

TECHNICAL PUBLICATIONS

CT 1010 Installation Guide

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TABLE OF CONTENTS

Contact and Legal Information	2
Contact Support	2
Trademark Notice	2
1 Installation	4
1.1 Device and Battery Safety Warnings	4
1.2 Wake Up the Device	4
1.3 Review the Inclement Weather Guidelines	5
1.4 Gather the Required Tools and Materials	5
1.5 Pair the Device with an Asset	6
1.6 Prepare for the Installation	7
1.7 Prepare the Mounting Location	7
1.8 Tape the Device to the Asset	10
1.9 Install the Rivets	11
APPENDIX A Install the HOLE SEAL (for Retrofit Installations only)	12
APPENDIX B Inclement Weather Guidelines	13
APPENDIX C Mechanical Dimensions	14

1 INSTALLATION

IMPORTANT

READ ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLING. FAILURE TO DO SO MAY CAUSE PERSONAL INJURY OR DAMAGE TO PRODUCT AND/OR PROPERTY.

• Review the product package and contents prior to beginning the installation. Take care when opening the packaging and removing items. If a return is needed, you will want to return the product in its original packaging if possible. • This instruction guide is provided as a GENERAL installation guide; some assets vary dimensionally and may require additional steps. • ORBCOMM has a policy of continuous development and improvements. Therefore, products, guides, and technical information are subject to change without prior notice. • The manufacturer and / or distributors do not accept responsibility for third-party charges, labor, and / or third-party replacement modifications that are not ORBCOMM approved. Some modifications may void the factory warranty. • ORBCOMM does not accept any responsibility for installations performed by installers / third parties not approved and / or authorized by ORBCOMM. Some installations may void the factory warranty. • Exercise due diligence when installing this product. ORBCOMM does not accept any responsibility for asset damage or personal injury resulting from the installation of this product. Careless installation and operation can result in serious injury or equipment damage. • All liability for installation and use rests with the owner / operator. • Always make sure you have a clean, dry, and well-lit work area. • Always ensure products are secure during disassembly and installation. • Always take steps to protect yourself when drilling, cutting, and grinding because this may create flying particles that can cause injury. • Thoroughly inspect the area to be drilled, on both sides of material, prior to modification, and relocate any objects that may become damaged. • Always route electrical cables carefully. Avoid moving parts, parts that may become hot and rough, or sharp edges. • Make sure to fully understand the product, its intended use, and operation prior to use.

CAUTION: While ORBCOMM provides mounting hardware to assist with installations, it is the responsibility of the installer to select the proper mounting hardware for the asset's surface material where an ORBCOMM device or accessory will be mounted.

Environmental Protection

CAUTION: Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with our Local Authority or retailer for recycling advice.

1.1 Device and Battery Safety Warnings

CAUTION: DO NOT short circuit or expose the battery to temperatures above the maximum rated temperature.

CAUTION: Always follow local disposal guidelines to properly dispose of the Lithium-ion battery and the device.

CAUTION: DO NOT throw the internal battery or the device into fire.

CAUTION: Store in a cool, well-ventilated area. Elevated temperatures will result in shortened battery life.

CAUTION: If shipping the device, contact your local shipping carrier for safe shipping guidelines.

1.2 Wake Up the Device

The CT 1010 ships in a non-transmitting mode. Prior to installation on an asset, you must wake up the device by exposing it to bright light.

Note: Pairing the CT 1010 with an asset is not possible without waking up the device. Expose the CT 1010 to bright light at the beginning of the day to ensure it has time to wake up and transmit critical information before you install it.

Note: Generally, the CT 1010 is registered to the appropriate web application (platform) prior to shipping. Once the device wakes up, a message is sent to the web application.

1. Remove the CT 1010 from the shipping packaging, and then wake up the device in one of two ways:
 - Bring the CT 1010 outside during daylight, with the solar panel facing the sky, for a minimum of 5 minutes.

OR

 - Use another bright light source to wake up the device. Use a light meter or a mobile phone app to find a light source with a minimum 600 Lux light intensity, the higher the Lux value, the better. Position the CT 1010 solar panel directly facing the light source for at least one minute.

CAUTION: When using a hot light source (for example, halogen or incandescent), ensure that the solar panel does not become hot to the touch.

Note: The CT 1010 solar panel does not charge with typical indoor office lighting.

1.3 Review the Inclement Weather Guidelines

Read the important inclement weather guidelines in [APPENDIX B](#) before starting the installation.

1.4 Gather the Required Tools and Materials

Ensure you have the following for this installation:

- CT 1010 that includes:
 - Alcohol based cleaner or wipes
 - Scour pad
 - 5 mm (0.196") drill bit
 - 4.8 mm x 4.8 to 6.4 mm (3/16" diameter x 3/16" - 1/4") grip range stainless rivets
 - Hole Seal (p/n MD702570-001 - for retrofit installations only)



- CT 1010 installation kit (p/n ST101728-001), which includes:

Note: A "template only" installation kit (p/n ST101728-002) is also available, which includes only the CT 1010 installation template.

