ALVARION WBSN QUICK INSTALLATION GUIDE

Package Content

- WBSn base station unit
- PoE injector unit (AC or DC)
- Post-clamp
- Two steel bands
- 2 screws, each with attached spring and flat washers
- Steel extraction key
- Iron security cable
- Plastic cap and cap cover
- 3 antennas (for -O, -OS and -SO base stations)
- Waterproof sealing tape for antennas

Additional Equipment Required

- Shielded Ethernet cable (outdoor shielded CAT5e 4-pair data cable, with RJ45 shield connectors)
  Note: Maximum cable length: 100 meters
- Ground cable, 10 AWG minimum
- Lightning protection – use the device recommended by Alvarion
- 2"-6" diameter pole (on which to mount the unit)
- Extender (optional)

Important Information

Warnings

- The WBSn base station must be used only with Alvarion-approved components and the antennas provided as part of the original package.
- Only experienced installation professionals who are familiar with local building and safety codes and are licensed, wherever applicable, by the appropriate government regulatory authorities, should install outdoor units and antennas.
- Modifying the operating frequency or enhancing the transmit output power through the use of external amplifiers or other equipment is illegal.
- Ensure that the TEST/USB port on the base station unit is properly sealed.

Note: Certain versions of this device (those with –US extension in their product name) comply with part 15 of the FCC Rules. In these cases, operation is subject to the following two conditions:

- This device may not cause harmful interference
- This device must accept any interference received, including such interference that may cause unrequired operating effects.

For further information, please contact Alvarion Technical Support at: support@wavionnetworks.com

Pole Installation

1. Attach the post-clamp to the post, and close and tighten the steel bands with a torque of 3.8 lb-ft (5.1 Nm).
2. Attach the WBSn unit to the post-clamp, using screws and washers, and tightening the screws using a 13 mm diameter ratchet key, with torque of 18.4 lb-ft (25 Nm).

Important Note: It is preferable to install your WBSn base station on a horizontal level, as this offers an unlimited tilt range.

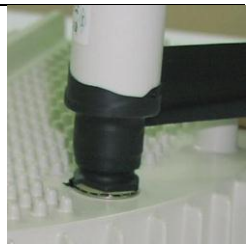
Connecting Power and DATA to the WBSn base station

Warning

- You must always install an external grounding wire, as described in the section Grounding. Ensure that you have completed the grounding procedure before you connect power to the WBSn unit.
- This is not a mid-span powered device. Do not attempt to daisy-chain PoE devices.

Sealing the antennas

For **WBSn-2400-O**, **WBSn-2450-O**, **WBSn-2450-OS**, and **WBSn-2450-SO**:



1. After the antenna is connected, use the supplied isolation tape to cover the N-Type connectors and the lower part of the antennas.
2. Cut 18 cm of the attached isolation tape and ensure that the sticky side of the tape is exposed.
3. Stretch and wrap the tape in an even, half overlapping manner around the antenna and N-Type connector. Cover this with a layer of vinyl plastic tape.

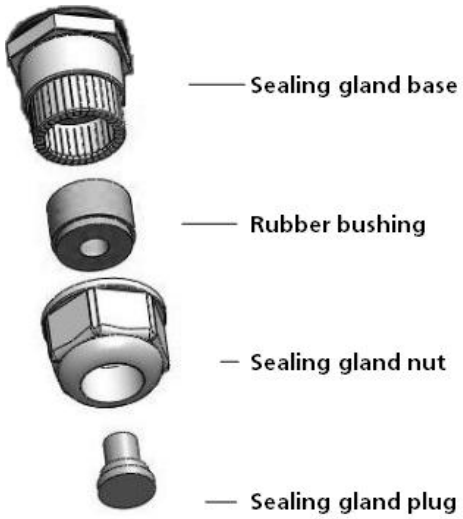
Grounding

To connect the grounding cable:

1. Connect one end of a grounding cable to the grounding terminal and tighten the grounding screw firmly.
2. Remove the nut and star washers from the grounding screw.
3. Attach one star washer to the grounding screw.
4. Attach #10 AWG bare copper wires with an M6 terminal ring to the grounding screw.
5. Attach the second star washer and tighten the nut. Connect the other end of the grounding cable to a good ground (earth) connection, (for example, a grounding rod).

Pre-Installation

Important Note: The gland base is attached to the WBSn unit and should not under any circumstances be fully removed.



1. Ensure that the power is turned off for the designated circuits.
2. Twist the nut using a steel extraction key, or an equivalent tool, to give yourself access to the inner sleeve.

3. Remove the rubber bushing (inner sleeve) from the body of the gland.

4. Feed the shielded Category 5 Ethernet cable (appropriate for outdoor use) through the released nut and the rubber bushing.

   Note: Use a shielded RJ45 8-pin modular plug to terminate the cables at the required length.

5. Crimp the cable and assemble the appropriate connector.

6. Connect the cable to the outdoor unit.

7. Push the rubber bushing firmly back into place inside the body of the gland.

8. Close the nut and tighten firmly, using a steel extraction key, or an equivalent tool, to ensure perfect sealing and IP-68 compliance.

