Location Bridge User Manual

Contents

1 Introduction

The Location Bridge device is designed for scanning in high density 2.4GHz environments. The Location Bridge enables robust indoor asset tracking, including intelligent edge processing for efficient, fast, and accurate location reporting.

2. Safety Recommendations

Do not disassemble, dismantle, open, crush or shred the product.

If the product envelope is weakened or broken, stop using it immediately.

Do not attempt to short-circuit the product or make contact with a conductive object.

Do not expose the product to heat, fire or flame.

The device should not be installed and operated closer than 8 inches to a person.

Keep out of reach of children.

After use, you must dispose of the product in compliance with applicable laws.

Failure to follow these instructions can result in personal injury or property damage, and Manufacturer will have no liability whatsoever for any such injury or damage arising from or in connection with any failure to follow these or other instructions provided to the end user.
Le non-respect de ces instructions peut entraîner des blessures corporelles ou des dommages matériels, et Fabricant décline toute responsabilité en cas de blessure ou de dommage résultant de ou en relation avec le non-respect de ces instructions ou d'autres instructions fournies à l'utilisateur final.

3. Regulatory Notices

This equipment complies with FCC/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.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Operation of this device is restricted to indoor use only.

3.1 Compliance with 47 CFR Part 15 Regulation Class B Devices

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 product.
- 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.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Avertissement: les changements ou modifications apportés à cet appareil non expressément approuvés par la partie responsable de la conformité peuvent annuler le droit de l'utilisateur à faire fonctionner l'équipement.

FCC Interference Notice

Per FCC 15.19(a)(3) and (a)(4) 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.

FCC Part	*Frequency Range (MHz)*
15C	2412-2462 / 902.3-914.9 / 903-914.2

3.2 ISED Notice of Compliance

CAN ICES-003(B) / NMB-3(B)

This Class B digital apparatus complies with Canadian ICES-003.
This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:
—This device may not cause interference.
—This device must accept any interference, including interference that may cause undesired operation of the device.

Avis de conformité aux normes d'Industrie Canada (IC).

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. Son exploitation est autorisée aux deux conditions suivantes:
—il ne doit pas produire de brouillage; et
—il doit accepter tout brouillage radioélectrique subi, même si celui-ci est susceptible d'en compromettre le fonctionnement.

4. Product Description

The product is designed to capture information on its orientation (for example, verticality), its motion (typically acceleration) and its environment (for example, surrounding temperature), and to transmit that information by radio using the LoRaWAN network protocol.

The product supports LoRaWAN class A operation which is a simplex transmission or reception capability. The reception capability is time-limited per the LoRaWAN protocol, in order to save battery consumption.

4.1 Logical design

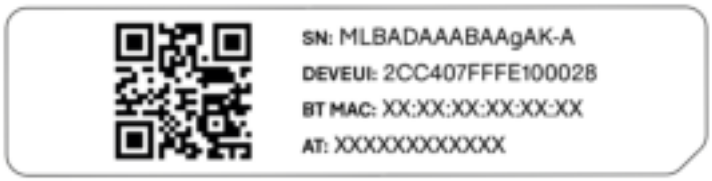
Location Bridge Features and Sensors:

- A LoRa radio transmitting and receiving in the ISM 915MHz frequency band with integrated antenna.
- An integrated 2.4GHz SoC that controls operation of all components.
- Dual RJ45 ports for power daisy-chaining and CAN communication.
- A RGB LED and hall effect sensor for user interaction.
- A multi-purpose mounting bracket for simplified installation.
- Temperature and humidity sensors.

The product has the following exterior dimensions: 134 mm x 134 mm x 34 mm.

4.2 Back Label

The sticker on the back of the device provides the main product information.



The DEVEUI and AT (Activation Token) are necessary to provision the device on the LoRaWAN network. This information is encoded in the QR code.

Do not remove the sticker or other proprietary notices or logos affixed to the device.

Ne retirez pas l'autocollant ou d'autres mentions de propriété ou logos apposés sur l'appareil.

4.3 Characteristics

Listed below are the main performance characteristics:

Features	*Description*
Use	Indoor Only
Button	One (1), Reed Switch
LED	One (1), RGB
Usage	Continuous
Internal supply	24-48Vdc ⎓ 0.5-1.0A (RJ45 In) 5Vdc ⎓ 0.5A (USB)
Relative humidity environment	Less than 95% non-condensing humidity
Frequency band	902-928MHz and 2.4-2.5GHz ISM Band
Activation	OTAA and ABP
Max Output power	+22Bm conducted
Operating temperature	From -40°C to +85°C non-condensing, altitude max is 2000m.
Storage temperature	From 0°C to +35°C non condensing
Mechanical dimensions (in millimeters)	L 134 mm x W 134 mm x H 34 mm

Features	*Description*
Temperature measurement sensor accuracy	+/- 1°C
Temperature	Range: -40°C to + 60°C Precision: +/- 1°C
Humidity	Absolute accuracy tolerance: +/- 3 %RH over 20..80%RH at 25°C

5 Installing the Bridge

The product is designed to be installed in almost any enviroment, some of which include; Offices, hallways, closets, kitchens, bathrooms. The Bridge should be mounted to the ceiling using the mounting bracket. And included accessories.

