Wattstopper®

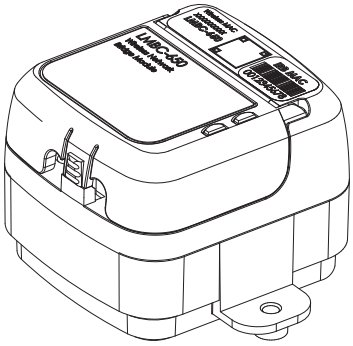
DLM Wireless Network Bridge with IPv6/Bluetooth®

No: 27970 – 3/24 rev. 9

Quick Start Guide • Guide de démarrage rapide • Guía de inicio rápido

Catalog Number • Numéro de Catalogue • Número de Catálogo: LMBC-650

Country of Origin: Made in China • Pays d'origine: Fabriqué en Chine • País de origen: Hecho en China



This unit is preset for Plug n' Go™ operation, adjustment is optional.

For full operational details, adjustment and more features of the product, see the DLM System Installation Guide provided with Wattstopper room controllers, and also available at www.legrand.us/wattstopper.

Installation shall be in accordance with all applicable regulations, local and NEC codes. Wire connections shall be rated suitable for the wire size (lead and building wiring) employed.
For Class 2 DLM devices and device wiring: To be connected to a Class 2 power source only. Do not reclassify and install as Class 1, or Power and Lighting Wiring.

DESCRIPTION AND OPERATION

The LMBC-650 Wireless Network Bridge module provides a network connection for a group of Wattstopper Digital Lighting Management (DLM) Local Network room level devices. The LMBC-650 allows the creation of a local network with wired DLM devices.

The DLM local network must include at least one wired room/load controller. When connecting a LMBC-650 to the LMBR-650 DLM network and then using LMCS-100, the system can expose BACnet protocol to reveal the status and parameters of all connected devices to the broader 3rd party network.

SPECIFICATIONS

Voltage 24VDC
Current Consumption 20mA
Power Supply .....Wattstopper Room Controller or Power Booster
Connection to the DLM Local Network.....2 RJ-45 ports
Segment Network..... BACnet IPv6 Mesh Network
DLM Local Network characteristics when using LMRC-1xx/2xx room controllers:
- Low voltage power provided over Cat 5e cable (LMRJ); max current 800mA. Supports up to 64 load addresses, 47 communicating devices including up to 4 LMRC-10x, LMPC series, LMPB-100, and/or LMPL-101 controllers. Free topology up to 1,000' max.

Wireless Radio ..... Single, Concurrent 802.15.4 and .....Bluetooth Low Energy, 2.4GHz
Wireless Communication
- IPv6 Mesh (6LoWPAN) Range .....100 ft. between LMBC-650 and LMBR-650
  60' max. between LMBC-650 and wireless battery powered device
- Bluetooth low energy Range .....up to 30 ft.

Wireless Encryption.....AES-128 bit symmetric key
Environment
- Operating Temperature ....32° to 158°F (0° to 70°C)
- Storage Temperature .... 23° to 176°F (-5° to 80°C)
- Relative Humidity .... 5 to 95% (non condensing)

Other
- Compatible Border Router .....Wattstopper LMBR-650
- BACnet IPv6 capable

Compliance/Regulatory
- UL2043 plenum rated, FCC Part 15, RoHS
- Bluetooth certified

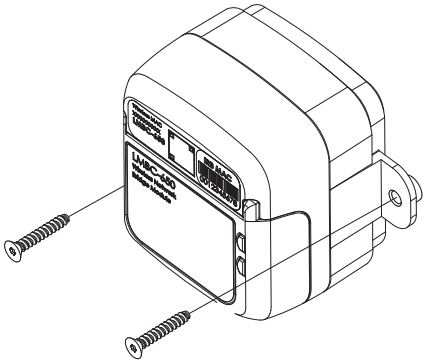
MOUNTING AND INSTALLATION

Determine a suitable location for the LMBC-650. This will usually be in the ceiling closely located to the DLM local network devices to be networked either directly in the room/space or just outside in a hallway for easier access. Hallway mounting may be beneficial for classrooms and patient rooms.

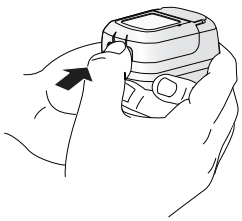
The LMBC-650 is UL2043 Plenum rated and is mounted using two screws.

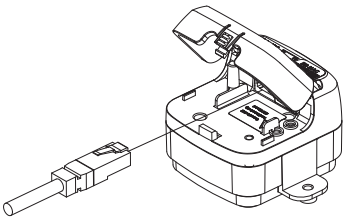
Warning: The LMBC-650 is a wireless device. Avoid mounting next to motors, large metal obstructions, 802.11 WLAN access points, or within 6" of another wireless emitting device or 10' from and LMBR-650.

