Connect your wireless
lighting controls system with:

Amatis Border Router

User Manual

Get started with the Amatis Border Router

Thank you for choosing Amatis Controls. This AMBR User Manual will guide you through the process of installing and using the Amatis Border Router (AMBR).

AMBR is a wireless gateway device used to connect the wireless mesh network to the cloud. Once connected, AMBR assigns programming tasks to sensors, drivers, controllers and switches during commissioning, and can be removed from the network once tasks are assigned. Or, if AMBR stays wirelessly connected in your building after programming, remote support and energy usage data are recorded so you can view them from your phone app or web browser.

All components must be installed correctly to ensure the overall accuracy of this kit.

Before starting an installation, we recommend visiting amatiscontrols.com/training to review our training courses and also visiting amatiscontrols.com/getstarted for access to our full system quick start guide.

Need support?

Phone   +1 313-314-3617
Email   support@amatiscontrols.com
Web   amatiscontrols.com/contact-us

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Before you start

Before beginning installation, make sure the installation site has:
    a. High-speed Internet connection, via WiFi or a cellular modem, configured for DHCP
    b. Ethernet and electrical outlets, within 3 feet of the AMBR.

Please note AMBR can also be configured to use a static IP address.

Training resources are available at amatiscontrols.com/training.
A full Amatis system quickstart guide is online at amatiscontrols.com/getstarted.

Device placement

AMBR communicates wirelessly with the mesh network.

We recommend mounting your AMBR as central to the mesh network as possible for most ideal interaction range.

The AMBR **should not** be placed in metal IT cabinets, or behind metal barriers which could block the signal from the AMBR to the mesh network.

❌ The wireless signal can go through other barrier types (drywall, cinderblock, etc.) but the signal strength will be reduced. To avoid lapses in signal, mounting the AMBR close to the mesh and with fewest barriers between the mesh and AMBR is best.

Network firewall requirements

Provide these instructions to your site's IT personnel to ensure AMBR is able to establish Internet connection.
TCP 443 outbound to mqtt.amatiscontrols.com
UDP 1195 outbound to vpn.amatiscontrols.com
TCP 3306 outbound to sql.amatiscontrols.com
TCP 443 outbound to api.amatiscontrols.com
TCP 443 outbound to dash.amatiscontrols.com

Installing AMBR
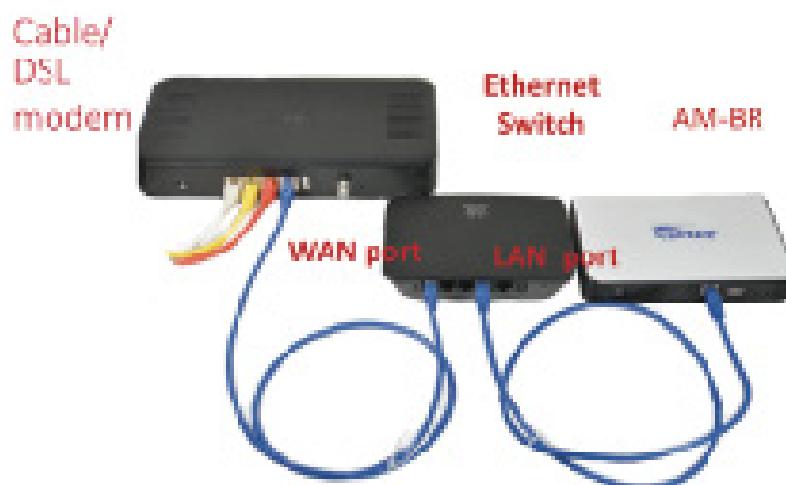
AMBR connects your Amatis system to the Internet.

Follow these steps:

1. Connect one end of the blue Cat5/Ethernet wire to the back of the AMBR.
2. Connect the other end of the blue Cat5/Ethernet wire to an available Ethernet port.

Note: Some cable and DSL modems have only one Ethernet port.

As a result, you may need to add another Ethernet port in order to connect AMBR. Ethernet switches are available to add more Ethernet ports to the same Internet connection.
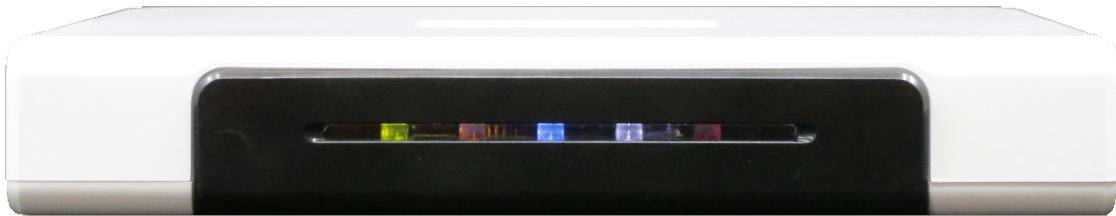
One option is illustrated below.

3. Plug the barrel end of the white 5V power supply into the back of AMBR, then plug into a wall socket.

Installing AMBR

4. Wait for 1-2 minutes while AMBR completes its startup sequence and connects to the Internet. The startup LED sequence is as follows:

     a. red LED, power GOOD
     b. white LED, AMBR started
     c. blue LED, hardware GOOD
     d. yellow LED, networking possible
     e. green LED blinking, loading software

5. On the front of AMBR, a solid green light confirms AMBR has booted up correctly and is connected to the Internet. Startup sequence is complete, refer to section 2.2 for descriptions of regular LED functions.

6. If AMBR does not show a blue light after 5 minutes, you may be experiencing an Internet connectivity problem. Follow the troubleshooting steps in the next section.

