	21.5	16	14	17	12*
	4	18.5	25	20	14	17	12*
	5	18.5	25	20	14	17	12*
	6	20	25	20	14	17	6.5*
	7	18.5	25	18.5	14	17	6.5*
	8	18.5	23.5	17.5	14	17	6.5*
	9	17	22	16	14	17	6.5*
	10	17	21	14.5	13	16.5	6.5*
	11	15.5	17.5	13.5	11	14	6.5*
	AUTO SELECT	15	17.5	13	11	14	6.5*
GN-HT20	1	16	17.5	11.5	12	15	7*
	2	17	21.5	14.5	12.5	15.5	10*
	3	18	22	15	13.5	16	9*
	4	20	24	16.5	13.5	16	10*
	5	20	24	18	13.5	16	10*
	6	20	24	19	13.5	16	7.5*
	7	20	24	19	13.5	16	7.5*
	8	20	23	17	13.5	16	7.5*
	9	17.5	22	15.5	13.5	16	7.5*
	10	17	19	14.5	12.5	15.5	7.5*
	11	15.5	17.5	14	10.5	13	6.5*
	AUTO SELECT	15.5	17.5	11.5	10.5	13	6.5*

Table 4-9 FCC/IC Antenna Channel Maximum Allowable Power Settings, Modes B, G, GN-HT20, GN-HT40

802.11 Mode	Channel	AP3765i Internal	Antenna #1 AO-DT05120-1	Antenna #2 AO-DS05360	Antenna #3 AO-2S10360	Antenna #4 AO-DX13025	Antenna #5 AIO-2S18018
GN-HT40	1-5	13	15.5	9.5	8	11	4.5*
	2-6	13	16	12.5	9.5	12.5	6*
	3-7	13.5	17.5	12.5	11	14	6*
	4-8	15.5	18	9.5	11	14	7*
	5-9	14.5	17	13.5	11.5	14.5	6*
	6-10	14	15.5	13	8.5	11.5	4.5*
	7-11	13.5	13	9.5	4.5	7.5	4.5*
	AUTO SELECT	13	13	9.5	4.5	7.5	4.5*

* Must use a cable with a minimum 4.4dB of loss.
X = Do Not Use.

Table 4-10 FCC/IC Antenna Channel Maximum Allowable Power Settings, Modes A, AN-HT20, AN-HT40

802.11 Mode	Channel	AP3765i Internal	Antenna 1 AO-DT05120-1	Antenna 2 AO-DS05360	Antenna 3 AO-5S10360	Antenna 4 AO-DX13025	Antenna 5 AO-5D16060	Antenna 6 AO-5D23009
A	36	17	22	17	14	13	11*	11**
	40	17	22	17	14	13	11*	11**
	44	17	22	17	14	13	11*	11**
	48	17	22	17	14	13	11*	11**
	149	20	25	20	20	25	23*	23**
	153	20	25	20	20	25	23*	23**
	157	20	25	20	20	25	23*	23**
	161	20	25	20	20	25	23*	23**
	165	20	25	20	20	25	23*	23**
	AUTO SELECT	17	22	17	14	13	11*	11**

Table 4-10 FCC/IC Antenna Channel Maximum Allowable Power Settings, Modes A, AN-HT20, AN-HT40

802.11 Mode	Channel	AP3765i Internal	Antenna 1 AO-DT05120-1	Antenna 2 AO-DS05360	Antenna 3 AO-5S10360	Antenna 4 AO-DX13025	Antenna 5 AO-5D16060	Antenna 6 AO-5D23009
AN-HT20	36	17	22	17	14	13	11*	11**
	40	17	22	17	14	13	11*	11**
	44	17	22	17	14	13	11*	11**
	48	17	22	17	14	13	11*	11**
	149	20	25	20	20	25	23*	23**
	153	20	25	20	20	25	23*	23**
	157	20	25	20	20	25	23*	23**
	161	20	25	20	20	25	23*	23**
	165	20	25	20	20	25	23*	23**
	AUTO SELECT	17	22	17	14	13	11*	11**
AN-HT40	36-40	17	22	17	17	19	11*	11**
	44-48	17	22	17	17	19	11*	11**
	149-153	20	25	20	20	25	23*	23**
	157-161	20	25	20	20	25	23*	23**
	AUTO SELECT	20	25	20	20	25	23*	23**

* Must use a cable with a minimum 4.4dB of loss.
**must use a cable with a minimum 8.8dB of loss.

ETSI Power Setting Tables

Note: The following Power Settings Tables are used to configure the Max Tx power settings for the AP3765 and AP3767e. For more information, see “Configuring AP Channel Settings” on page 3-22.