- 28.5 mm (1 1/8") hole saw¹ with arbour and pilot drill
- 5 mm (0.196") drill bit

¹If sourcing your own hole saw, a 28 mm or 29 mm metric hole saw is an acceptable alternative to the one provided in the CT 1010 installation kit.

- 5 mm (0.196") drill stop
- CT 1010 installation template

Note: The installation template is available separately (p/n ST101728-002) if all kit items required for the installation are sourced separately.

- Deburring tool
- Marker

- Cordless drill
- Cordless rivet gun
- Ladder (that reaches the installation location)
- Sealant (for retrofit installations only)

- To use the Field Support Tool (FST) to pair (associate) the CT 1010 with the asset, you require:
 - an Android or iOS device with Wi-Fi or cellular connectivity
 - User / customer credentials (your credentials must authorize you to associate devices), for the platform where the CT 1010 is registered / hosted. Contact your company administrator or [Support](#) if you require credentials

1.5 Pair the Device with an Asset

1. Record the CT 1010 unique alphanumeric serial number and the associated asset identification number / name.
2. Use the ORBCOMM Field Support Tool (FST) mobile app **before** installing the CT 1010, to pair the device with the asset. Refer to the *MA002 Field Support Tool User Guide* for mobile app download instructions or use the QR codes.

Note: Before you can associate the CT 1010 with the asset, it must be registered with the platform.

FST iOS Version (Apple App Store)

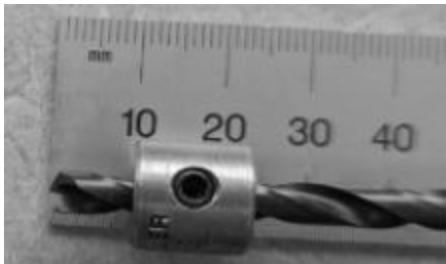


FST Android Version (Google Play Store)



1.6 Prepare for the Installation

1. A drill stop is recommended, located 10 mm to 20 mm (3/8" to 3/4") from the end of the 5 mm (0.196") drill bit.



1.7 Prepare the Mounting Location

1. Determine the mounting location for the CT 1010 following the guidelines below based on the type of installation:



CAUTION: DO NOT install the CT 1010 over (on top of) any asset text or decals.

- **DO NOT** install the CT 1010 on the left side door.
- Install within the top corrugation on the right-side door.
- Install centered between the locking bars.
- Install on a flat, undamaged, surface free of any peeling paint.

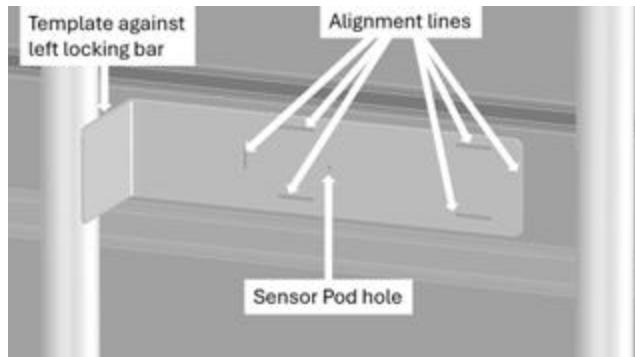
- If the selected location is damaged or has asset text, install the CT 1010 closer to the hinge in the same corrugation.

CAUTION: For accurate door sensor performance, DO NOT install the CT 1010 at a distance greater than 77 cm (30") from the weather seal at the top of the door.



2. Use the CT 1010 installation template and marker (included in the installation kit) to mark the sensor pod hole location and create horizontal and vertical alignment lines for the device.
 - Ensure the template is vertically centered in the corrugation, and that the left flange of the template is pressed firmly against the left locking bar before marking the asset.

Note: If desired, use the provided 5 mm (0.196") drill bit to spot drill the sensor pod hole.



CAUTION: DO NOT attempt to install the CT 1010 without marking the asset using the template. If the sensor pod hole is drilled in the incorrect location, it may not be possible to install the device.

3. Use the marked sensor pod location from the previous step as a guide and drill through the asset using the 5 mm (0.196") drill bit provided. Next use the 28.5 mm (1 1/8") hole saw to drill through the asset.

CAUTION: DO NOT drill holes in placarded containers that are loaded.

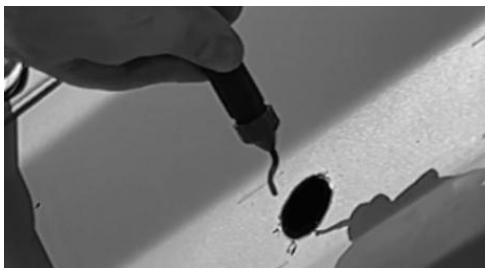
CAUTION: Operate the drill at approximately 500 rpm (or a low-speed setting when using a cordless drill). Operating at a high speed will damage or cause premature wear of the hole saw.

