SEAL Ex Wearable GPS Tracker

User Guide

Document Type:	User Guide
Document Number:	T0008740
Document Version:	1.4
Issue Date:	Jun 09, 2025
Product Name:	SEAL Ex Wearable GPS Tracker
Model Numbers:	T0008766, T0008767

Document History

Version	Issue Date	Status	Editor	Comments
1.0	Sept. 14, 2023	Obsolete	S. Morrison	First approved release
1.1	Mar. 6, 2024	Obsolete	S. Morrison	Minor editorial updates
1.2	May 15, 2024	Obsolete	S. Morrison	Moved IP67 from Ex marking line per ExTAG DS 2012/005A
1.3	Feb 10, 2025	Obsolete	S. Morrison	Updated T_{amb} max Updated the maintenance information Updated Ex marking
1.4	Jun 09, 2025	Approved	S. Morrison	Incorporated certificate numbers

Table of Contents

List of Tables

List of Figures

1.   Product Description

1.1.   Overview

This document is the User Guide for the SEAL Ex Wearable GPS Tracker (referred to simply as SEAL Ex) developed by TEKTELIC Communications Inc. This document provides information pertinent to the Explosive Atmospheres (Ex) versions of the SEAL Wearable GPS Tracker and shall be read in conjunction with the SEAL Wearable GPS Tracker User Guide, document T0007705_UG, for complete specifications and detailed commissioning and operational information.

SEAL Ex is a multi-purpose LoRaWAN IoT GPS tracker intended to allow people to be located via a LoRaWAN network. The location information is obtained from a built-in GNSS receiver. SEAL Ex is equipped with an IoT targeted MCU that has Bluetooth compatibility, a LoRa-based radio, a GNSS device, an accelerometer, and a battery gauge. Table 1-1 presents the available SEAL Ex models.

Table 1-1: SEAL Ex Wearable GPS Tracker Models

Model	Description
T0008766	SEAL Ex Wearable GPS Tracker
T0008767	SEAL Ex Wearable GPS Tracker with Safety Clip

Additionally, each SEAL Ex Tracker module can be equipped with a user installed mounting clip, with one clip designed for mounting to a belt and a second clip designed for mounting to a harness strap.

Figure 1-1 and Figure 1-2 illustrate the different models of the SEAL Ex Wearable GPS Tracker.

