WS300 Series
Wireless Triaxial Accelerometer
Operational Guide

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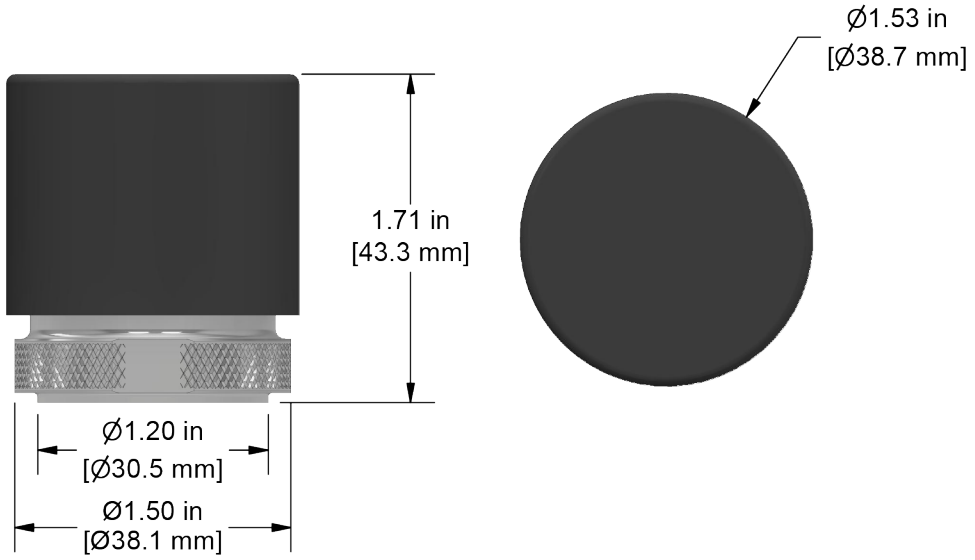
Introduction

This document contains information on the installation, operation, and maintenance of the WS300 Series of wireless triaxial sensors.

WS300 Series Product Overview
CTC Connect WS300 Series Wireless Sensors capture and transmit three axes of dynamic vibration signals over a **Bluetooth®** Low Energy 5.2 connection, as well as temperature measurements. Within a clear line of sight, they can transmit data as far as 1200 ft/365 m.

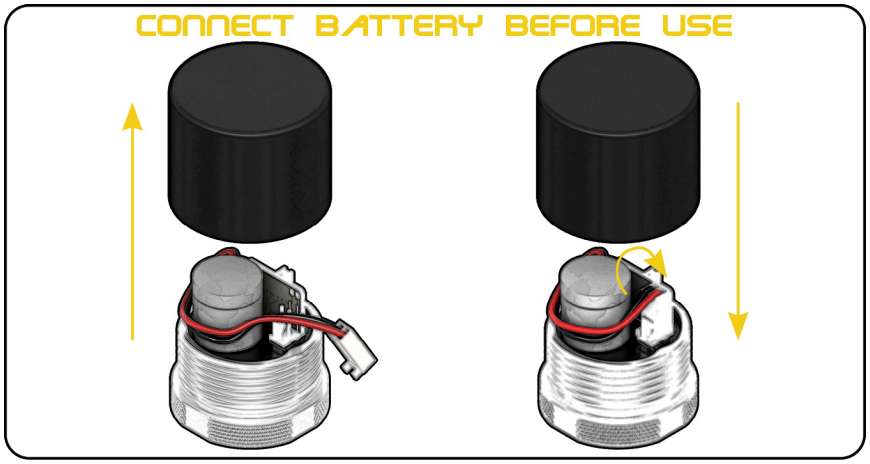
Data can be accessed via CTC ConnectView Web App running on a CTC Gateway, or through custom software integration with the CTC Connect API and CTC Gateway.

WS300 Series sensors are designed for permanent mounting on the machine surface. To prepare the machine surface for installation, spot face, drill, and tap the mounting location. CTC suggests using MH117 Series Installation Tool Kits. To view in depth mounting instructions, please view our Mounting Guide.



Battery Installation

To avoid premature battery usage, CTC Wireless sensors ship with the battery disconnected. To install, remove the cap and connect the battery's connector to the receptacle on the back of the exposed circuit board. Tighten down the sensor cap and your sensor will now begin sending out Bluetooth® advertisements for discovery. CTC Gateways and the preloaded Web App will automatically be scanning for these advertisements when running, making all detected sensors visible and autonomously establishing connections to newly discovered sensors.



Operation

WS300 Sensors have five configurable options – MEMS dynamic range, sampling frequency, reading length, automatic reading interval, and output samples coupling. The sensor will arrive pre-programmed with the following settings: ±32g dynamic range, 12800Hz sampling rate, 6400 samples per reading (per axis), a 12-hour automatic reading interval, and AC output coupling. If any of these parameters need to be changed, it is possible to do so from the sensor page on the CTC ConnectView web app.

Readings will occur following the reading rate schedule programmed on the sensor. By default this is a 12 hour interval, but may be changed using the app. Reading data is obtained from the sensor via a direct, active Bluetooth® connection between the sensor and gateway.

The ACCESS360 Gateway and ConnectView web app automatically handles this acquisition of reading data. When viewing the data with the CTC app, the raw reading data samples will be displayed in a time waveform plot. An FFT will also be performed and displayed on a separate plot, and overall vibration amplitude measurements will be performed and displayed. Further processing operations, such as integration to velocity, can also be selected to be performed.

Automatic readings can also be disabled in the ConnectView app. In this case, readings must be manually triggered while connected to the sensor. Note that whatever reading interval is configured, whether none or some other pre-defined interval, a manual reading can always be taken through the app during an active connection. When using an ACCESS360 Gateway and the CTC ConnectView web app, this can easily be achieved on the sensor page. If the gateway and the sensor in question do not have an active connection, it will automatically establish one for the acquisition.

FCC Compliance Statement

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.

CAUTION: The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications 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.

RF exposure statement

This equipment complies with the FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and any part of your body.

Canadian Compliance Statement

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada license-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 radio électrique subi, même si le brouillage est susceptible d'encompromettre le fonctionnement.

RF exposure statement
This equipment meets the exemption from the routine evaluation limits in section 2.5 of RSS-102. It should be installed and operated with a minimum distance of 20 cm between the radiator and any part of your body.

Cet équipement est conforme à l'exemption des limites d'évaluation habituelle de la section 2.5 de la norme RSS-102. Il doit être installé et utilisé à une distance minimale de 20 cm entre le radiateur et toute partie de votre corps.