

IOX-BT

For the most up-to-date version of this document, visit: goo.gl/Gnbsy5

The IOX-BT monitors **Bluetooth®** proximity beacons with public MAC addresses and supports select sensor-enabled beacons. Beacons — attached to tools and equipment — increase asset utilization, reduce the impact of misplaced equipment, boost productivity, reduce operational costs, and improve on-time delivery.

Features

- Easy-to-install
- Monitors proximity beacons with public MAC addresses
- Also supports sensor data from select beacons
- Supports up to 200 in-range beacons
- Compatible with the Geotab® [BLE Add-On Protocol](#)



IOX Hardware Technical Specifications

Weight	110 g
Size	Overall length: 2440 mm L Widest point: 58 mm W × 23 mm H
Housing	Black, moisture-resistant thermoplastic overmold
Interfaces	CAN: 500 kbps (for daisy-chaining)
Nominal Input Voltage	12 V / 24 V
Power Output	Daisy-Chaining: 2500 mA @ 12 V / 24 V
Current Rating	Operating Mode: 52 mA Sleep Mode: 0.2 mA
Temperature Rating	-40 °C to +85 °C
Bluetooth® Module	Version 4.0 Single Mode
Range	In range: <100 m Out of range: >200 m
Connectors	Male Mini-USB Type-B connector: Daisy chain power and CAN in Female Mini-USB Type-B connector: Daisy chain power and CAN out

Installation	Male Mini-USB connector connects to the GO™ Device or another IOX™
Compliance	FCC, ISED, NOM, CE, REACH, RoHS, WEEE, UKCA, SIRIM, SDPPI, Bluetooth®
Compatible Devices	All GO7® and newer devices and variants

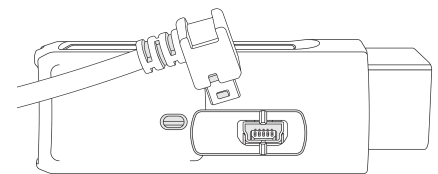
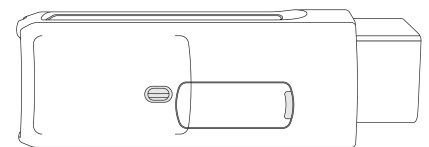
IOX Installation Instructions

! IMPORTANT: Professional installation (Certified Geotab® Installer or equivalent) is required for the safe and proper installation of this product (harness and/or IOX). The installer must have sufficient technical knowledge and expertise for the respective installation.

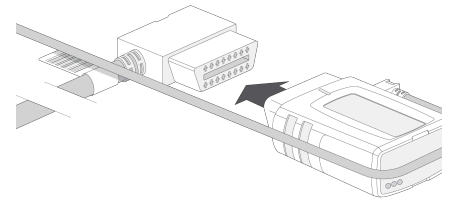
⚠️ ⓘ WARNING! Always read and follow all safety information, including Important [Safety Information and Limitations of Use](#), before harness and/or IOX installation. Disconnect the GO device from the vehicle before installation and connect it post-installation (see goo.gl/rkLRiA). Failure to follow these instructions and warnings can result in loss of vehicle control and serious injury or vehicle damage.

Installing the IOX-BT

- 1 Unplug the Geotab GO device from the vehicle and remove the IOX expansion port cover on the GO device.
- 2 Plug the 90° USB connector from the IOX into the GO device. Secure the USB connector using a cable tie. Please note that over tightening the cable tie may damage the USB connector.
*** NOTE:** Insert the USB connector in the orientation displayed in the image.
- 3 Choose an appropriate location to install the IOX-BT. Please ensure the IOX installation does not interfere with safe vehicle operation. The best location to attach the IOX-BT is on the vehicle windshield using the provided double-sided tape.
 When using tape, ensure the mounting surface is thoroughly clean and dry, and at least 65 °F (18 °C). Hold the tape firmly in place for 60 seconds to ensure the tape has bonded to the surface.
 Proper placement of the IOX-BT is crucial. The location affects the strength of the signals received from Bluetooth® beacons. It is recommended that the IOX-BT is installed in an open area.
- 4 Install the Bluetooth® beacons on the assets/equipment you want to monitor. Securely attach the beacons in a location where they will not be damaged.



5 Once you connect the IOX-BT to the GO device, plug in the GO device and immediately start the vehicle. The GO device enters debug mode.



