



CoreTag User and Installation Manual

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PRELIMINARY PRODUCT INFORMATION

Applicable versions	
Hardware version:	0.6
Firmware version:	1.1.1

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2 Important Safety Information

In order to ensure the safe operation of the device and its users, please read and act in accordance with the following safety instructions.

1. Keep the device and batteries away from children (0-10 years) and pets. Risk of suffocation.
2. This product is not a toy or edible.
3. Contains a lithium battery which can cause serious injury or death. Swallowing may lead to serious injury or death in as little as 2 hours, due to chemical burns and possible perforation of the esophagus.
 - If swallowed seek immediate help and contact immediately to local emergency center for more instructions.
4. Don't use the tag if the enclosure cannot be closed properly
5. Do not expose the tag to extreme hot or cold temperatures or fire. Observe battery manufacturer instructions.
6. Don't leave the device immersed in water.
7. Risk of fire or burns.
8. Recycle the used cell/button batteries promptly and safely. Tape button cell contacts before taking them to recycle center.

3 Introduction

CoreTag is compatible with the CoreRTLS system. Other parts of the CoreRTLS are CoreLocators and RTLS Core software. The CoreRTLS allows you to locate and track any objects equipped with CoreTags in an environment equipped with CoreLocators. The CoreTags CHW-TAG4001 and CHW-TAG4002 are designed for use in indoor environments and CoreTag CHW-TAG4000 is designed for indoor and outdoor environments.

Read this User Manual carefully before having the CoreTag professionally installed. For the latest guides, additional information, and downloads related to your CoreRTLS product, contact CoreHW support.

NOTE: This document contains information about the pre-production version of the CoreTag. As such the information is subject to change without notice.

Contact CoreHW support for obtaining an updated version of the document.

4 CoreTag Description

There are three different versions of the CoreTag, which only differ in the enclosure.

- CHW-TAG4000 – For tracking assets. With attachment holes. UV protected.
- CHW-TAG4001 – For tracking people. For wearing with wrist wrap.
- CHW-TAG4002 – For tracking people. For wearing on a lanyard.

