# Quick Install Guide

## AI108 Series Wireless Bridge
## with External Antennas (ordered separately)

Model# AI108-2-050
AI108-2-150
AI108-2-300

**For Professional Installers**

Revision 1.17P

OCT 2002

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AI108
AI108-1-R01
P/N: AI108.2.D

## Limited Warranty
## AIRAYA CORP

**Limited Warranty:** AIRAYA warrants all its products to be free of manufacturing defects in workmanship and materials, under normal use and service, for the applicable warranty term. All AIRAYA products carry a standard 90-day limited warranty from the date of purchase from AIRAYA or its Authorized Reseller. AIRAYA may, at its own discretion, repair or replace any product not operating as warranted with a similar or functionally equivalent product, during the applicable warranty term.

The standard limited warranty can be upgraded to a two-year warranty by registering new products within 30 days of purchase from AIRAYA or its Authorized Reseller. Registration can be accomplished via the enclosed product registration card or online via the AIRAYA web site. Failure to register will not affect the standard limited warranty. The two-year warranty covers a product during the Life of that Product, which is defined as the period of time during which the product is an 'Active' AIRAYA product. A product is considered to be 'Active' while it is listed on the current AIRAYA price list. As new technologies emerge, older technologies become obsolete and AIRAYA will, at its discretion, replace an older product in its product line with one that incorporates these newer technologies. At that point, the obsolete product is discontinued and is no longer an 'Active' AIRAYA product.

All products that are replaced become the property of AIRAYA. Replacement products may be either new or reconditioned. Any replaced or repaired product carries either a 30-day limited warranty or the remainder of the initial warranty, whichever is longer. AIRAYA is not responsible for any custom software or firmware, configuration information, or memory data of Customer contained in, stored on, or integrated with any products returned to AIRAYA pursuant to any warranty. Products returned to AIRAYA should have any customer-installed accessory or add-on components removed prior to returning the product for replacement. AIRAYA is not responsible for these items if they are returned with the product.

Customers must contact AIRAYA for a Return Material Authorization number prior to returning any product to AIRAYA. Proof of purchase may be required. Any product returned to AIRAYA without a valid Return Material Authorization (RMA) number clearly marked on the outside of the package will be returned to customer at customer's expense. Customers are responsible for all shipping charges from their facility to AIRAYA. AIRAYA is responsible for return shipping charges from AIRAYA to customer.

## Limited Warranty

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SOME COUNTRIES DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES OR THE LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR CONSUMER PRODUCTS, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, WHICH MAY VARY FROM STATE TO STATE. NOTHING IN THIS WARRANTY SHALL BE TAKEN TO AFFECT YOUR STATUTORY RIGHTS.

* AIRAYA will provide warranty service for up to three years following discontinuance from the active AIRAYA price list. Under the two-year warranty, internal and external power supplies, and fans are covered by a standard one-year warranty from date of purchase.

## Regulatory Information

### FCC and Industry Canada Guidelines

The radiated output power of the AI108 wireless bridge is far below the FCC radio frequency exposure limits. Nevertheless, the device shall be used in such a manner that the potential for human contact during normal operation is minimized. It is the responsibility of the installer and users of the AI108 wireless bridge to guarantee that the antenna is operated at least 20 centimeters (8 inches) from any person. This is necessary to insure that the product is operated in accordance with the RF Guidelines for Human Exposure, which have been adopted by the Federal Communications Commission.

The built-in antennas used on the AI108 may NOT be replaced at any time. They are designed to comply with the maximum EIRP limits specified by the FCC and Industry Canada. Modifications to the AI108, unless expressly approved by AIRAYA, could void the user's authority to operate the equipment.

The AI108 wireless bridge operates in the frequency range of 5.25 to 5.35 GHz. High power radar systems in both Canada and the United States are allocated as primary users of this spectrum. These radars can cause interference and/or damage to devices such as the AI108 wireless bridge when used outdoors.

The term "IC:" before the radio certification number only signifies that Industry Canada technical specifications were met.

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**NOTE: This device must be professionally installed**

**Class A Digital Compliance**

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device , pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## Contents

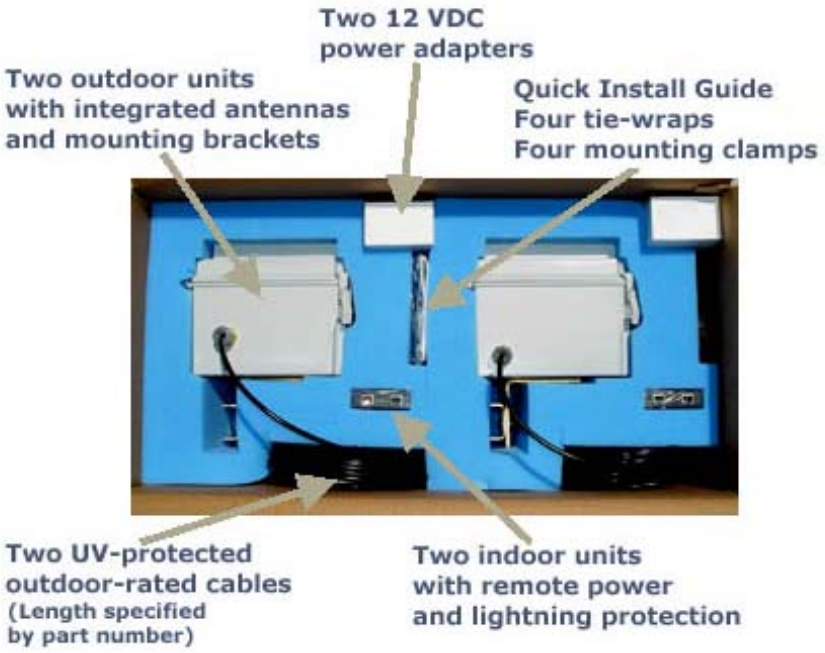
## Introduction

AIRAYA's AI108 series of wireless bridges have been designed to provide transparent, high-speed data communications between two wired networks.

This solution offers fast, reliable wireless connectivity with considerable cost savings over wired alternatives. Utilizing proprietary 5 GHz technology, the AI108 can easily replace an Ethernet or T1 connection or seamlessly integrate into a newer 10/100 Mbps Ethernet LAN.

