Locator Installation Guide

onBoard™ Locator

LOC-ED-140509
1.2
October 6, 2014

Copyright

Contact Information

Sales Desk:	Phone:	1-604-232-1488
	Hours:	8:00 AM to 5:00 PM Pacific Time
	Contact:	http://www.sierrawireless.com/sales
Post:	Sierra Wireless 13811 Wireless Way Richmond, BC Canada V6V 3A4	
Technical Support:	support@sierrawireless.com	
RMA Support:	repairs@sierrawireless.com	
Fax:	1-604-231-1109	
Web:	http://www.sierrawireless.com/	

Consult our website for up-to-date product descriptions, documentation, application notes, firmware upgrades, troubleshooting tips, and press releases: www.sierrawireless.com

Document History

Version	Date	Updates
1.2	October 6, 2014	Updates for SWI Template and related edits.

Contents

List of Figures

1. Introduction

This document provides instructions on preparing and installing the onBoard Locator.

1.1. Who Should Read This Guide

This document should be read by vehicle installation specialists responsible for installing the onBoard Locator.

This Configuration and Installation Guide is specific to the onBoard Locator. Users of the vehicle-powered onBoard Locator LD (Light Duty) device must refer to the separate Installation and Operation Guide specific to that device.

1.2. What is the onBoard Locator

The onBoard Locator (shown in Figure 1) is a device used to track and manage a variety of fleet and mobile assets. When combined with the oMM, the onBoard Locator extends GPS tracking to a wider range of vehicle and non-powered assets within a single unified view. The Locator is a small form factor device for assets that do not require the vehicle area network (VAN) capabilities of the oMG.

The Locator is battery powered and designed for external mounting on heavy duty equipment such as a trailer or freight container. This unit is completely self contained with its own built in GPS antenna and relies on its internal battery as a power source. The heavy duty casing makes the unit suitable for rugged, outdoor conditions.

Figure 1 – Locator

1.3. Requirements

The following items are required in order to install the unit:

- Cordless drill
- 9/64th drill bit
- 5/16 th nut driver and socket wrench
- Cross Tip Drill Attachment (or 1/8” Hex Allen Wrench)
- Two (2) 10” Adjustable Crescent® Wrenches
- Scratch awl

- Wire Brush or Scuff Pad.
- Acetone
- Loctite Threadlocker Blue 242
- Rust preventative spray paint
- RTV Sealant

1.4. Handling Precautions

When handling the Locator, care must be taken to ensure the unit is not subjected to electrostatic discharge.

1.5. Provisioning

For information on provisioning a Locator LD including SIM card installation and setting up a device for a particular carrier, refer to the Locator Configuration and Troubleshooting guide.

1.6. Related Publications

Title	Description
onBoard Locator LD Installation and Operation Guide	Describes how to install a Locator LD device within a vehicle including all wiring connections.
onBoard Locator Troubleshooting and Configuration Guide	Describes the procedures for removing and reinstalling the device's cover, accessing the internal motherboard, installing a SIM card, testing, and troubleshooting (including the device, signal quality issues, and server side).

2. Installation

The following subsections describe the procedures for mounting the Locator on a piece of heavy duty equipment. If necessary, consult Sierra Wireless for guidance on installing the Locator on a specific asset or equipment. Since the Locator is a self contained unit with a battery and built in antenna, there is no wiring involved.

Before mounting the unit, be sure to adhere to the following precautions:

- Tag equipment with the appropriate signage to indicate a lockout/tagout procedure is in progress.
- Installers and contractors must be properly trained in LOTO procedures in accordance with OSHA regulations.
- Set the vehicle's parking brake.
- Chock the wheels if the equipment is parked on an incline.
- Block or crib equipment that is suspended on jacks in order to prevent it from falling or shifting.
- Record the Module Serial Number (MSN) located on the device label and the trailer number:

Figure 2 - Location of the Module Serial Number

Federal regulations require wearing appropriate personal protective equipment. Adherence to this requirement is monitored and mandated by Environmental Health and Safety (EHS) personnel and regulated and mandated by the U.S. Department of Labor Occupational Safety and Health Administration (OSHA). Personal protective equipment at a minimum consists of:

- Safety glasses with side shield, meeting the ANSI Z87.1 standards
- Safety shoes, meeting ASTM F2413-05 and ANSI Z41/C75 standards
- Mechanics work gloves (i.e. gloves that are appropriate for the task to be completed)
- Hard hat, meeting ANSI Z89.1 - Class A, B, and C standards
- High visibility vest, meeting ANSI 107 standards
- Work uniform
- Proper safety precautions must be followed. Because Isopropyl Alcohol is a solvent, read the MSDS sheet and wear the proper PPE as specified in the MSDS.
- All solvents must be used in a well-ventilated area. Avoid open flames and other ignition sources.

2.1. Chassis Screw Mount Installation (Example)

1. Identify a mounting location on the chassis. Ensure that the unit will not be damaged when stacking or operating the chassis.
2. Orient the unit either up or down as this is required for optimum GPS reception and accuracy:

Figure 3 - Chassis mounting with the device facing up

Figure 4 - Chassis mounting with the device facing down

3. Mark the location for each of the four mounting screws on the trailer cross member using the device mounting flanges as a template.
4. Drill a 3/16" hole at each marked location.
5. Deburr the holes and remove all metal shavings from the cross member surfaces.
6. Paint all exposed metal surfaces in and around holes with a rust preventative paint. Allow the paint to dry for 10 minutes.
7. Mount the device using four screws, flat washers, and self-locking nuts. Ensure that the flat washers are placed between the screw heads and the plastic device housing.
8. Tighten each screw using 5/16" socket ratchet and 3/8" open-ended wrench.
9. Remove the magnet from the front of the device enclosure to activate the device in sky view.

