CTC PRO

WA102 Series

PRODUCT MANUAL

PROTECTION & RELIABILITY INSTRUMENTS

FCC Notice
Contains FCC ID: SQGBL654

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 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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.

Industry Canada (IC) Notice
IC: 3147A-BL654

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; and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil contient des émetteurs / récepteurs exempts de licence qui sont conformes au (x) RSS (s) exemptés de licence d'Innovation, Sciences et Développement économique Canada. L'opération est soumise aux deux conditions suivantes:

- (1) Cet appareil ne doit pas causer d'interférences
- (2) Cet appareil doit accepter toute interférence, y compris les interférences pouvant provoquer un fonctionnement indésirable de l'appareil.

This radio transmitter has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Radiation Exposure Statement:
This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment. The module meets the SAR exclusion limit when installed and operated with a minimum distance of 12mm between the radiator & your body. The USB Dongle was evaluated for SAR with a measured value of 0.05W/kg and as a result was found to be compliant at the 5 mm separation distance for 1 g SAR (W/kg).

Déclaration d'exposition aux radiations:
Cet équipement est conforme aux limites d'exposition aux rayonnements définies par le Canada pour un environnement non contrôlé. Le module respecte la limite d'exclusion SAR lorsqu'il est installé et utilisé avec une distance minimale de 12 mm entre le radiateur et votre corps. La clé USB a été évaluée pour le DAS avec une valeur mesurée de 0,05 W / kg et a donc été jugée conforme à la Distance de séparation de 5 mm pour 1 g de SAR (W / kg).

CE

Declaration of Conformities

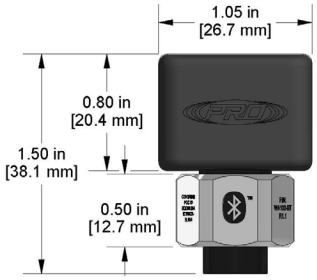
We, Connection Technology Center, declare under our sole responsibility that the essential radio test suites have been carried out and that the above product to which this declaration relates is in conformity with all the applicable essential requirements of Article 3 of the EU Radio Equipment Directive 2014/53/EU, when used for its intended purpose. The minimum distance between the user and/or any bystander and the radiating structure of the transmitter is 20 cm.

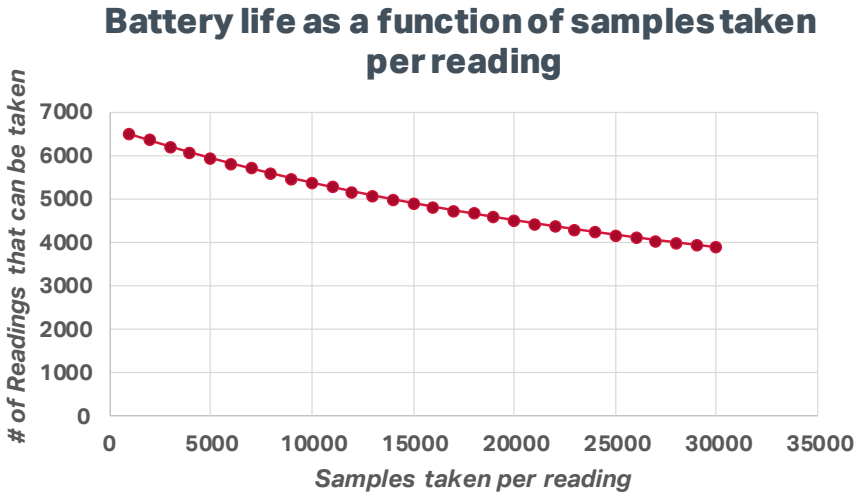
Overview

WA102 is a Bluetooth® Low Energy V5 transmitter and dynamic signal recorder for low power accelerometers. Compatible with CTC's AC312 and AC314 low power consumption, 3 pin connector accelerometers, or other sensors that match power and bias specification. Data collection can be configured, scheduled, triggered, and received through either a CTC embedded access point, or any BLE capable computer, laptop or gateway running the CTC Wireless Application software package*.

