Installation Guide

AMATIS BORDER ROUTER (AMBR)

Wireless Mesh Gateway



INTRODUCTION

About This Guide

This guide provides instructions for installing and maintaining the Amatis Controls Border Router (AMBR), the core of the Amatis wireless lighting control system. In addition to the step-by-step installation process, this guide provides instructions on how to connect and login to the AMBR, as well as some basic troubleshooting steps.

Cautions and Warnings

When installing hardware, it is important to follow safety precautions to avoid potential injuries or damage to the equipment. Failure to follow safety guidelines can result in electric shock, fire, or other hazards.

Definitions

NOTE

A note provides additional information or clarification that is relevant to the installation process. It may include recommendations, tips, or other useful information that can help ensure a successful installation.

CAUTION

A caution statement indicates a potential hazard that could result in minor or moderate injury, or cause damage to the product if appropriate precautions are not taken. It alerts the reader to a potential risk and provides instructions on how to avoid it.

DANGER

A danger statement indicates a potential hazard that could result in serious injury or death if appropriate precautions are not taken. It alerts the reader to a critical risk that requires immediate attention to prevent harm.

Safety Precautions

CAUTION

- This device is for indoor use only.
- Disassembling any part of the unit voids the warranty and regulatory certifications. There are no user-serviceable parts inside the unit.

PRODUCT OVERVIEW

The Amatis Border Router (AMBR) is a wireless gateway device used to connect the wireless mesh network to the cloud. Once connected, AMBR assigns programming tasks to devices during commissioning, and allows for remote support and data collection to be viewed from a phone app or web browser.

- Manages the creation of Amatis 6LoWireless mesh networks.
  - AMBR connects all wireless devices to the cloud using secure IPV6 6LoWireless, uploading real-time data from your site to the Amatis config app.
- Enables remote configuration.
  - When connected to the Internet, the Amatis config app easily commissions the AMBR and all devices on the mesh network.

INSTALLATION

Parts List

Before getting started with the installation process, it's important to make sure all the necessary components are included. Here's what should be found inside the box:

- (1) Amatis Border Router (AMBR)
- (1) 24V Power Supply
- (1) Ethernet Cable
- (1) Wall Mounting Bracket
  - (3) Bracket Screws

Placement

Follow these guidelines when deciding on where to install the AMBR:

- The AMBR should not be installed in a metal enclosure, or behind other signal limiting barriers such as metal or thick concrete walls.
- The AMBR should be installed in a location that is central to the devices that it will be communicating with.
    - Sites with more than 100 devices will need to have multiple AMBRs, and the AMBRs will need to be distributed amongst the devices.

> **MULTI-AMBR SITES**
> An AMBR can support a maximum of 100 wireless devices. If the site has multiple AMBRs, do not centrally locate any of the AMBRs. Please refer to the Multi-AMBR Config Guide for information on configuring multiple AMBRs on a single site.

INITIAL SETUP

Necessary Parts

Review the following list to ensure all necessary parts are available:

1. Ethernet cable ran to the AMBR location.
2. Electrical outlet near the AMBR location.

> **POE**
> It is possible to power the AMBR using PoE with an off the shelf 24V PoE splitter (not included) located at the AMBR.

Power Up

Perform the following steps to power up the Amatis Border Router:

1. Connect the AMBR to the ethernet cable.
2. Plug in the AMBR power supply into the wall outlet, and connect it to the back of the AMBR.
3. Wait 1-2 minutes for the AMBR start-up light sequence to successfully complete.

> **IT REQUIREMENTS**
> Provide the network firewall requirements to your site's IT personnel to ensure AMBR is able to establish an Internet connection.

Logging In

Perform the following steps to login to the device:

1. Open a web browser on a computer that is connected to the same network as the device. In the address bar of the web browser, type in `lmbr-0` followed by the first three digits of the device ID (found on the device), followed by `.local`. This should bring up the login page for the device. (Example: for device ID `ABC00F`, type `https://lmbr-0abc.local`).