6 Navigate to myinstallpub.geotab.com to verify that the device is communicating.

- In the **Installer information** section, enter the installer's name and company name. Select the next section.
- In the **Device serial number** section, enter the 12-digit alphanumeric serial number, located on the bottom of the device, then click **Validate**. Select the next section.
- In the **Device status** section, review the status of the device. The **PASS** status indicates the device communicated with the network in the last 24 hours. The **FAIL** status indicates the device has not communicated with the network in the last 24 hours. Select the next section.
- In the **Vehicle** section, enter the vehicle-related information.

* **NOTE:** If the device is not communicating, please ensure the device is installed correctly and try again.

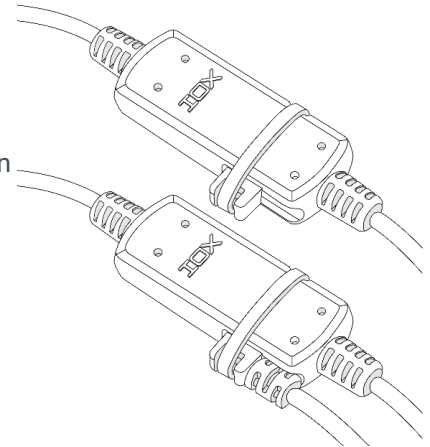
A screenshot of a web form titled "Installer information" with a green checkmark icon. It contains two input fields: "Installer name *" with "Sample name" entered, and "Installer company *" with "Sample company name" entered. Below these are three radio button options: "Device serial number", "Device status", and "Vehicle information".

Termination Shunt

The IOX comes with a termination shunt installed in the expansion port. If you plan to install more than one IOX in a daisy chain, you must remove the shunt from each device in the line, with the exception of the last IOX connected. The shunt must remain in the last IOX and secured with a cable tie.

The shunt in the last IOX ensures the GO device detects and configures the IOX, as effectively as possible.

* **NOTE:** Failure to install the shunt in the last IOX may affect IOX communication. To ensure the IOX communicates, please secure the shunt with a cable tie.



Beacon Data in MyGeotab

The GO device automatically detects any in-range beacon with a public MAC address. A GO device generates a log whenever a beacon comes within range and, subsequently, when it goes out of range. No special configuration is required in MyGeotab™ to associate a beacon with a database or a specific GO device. Beacons within range of multiple GO devices trigger logs on all in-range devices.

When using beacons that support sensor data, the GO device also logs illuminance, ambient temperature, and impact.

Bluetooth beacon in range = 1 is reported only when the IOX-BT sees the beacon for the first time. Bluetooth beacon in range = 0 is reported when the beacon is no longer 'visible' for 30 seconds. This is only applicable to beacons of a supported advertisement format. Beacon Data in MyGeotab for All Bluetooth® Beacons.

Diagnostic	Values	Conversion	Units	Tolerance
IOX Bluetooth®	Connected: 1	None	None	None
	Disconnected: 0			
Bluetooth® beacon in range	In Range: 1	None	None	None
	Out of Range: 0			

Beacon Data in MyGeotab for Bluetooth® Beacons with Sensor Data

Diagnostic	Values	Conversion	Units	Recording Rate
IOX Bluetooth®	Connected: 1	None	None	Every change
	Disconnected: 0			
Bluetooth® beacon in range	In Range: 1	None	None	Every change
	Out of Range: 0			
Bluetooth® beacon battery level	0–100	None	%	Every 2 unit changes
Bluetooth® beacon illuminance	0–255	255 = 16000 lux 1 unit ~ 63 lux	lux	Every 2 unit changes
Bluetooth® beacon temperature	-40 to +80	None	°C	Every change
Bluetooth® beacon impact count	0–255	None, resets to 0 after 1 cycle	None	Every change

Custom Reports

Access the sensor data described above from the Engine Measurements Report (**Engine & Maintenance > Engine and Device... > Measurements**) in MyGeotab. This report also contains the public MAC address of the beacon you use and can be leveraged to create custom reports to meet a variety of needs.

Accessing Beacon Data through the MyGeotab SDK

All of the status data above is also available via the MyGeotab API (my.geotab.com/SDK). The API is used to associate status data with the beacon from which it originated. The beacon data is configured as engine information accessed through the StatusData object, with the specific diagnostics described in the table above – found in the Diagnostic object of the API.