9. Connect the other end of the Category 5 cable to the OUT port of the PoE injector.

10. Connect one end of the network source cable to the IN port on the PoE injector, and the other end to the network.

    Note: The DC PoE image may differ in appearance. For more information, refer to the documentation included with the DC PoE package.

Installing the WBSn base station

1. Slide the steel bands into the appropriate side slots of the post clamp.

   Mounting Kit Post Clamp (plus half-extender*)

   ** Half extender not included in shipment*

   Note: For a thinner post, the steel bands should be threaded through the inner slots, and for a wider post, through the outer slots.

2. Attach the post-clamp to the post, and close and tighten the steel bands, with torque of 3.8 lb-ft (5.1 Nm).

3. If you are installing WBSn on a horizontal post, select the direction in which the base station unit should point on the horizontal plane prior to continuing with the installation. Once you have determined the correct direction, connect the extender to the post clamp, and proceed to Step 5.

Note: The extender must be specified as an extra item when ordering the WBSn unit.

4. If you are installing the WBSn on a vertical post, attach the WBSn unit to the post-clamp, with the screws and washers. Tighten the screws using a 13mm ratchet key with torque of 18.4 lb-ft (25 Nm).

   Note: If you are installing either a Sector, Sector-Omni, or Omni-Sector WBSn unit, see Mounting.

   Horizontally mounted WBSn attached with extender

5. Attach the WBSn base station unit (and connected extender) to the base station unit.

6. Tighten the bolts with torque of 18.4 lb-ft (25 Nm). As you tighten the screws, verify that the tilt and direction of the base station unit are correct for the coverage area required.

   Note: In an urban setting, with a high-placed installation, a slight downwards tilt (approximately 8-10 degrees) will help reduce noise and interference.

7. Thread the iron cable through the corner hole on the post-clamp, and the middle hole on the WBSn unit, securing it with the Caribena provided. This will provide extra physical security for the unit.

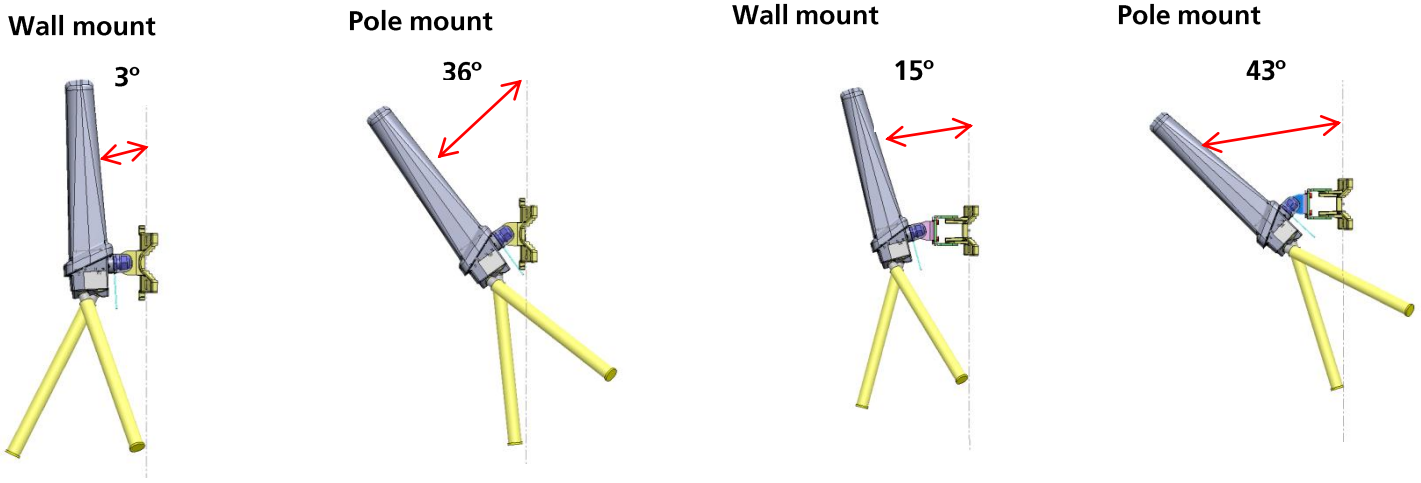
Mounting

Sector, Sector-Omni and Omni-Sector units support both pole and wall mounting, as shown in the following illustration. For best performance for a Sector unit, the recommendation is to install using a horizontal mount, as it offers a wider range of directional adjustment.

The following illustration shows sector-omni (or omni-sector) units, however this issue also applies to Sector units.

Max downwards tilt **without** extender

Max downwards tilt **with** extender



Wind Loading Considerations

WBSn weighs approximately eight kilograms, including all mounting hardware, with minor differences according to model. When the WBSn unit is mounted on a pole, the sail area of the WBSn is approximately 0.11 m^2. The WBSn unit can load a pole with a maximum load of 3400 Newton in wind conditions of 264 km/h (165 mph).