## Package Checklist

The AI108 comes in one carton and contains the following components:




Please complete the warranty registration card and return to AIRAYA, or register online at: http://www.airaya.com in the support | product registration section of our website.

Please inform your dealer if there are any incorrect, missing or damaged parts. If possible, retain the carton, including the original packing materials. Use them again to repack the product if there is a need to return it for repair.

## Hardware Description

### Ethernet Compatibility

The AI108 wireless bridge can attach directly to 10Base-T/100Base-TX (twisted-pair) Ethernet LAN segments. These segments must conform to the IEEE 802.3 specification.

The AI108 appears as an Ethernet node and performs a bridging function by moving packets from the wired LAN in one building to a wired LAN in a different building.

### Radio Characteristics

The AI108 wireless bridge employs a radio modulation technique known as Orthogonal Frequency Division Multiplexing (OFDM), operating in the 5 GHz Unlicensed National Information Infrastructure (U-NII) band. Data is transmitted over a half-duplex radio channel at up to 108 Mbps speed.

**Antenna Type** – Purchase of external antennas is required for this product.

AI108-2-xxx wireless bridges contain N-Type connectors for attaching external antennas. Available antenna options include a 18.4 dBi patch antenna - maximum operating range of 1 mile (1.6km) or a 23.9 dBi patch antenna - maximum operating range of 2.5 miles (4km) under FCC and Industry Canada rules. For international markets other antennas options (both integrated and external) may be available based on local regulations. Please contact AIRAYA for additional antenna options.

### Enclosure

The molded fiberglass polyester enclosure of the AI108 outdoor unit has been designed for maximum weatherability and durability in outdoor settings. It is watertight and meets the NEMA/EEMAC Type 4, 4X, 12, and 13 specification.

### Cabling

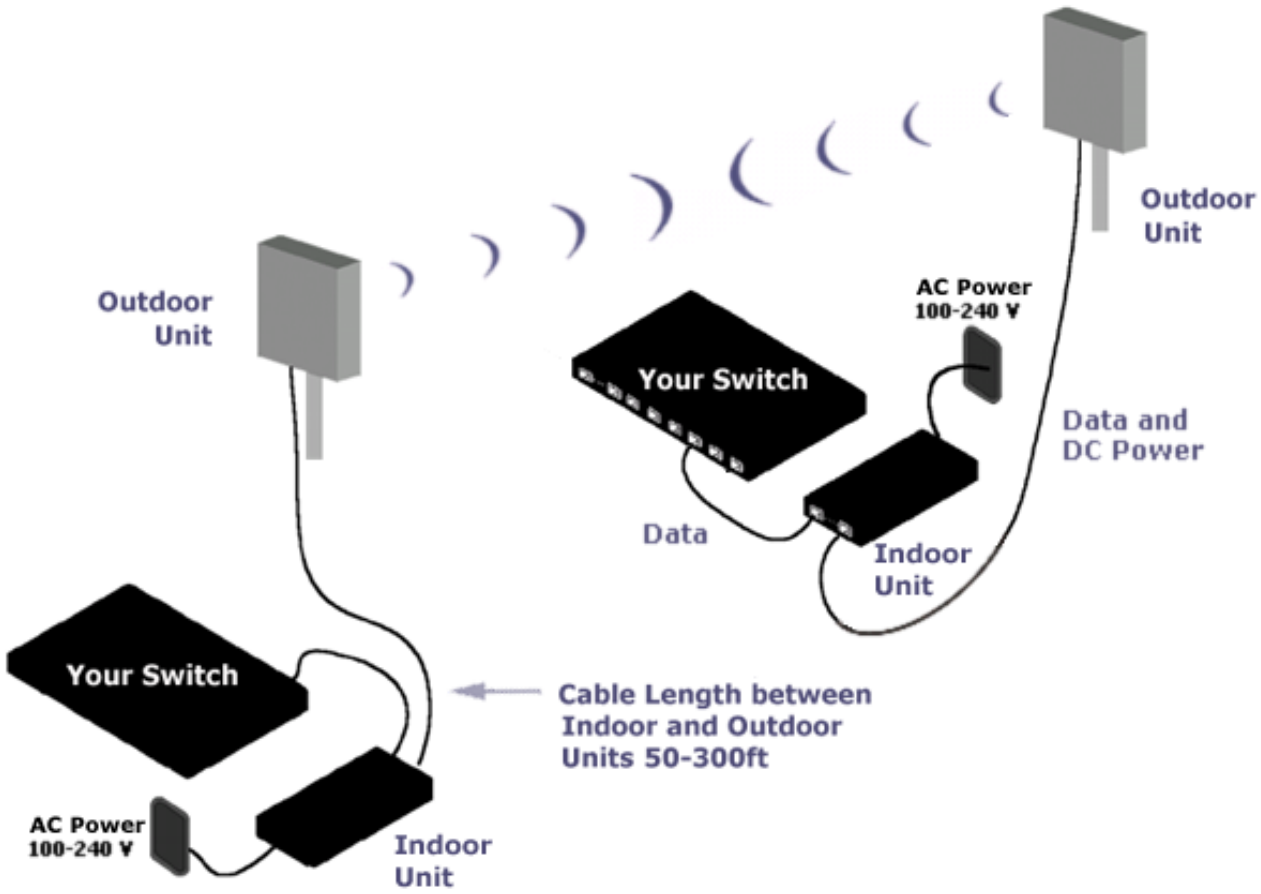
The AI108 wireless bridge includes a Category 5E cabling solution designed for outdoor applications and with support for IEEE 802.3af (draft) DC power over Ethernet to allow for ease of installation.

### Remote Power

Power over Ethernet is an integral part of the AI108. The AI108 indoor unit is capable of providing power to the outdoor unit at the full distance specified by the IEEE 802.3 specification (100 meters).

## AI108 Architecture and Topology

The following diagram illustrates a typical usage scenario of an AI108 wireless bridge to interconnecting two local area networks.