Limiting Beacon Data to Specific Beacon Types (Beta)

The IOX-BT can detect any beacon with a public MAC address if the **Reports all beacons with public MAC address** parameter is enabled (note that this parameter is not enabled by default). However, detecting all public beacons can cause the IOX-BT to quickly exceed its set beacon data limit. You can use the custom parameters listed below to limit received data to only be from specific beacon types.

Type of Data	Custom Parameter
Reports all beacons with public MAC address	<GoParameters><Parameter Description="Enable Reporting On All Public Bluetooth Beacons" Offset="179" Bytes="40"/></GoParameters>
BeWhere Beacons only	<GoParameters><Parameter Description="Restrict Bluetooth Beacons To BeWhere" Offset="167" Bytes="01"/></GoParameters>
Beacons using Geotab BLE protocol only	<GoParameters><Parameter Description="Restrict Bluetooth Beacons To Geotab" Offset="167" Bytes="02"/></GoParameters>
BeWhere Beacons and Beacons using Geotab BLE protocol only	<GoParameters><Parameter Description="Restrict Bluetooth Beacons To Geotab and BeWhere" Offset="167" Bytes="03"/></GoParameters>

Important Safety Information and Limitations of Use

For the latest version of the Limitations of Use, visit: goo.gl/k6Fp0w.

WARNING! Do not attempt to install, configure or remove any product from any vehicle while the vehicle is in motion or otherwise in operation. All installation, configuration or removal must be done only in stationary vehicles which are securely parked. Attempting to service units while being operated could result in malfunctions or accidents, leading to death or serious personal injury.


WARNING! All in-vehicle devices and related cabling must be securely fastened and kept clear of all vehicle controls, including gas, brake and clutch pedals. You must inspect devices and cabling on a regular basis to ensure all devices and cabling continue to be securely attached. Loose cabling or devices may impede the use of vehicle controls, resulting in unanticipated acceleration, braking or other loss of vehicle control, which could lead to death or serious personal injury. Improperly fastened in-vehicle devices may detach and impact operators upon sudden acceleration or deceleration, which may cause injury.

WARNING! If at any point after an in-vehicle device is installed a warning light illuminates on the vehicle dash or the vehicle stalls or has a marked drop in performance, shut off the engine, remove the device, and contact your reseller. Continuing to operate a vehicle with these symptoms can cause loss of vehicle control, and serious injury.

WARNING! Your in-vehicle devices must be kept clear of debris, water and other environmental contaminants. Failure to do so may result in units malfunctioning or short-circuiting that can lead to a fire hazard or vehicle damage or serious injury.

WARNING! Do not attempt to remove the devices from the vehicle in which they are originally installed for installation in another vehicle. Not all vehicles share compatibility, and doing so may result in unexpected interactions with your vehicle, including sudden loss of power or shutdown of the vehicle's engine while in operation or cause your vehicle to operate poorly or erratically and cause death or serious injury and/or vehicle damage.

NOTICE: This product does not contain any user-serviceable parts. Configuration, servicing, and repairs must only be made by an authorized reseller or installer. Unauthorized servicing of these products will void your product warranty.

 **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

Regulatory Statements

Warning: RF Exposure Compliance

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. Users and installers must be provided with antenna installation instruction and transmitter operating conditions for satisfying RF exposure compliance.

L'antenne ou les antennes utilisées pour cet émetteur doivent être installées pour fournir une distance de séparation d'au moins 20 cm de toutes les personnes et ne doivent pas être co-localisées ou fonctionner en conjonction avec une autre antenne ou émetteur. Les utilisateurs et les installateurs doivent recevoir des instructions d'installation de l'antenne et les conditions de fonctionnement de l'émetteur pour satisfaire la conformité à l'exposition aux RF.

Canada

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

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.

USA

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.

Changes or modifications not expressly approved by Geotab could void the user's authority to operate the equipment.

Mexico

La operación de este equipo está sujeta a las siguientes dos condiciones: (1) es posible que este equipo o dispositivo no cause interferencia perjudicial y (2) este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

EU

Product Wireless Information

2402-2480 MHz: Max -4.44 dBm EIRP

Germany

Wir besitzen keine Versand- und Lagerfläche in Deutschland und sind nicht von der Rücknahmepflicht nach § 17 ElektroG betroffen.