5.1 Power Source

1. Power source is identified
2. If using wall outlet, install PoE Injector
    a. PoE injector must be dressed at power source location
3. Install raceway from PoE Injector location to ceiling

Note: This product is intended to be supplied by a UL Listed Power Supply Unit marked "Class 2" or "LPS" or "PS2" and rated 24-48 VDC, 0.5-1.0A (for PoE Input) 5VD, 0.5A (for micro USB)".

5.2 Bridge '1' in chain

1. 'PoE In' is supplied to install location
2. Bridge Mounting Bracket is installed based on ceiling layout
3. PoE from power source is connected to 'Input' on Bridge
4. Connect 'PoE Out' to 'Output'
5. Latch Bridge onto Mounting Bracket via twisting it onto the locked position.
6. Confirm power by LED activation
7. Confirm Bridge jointed the network by Solid Blue LED
8. Proceed with activation process through Asset Track app (Step 4)
9.

NOTE: For 1st Bridge in chain, Installer must ensure that jumpers are set

5.3 Bridge '2' in chain

1. 'Connect Bridge 1 'PoE Out' to Bridge 2 'Input'
2. Proceed with mounting process as described in Step 2.

3. Proceed with activation process through Asset Track app (Step 4)

NOTE: If final Bridge in chain, Installer must ensure that jumpers are set

5.4 Activation

1. Using Asset Track software,
   a. Identify Room
   b. Identify Bridge Installation Location on floor plan
   c. Scan Bridge QR code or manually enter Bridge ID
   d. Confirm successful Bridge / Location pairing by pressing SUBMIT

5.5 Accessories

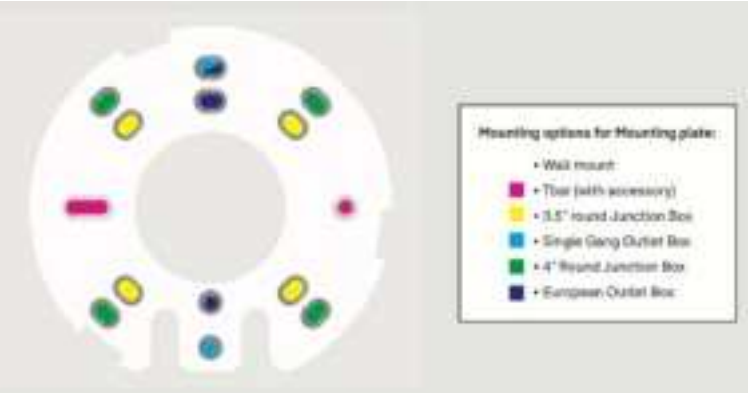
Items	*Qty*	*Description*
Mounting Bracket	1	Assembled and packed with device
Mounting Clips Pack	1	2x clips per pack
Screw Pack	1	2x – M4 screws (7*8 mm) 2x – Hex spacer (7*12 mm) 2x – #8-32 screws (8*26 mm) 2x – Drywall screw (3.5*25.4 mm) 2x – Plastic anchors (3*8*25 mm)

5.6 Mounting Options

Mounting Bracket:

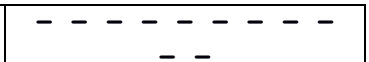
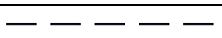
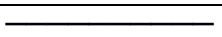
The Bracket includes optior

- Wall mount
- T-bar
- 3.5” round Junction B
- Single Gang Outlet Bo
- 4” Round Junction Box
- European Outlet Box



5.7 Button & LED Behavior

LED Blink Rate:

Fast Blink (0.2 seconds each)	Unrecoverable activity	
Slow Blink (1.0 seconds each)	Activity in progress	
Solid	Steady state	

Magnetic Reed Switch:

Short Press (Tap)	Less than 3 seconds
Long Press (Hold)	6 seconds

LED Actions:

Device Action	LED	Power	Connectivity	Reed Switch
Powered Off	N/A	No	Not Connected	N/A
Working Properly		Yes	Connected	N/A
Attempting to Join		Yes	Not Connected	N/A
Transmits		Yes	Not Connected	Hold 5 sec
Transmits		Yes	Connected	Hold 5 sec
Factory Reset		Yes	N/A	2 Short Presses 1 Long Press
DFU Mode		Yes	N/A	4 Short Presses 1 Long Press

Federal Communication Commission Interference Statement

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 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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.

IMPORTANT NOTE:

Radiation Exposure Statement:

This equipment complies with FCC 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.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Country Code selection feature to be disabled for products marketed to the US/CANADA

Industry Canada statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference
(2) This device must accept any interference, including interference that may cause undesired operation of the device

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique 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;

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

Radiation Exposure Statement:

This equipment complies with Canada 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.

Déclaration d'exposition aux radiations:
Cet équipement est conforme Canada limites d'exposition aux radiations dans un environnement non contrôlé. Cet équipement doit être installé et utilisé à distance minimum de 20cm entre le radiateur et votre corps.