## System Requirements

Before you install the AI108 wireless bridge, be sure you have the following items on-hand:

- An AC power outlet (100 to 240 V, 50 to 60 Hz) which will supply power to the indoor units on both sides of the wireless connection
- An outdoor unit mast with a diameter of 1.9 inches (50 mm) to 4.5 inches (115 mm)
- An available RJ-45 (UTP) port on a 10/100Mbps Ethernet hub or switch
- Web browser for software configuration

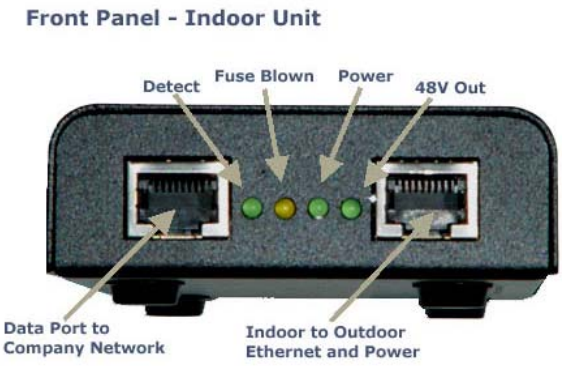
The AI108 wireless bridge has been designed to withstand normal handling procedures, but reasonable precautions should be exercised during the installation, particularly with regard to static discharge.

- Make sure that you are adequately grounded by touching the bare metal surface on the back of a computer or networking device before installing the indoor and outdoor units.
- Avoid moving around the work area in order to eliminate static charge buildup.
- If possible, do not work on a carpeted area.

## Hardware Installation

### Connecting the Indoor Unit

**Front Panel View**




The indoor unit connects your company network to the AI108 and delivers both data and power to the outdoor unit. The indoor unit features the following LED status indicators:

| LED | Indication |
|---|---|
| Detect (green) | Compatible load detected and Ethernet link established between indoor and outdoor units. |
| Fuse blown (yellow) | The unit includes a fuse to help protect the attached equipment from power surges and lightning damage. A lit LED indicates that the fuse needs to be replaced. |
| Power (green) | External power applied |
| 48V out (green) | Power over Ethernet is active |

Before you mount the indoor unit to a fixed location, consider the following requirements to determine the optimal placement:

- The cable length from the Ethernet network to the indoor unit must not exceed 320 ft (100 meters).
- The distance from the indoor unit to the outdoor unit must not exceed the length of the Category 5E cable included with the AI108 wireless bridge (between 50 and 300 ft, specified by part number[1]).
- Placement must allow for easy access to disconnect the indoor unit from the AC outlet if necessary.

[1] Refer to section *Models and Ordering Information* for details

Follow these steps to install the indoor unit:

1. Connect the *DATA* port to your 10/100 Mbps Ethernet hub or switch using a straight-through category 5 UTP cable.

2. Connect the power cable to the 12 VDC power socket on the rear panel, and plug the power adapter into the wall outlet. **Warning**: Use only the power adapter supplied with the AI108 wireless bridge in order to prevent damage.

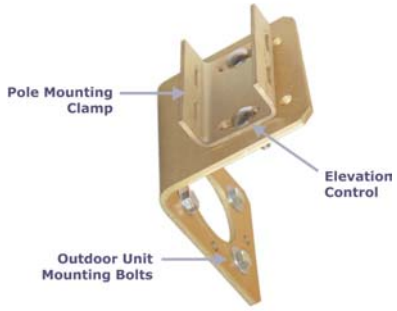
3. You are now ready to apply power to the outdoor unit. Connect the *DATA/PWR* port to the outdoor unit using the included Category 5E cable that came attached to the outdoor unit. The *DETECT* and *48 V OUT* LEDs will light to indicate that the outdoor unit is connected to your network and receiving power.

### Installing and Aligning the External Antennas

To ensure maximum performance and stability of your wireless connection, it is crucial that you determine the right locations for the external antennas based on the following two criteria:

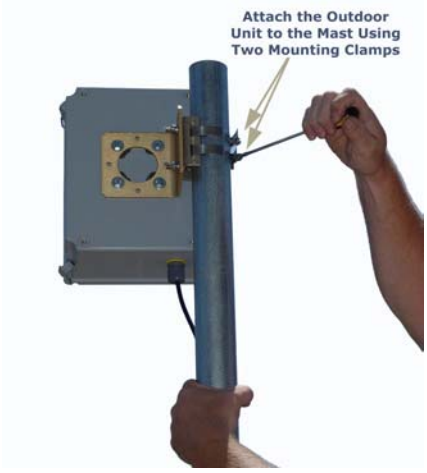
1. Establish a good signal path, ideally with visual line of sight, between the two end points.
2. Minimize the distance between the two end points.

Pole mast mounting of the external antennas and outdoor units can be accomplished using the included mounting brackets with full elevation adjustment, as illustrated in the figure to the right.




Follow these steps to install the outdoor units and external antennas:

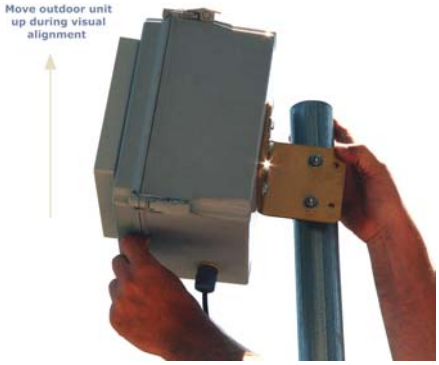
1. Attach the outdoor unit to the mast using the two included pole mounting clamps. Attach the external antennas using the same technique.

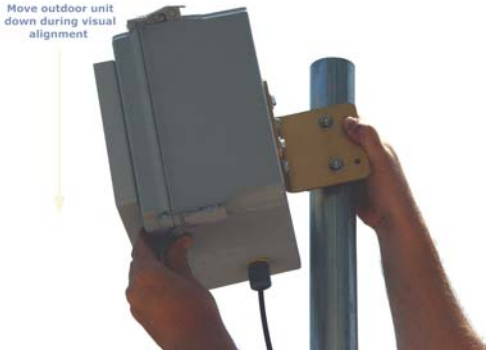


2. Align the external antenna horizontally. Loosen the pole mounting clamps just enough to visually aim the external antenna at the remote end point. Set the appropriate horizontal angle and tighten the pole mounting clamps so that the angle is locked in place.

