



MIDMARK RTLS

**FCC User Guide
For BLE TRACKING**

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WARNING! This product is not designed, intended, authorized or warranted for use in any life support or other application where product failure could cause or contribute to personal injury, death or severe property damage.

All patient, staff and asset names in this document are fictional.

Because Midmark RTLS Solutions, Inc. is continually improving its products, specifications within all Midmark RTLS manuals are subject to change without notice.

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Proprietary Information

FCC STATEMENT:

1. 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.
 - (2) This device must accept any interference received, including interference that may cause undesired operation.
2. any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

3. FCC 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 (VER5800 Plug in Sensor) & your body.

The device shall be used in such a manner that the potential for human contact normal operation is minimized. This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

Components comply with part 15 of the FCC Rules. Operation is subject to the following two conditions: 1) These devices may not cause harmful interference, and 2) These devices must accept any interference received, including interference that may cause undesired operation.

5. CANADA STATEMENT:

This device complies with RSS-210 of the Industry Canada 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.

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

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

This device complies with Industry Canada's license-exempt RSSs. 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.

6. Canada RF Exposure Statement:

The device shall be used in such a manner that the potential for human contact normal operation is minimized. This equipment complies with RSS-102 radiation exposure limits. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

Le dispositif doit être utilisé de manière à réduire au minimum le risque de fonctionnement normal en contact humain. Cet équipement est conforme aux limites d'exposition au rayonnement RSS-102. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et votre corps. Cet appareil et ses antennes ne doivent pas être situés conjointement ou fonctionner conjointement avec une autre antenne ou un autre émetteur.

VER-585x

The device shall be used in such a manner that the potential for human contact normal operation is minimized. This equipment complies with RSS-102 radiation exposure limits. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

Document Control

<i>Version</i>	<i>Meeting Date</i>	<i>Contributors</i>	<i>Topics Discussed</i>
1.0	12-30-2020	BW	Initial draft of FCC user guide.
1.1	1-5-2021	BW	Updated
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I. Introduction

A. Purpose of This Guide

This document is intended to provide the information required to install the hardware component of a Midmark VER-5800 BLE-Plug-In Sensor.

II. System Description

The Bluetooth Low Energy – Access Controller Sensor (BLE-AC) provides a way for indoor positioning. The Midmark VER-5800 BLE- Plug-In Sensor acts as a gateway with an integrated WIFI wireless communication technology to forward the traffic to the cloud. The Midmark BLE Plug-In Sensor scans for BLE devices nearby to gather location information then uploads these messages to the cloud servers. To configure the sensor there is a Midmark app for iPhone and Androids that assigns the WIFI credentials and sets the sensor cloud connection. The cloud connection passes the data along to the indoor mapping location application.

III. Asset Tracking Platform Parts List

The table below lists all current available Asset Tracking Platform hardware components and their related part numbers:

Part Number	Description
VER-5800 BLE-Plug-In	Sensor to scan for BLE signals
VER5864_BLE_IR_Tag	BLEIR Equipment tag
VER5869_BLE_Tag	BLE Equipment tag
VER5854 BLE_IR Badge	BLEIR Personnel Badge

IV. Asset Tracking Platform Component Overview

A. Signaling Devices and Supplies

1. BLE Tags

VER-58xx BLE/IR Asset Tag (Ext-XL) Leverage the locating precision of the Midmark RTLS infrared (IR) sensory network while supplementing your RTLS with Midmark's near room-level Bluetooth Low Energy (BLE) technology. The BLE/IR Asset Tag, affixed to equipment or other assets, emits its unique ID using both BLE and IR signals. When equipment is in an area covered by IR sensors, Midmark RTLS reports the precise chair-, bed or room-level location. Outside of the IR sensory network where BLE sensors are installed, Midmark RTLS provides near room-level location information (within three meters).

VER-5869 BLE Asset Tag Providing long battery life and near room-level locating precision, the BLE Asset Tag uses the latest Bluetooth Low Energy (BLE) technology. Affixed to assets or other equipment, the tag's BLE signals transmit a unique identifier received by the Midmark RTLS BLE sensors. Using a signal strength algorithm, the tags are located by Midmark RTLS with near room-level precision (within three meters).

Compatibility Note: Ext-XL tags feature improved battery life and are only compatible with XL Wired IR Sensors or Wireless Sensors. When used with the Wired Sensory Network, the tag's 20-bit Extended ID technology requires VER-2404-DHCP Collectors or later and VER-2032-DHCP Concentrators or later and VER-2032-DHCP Concentrators or later.

BLE/IR Asset Tag Mounting + Assembly

TAG MOUNTING

The equipment mounting surface must be properly cleaned to ensure a long-lasting bond. Thoroughly clean the mounting surface with a lint-free wipe dampened with an isopropyl alcohol (IPA) solution. Ensure there is no debris such as paint flecks or glue scale on the asset's surface before applying the tag base. Using other cleaning agents such as Quaternary Ammonium Cation (Quat) agents, ammonia, industrial degreasers, or other cleansers such as Goo Gone to eliminate debris is acceptable as long as the last step uses the IPA solution and leaves no chemical or physical residue.

The tag must be mounted on a flat, inflexible, non-metal surface free of obstructions that can block detection by the IR Sensors. If possible, mount the tag on a horizontal surface.