Specifications

- Power: Integrated lithium battery
- Battery Life
  - The battery life is correlated to the number of readings in a given period. For example, the WA102 will provide an estimated 4+ years of battery life when taking 2 or fewer scheduled measurements daily. Please see the below chart and graph for more information.





Readings Per Day	Samples Per Reading	Battery Reading Capacity	Battery Life (Days)	Battery Life (Years)
1	5000	5952	5952	16.3
1	10000	5382	5382	14.7
1	15000	4912	4912	13.5
1	20000	4518	4518	12.4
1	25000	4182	4182	11.5
1	30000	3892	3892	10.7

Note: Battery life calculations are estimates based on CTC's internal testing. Actual battery life may vary upon application.

*See CTC Wireless Application manual for details.

Readings Per Day	Samples Per Reading	Battery Reading Capacity	Battery Life (Days)	Battery Life (Years)
3	5000	5952	1984	5.4
3	10000	5382	1794	4.9
3	15000	4912	1367	4.5
3	20000	4518	1506	4.1
3	25000	4182	1394	3.8
3	30000	3892	1297	3.6

Note: Battery life calculations are estimates based on CTC's internal testing. Actual battery life may vary upon application.

- Sensor Supply Voltage: 3.3V
- Sensor Bias: 1.5V
- Dynamic Range: ±1.5V
- Sampling Rate: Software configurable up to 40,000kS/sec.
- Filter: HW 3rd Order Low Pass Filter, Digital Noise Reduction
- Wireless Communication: BLE 5.0
  - Backwards compatible with earlier versions of Bluetooth®
- Housing Material: Polyamide
- Connector: ⅝ in.-24, 3 Pin MIL Equivalent, 3162 stainless steel

Installation

The WA102 must be located in a position where it can be reliably communicating with an access point. Best range, up to 150 ft (45.75 m), is achieved by clear line of sight from WA102 to the access point. Barriers, such as walls or machine enclosures, will reduce the effective communication range.

WA102 should be mounted either directly to the accelerometer (figure 1), or with a cable extension of less than 100 ft to avoid communication barriers to the access point.

CTC recommends using CB905-1A bulk head adapter and CB112-A3A-xxx-A3A cable to relocate WA102 outside of any area that creates signal interference (figure 2).

Multiple access points may be installed to improve coverage.

See CTC Wireless Application manual for details.

Accelerometers should always be properly mounted for asset monitoring. Use extension cable or adjust access point(s) as needed.

See CTC Accelerometer Installation Manual

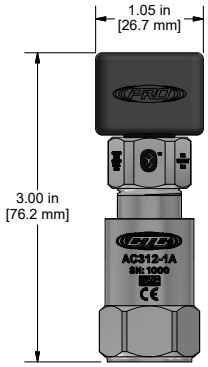
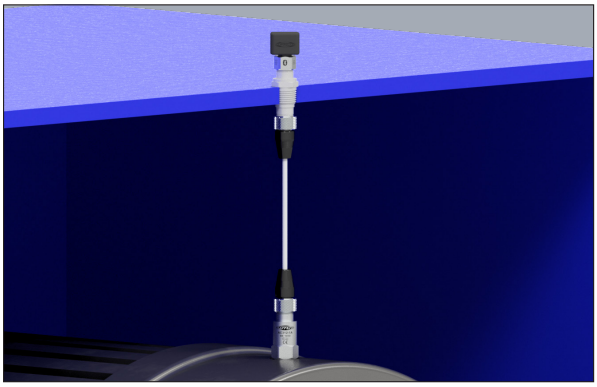


Figure 1: The transmitter is mounted directly on the accelerometer.



WA102 Wireless Transmitter

CB905-1A Bulk Head Adapter

CB112-A3A-XXX-A3A Cable Assembly
(XXX is length in ft)

AC312-1A Accelerometer

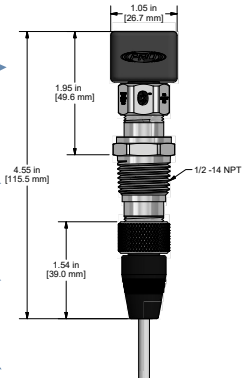


Figure 2: The accelerometer is fitted with an extension cable to remove communication barriers for the transmitter.