Figure 1-1: SEAL Ex Wearable GPS Tracker with Safety Clip

Figure 1-2: SEAL Ex Wearable GPS Tracker without Safety Clip

Figure 1-4 illustrates the external dimensions of the SEAL Ex Wearable GPS Tracker module without the user installed mounting clips.
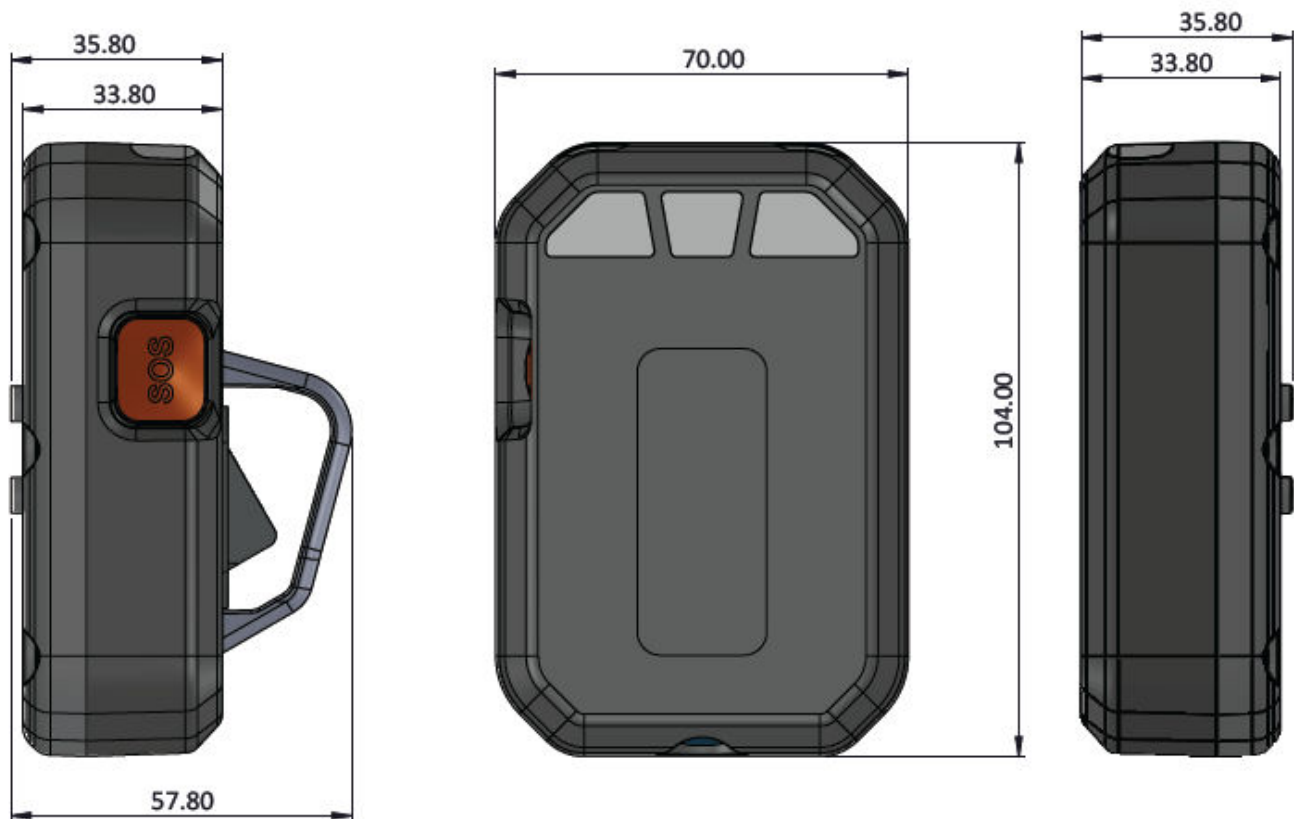

Figure 1-3: SEAL Ex Wearable GPS Tracker External Dimensions

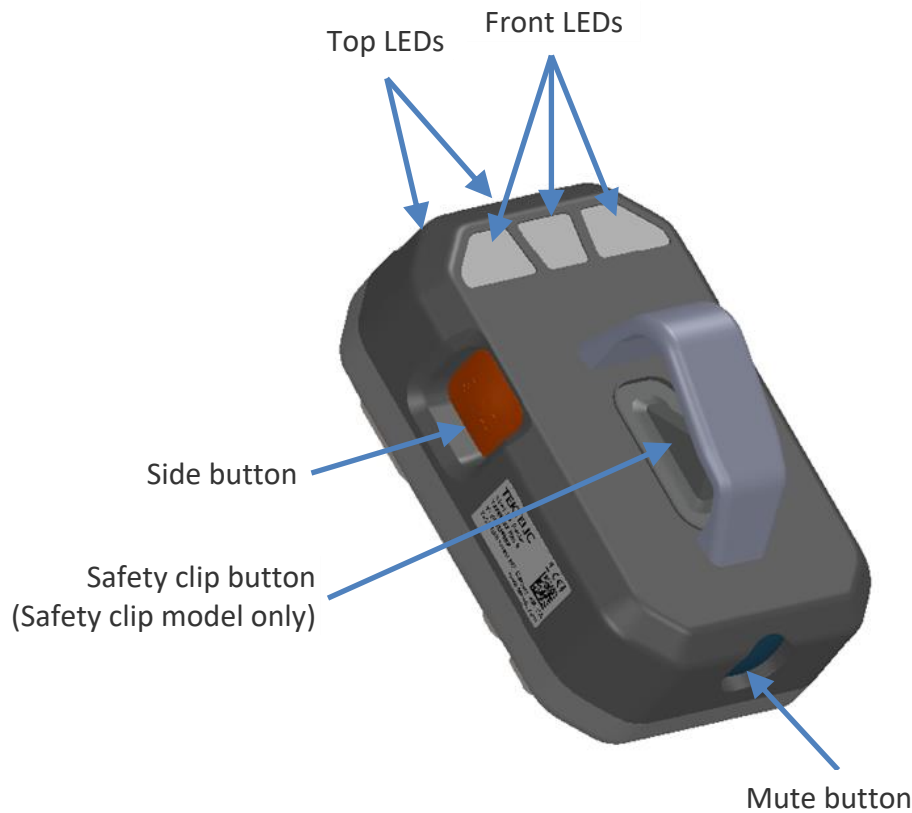Figure 1-4 illustrates the external user features of the SEAL Ex Wearable GPS Tracker.