 Warning! You should evaluate the static and dynamic load bearing capabilities for each assembly and installation individually.

Safety instructions and information	
Please ensure that you read and understand the following safety information. Ensure that you carefully read and follow all instructions in this manual, and heed all warnings.	
Warnings 	It is illegal to modify the construction of this product. Modifying the operating frequency or enhancing the transmit output power through the use of external amplifiers or other equipment is specifically disallowed by the "Telecommunications Act".
	There is a risk of personal injury or death if the WBSn antennas are close to electric power lines.
	By nature of the outdoor installation, you may be exposed to hazardous environments and high voltage. Use extreme caution when installing the system.
	Servicing is required when the apparatus has been damaged in any way. All servicing should be referred to qualified service personnel only.
	The base station must be properly grounded.
Warnings 	Do not open the unit – risk of electric shock.
	Any change or modification not expressly described in this manual or approved by the manufacturer could void your authority to operate this equipment.
	WBSn should only be installed using the antennas that were provided as part of the original package.
	A minimum distance of 40cm should be kept from the WBSn antenna when the system is in operation.
	To maintain Overvoltage (Installation) Category II, install a suitable surge suppressor device in the branch circuit to limit expected transients to Overvoltage Category II values. The limits are based on IEC60664 and are also located in Table 2H of UL60950 (for mains 110V, the transient rating is 1500V).

Lightning Protection

The following procedure describes how to correctly ensure that your device is protected against lightning.

For the best protection, two instances of the lightning protection device should be used. Use lightning protectors that are recommended by Alvarion.

1. Position one of the lightning protection devices as close to the building entrance as possible and connect it to the grounding bar of the building.
2. Position the second lightning protection device as close to the base station as possible and connect it to the tower/pole ground plate using a short 10 AWG cable.
3. Ensure that the tower/pole has a lightning rod connected to the earth with a down-conductor.

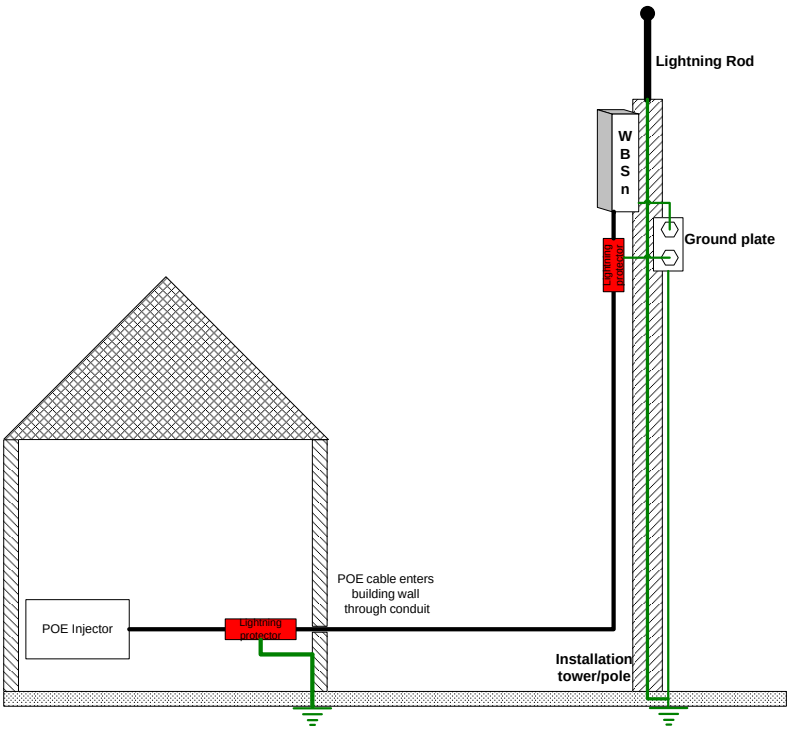
   Note: Use only shielded CAT5e/6 cables for the POE connection.
4. Ensure that the cable shield is firmly connected (soldered) to the RJ45 plug shield. Non-shielded cables or non-shielded RJ45 plugs will not provide any grounding points or protect from static discharge or lightning strike

For more detailed explanation of lightning protection techniques – please refer to the Alvarion Lightning Protection White Paper.

Note: Lightning damage is not covered under the Alvarion Warranty.

When correctly installed, the recommendations on this page offer you the best protection from the harmful effects of lightning. However, 100% protection is neither implied nor possible.

Lightning Protection Connection Diagram



Configuring WBSn Using a Browser

1. In an internet browser, enter the Management IP address of the WBSn unit in the URL navigation field. (Default: http://192.168.1.1, currently supported browsers: Microsoft Internet Explorer, Chrome and Mozilla Firefox.)
2. A log-in screen is displayed. Enter **admin** in the User Name field, and also enter **admin** in the password field.
3. Click **Connect**. The EMS screen is displayed.
4. Select the **Setup Wizard** option.
5. The **Installation** screen is displayed. Click the arrow in the bottom right corner of the screen to proceed to the Network Configuration screen.