NOTE: The LMBC-650 can be installed in an electrical box to meet Chicago Plenum (CCEA) guidelines. This will reduce wireless range by 25%.



Attach the LMRJ Local Network Cable





Distance Recommendations:

6" minimum between LMBC-650 and any other wireless emitting device, such as an LMRC-611 or another LMBC-650

10' minimum and 100' maximum between LMBR-650 and LMBC-650

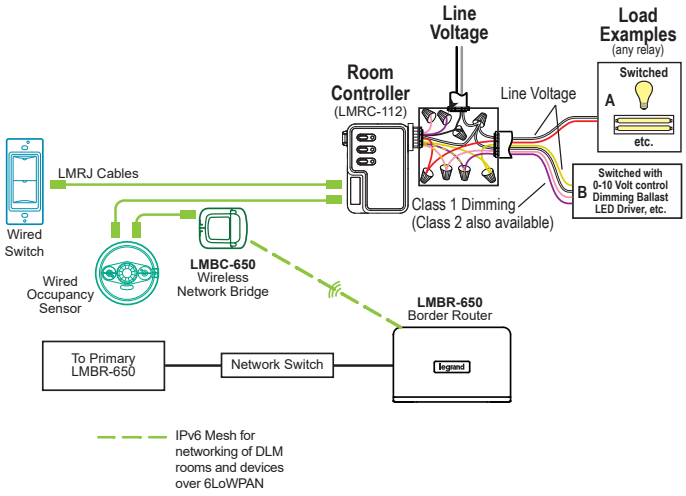
WIRING TO THE DLM LOCAL NETWORK

The DLM local network uses free topology low voltage wiring. The LMBC-650 can connect anywhere on the DLM local network using LMRJ cables.

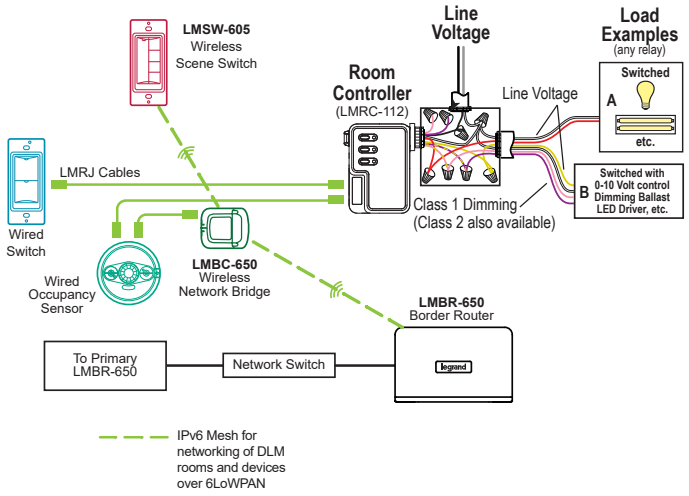
Use a Wattstopper LMRJ series cable or a Cat5e patch cable to connect the LMBC-650 to one of the RJ-45 jacks on any of the DLM local network devices. When connected to a powered DLM local network the red Transmit LED blinks rapidly. The red Config LED blinks at the same rate as the other DLM local network devices.

WARNING: Connect the LMBC-650 RJ-45 jack only to DLM lighting control devices. Do not connect Ethernet to the LMBC-650 RJ-45 jack.

Wired Room



Hybrid Room with Wired and Wireless Devices



CAUTION: TO CONNECT A COMPUTER TO THE DLM LOCAL NETWORK USE THE LMCI-100. NEVER CONNECT THE DLM LOCAL NETWORK TO AN ETHERNET PORT – IT MAY DAMAGE COMPUTERS AND OTHER CONNECTED EQUIPMENT.

LED INDICATORS

The bridge has two LED indicators visible when the top cover is closed or open

RGB LED

- Blinking Blue – BACnet communication associated with a border router. Can be used to identify device during commissioning.

Red LED

- Blinking – DLM Local network IRB traffic. Can be used to identify device during commissioning.

SETTING UP A ROOM NETWORK BY PAIRING DEVICES

Since the primary use of the LMBC-650 is to integrate wired devices into a wireless network, and since this requires the use of an LMBR-650, **LMCS-100 software is recommended for use in pairing devices with the LMBC-650**.

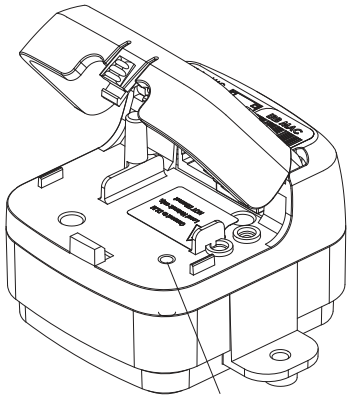
However, it is still possible to pair wireless devices to the LMBC-650 manually. To pair devices in a network, they must all have the same wireless channel and PAN ID. By default the channel is 15 and the PAN ID is 1. Using Push-to-Pair mode, the PAN ID for all devices being paired is migrated to a new number, so that only those device communicate with each other. The channel will remain at 15.