Top LEDs Front LEDs

Side button

Safety clip button
(Safety clip model only)

Mute button

Figure 1-4: SEAL Ex Wearable GPS Tracker External User Features

1.2. Specifications

The SEAL Ex Tracker specifications are listed Table 1-2.

Table 1-2: SEAL Ex Wearable GPS Tracker Specifications

Parameter	Specification
Use Environment	Hazardous Locations & Explosive Atmospheres
Form Factor	Wearable (portable)
Operating Temperature	-20 °C to +52 °C
Environmental Rating	IP67
Dimensions	104 mm x 70 mm x 33.8 mm, enclosure excluding mounting clips & features
Weight	100 g excluding batteries and mounting clips 130 g with batteries, excluding mounting clips
Power Source	2x AA size Lithium Iron Disulfide (LID) batteries
Air Interfaces	LoRa Tx/Rx, BLE Tx/Rx, GNSS Rx
Maximum Tx Power	15 dBm LoRa, 6 dBm BLE Total RF maximum threshold power is below the required 2 W (33 dBm) limit for Group IIC

Parameter	Specification
Sensing Functions	GNSS, Accelerometer, BLE, Temperature, Pressure, Battery Gauge
Safety Clip Detection	Switch for tracking safety clip usage
Function buttons	One panic button on the side of the sensor One Mute button on the bottom of the sensor
LEDs	Two amber-color LEDs on the top of the module Three amber-color LEDs on the front of the module
Audio indicator	Audio buzzer to provide user feedback
Battery Fuel Gauge Features	Battery gauge for determining battery life
Battery Lifetime	11 months

The SEAL Ex Tracker certifications are listed in Table 1-3.

Table 1-3: SEAL Ex Wearable GPS Tracker Certifications

Certification	Specification	Marking
EMC	ETSI EN 301 489-1 ETSI EN 300 220-1/2	CE
Equipment Safety	EN IEC 62368-1:2020 (Ed. 3.0) IEC 62368-1 Ed. 3.0	CE, Outdoor, IP67 Certificate CA/1623/QPS
ATEX	EN IEC 60079-0:2018 (Ed. 7.0) EN 60079-11:2012 (Ed. 6.0)	⟨Ex⟩ II 2 G Ex ia IIC T4 Gb -20 °C ≤ Ta ≤ +52°C Certificate QPS 25ATEX5009X
IECEx	IEC 60079-0:2017 (Ed. 7.0) IEC 60079-11:2011 (Ed. 6.0)	Ex ia IIC T4 Gb -20 °C ≤ Ta ≤ +52 °C Certificate IECEx QPS 25.0029X

2. Product Usage

2.1. Unpacking and Inspection

The following items are included with each package:

- One SEAL Ex Wearable GPS Tracker module.
- Two Lithium Iron Disulfide AA batteries (installed in the sensor).
- A Quick Start Guide.

The following should be considered during the unpacking of a new SEAL Ex Tracker:

- Unpacking should be conducted in a clean and dry location.

- Inspect the shipping carton and report any significant damage to TEKTELIC.

- If the SEAL Tracker appears to be damaged in any way, do not use the sensor.

- Do not discard the shipping box or inserts as they will be required if a unit is returned for repair.

2.2. Maintenance

The SEAL Tracker requires no regular maintenance beyond battery replacement. Batteries must be replaced when there is indication of low battery.

The SEAL Tracker enclosure possesses static dissipative properties. To maintain its properties, the following should be observed:

- If the enclosure becomes dirty, it can be cleaned with gentle wiping using a clean soft cloth slightly dampened with clean water.
- If necessary, a mild detergent solution may be used. Do not use harsh chemicals, cleaning solvents, or strong detergents for cleaning the device.

2.3. Battery Replacement

WARNING – DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT.

WARNING – DO NOT REPLACE BATTERIES WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT.

WARNING – USE ONLY ENERGIZER L91 ULTIMATE LITHIUM IRON DISULFIDE AA SIZE 1.5 V BATTERIES.