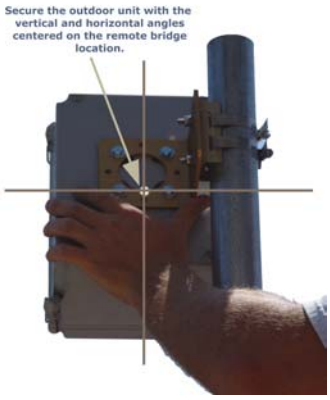


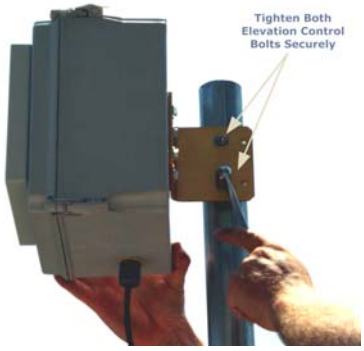

3. Align the external antenna vertically. Loosen the elevation control bolts on the mounting bracket and point the antenna towards the remote end point.



4. Set the appropriate elevation angle and tighten the bolts so that the angle is locked in place. The bracket design allows for up to 20° tilt of the antenna.




5. Secure both the cable between the external antenna and the outdoor unit, and the Category 5E cable between the outdoor unit and the indoor unit to the mast using UV-rated tie-wraps (4 are included). **Note:** It is recommended that you secure the entire cable length to the mast every 10 feet.


6. Repeat steps one through five for the second outdoor unit in the remote location.
7. If necessary, use the AI108 antenna alignment tool to fine tune your received signal strength (RSS). Loosen the pole mounting clamps and elevation control bolts again, and rotate the antenna slowly around its mast. As the antenna slews towards the remote device, the RSS indicator will show an increase. Keep rotating the unit until the maximum strength signal has been obtained, then tighten all fasteners and bolts to secure the assembly.
8. Repeat step seven for the second external antenna.

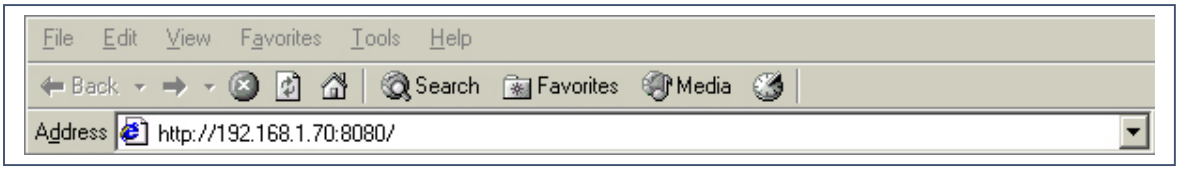
## Software Configuration

The network and security parameters of your wireless bridge pair are configured by using the built-in AI108 web server. The AI108 web server greatly simplifies the configuration process by allowing the user to access all parameters and settings through a single, consistent user interface.

**Note:** For added security, this configuration utility is only accessible within two minutes of power-up. This utility is not available during normal bridge operation.

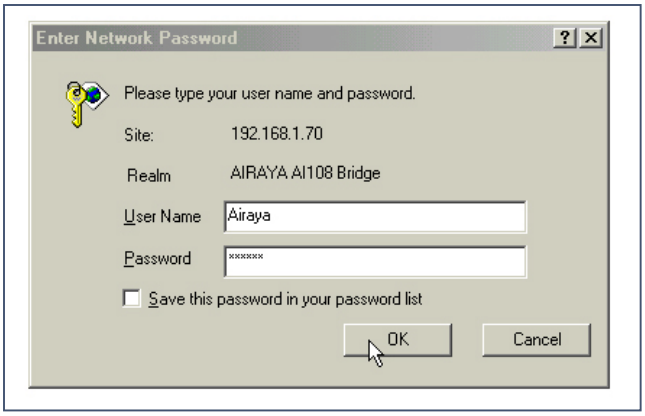
### Getting Started

The factory default IP address and port number of the AI108 wireless bridge is *192.168.1.70:8080*. Type that string into the address field of your browser and press the *Return* key to load the AI108 web server. You will be prompted for a user name and password at that point. **Note:** See section *Logging in to the AI108 Web Server* below for information on default settings.




### Logging in to the AI108 Web Server

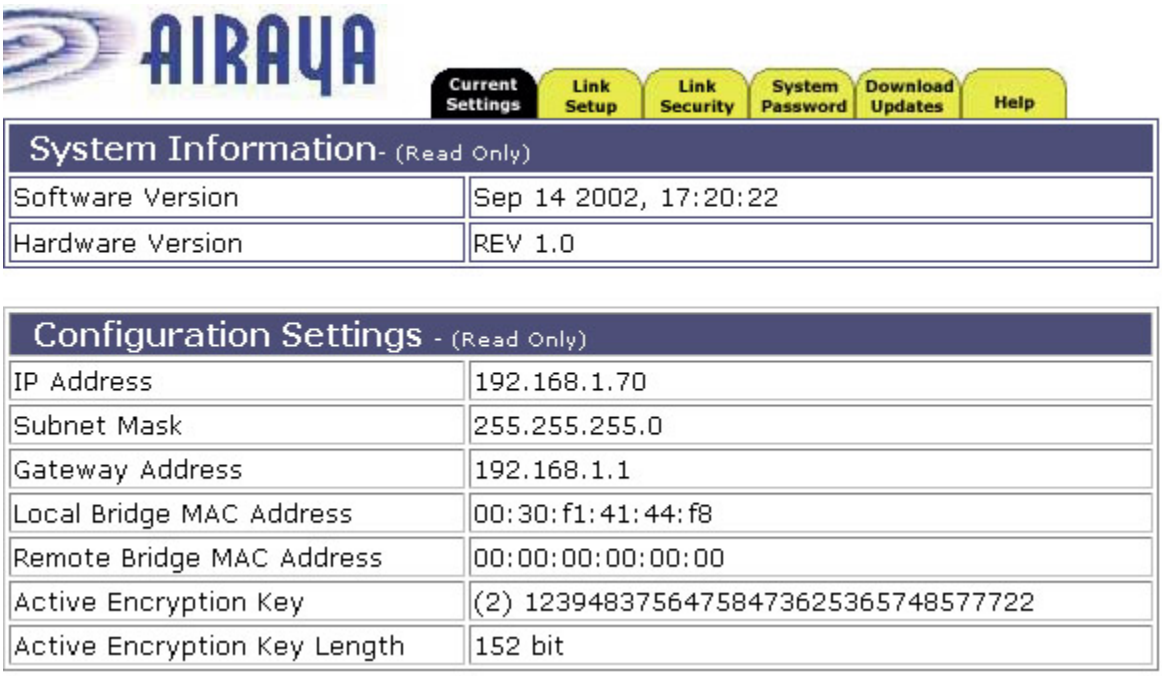
The AI108 requires you to enter a user name and password to gain access to the configuration utility. The default value for the fields *User Name* and *Password* is "Airaya".