NOTE: Using LMCS, it is possible to change the channel as well as Network ID.

SET UP A ROOM NETWORK USING PUSH-TO-PAIR MODE

NOTE: Once you enter PtP mode on the LMBC-650, a three minute timer begins. If the Config button on any device in the room is pressed, the timer resets and begins the three minute countdown again. If no Config button is pressed within three minutes, the LMBC-650 will exit PtP mode.

NOTE: Push-to-Pair applies **only** to wireless switches and sensors in the room with the LMBC-650. All wired switches and sensors communicate automatically with the room controller and the LMBC-650, once connected.



Access Hole for Config/Reset button. Use a small paperclip to press.

1. **Enter PtP mode on the LMBC-650.** Press the Config button three times (within three seconds) until the LED on the room controller flashes green.
   NOTE: You will need a small paper clip to access the Config button, as shown in the figure to the right.
2. **Enter PtP mode on a sensor or switch.** On one of the sensors or switches, press the Config button three times. As with the LMBC-650, the LED on the device will flash green.
3. **Pair the devices.** On that same sensor or switch, press the Config button one more time to pair it to the LMBC-650. The LED on the sensor or switch will turn solid green to indicate it is paired.
   NOTE: **Repeat steps 2 and 3** for each sensor and switch in the room, so that all devices are paired together in the same network.
4. **Exit PtP mode.** Exit PtP on the LMBC-650, by pressing the Config button 3 times. The LED on the LMBC-650 will flash blue while it completes the pairing process. The default PAN ID on all devices will change to a new number, based on the last four digits of the Mac address on the LMBC-650, and now those devices will communicate only with each other and not any devices which have not been paired. Once complete, the switches and sensors will automatically exit PtP mode and will reboot. The LED on each switch or sensor will flash white at least once before resuming normal operation.
   NOTE: It is important to exit PtP mode within the three minute time limit mentioned above. If you do not, none of the device pairings will be remembered and you have to start the process over from the beginning.

USING THE DLM CONFIG APP

The DLM Config App is available for both iOS® and Android® devices. Search “DLM Config” on your device to download.

GET IT ON Google Play Download on the App Store

Currently, the app can only be used to update the firmware in the LMBC-650.

However, the app **can** be used to pair devices in a room using a wireless room controller. For details on the features and operation, download the DLM Config App User Guide from the wattstopper web site at :

https://www.legrand.us/wattstopper.aspx

BRIDGE RESET

The LMBC-650 wireless bridge can be reset manually on the device or remotely through software.

Reset to Factory Default Network Settings Directly on the LMBC-650

1. Open the hinged bridge cover to by pressing and lifting.
2. Using a paper clip, press the recessed reset button and hold for 20 seconds to reset back to factory default network settings.

Reset Using LMCS (Advanced method)

1. The LMBC-650 must first be discovered as part of a wireless network, using LMCS.
2. Select the bridge device(s) to be reset in the LMCS device tree.
3. Click the Diagnostics tab.
4. There are two button on this tab, labeled **Factory Reset** and **Default Params**.
   - Clicking the reset button will put the LMBC-650 back to its factory defaults, including the Network ID and Channel. This means that once the reset is complete, the LMBC-650 will no longer be part of the current network, and you will therefore have to go through the Discovery process again to add the device back to the network, and then re-pair it with other devices in the room.
   - Clicking the Default Params button will set all programming parameters back to their defaults. However, the Network ID and Channel will not be changed so that the device will still remain communicating within the network. There only a couple of programming parameters within LMCS on the LMBC-650, so this option does not have a lot of practical use.

TROUBLESHOOTING

LMBC-650 LEDs fail to illuminate

Check LMRJ Cat5e connections

Network LED fails to enter blinking state

Check to make sure border router is powered on

FCC REGULATORY STATEMENTS

This 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.

NOTE: 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.

RF exposure warning

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. At least 20 cm of separation distance between this device and the user's body must be maintained at all times.

Any changes or modifications not expressly approved by The Watt Stopper Inc. could void the user's authority to operate the equipment.

IC Caution:

This device complies with Industry Canada license-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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RF exposure warning

This equipment complies with IC 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.

Cet équipement est conforme aux limites d'exposition aux radiations de la IC définies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à une distance minimale de 20 cm entre le radiateur et votre corps.

NOTE: No rights or licenses under patents owned or controlled by third parties, express or implied, are granted to use third-party devices in combination with these products in a wireless mesh network, or to use third-party services to access, monitor or control these products in a wireless mesh network via the internet or another external wide area network. Separate license rights may need to be obtained from such third parties for such devices, combinations and services.

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