WARNING – ALWAYS REPLACE BOTH BATTERIES TOGETHER AS A PAIR WITH FRESH NEW BATTERIES.

The battery cover is secured by six stainless steel M4 Torx head screws identified in Figure 2-1. Remove all six screws using an M4 Torx driver.

- Be careful to not misplace the back-cover or any of the screws.
- Be careful to not damage the enclosure gasket or any of its mating surface.

The SEAL Ex Tracker accepts two Energizer L91 AA size Lithium Iron Disulfide "Ultimate Lithium" batteries. Always replace both batteries together as a pair with new batteries. Observe the battery polarity markings when inserting the batteries.

Once the new batteries are inserted, replace the battery cover while inspecting the enclosure gasket along the outer mating edge of the case to ensure proper alignment and sealing between the cover and the case.

Once the battery cover and gasket are properly in place, secure the battery cover using the same six Torx head screws. Tighten each of the six cover screws to 8.9 lbf-in (1.0 N-m).
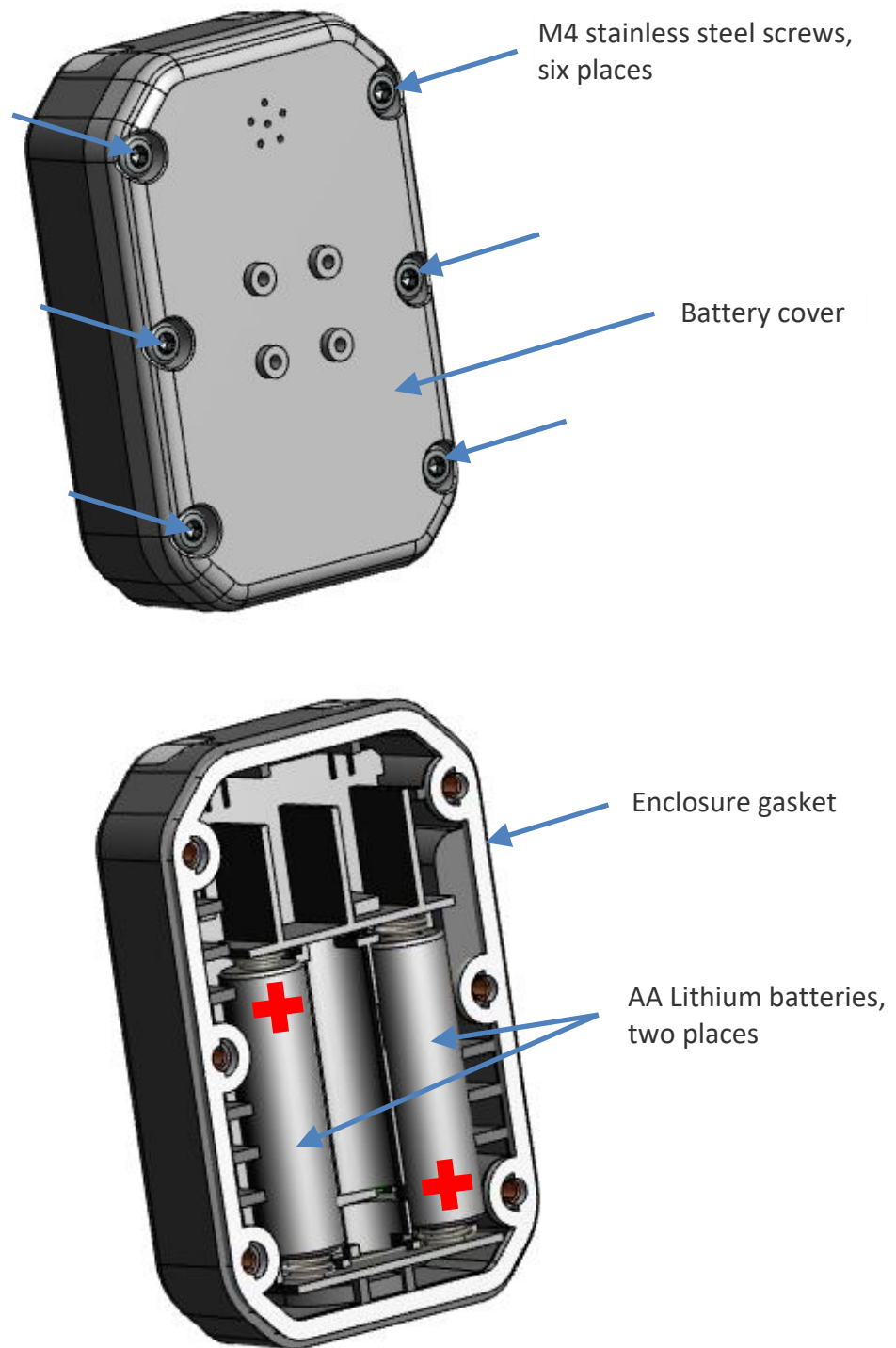
M4 stainless steel screws, six places