Note: To prolong the life of the hole saw, apply a dry graphite lubricant to the teeth.



4. Remove excessively sharp edges, large / hanging burrs, or strips that are the result of using the hole saw, with a few quick passes of a deburring tool (included in the CT 1010 Installation Kit).

Note: Only use edge deburring tools. Straight files or hand files should never be used as they will distort the shape of the hole.



5. Use a clean lint free cloth or the provided alcohol wipes to remove any chips and debris as a result of drilling the hole.

Note: Ensure that horizontal alignment lines are not removed.

6. Prepare the surface of the asset (the entire region of the mounting corrugation between locking bars) in the following sequence:
 - a. Use the provided scour pad to remove debris from the surface.
 - b. Clean the surface with an alcohol cleaner and clean lint free cloth or the provided wipes. Allow the cleaned surface to dry completely before proceeding to the next step.



Note: For factory installation, the sensor pod and rivet holes can be punched and painted in advance, when the door is manufactured.

1.8 Tape the Device to the Asset

1. Remove the tape liners from the back of the CT 1010 (two locations)¹.

CAUTION: DO NOT touch the tape.



2. Immediately place the device onto the asset, being careful to insert the sensor pod into the previously drilled hole and leveling the device using the horizontal alignment lines from a previous step.

CAUTION: Ensure the CT 1010 solar panel is facing up (towards the sky).

Note: For factory installs with pre-drilled rivet holes, rivets must be used to align the device to the pre-drilled holes when placing the device onto the asset.



3. Press firmly on both mounting flanges of the CT 1010 (7 kg (15 lbs) for 15 seconds) to bond the tape to the asset.

¹The color of the hole seal may not be exactly as shown in the figures.

1.9 Install the Rivets

CAUTION: DO NOT drill holes in placarded containers that are loaded.

1. Use the CT 1010 as a guide, and drill through the two (2) mounting holes with the provided 5 mm (0.196") drill bit.



2. Assemble the two (2) provided rivets through the drilled holes and install them using a rivet gun.

Note: Installing the rivets seals the drilled holes, so no additional sealant is required.



APPENDIX A INSTALL THE HOLE SEAL (FOR RETROFIT INSTALLATIONS ONLY)

1. Clean the container door around the sensor pod with an alcohol cleaner and lint free cloth or the provided wipes.
2. Wait for the cleaned surface to dry completely.
3. Peel the tape liner away from the back of the hole seal.



4. Place the hole seal over the sensor pod and press it firmly into place. Note the orientation of the hole seal. The clear parts of the sensor pod are visible when the hole seal is oriented correctly.



5. Apply finger pressure around the outside diameter of the hole seal to bond it to the container.

CAUTION: DO NOT touch the black sensor pod with your fingers.

APPENDIX B INCLEMENT WEATHER GUIDELINES

The primary means of securing the device to an asset is to use rivets. The pre-assembled double-sided tape supports the installation. For good tape adhesion, the tape must be kept warm, and the asset surface must be clean and dry.

The device is secured to the asset with double-sided tape. For good tape adhesion, the tape must be kept warm, and the asset surface must be clean and dry.

Mandatory Guidelines for Installation in Wet Weather

The installation surface on the asset must be completely clean and dry for the tape to bond. If it is raining or snowing hard enough that the surface cannot be kept dry, **DO NOT** proceed with the installation.

Mandatory Guidelines for Installation in Cold Weather

CAUTION: If tape primer is included with the device, it MUST BE USED in every installation condition.

Below 15°C (60°F) the double-sided tape starts becoming firm, which can make it more difficult to bond to the asset. Tape primer* significantly improves the bond strength of the tape.

*If tape primer is not provided with the device, you can order the cold temperature installation kit (ORBCOMM p/n ST101505, suitable for up to 25 installs).

Example of Tape Primer



If the guidelines below are followed correctly, the device can be installed at temperatures down to -20°C (-5°F).

CAUTION: Tape primer MUST ALWAYS BE USED in this installation condition.

- At or below freezing temperatures (0°C or 32°F), both the device and the tape primer, must be kept at room temperature, for example, inside an idling vehicle or a warm building.
- Keep the primer warm (room temperature) until ready to apply. The primer will not dry quickly at cold temperatures however, in this situation the tape should be applied when the primer is still wet, as it improves initial bond.
- Keep the device warm (room temperature) until it is time to mount it to the asset.
- **Press firmly on the entire top surface of the device (7 kg (15 lb) for 15 seconds)** to bond the tape to the asset.

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Failing to follow these guidelines will compromise the installation.

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APPENDIX C MECHANICAL DIMENSIONS

The device's mechanical dimensions are shown below.