Table 4-11 shows the necessary ETSI-required software power settings for each certified antenna, in 802.11 modes B, G, GN-HT20, and GN-HT40 for WS-AP3765i, WS-AP3765e, and WS-AP3767e.

Table 4-12 on page 4-14 shows the ETSI-required software power settings for each certified antenna, in 802.11 modes A, AN-HT20 and AN-HT40 for WS-AP3765i, WS-AP3765e, and WS-AP3767e.

Table 4-11 ETSI Antenna Channel Maximum Allowable Power Settings, Modes B, G, GN-HT20, GN-HT40

802.11 Mode	Channel	AP3765i Internal	Antenna #1 AO-DT05120-1	Antenna #2 AO-DS05360	Antenna #3 AO-2S10360	Antenna #4 AO-DX13025	Antenna #5 AIO-2S18018
B	1	20	22	17	13	14	9 *
	2	20	22	17	13	14	9*
	3	20	22	17	13	14	9*
	4	20	22	17	13	14	9*
	5	20	22	17	13	14	9*
	6	20	22	17	13	14	9*
	7	20	22	17	13	14	9*
	8	20	22	17	13	14	9*
	9	20	22	17	13	14	9*
	10	20	22	17	13	14	9*
	11	20	22	17	13	14	9*
	12	20	22	17	13	14	9*
	13	20	22	17	13	14	9*
	AUTO SELECT	20	22	17	13	14	9*

Table 4-11 ETSI Antenna Channel Maximum Allowable Power Settings, Modes B, G, GN-HT20, GN-HT40

802.11 Mode	Channel	AP3765i Internal	Antenna #1 AO-DT05120-1	Antenna #2 AO-DS05360	Antenna #3 AO-2S10360	Antenna #4 AO-DX13025	Antenna #5 AIO-2S18018
G	1	20	22	17	13	14	9 *
	2	20	22	17	13	14	9*
	3	20	22	17	13	14	9*
	4	20	22	17	13	14	9*
	5	20	22	17	13	14	9*
	6	20	22	17	13	14	9*
	7	20	22	17	13	14	9*
	8	20	22	17	13	14	9*
	9	20	22	17	13	14	9*
	10	20	22	17	13	14	9*
	11	20	22	17	13	14	9*
	12	20	22	17	13	14	9*
	13	20	22	17	13	14	9*
	AUTO SELECT	20	22	17	13	14	9*
GN-HT20	1	17	19	14	11	10	5 *
	2	17	19	14	11	10	5*
	3	17	19	14	11	10	5*
	4	17	19	14	11	10	5*
	5	17	19	14	11	10	5*
	6	17	19	14	11	10	5*
	7	17	19	14	11	10	5*
	8	17	19	14	11	10	5*
	9	17	19	14	11	10	5*
	10	17	19	14	11	10	5*
	11	17	19	14	11	10	5*
	12	17	19	14	11	10	5*
	13	17	19	14	11	10	5*
	AUTO SELECT	17	19	14	11	10	5*

Table 4-11 ETSI Antenna Channel Maximum Allowable Power Settings, Modes B, G, GN-HT20, GN-HT40

802.11 Mode	Channel	AP3765i Internal	Antenna #1 AO-DT05120-1	Antenna #2 AO-DS05360	Antenna #3 AO-2S10360	Antenna #4 AO-DX13025	Antenna #5 AIO-2S18018
GN-HT40	1-5	14	16	11	7	11	5*
	2-6	14	16	11	7	11	5*
	3-7	14	16	11	7	11	5*
	4-8	14	16	11	7	11	5*
	5-9	14	16	11	7	11	5*
	6-10	14	16	11	7	11	5*
	7-11	14	16	11	7	11	5*
	8-12	14	16	11	7	11	5*
	9-13	14	16	11	7	11	5*
	AUTO SELECT	14	16	11	7	11	5*

* Must use a cable with a minimum 4.4dB of loss.

Table 4-12 ETSI Antenna Channel Maximum Allowable Power Settings, Modes A, AN-HT20, AN-HT40

802.11 Mode	Channel	AP3765i Internal	Antenna #1 AO-DT05120-1	Antenna #2 AO-DS05360	Antenna #3 AO-5S10360	Antenna #4 AO-DX13025	Antenna #5 AO-5D16060	Antenna #6 AO-5D23009
A	36	17	22	17	12	14	13*	11**
	40	17	22	17	12	14	13*	11**
	44	17	22	17	12	14	13*	11**
	48	17	22	17	12	14	13*	11**
	52	17	22	17	12	14	13*	11**
	56	17	22	17	12	14	13*	11**
	60	17	22	17	12	14	13*	11**
	64	17	22	17	12	14	13*	11**
	100	20	25	20	20	22	13*	11**
	104	20	25	20	20	22	13*	11**
	108	20	25	20	20	22	13*	11**
	112	20	25	20	20	22	13*	11**
	120	20	25	20	20	22	13*	11**
	132	20	25	20	20	22	13*	11**
	136	20	25	20	20	22	13*	11**
	140	20	25	20	20	22	13*	11**
	AUTO SELECT	17	22	17	12	14	13*	11**