Once you are logged in to the AI108 web server, you will have access to all configuration options available in the AI108. The web interface is organized into tabs that facilitate different categories of parameters and functions, including *Current Settings, Link Setup, Link Security, System Password, Download Updates,* and *Help*. The first screen you see is the *Current Settings* tab.

### Current Settings Tab

The *Current Settings* tab allows you to view, but not change, the system information and current setup of your AI108 unit.



The following parameters can be viewed from the *Current Settings* tab:

- *Software Version* - Current software (firmware) version installed and running on the bridge you are working with. This value is formatted as a date code.
- *Hardware Version* - Current hardware revision of the local bridge.
- *IP Address* - Current IP address of the local bridge you are working with.
- *Subnet Mask* - Current subnet mask of the local bridge you are working with.
- *Gateway Address* - Current gateway address of the local bridge you are working with.

For a detailed description of the *IP Address*, *Subnet Mask*, and *Gateway Address* parameters, please refer to section *Link Setup Tab*.

- *Local Bridge MAC Address* - MAC address of the local bridge you are working with.
- *Remote Bridge MAC Address* - MAC address of the remote bridge this local bridge is currently paired with.

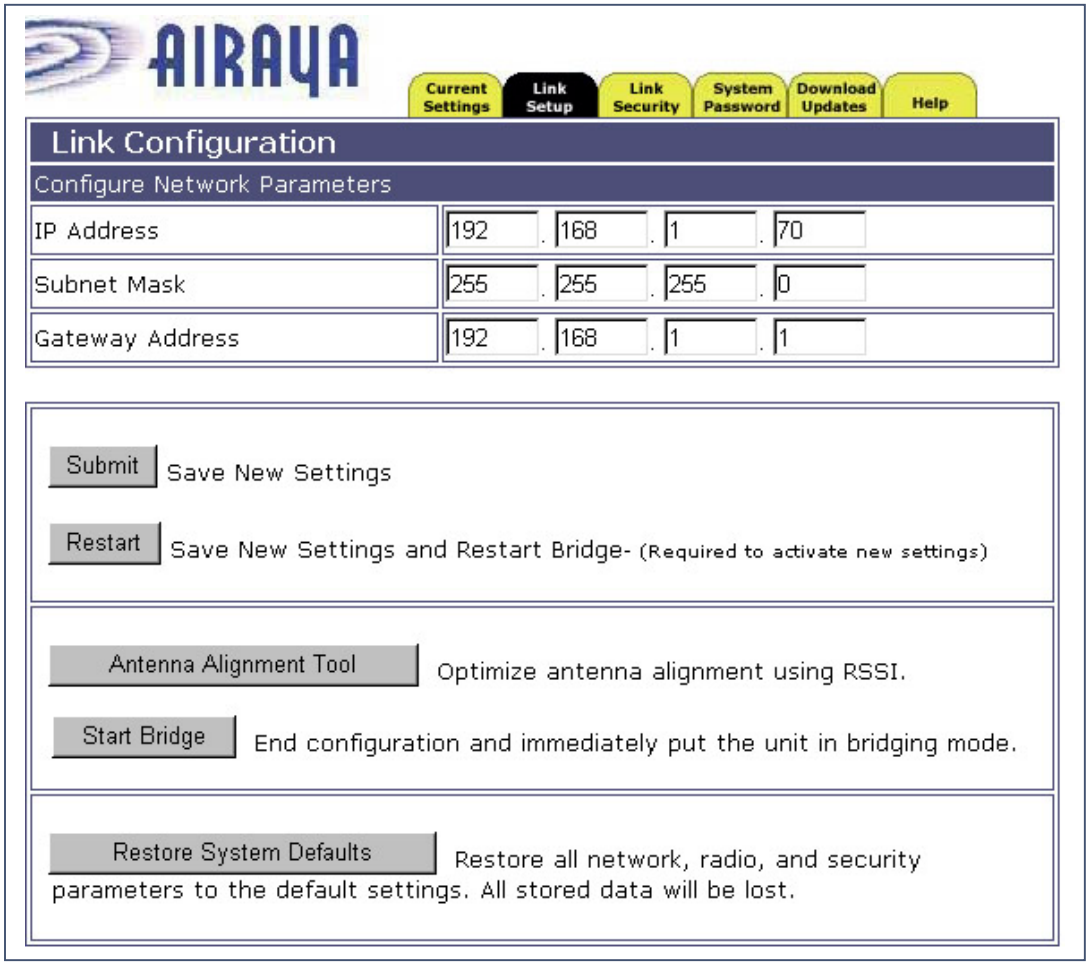
For additional information on the *Bridge MAC Address* parameters, please refer to *MAC Address Authentication* in section *Link Setup Tab*.

- *Active Encryption Key* - WEP key currently providing data encryption over the wireless link.
- *Active Encryption Key Length* **-** Length of the encryption key currently being utilized on this pair of bridges.

For a detailed description of the WEP protocol and related parameters, please refer to section *Link Security Tab*.

### Link Setup Tab

The *Link Setup* screen is used to enter parameters related to the configuration of your network, radio channel, and data rate of the AI108.




The following parameters can be accessed and modified from the *Link Setup* tab:

- *IP Address* - The IP address for each AI108 wireless bridge must be unique, so please check with the network administrator for the correct IP address to be assigned to this device. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be zero to 255. **Note:** The updated IP address will replace the default IP address listed in the *Getting Started* section. After activating your changes with the *Restart* or *Start Bridge* command, you can access the AI108 web interface by specifying the updated IP address and port number.