Troubleshooting AMBR connectivity

1. Restart your modem and AMBR.
     a. Power devices off
     b. Power modem on
     c. After modem reboots and shows Internet activity
     d. Plug AMBR back in

2. Confirm your modem is configured in DHCP mode.
     a. Follow modem owner's manual directions
     b. Contact your Internet service provider

3. Identify which AMBR indicator lights are active (see LIGHT REFERENCE INDICATOR TABLE, page 6).

Light reference indicator table

When AMBR is connected to power, all lights turn on, then turn off, then turn back on one-by-one. Indicators can be diagnosed with this table:

LED	Flashing	Solid	Off
Green	AMBR Starting Up	AMBR Startup SUCCESSFUL	AMBR Startup ERROR
Orange		Offline data logging SUCCESS	Offline logging ERROR
Blue	Data logging and configuration enabled SUCCESS	Data logging enabled SUCCESS	Internet connection Error ERROR
White	6loWPan SUCCESS		Normal Operation
Red		Power connection SUCCESS	Power connection ERROR

Note: this table is only valid after AMBR has completed its startup sequence and the green LED is solid.

BACNet/IP integration

AMBR can integrate with building management systems usinga BACnet/IP connection over ethernet/ RJ45 to each AMBR on-site. We recommend the following:

1. Configure control scenes that you wish to trigger from BACnet using our interface.

2. These control scenes provide a standard writable point on AMBR, where you can "call" the scenes created in our system.

   Examples include:
   · Turn lights on in the evening to a dim, constant output (set light output to 30% and disable vacancy control)
   · Turn lights on in the morning to normal operation during the day (set light output to default and enable occupancy control)
   · All lights on full override
   · All lights off override
   · And any other custom scenes you wish to have control of via your BAS

As for schedules, we can trigger schedules either within our own system, or via your BACnet system.

Agency certifications

OPERATING REQUREMENTS AND CONDITIONS
The design of AMBR complies with FCC and IC safety levels of radio frequency (RF) exposure for mobile devices.

MOBILE DEVICE RF EXPOSURE STATEMENT
RF Exposure - This device is only authorized for use in a mobile application. At least 20 cm of
separation distance between the AMBR device and the user's body must be maintained at all times.

CAUTION STATEMENT FOR MODIFICATIONS
CAUTION: Any changes or modifications not expressly approved by Amatis Controls, LLC could void the user's authority
to operate the equipment.

FCC NOTICES
AMBR 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
an 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
AMBR off and on the user is encouraged to try to correct the interference by one or more of the following measures:
  • 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 for help.

OEM LABELING REQUIREMENTS
WARNING! The Original Equipment Manufacturer (OEM) must ensure that FCC/IC labeling requirements are met. This
includes a clearly visible label on the outside of the final product enclosure that displays the contents shown below.

FCC:
Contains FCC ID: 2ADDY-BR1
The enclosed device complies with Part 15 of the FCC Rules. Operation is subject to the
following two conditions:
  1. this device may not cause harmful interference, and
  2. this device must accept any interference received, including interference that may cause
     undesired operation

IC:
Contains Model AMBR, IC:20256-BR1
This device complies with Industry Canada licence-exempt RSS standard(s).
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

Agency certifications

EXIGENCES ET CONDITIONS DE FONCTIONNECMENT:
La conception de AMBR est conforme aux limites d'exposition aux Frequences Radio définies
par les normes IC et FCC pour les appareils mobiles.

DÉCLARATION D'EXPOSITION AUX FRÉQUENCES RADIO D'APPAREIL MOBILE
Exposition fréquences radio - Cet appareil est seulement conçu pour usage mobile. Au moins 20 cm
de séparation doit être maintenue à tout instant entre l'appareil AMBR et l'utilisateur.

DÉCLARATION DE MISE EN GARDE CONCERNANT LESS MODIFICATIONS
ATTENTION: Tous changements ou modifications qui ne sont pas expressément approuvés par
Amatis Controls, LLC sont susceptibles de révoquer les droits d'utilisation de cet équipement.

AVIS IC
AMBR a été testé et entre dans la catégorie des appareils numériques de Classe B, selon la Section
15 de la réglementation de la IC. Ces limites ont été conçues pour protéger les installations domes-
tiques contre les interférences néfastes. Cet équipement génère, utilise et émet de l'énergie sous
forme de fréquences radio et, en cas de non-respect des instructions d'installation et d'utilisation,
risque de provoquer des interférences radio. Il n'existe cependant aucune garantie contre ces
interférences.

En cas d'interférences radio ou télévisuelles, pouvant être vérifiées en allumant, puis en éteignant
l'équipement, l'utilisateur est invité à essayer de résoudre le problème de l'une des façons suivantes:
- Eloigner l'équipement du poste de réception;
- Brancher l'équipement sur une prise appartenant à un circuit différent de celui du récepteur;
- Demander de l'aide auprès du revendeur ou d'un technicien radio/TV

EXIGENCES EN MATIÈRE D'ÉTIQUETAGE OEM:

ATTENTION!
Le fabricant d'équipement d'origine (OEM) doit veiller à ce que les exigences en matière d'étiquetage
de la FCC / IC soient respectées. Cela comprend une étiquette clairement visible sur l'extérieur de
l'enceinte du produit final qui affiche le contenu ci-dessous.

   IC:
   Contient le model AMBR, IC:20256-BR1
   Cet appareil respecte le(s) standard(s) RSS de l'Industry Canada sans license. Pour cela le sujet
   doit respecter les deux conditions suivantes:
       1. cet appareil ne doit pas causer des interférences, et
       2. cet appareil doit supporter toute interférence, incluant des interférences pouvant
          déclencher des fonctionnements indésirables de l'appareil

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