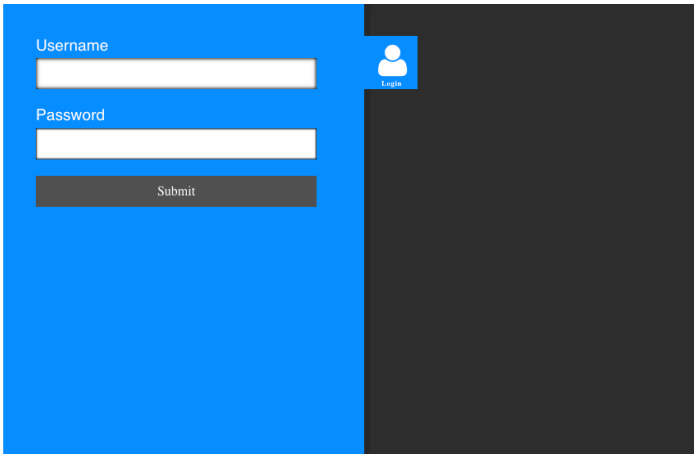
   Note: It's likely that you'll get a message that your connection is not private. This is expected and ok. Click on advanced and proceed to the IP.

   Note: The device ID can be found on the device's packaging or the device itself. Alternatively, use a network scanning tool to locate the .local or IP address.



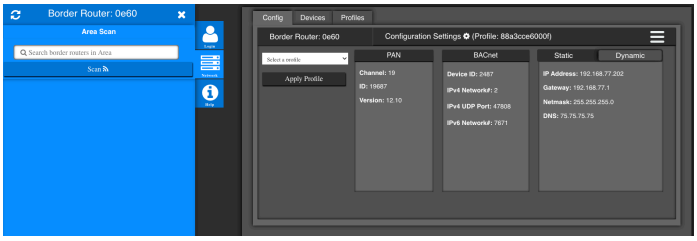
Device ID Label

2. Login to the AMBR using the AMBR's username and password.



Login Screen

3. Once logged in, the home page will be displayed.

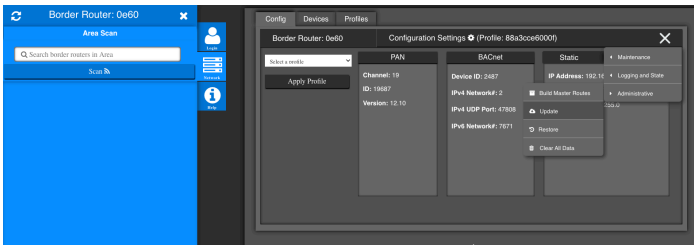


Home Screen

Updating Firmware

Perform the following steps to update the device's firmware:

1. Once logged into the AMBR, select the menu button on the top right of the home screen, select **Administrative**, then select **Update**.



Update Menu

2. This will bring up the update page. Select **Automatically update with newest signed bundle from cloud**, then select **Submit**.



Update Page

3. Wait for the update page to confirm a successful update. This may take up to 10 minutes. After a successful update, the AMBR will reboot. The update is now complete.

> **CUSTOM FIRMWARE**
>
> If firmware has been provided by the Amatis team, instead select **Choose File**, and upload the provided firmware. Then select **Submit**.

RELATED INFORMATION

Network Firewall Requirements

Provide these instructions to the site's IT personnel to ensure AMBR is able to establish an internet connection:

Network Settings

Priority	Target	Port	Protocol	Service	Direction	Reason
5	mqtt.amatiscontrols.com	443	tcp	https	outbound	Configuration, control, system monitoring
5	vpn.amatiscontrols.com	1195	udp	vpn	outbound	Maintenance, configuration
3	api.amatiscontrols.com	443	tcp	https	outbound	Integrate cloud resources with local configuration
3	static.amatiscontrols.com	443	tcp	https	outbound	Allow firmware downloads from Amatis firmware server
3	ntp-b.nist.gov (or your preferred NTP server)	123	udp	ntp	outbound	Network Time Protocol for time synchronization

PRIVACY

Amatis does not collect or store personal information.

Integrations

The Amatis control system can integrate with Building Management Systems using a BACnet/IP connection over ethernet/RJ45 to the AMBR(s) on site.

Basic Troubleshooting

Perform the following steps for basic troubleshooting of the device:

1. Verify the device is operating normally using the LED Troubleshooting Matrix below.
    1. If the blue LED is off, check the network cables and ensure the device is not being blocked by any IT rules.
    2. If the red LED is off, the device is not getting adequate power. Check the power supply.
2. Power cycle the device by disconnecting the power supply, and reconnecting it 30 seconds later.