- *Subnet Mask* - The subnet mask allows networking software to determine which parts of the IP address specify the network address and which parts specify the host address. If your device is using the wrong subnet mask for the network to which you are attached, it will therefore not be able to communicate with all users on that network. The factory programmed subnet mask of the AI108 wireless bridge is 255.255.255.0.

*Gateway Address* - IP packets destined for other subnets are automatically sent to the default gateway, which routes the traffic to the correct network. The gateway address must be specified following the same convention as the IP address.

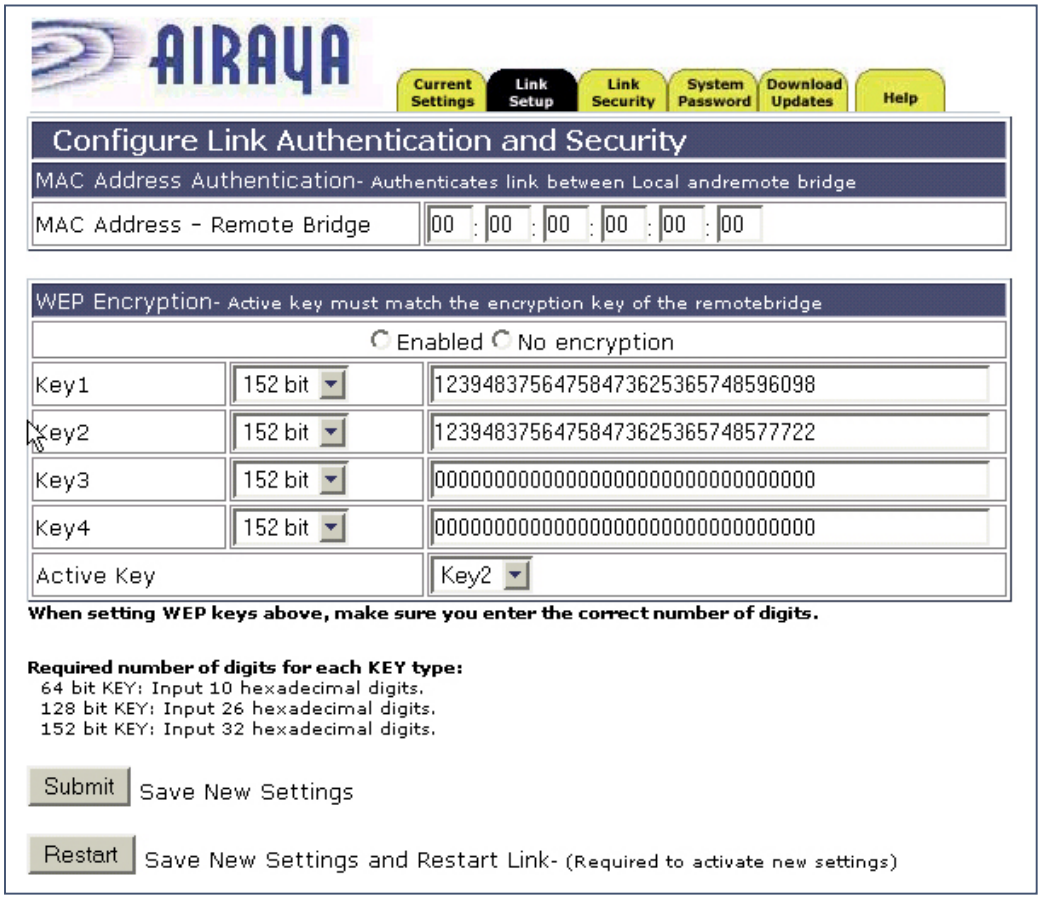
*Antenna Alignment Tool* - The antenna alignment tool displays your current connection status based on received signal strength (RSS). The RSS indicator is a useful diagnostic tool for you to test the transmission quality between the local and remote AI108 bridge unit and to optimize antenna alignment. Please refer to section *Installing and Aligning the Outdoor Units* for detailed instructions on antenna alignment.

**Note:** Remember to save your new configuration settings before selecting another tab by pressing the *Submit* button. If you are finished making changes to the local bridge configuration, press the *Restart* button to save the new configuration settings and reboot the local bridge, activating all new settings. You can also use the *Start Bridge* button to activate the new settings and immediately put the unit in bridging mode, without re-entering the configuration utility.

**Note:** If settings are modified inadvertently, the *Restore System Defaults* button can be used to return to the factory default settings of all networking, radio, and security parameters. All modified data will be lost.

### Link Security Tab

The *Link Security* screen is used to define the authentication and encryption security settings of the AI108.




The following parameters can be accessed and modified from the *Link Security* tab:

- *MAC Address Authentication* **-** To protect your wireless link against unauthorized intruders, the AI108 allows only two unique MAC addresses to synchronize radios and establish a wireless connection. This feature effectively restricts the usage of the wireless link to only those with wireline access on either side of the wireless bridge pair. This is accomplished by adding the MAC address of your remote bridge unit to the *MAC Address – Remote Bridge* field in the configuration screen of the local bridge, and vice versa. The MAC address is a unique 48-bit hardware address, and listed on the product label located on the bottom of the AI108 indoor unit (AI108-1-PoE). **Note:** If this parameter is not set, you will not be able to establish a connection with the remote bridge.