Table 4-12 ETSI Antenna Channel Maximum Allowable Power Settings, Modes A, AN-HT20, AN-HT40

802.11 Mode	Channel	AP3765i Internal	Antenna #1 AO-DT05120-1	Antenna #2 AO-DS05360	Antenna #3 AO-5S10360	Antenna #4 AO-DX13025	Antenna #5 AO-5D16060	Antenna #6 AO-5D23009
AN-HT20	36	17	22	17	12	14	13*	11**
	40	17	22	17	12	14	13*	11**
	44	17	22	17	12	14	13*	11**
	48	17	22	17	12	14	13*	11**
	52	17	22	17	12	14	13*	11**
	56	17	22	17	12	14	13*	11**
	60	17	22	17	12	14	13*	11**
	64	17	22	17	12	14	13*	11**
	100	20	25	20	20	22	13*	11**
	104	20	25	20	20	22	13*	11**
	108	20	25	20	20	22	13*	11**
	112	20	25	20	20	22	13*	11**
	120	20	25	20	20	22	13*	11**
	132	20	25	20	20	22	13*	11**
	136	20	25	20	20	22	13*	11**
	140	20	25	20	20	22	13*	11**
	AUTO SELECT	17	22	17	12	14	13*	11**
AN-HT40	36-40	17	22	17	12	14	13*	11**
	44-48	17	22	17	12	14	13*	11**
	52-56	17	22	17	12	14	13*	11**
	60-64	17	22	17	12	14	13*	11**
	100-104	20	25	20	20	22	13*	11**
	108-112	20	25	20	20	22	13*	11**
	132-136	20	25	20	20	22	13*	11**
	AUTO SELECT	17	22	17	12	14	13*	11**

* Must use a cable with a minimum of 4.4dB of loss.

** Must use a cable with a minimum 8.8dB of loss.

5

Certification

Warning: The Enterasys Wireless Outdoor WS-AP3765i is identical to the SCALANCE-W786-2IA-RJ45 model, the Enterasys Wireless Outdoor WS-AP3765e is identical to the SCALANCE-W786-2-RJ45 model, and the Enterasys Wireless Outdoor WS-AP3767e is identical to the SCALANCE W786-2-SFP. The differences are in the software that communicate with an Enterasys Wireless Controller. The declaration of compliance is based on this similarity of hardware models.

CE Conformity

The product WS-AP3765 and WS-AP3767e in the version put into circulation by Siemens A&D conforms to the regulations of the following European directive:

- 99/5/EC

  Directive of the European Parliament and of the Council on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity. Conformity with the basic requirement of the directive is attested by adherence to the following standards:

- EN 60950-1

  Information technology equipment - Safety - Part 1: General requirements

- EN 301489-1 V1.8.1

  Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 1 : Common technical requirements (V1.8.1)

- EN 301489-17 V2.1.1

  Electromagnetic compatibility and radio spectrum matters (ERM) - Electromagnetic compatibility for radio equipment and services - Part 17: Specific conditions for 2.4 GHz broadband transmission systems and 5 GHz high performance RLAN equipment

- EN 300328 V1.7.1

Electromagnetic Compatibility and Radio Spectrum Matters (ERM); — Broadband transmission systems — Data transmission equipment operating in the 2.4 GHz ISM band and using spread spectrum modulation techniques — Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive

- EN 301893 V1.5.1

  Broadband Radio Access Networks (BRAN) - 5 GHz high performance RLAN - Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive

- EN 62311

  Assessment of electronic and electrical equipment related to human exposure restrictions for electro-magnetic fields (0 Hz – 300 GHz)

- 1999/519/EC

  Council recommendation on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz).

Devices connected to the system must meet the relevant safety regulations.

The EC Declaration of Conformity is available for the responsible authorities according to the above-mentioned EC Directive at the following address:

Enterasys Networks Limited
Nexus House, Newbury Business Park
London Road, Newbury
Berkshire RG14 2PZ, England

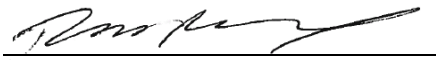
This declaration certifies compliance with the directives named above, but does not guarantee any specific properties.