LED Indicator Troubleshooting

Use the following table to troubleshoot specific issues with the device based on the LED indicators:

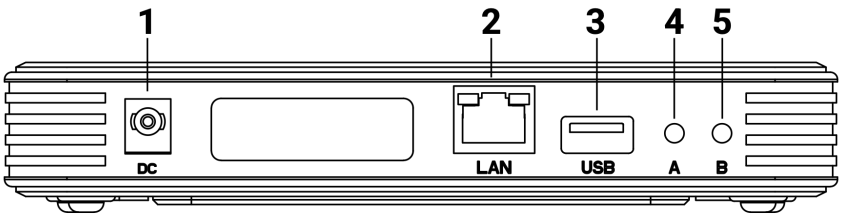
LED Troubleshooting Matrix

LED Color	Solid	Flashing	Off
Green	**AMBR startup successful**	AMBR is starting up	AMBR startup error
Orange	**Offline data logging successful**		Offline data logging error
Blue	Data logging enabled successfully	**Data logging and configuration enabled successfully**	Internet connection error
White		**6loWPAN success**	Normal Operation
Red	**Power connection good**		No power connection

> **NORMAL OPERATION**
> **BOLD** description indicates normal operation.

Button Operation

On the backside of the AMBR, there are 2 buttons on the right of the device — Button A and Button B.



AMBR Buttons

- Button A - #4
- Button B - #5

This button should only be used for a hard reset. Perform the following steps to hard reset the device:

1. Unplug the device.
2. While the device is unplugged, hold the A button for 10 seconds.
3. Release the A button and plug the device back in.

> **BASIC TROUBLESHOOTING**
> Ensure that the basic troubleshooting steps were followed before attempting a hard reset.

Perform the following steps to use button B:

1. Enter config mode: press and hold the B button for 3 seconds. After three seconds, the White LED will begin to blink. Release the B button.

2. At this point the following options are available, by pressing and releasing the B button to cycle through the choices:

    1. **DHCP:** Press and release the B button once to select the DHCP option. The Blue LED will display solid to indicate this choice.
    2. **Static IP:** Press and release the B button a second time to select the Static IP option. The Orange LED will display solid to indicate this choice. Static values will be set to the following:
    IP address: 192.168.5.241
    Subnet: 255.255.255.0
    3. **Exit with no changes:** Press and release the B button a third time to select the "Exit Config without changes" option. The Green LED will display solid to indicate this choice.
    4. **Factory reset:** Press and release the B button a fourth time to select the factory reset option. The Blue, Yellow, and Green LEDs will all display solid to indicate this choice. This will delete any user created profiles, as well as the password if it was changed from the default. Please note that this also deletes the profile that is shipped with the unit. This is the profile named for the Device ID of the router.

3. Apply selection:

    - For DHCP, Static, or Exit with No Changes: press and hold the B button for 3 seconds to commit to the choice.
    - For a Factory Reset: press and hold the B button for 15 seconds. All LEDs will blink to indicate that you are about to reset the unit. Then press and hold the B button for another 15 seconds to confirm that is what you want to do. The AMBR will then reboot.

WARNING

If you factory reset your AMBR, you will also have to factory reset your devices if your site is commissioned. If you have sensors in your site, please email support@amatiscontrols.com before conducting the factory reset.

NOTE

If you are on option 4 and press and release the B button without holding it for 15 seconds, the unit will cycle back to choice 1, as indicated by the LEDs.

Technical Support

If you experience any issues during installation or operation of this product, please contact our technical support team for assistance. Our technical support team is available via email at support@amatiscontrols.com. Please provide a detailed description of the issue you are experiencing,

including any error messages or other relevant information.

Warranty

All Amatis LED lighting products and controls come with a 5-year parts warranty, as well as labor per product up to a maximum of 50% of the material price for parts being replaced. All parts are UL certified. Lamps are DLC certified, therefore eligible for utility incentives. We warrant that our products will be free from defects in material and workmanship for a 5-year period from the date of purchase. Defective products under warranty will be replaced with an equal or higher quality product.

> **INTERNET CONNECTION**
> The Amatis Border Router (AMBR) connected to your affected device must have remained connected to the Amatis cloud via the Internet or cellular connection from the start of site commissioning to date of return request. Non-connected systems are eligible for a 2-year limited warranty (730 days) from shipment date, with the same remaining criteria.

Contacts

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Document Feedback

While we have taken great care to ensure the accuracy and completeness of this document, we welcome your feedback and suggestions. If you notice any errors or omissions, or feel a topic could benefit from further explanation, please email your feedback to support@luum.io.

Revision History

Date	Revision	Notes
6/27/2023	A	Initial AMBR install guide release
4/29/2026	B	Port to PDF

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