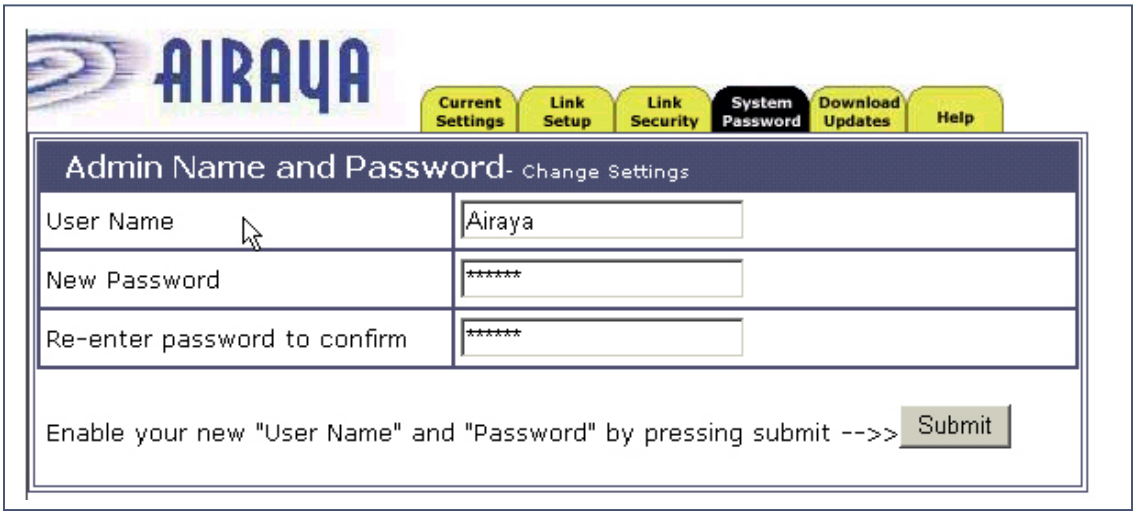
- *WEP Data Encryption* **-** To prevent unauthorized wireless stations from listening to data transmitted over the wireless medium, the AI108 offers Wired Equivalent Privacy (WEP) data encryption. Up to four WEP keys with 64, 128, or 152 bit key length can be registered. 64 bit keys need to be entered as 10 hexadecimal digits in the range of 0-9, A-F, or a-f. If 128 bit is chosen, enter 26 hexadecimal digits. If 152 bit is chosen, enter 32 digits. When using this option, the AI108 will communicate with another device only if it is using a matching active encryption key.

**Note:** Remember to save your new configuration settings before selecting another tab by pressing the *Submit* button. If you are finished making changes to the local bridge configuration, press the *Restart* button to save the new configuration settings and reboot the local bridge, activating all new settings. You can also use the *Start Bridge* button to activate the new settings and immediately put the unit in bridging mode, without re-entering the configuration utility.

**Note:** If settings are modified inadvertently, the *Restore System Defaults* button can be used to return to the factory default settings of all networking, radio, and security parameters. All modified data will be lost.

### System Password Tab

The *System Password* screen allows you to change the initial user name and password for the AIR108 configuration tool. For security reasons, the password should be changed immediately after the first time you log in.




The *System Password* dialog includes the following fields:

- *User Name* - Create a new user name by typing over the contents of this field.
- *New Password* - Create a new password by typing over the contents of this field.
- *Re-enter Password to confirm* - Each time you enter a new user name or password, you are required to re-enter your password in this field.

When selecting a new password, you should not use your name or any other term that could be easily guessed. Although they may be harder to remember initially, random combinations of numbers and characters are much safer to use. Please write your password down and keep it in a safe place for future reference. AIRAYA recommends that you change your password every now and then and that you never give your password to an unauthorized person.

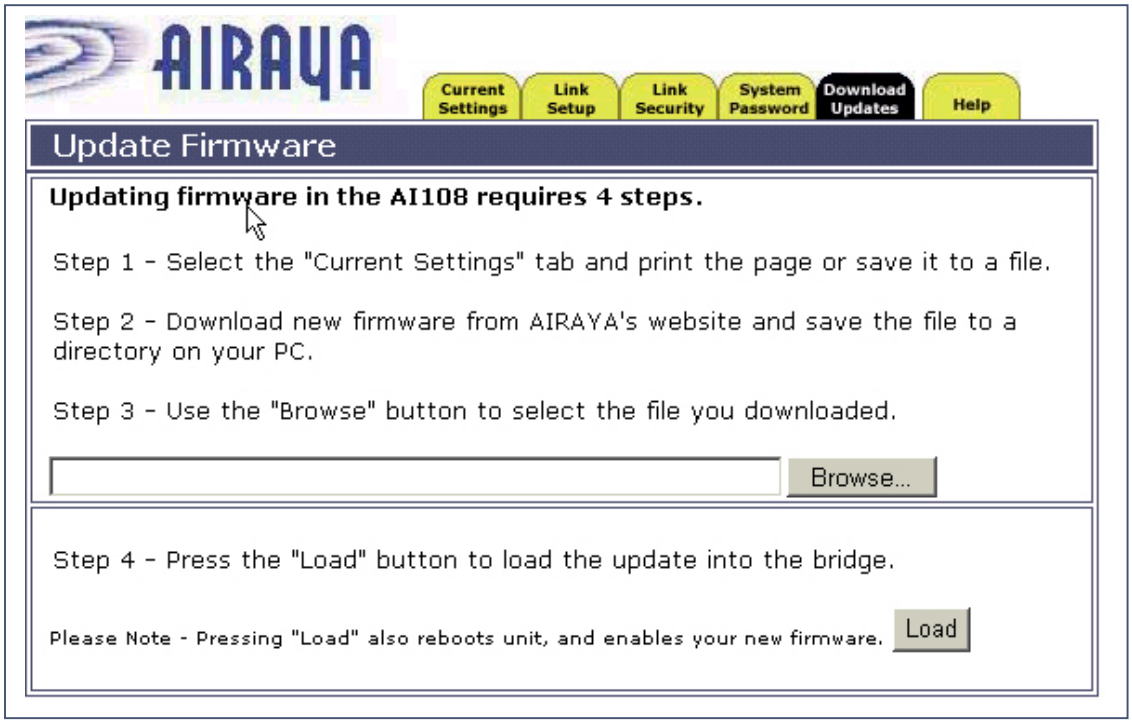
**Note:** Remember to save your new user name and password settings before selecting another tab by clicking the *Submit* button.

### Download Updates Tab

From time to time, AIRAYA will release firmware updates in order to improve the functionality of the AI108, provide patches for known issues, and generally provide enhancements to the product. The latest version of AI108 firmware can be found in the support section of the AIRAYA website located at http://www.airaya.com. If you are not sure if you need to upgrade your firmware, please contact AIRAYA customer support and they can help answer this question.