Note: *retain the activation magnet. This is required in order to disable reporting upon de installation of the device.*

2.2. Chassis Magnetic Mount Installation

1. Identify a mounting location on a chassis cross member.
2. Orient the unit either up or down as this is required for optimum GPS reception and accuracy. Also ensure that:
   a. the location is centered front to back;
   b. the mounting surface is rust free and level;
   c. the lanyard can wrap around or through the cross member; and
   d. no damage will occur to the unit when stacking or operating the chassis.

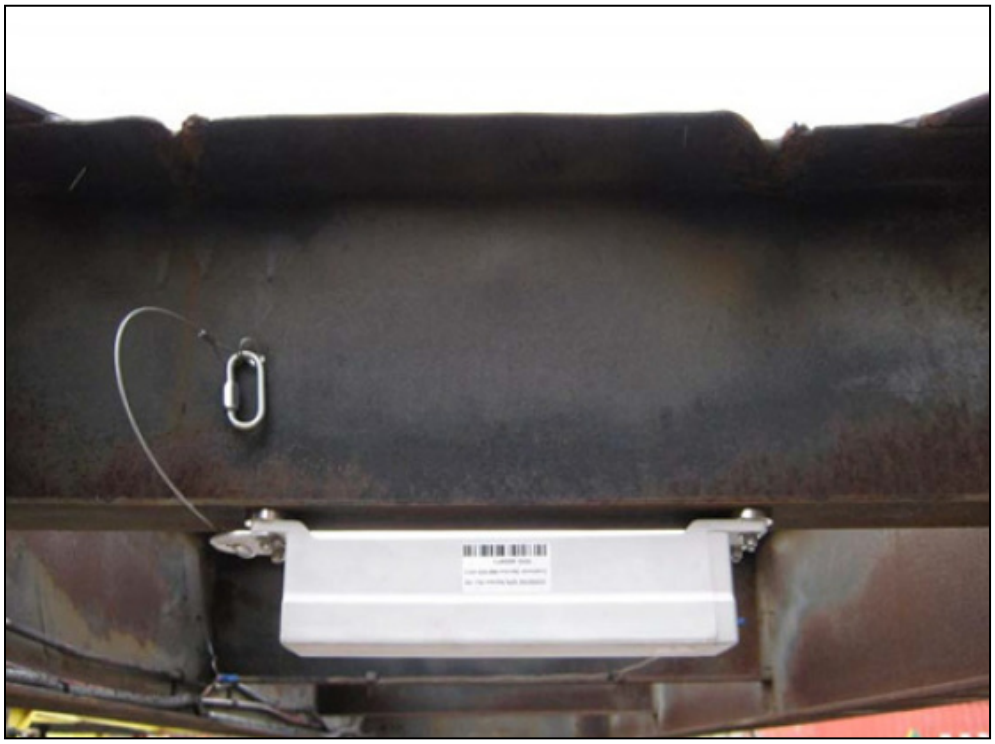

Figure 5 - Example of a mounted and tethered device (frontal view)

Figure 6 - Example of a mounted device centered side-to-side and front-to-back

3. Clean the mounting surface where magnets will contact the frame member.
   a. For dirt and grease use acetone.
   b. For rust or loose paint use a wire brush and acetone.
4. Mount the device and ensure all four magnets are engaged.
5. Install the lanyard:
   a. Drill a 1/4" hole in frame member and pass the lanyard through; or
   b. Loop the lanyard around the frame member if it will reach.
6. Deburr the holes and remove all metal shavings from the cross member surfaces.
7. Paint all exposed metal surfaces in and around holes with a rust preventative paint. Allow the paint to dry for 10 minutes.
8. Feed the threaded link through the lanyard loops and lanyard clip.
9. Apply blue Loctite to the threaded link threads.
10. Tighten the threaded link with two Crescent wrenches.

Figure 7 - Tightening the threaded link with two Crescent wrenches

Figure 8 - Lanyard connected

11. Remove the activation magnet from the front of the device enclosure in order to activate device reporting.

2.3. Intermodal Container Mounting Orientation

When mounting the device on the outside of an asset such as an intermodal container, orient the device such that the unit's serial number label is facing downwards:

Figure 9 - Proper orientation with label facing downwards

Appendix A. Locator Environmental Specifications

Specification	Description
Size	• 3.5" long x 2.125" wide x 0.625" high • 8.9 cm long x 5.4cm wide x 1.6 cm high
Weight	• 2.6 ounces • 74g
Operating Temperature	• -30° C to 75° C
Storage Temperature	• -40° C to 85° C
Humidity	• 0% to 95% relative humidity, at 50 oC non-condensing
Shock and Vibration	• SAE Test: SAE J1455 Compliant • Mil Standard 202G and 810F Compliant • Ground vehicle environment with associated shock and vibration
Electromagnetic Compatibility (EMC/EMI)	• SAE Test: SAE J1113 Parts 2, 12, 21 and 41 Compliant • FCC Part 15B Compliant • Industry Canada Compliant • EMC compliant for a ground vehicle environment
Operating Voltage Range	• 6 – 32VDC
Power Consumption	• Active Standby: 70mA at 12VDC • Sleep on Network: 10 mA at 12VDC • Deep Sleep: 1mA at 12VDC
GPS	• 50 channel WAAS capable GPS Receiver • 2m CEP (with SBAS) • -160 dBm tracking sensitivity
Communications (Comm)	• Quad Band Class 12 GPRS Modem • 850 MHz (Class 4) – 2W • 900 MHz (Class 4) – 2W • 1800 MHz (Class 1) – 1W • 1900 MHz (Class 1) -1 W • GPRS Packet Data (UDP) • SMS
RoHS Compliant	