4.1 CHW-TAG4000 Asset Tag Parts

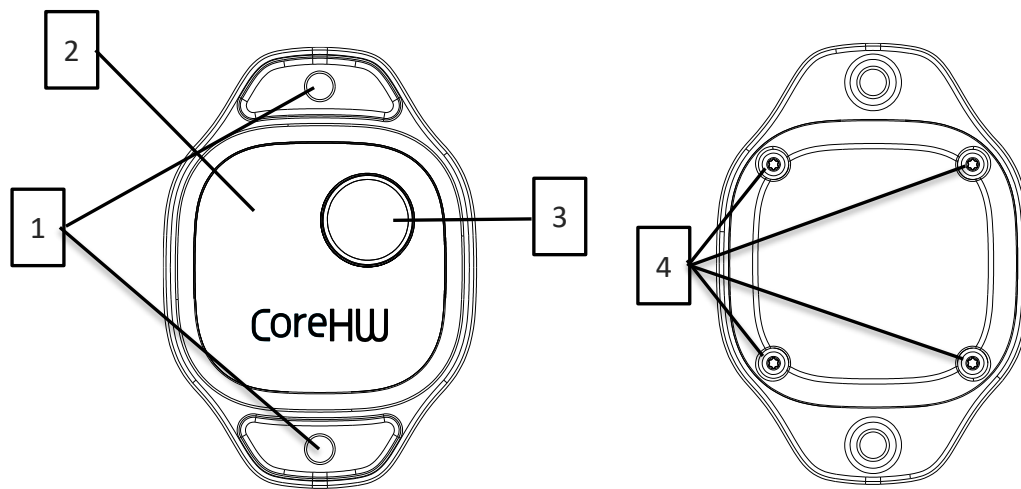


Figure 1. Asset tag parts

1. Mounting holes
2. Indicator LED
3. Button
4. Back cover assembly screws

4.2 CHW-TAG4001 Wrist Tag Parts

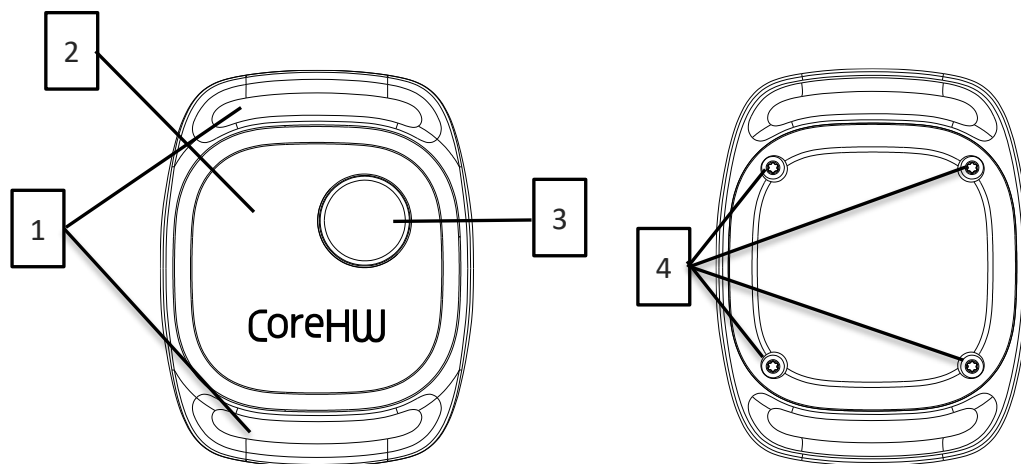


Figure 2. Wrist tag parts.

1. Loops for wrist wrap
2. Indicator LED
3. Button
4. Back cover assembly screws

4.3 CHW-TAG4002 Lanyard Tag Parts

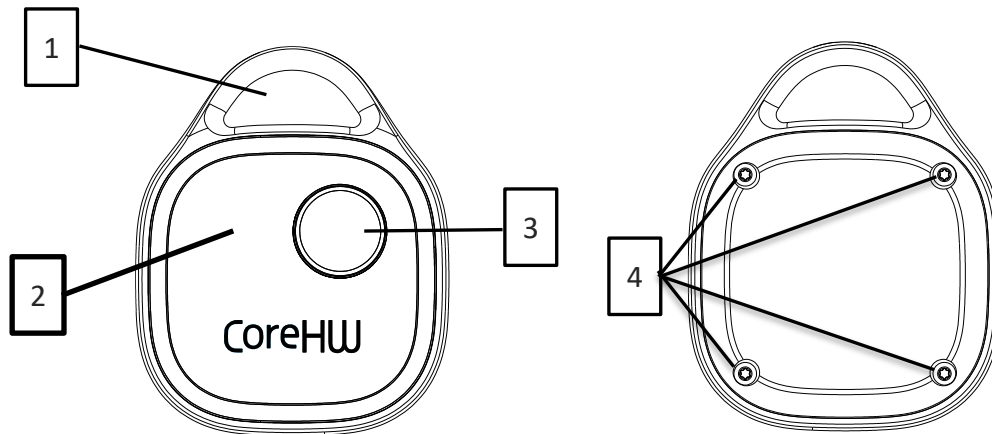


Figure 3. Lanyard tag parts.

1. Loop for lanyard
2. Indicator LED
3. Button
4. Back cover assembly screws

4.4 CoreTag Indicator LED

The CoreTag has one dual-color (red/green) indicator LED. To save power it is normally turned off. It is possible to configure the indicator to show various tag operating conditions such as normal operation or low battery state. It is also possible to set the indicator to on or blink from the server. The indicator configuration can be set from the RTLS core software.

5 CoreTag Installation Instructions

This chapter describes the CoreTag installation procedures.

5.1 Installing the Battery

The CoreTag is shipped without a battery. A battery must be installed to use the tag. The CoreTag uses a user-replaceable CR2450 3V lithium coin cell battery. Always use a high-quality battery for best performance and operational life.

The battery specification:

Item	Specification
Type	CR2450 Lithium Coin cell
Voltage	3 V

NOTE: Always use wide temperature range batteries if the tag needs to operate in low or high temperatures.

The procedure to insert (or replace) the battery is:

1. Open tag enclosure by removing the four screws sealing the back cover.
2. Lift the back cover carefully while keeping the rest of the tag parts together
3. Insert the battery into the battery compartment observing the right polarity
4. Carefully close the back cover observing the correct orientation place (it is not symmetric, battery is closer to top edge)
5. Install and tighten the four screws to a correct torque to properly seal the tag but not breaking the enclosure or the screws.
6. Verify that the tag is operating by either observing the LED indicator blinking (if configured to do so), or by seeing that the tag signal is received by the RTLS core (always).