Declaration of Conformity

Application of Council Directive(s):	**99/5/EEC R&TTE Directive**
Manufacturer's Name:	**Enterasys Networks, Inc.**
Manufacturer's Address:	**9 Northeastern Boulevard Salem, NH 03079 USA**
European Representative Name:	**Enterasys Networks Limited**
European Representative Address:	**Nexus House, Newbury Business Park London Road, Newbury Berkshire RG14 2PZ, England**
Model Name:	**WS-AP3765 and WS-AP3767**
Conformance to Directive(s)/Product Standards:	**EC Directive 1999/5/EC EN60950-1:2006 A11:2009 A1:2010 EN 301 489-1 V1.8.1 EN 301 489-17 V2.1.1 EN 300 328 V1.7.1 EN 301 893 V1.6.1 EN 55022:2006 + A1:2007 EN 55024:2010 EN 50385:2002**
Equipment Type/Environment:	**Wireless LAN Equipment, for use in a Commercial or Light Industrial Environment.**

We the undersigned, hereby declare, under our sole responsibility, that the equipment specified above conforms to the above directives. The date of signatory is the initial date that the CE mark was affixed in accordance with these directives.

Manufacturer



Signature

Mr. Thomas R. Whissel

Full Name

Manager, Compliance Engineering

Title

Andover MA, USA

Location

November 20, 2012

Date

Hazardous Location Approvals

Note: The hazardous location approvals in this section apply to the WS-AP3765 only.

ATEX (Explosion Protection Directive)

Warning: When using SIMATIC NET products in hazardous area zone 2, make absolutely sure that the associated conditions are adhered to.

"Use of subassemblies/modules in a Zone 2 Hazardous Area".

This document can be found on the Internet at the following URL:

http://support.automation.siemens.com/WW/

> Product Support > Industrial Communication

Enter the document identification number A5E00352937 as the search term.

SIMATIC NET products meet the requirements of the EC directive: 94/9/EC "Equipment and Protective Devices for Use in Potentially Explosive Atmospheres".

ATEX classification:

II 3 G Ex nA II T4 KEMA 07 ATEX 0145X

The products meet the requirements of the standards

EN 60079-15: 2010 (electrical apparatus for potentially explosive atmospheres; Type of protection "n")

EN 60079-0:2009 (Explosive atmospheres - Part 0: Equipment - General requirements)

cULus for Hazardous Locations

cULus Listed I. T. E. FOR HAZ. LOC.

Underwriters Laboratories Inc. complying with

- UL 60950-1 (Information Technology Equipment)
- ANSI/ISA 12.12.01-2007
- CSA C22.2 No. 213-M1987

Approved for use in

Cl. 1, Div. 2, GP A, B, C, D T4

Cl. 1, Zone 2, GP IIC T4

Cl. 1, Zone 2, AEx nC IIC T4

FM

The product meets the requirements of the standards:

- Factory Mutual Approval Standard Class Number 3611
- FM Hazardous (Classified) Location Electrical Equipment:

  Non Incendive / Class I / Division 2 / Groups A,B,C,D / T4 and

Non Incendive / Class I / Zone 2 / Group IIC / T4

cULus Approval for Information Technology Equipment

cULus Listed I. T. E.

Underwriters Laboratories Inc. complying with

- UL 60950-1 (Information Technology Equipment)
- CSA C22.2 No. 60950-1-03

FCC

This device complies with Part 15 of the FCC Rules

Operation is subject to the following two conditions:

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

Note: Changes or modifications made to this equipment not expressly approved by Enterasys, Inc. may void the FCC authorization to operate this equipment.

IEEE802.11b or g operation of this product in the USA is firmware-limited to channels 1 through 11.

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:

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

Note: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body.

This device has been designed to operate with the antennas listed in “External Antennas” on page 4-4, and having a maximum gain of 10 dBi. Antennas not included in this list or having a gain greater than 10 dBi are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

This Transmitter Must Not Be Co-located or Operating in Conjunction with Any Other Antenna or Transmitter.

Professional Installation Notice:

To comply with FCC part 15 rules in the United States, the system must be professionally installed to ensure compliance with the Part 15 certification. It is the responsibility of the operator and professional installer to ensure that only certified systems are deployed in the United States. The use of the system in any other combination (such as co-located antennas transmitting the same information) is expressly forbidden.

RSS-210 of Industry Canada

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

This radio transmitter (IC-ID: 267AA-MPCIE1V1) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada.

That the device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems.

Users should also be cautioned to take note that high power radars are allocated as primary users (meaning they have priority) of 5250-5350 MHz and 5650-5850 MHz and these radars could cause interference and/or damage to LE-LAN devices.

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Bahrain Notice

Note on approval in Bahrain:

The operator/owner of this device must comply with the 2.4 GHz and 5 GHz Frequency Licensing Regulation and technical specifications, and must also obtain the necessary licenses in order to use these frequencies in accordance with the Telecommunications Law (refer to section 43 and 44).