Battery cover

Enclosure gasket

AA Lithium batteries, two places

Figure 2-1: SEAL Ex Wearable GPS Tracker Battery Replacement

2.4. Mounting

On the battery cover side of the module enclosure there are four screw holes that can be used to fasten a clip for wearing the sensor. There are two styles of clip available, a belt clip and a strap clip as

illustrated in Figure 2-2. These clips may be added to either of the module variants (safety clip or non-safety clip).

The mounting clips are installed to the sensor using the supplied four M3 stainless steel screws, each torqued to 4.9 lbf-in (0.55 N-m).
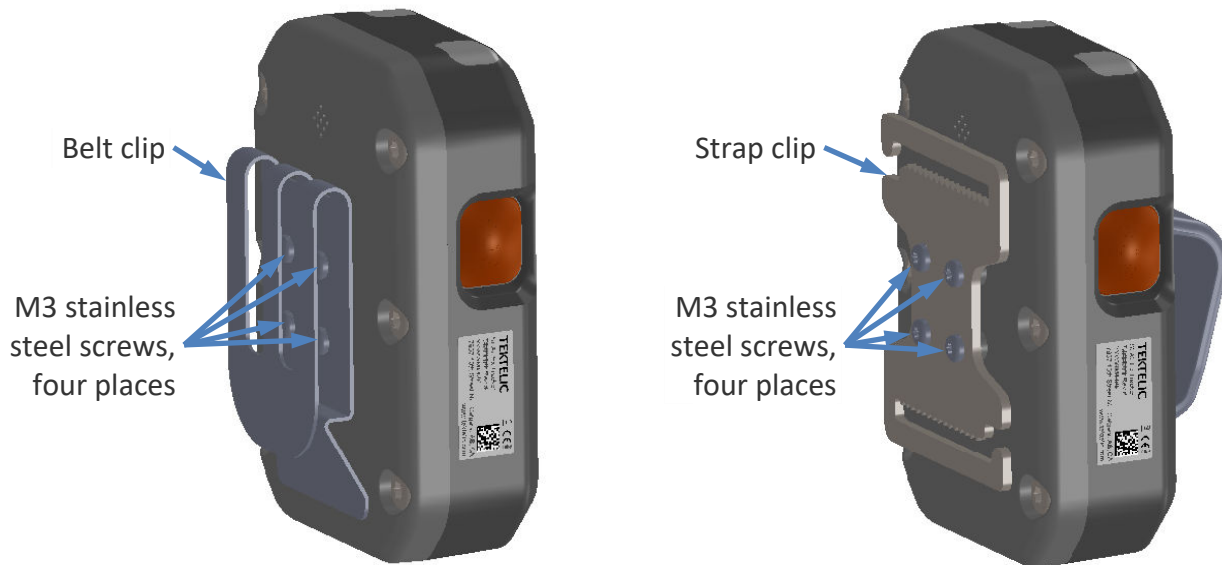

Figure 2-2: SEAL Ex Wearable GPS Tracker Showing Optional Mounting Clips

2.5.   Commissioning and Activation

The SEAL Ex Tracker is shipped with batteries installed. However, as received, the SEAL Ex Tracker is in a state of DEEP SLEEP to minimize battery drain. The SEAL Ex Tracker does not need to be opened for activation; rather it is woken up (activated) through a mute button (see Figure 1-4) press sequence as follows:

1. Press fully the mute button and then release the button, all at a normal pace.
2. Press fully the mute button and hold for at least 3 sec. but no more than 10 sec. and then release the button.

As soon as the specified mute button sequence is completed, the Tracker is reset and will try to join the network. Refer to the SEAL Wearable GPS Tracker User Guide, document T0007705_UG for complete and detailed operational information.