NOTE: The back cover screws are tiny. Use caution to tighten them. It is important to tighten the screws enough to seal the enclosure but not too tight to break the screws or the enclosure

The specifications for the screws are:

Item	Specification
Head	Torx T5
Torque	0.1 – 0.15 Nm

See the pictures below for illustration of the tag with back cover opened, and correctly closed.



Figure 4. Opened tag with battery in place.



Figure 5. Tag with back cover closed. LED indicates power-on (if configured to do so).

5.2 Physical Installation

5.2.1 Mounting the CHW-TAG4000

The CoreTag CHW-TAG4000 is designed to be attached to an asset to be tracked. There are two mounting holes (3mm diameter) for screw attachment. The tag midframe is made of elastic plastic to reduce vibrations, and there are bushings made of hard plastic inside the mounting holes to make the attachment more secure.

NOTE: Be careful not to overtighten the mounting screws. This can break the bushings. Please ensure that the screw heads fit in the flat areas and do not deform the elastic midframe.

To ensure the best performance, the top side of the asset tag should point away from any obstructions which may attenuate the signal towards the CoreLocators.

5.2.2 Mounting the CHW-TAG4001

The CoreTag CHW-TAG4001 is designed to be worn on the wrist using a wrist strap. The tag is designed for 26 mm (1in) wide strap (not included).

NOTE: For optimal location performance, wear the CHW4001 CoreTag on the wrist with the button facing upward.

5.2.3 Mounting the CHW-TAG4002

The CoreTag CHW-TAG4002 is designed to be worn on the neck using a lanyard. The tag is designed to work with most commercial lanyards, for example for ID cards (lanyard not included).

NOTE: Observe local safety instructions related to neck worn lanyards to avoid personal injury.

6 CoreTag Operating Instructions

6.1 CoreTag Button Operation

The tag button press sends a signal to the RTLS core. See RTLS core instructions for configuring and using the button press information.

6.2 CoreTag Configuration

The tag is fully configurable over the air from the RTLS core. See RTLS core instructions for instructions.

7 CoreTag Specification

These preliminary specifications are subject to change until the device is released to mass production.

Item	Description
Bluetooth specifications	
Bluetooth standards	Bluetooth LE 5.1
Carrier frequencies	2.402 – 2.480 GHz
Maximum RF power	+10 dBm
Modulation	GFSK
Electrical specifications	
Power Supply	CR2450 Coin Cell (3V)
Battery lifetime	Up to 3 years ¹
Physical specifications	
Dimensions	42x59x15.5mm (CHW-TAG4000) 42x52x15.5mm (CHW-TAG4001/CHW-TAG4002)
Weight	<30g
Mounting	2 Mounting holes (CHW-TAG4000) Wrist strap (CHW-TAG4001) Lanyard (CHW-TAG4002)
Environmental specifications	
IP protection class	IP 67
Operating temperature	-30 to +85°C ²
Storage temperature	-40 to 85°C

¹ Depending on system configuration and environment

² Depending on used battery

Item	Description
Physical interfaces	
LED	1 x dual color
Button	Configurable function
Certifications	
Regulatory	Pending: CE, FCC, IC, Japan
Industry	Pending: Bluetooth SIG

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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. 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.

The device has been evaluated to meet general RF exposure requirement.

The device can be used in portable exposure condition without restriction.

IC WARNING:

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

ADVERTENCIA IC

Cet appareil contient des émetteurs / récepteurs exemptés de licence conformes aux RSS (RSS) d'Innovation,

Sciences et Développement économique Canada. Le fonctionnement est soumis aux deux conditions suivantes :

(1) Cet appareil ne doit pas causer d'interférences.

(2) Cet appareil doit accepter toutes les interférences, y compris celles susceptibles de provoquer un fonctionnement indésirable de l'appareil.

Le matériel a été évalué pour répondre aux exigences générales d'exposition aux radiofréquences.

Le dispositif peut être utilisé dans des conditions d'exposition portables illimitées.