Before mounting the tag, test placement options on the equipment in a BLE-sensed area of the facility to ensure that the mounting surface does not hinder BLE signals. If the battery is properly installed and BLE signals are not received from the tag, reposition the tag on the asset and test again.

REMOVE ADHESIVE LINER

Without touching the adhesive, remove the white adhesive liner from the tag base and gently place only the base onto the equipment.

MOUNT TAG

Apply firm pressure over the entire base, using either fingers or an applicator such as a rubber ball. This allows more adhesive film to come into contact with the surface of the asset. Maintain pressure for 10 seconds.

TAG ASSEMBLY

1 INSTALL A BATTERY

Place a Murata* CR2477 3.0V lithium battery into the tag with the positive (+) side of the battery facing the "+" engraving in the battery holder. Be careful not to use the large capacitor for leverage when installing the battery as this may damage the tag if it moves.

2 ALIGN CASE

Align the battery holder with the guide posts in the base and assemble the case halves together.

3 TIGHTEN SCREWS

Fasten the case together with the two screws using a screwdriver, being careful not to over-tighten. Do not use a power drill.

***NOTE:** Midmark RTLS tags receive power from standard CR2477, 3.0V, 1000mAh lithium coin cell batteries. However, not all batteries are manufactured to the same physical specifications and quality standards. Midmark RTLS highly recommends the use of Murata brand CR2477 batteries. The use of any battery that does not meet the technical requirements specified by Midmark RTLS will void the Midmark RTLS warranty and may result in incorrect low battery reporting, inconsistent power to tag or damage to the tag. Refer to Advisory Notice #190006 for full details.



Staff tag.

VER585x BLEIR Badge front view



VER585x BLEIR Badge Back view



V. Asset Tracking Sensor Placement Guidelines

A. Use the following guidelines for sensor placement in an available 110v outlet:

- The distance between sensors should be less than 25 feet
- The height from the floor should be between 1 and 12 feet in a wall mounted receptacle
- Room sensor placement preference is away from corridors and room entry doors
- Corridor sensor placement preference is away from doors for rooms with a sensor
- Sensors should be 9 to 30 feet away from floor transitions (e.g., stairs, escalators, and elevators)

VI. Controlling Relay

A. For the initial release of the sensor, the relay is set to the on state with no option to control it.

When relay is set, power is passed through.

VII. Specifications

1. Basic Specifications

Wireless technology	BLE, WI-FI
Input voltage	120VAC
Output voltage	120VAC
Impulse Voltage	1500 V
Max load current	15A
Max load	1800W
Operating temperature & humidity	0°C~40 °C/10%~90%
Plug type	North America
Dimensions	42x38x69mm

2. Wi-Fi Specifications

Wi-Fi protocol	802.11b/g/n
Frequency band	2.4Ghz
Transmission power	11n: MCS7 13dB 11b: 18.5dB

3. Bluetooth Specifications

BT standard	V4.2 BLE
Receiving sensitivity	-97dB

4. Button Specifications

5 second long press	Trigger OTA update
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5. LED Indicator

OTA update	Cycles RGB led's
Detecting packets	Flashes Blue, stops after 60 seconds.
Packets sent to cloud	Flashes Green, stops after 60 seconds.

6. UL

“Type 1 Enclosure”,

Purpose of control: Operating Control;

Construction of control: Portable Direct Plug In Type;

Type 1 Action;

Pollution Degree: 2;

VIII. Product Appearance

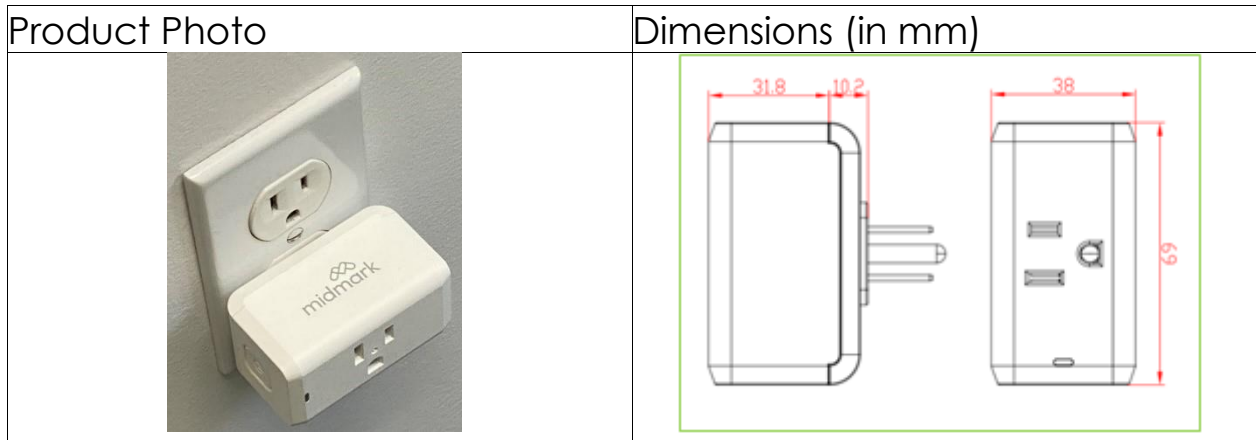


Figure 1 Example Caption and Screenshot