**Warning**: Some configuration parameters may be overwritten when upgrading the firmware of the AI108. It is therefore important to save a copy of your current settings before performing firmware upgrades, which will allow you to properly re-enter your settings at the end of the process. To document your current settings, select the *Current Settings* tab and make a printout of this page. Alternatively, you can save the *Current Settings* page to a file for future reference. This should be done on both the local bridge and remote bridge you are planning to upgrade.

The following figure explains the four steps involved in performing a firmware upgrade on an AI108 system:



The *Browse* button is used to select the new firmware image for upload once you've obtained it from AIRAYA and saved it to a directory on your computer or network drive.

The *Load* button allows you to upload this new image to the local AI108 bridge. After confirming the successful completion of the upload, your local bridge will automatically reboot so the new firmware will take effect.

### Help Tab

Online help is available for all parameters and menus of the AI108 configuration utility. Select the *Help* tab while in any of the other tabs and the appropriate help topics will be displayed in a popup browser window.

## Specifications

| Radio | |
|---|---|
| Frequency Range | 5.25 to 5.35 GHz license-exempt (FCC, Industry Canada) |
| Radio Type | Orthogonal Frequency Division Multiplexing (OFDM) |
| Standards Compliance | IEEE 802.11a hardware with proprietary security extensions |
| Maximum System EIRP | 30 dB (1 Watt) |
| Antenna Options | Flat Panel Antenna, 18.4 dBi, +/-20° elevation adjustment<br>Flat Panel Antenna, 23.9 dBi, +/-20° elevation adjustment |

| Data Rates | Sensitivity | Modulation |
|---|---|---|
| 108 Mbps | -71 dBm | 16QAM |

| Range | |
|---|---|
| FCC/Industry Canada Version | Up to 2.5 miles (4 km) with external antenna (depends on Model # and cable loss between ODU and external antenna) |

| Security | |
|---|---|
| Authentication and Privacy | MAC address authentication and 152-bit data encryption |

| Configuration and Management | |
|---|---|
| Configuration Utility | Built-in web server |
| Software Upgrades | Via HTTP download |
| LED Status Indicators (Indoor Unit) | Indoor to outdoor link detection, fuse status, AC power, power over Ethernet |

| Network Interface | |
|---|---|
| Indoor Unit | 10Base-T/100Base-TX with shielded RJ-45 connector |

| Indoor to Outdoor Unit Communications | |
|---|---|
| Cable Type | Category 5e 4 x 2 x 24 AWG Outdoor UV rated jacketed (weatherized) |
| Connector | Outdoor unit: Liquid-tight (weatherized) with RJ-45<br>Indoor unit: Shielded RJ-45 |
| Maximum Distance | 320 ft (100 m) between indoor and outdoor units |

| Electrical | |
|---|---|
| Power Adapter | 100 to 125 VAC, 47 to 63 Hz |

| Mechanical Dimensions | |
|---|---|
| Outdoor Units | 10 x 8 x 6 in (25.4 x 20.3 x 17.8 cm) without antenna |
| Outdoor Unit Mounting | Includes mast mounts and clamp kits for 1.9” (50mm) diameter thru 4.5” (115mm) diameter masts. |
| Indoor Unit | 6 x 3 x 1 in (15.2 x 7.6 x 2.5 cm) |

| Environmental | |
|---|---|
| Operating Temperature | Indoor unit: 0 to 40°C<br>Outdoor unit: 0 to 50°C |
| Operating Humidity | Indoor unit: 5 to 95% non-condensing<br>Outdoor unit: Fully weather protected |

| Compliance and Certifications | |
|---|---|
| Emissions | FCC Part 15 Class A, Industry Canada RSS-210 |
| Safety | UL – Canada, USA |
| Environmental | Bellcore GR-63-CORE, NEMA-4 (outdoor unit) |
| Radio | FCC 15.407 (U-NII), Industry Canada RSS-210 |

## Models and Ordering Information

| AI108 Series Model # | AI108-2-050 | AI108-2-150 | AI108-2-300 |
|---|---|---|---|
| Indoor to Outdoor Unit Cable Length | 50 ft (15.2 m) | 150 ft (45.7 m) | 300 ft (91.4 m) |

| AI108 External Antenna Options | AI108-2-18 | AI108-2-23 |
|---|---|---|
| Gain (Low, Mid, High) | 17.5, 18, 18.4 (dBi) | 23, 23.5, 23.9 (dBi) |
| Nominal Beamwidth | 19 degrees | 9.4 degrees |
| F/B Ratio (dB) | 35 | 43 |
| VSWR (Max) | 1.5 | 1.5 |
| R.L. (dB) | 14 | 14 |

## Where to Get Help

AIRAYA offers several customer support options to assist you in the event you experience difficulties with your AI108 wireless bridge, including telephone support and repair services.

### Worldwide Web Support

The AIRAYA web site provides a quick and easy way to answer many common technical questions. It includes a variety of technical documents, as well as copies of product manuals, product literature, and firmware images. The web site is located at http://www.airaya.com.

### Contacting AIRAYA

Your first point of contact for technical support is the distributor or dealer from whom you bought your AI108 wireless bridge. He is familiar with your needs, and will generally be able to provide you with the fastest and most comprehensive support. If your distributor or dealer is unable to answer your questions or is for some reason not available, then contact AIRAYA directly at (866) 224-7292 or support@airaya.com. Users outside of the United States may dial the following number: (408) 776-9583.

Before contacting our technical support team, please write down any error messages and make sure that you have the serial number of the product ready.

## Appendix A – Professional Installation

**The AI108-2-xxx is designed for installation by a professional installer only.**

The AI108-2-23 external antenna requires the use of either an antenna cable that contains more than 3dB of signal loss or an inline 3dB attenuator, to comply with FCC and Industry Canada regulatory requirements. Each unit shipped with the AI108-2-23 external antenna contains an internal 3dB attenuator that cannot be removed by the end-user. The enclosure is factory sealed with Torx screws that prevent the end-user from gaining access to the unit.

Please consult AIRAYA customer service at (866) 224-7292 or (408) 776-9583, if you are unsure if your installation requires the use of an attenuator or for information on how to calculate cable loss between the outdoor unit and an AI108-2-23 external antenna.