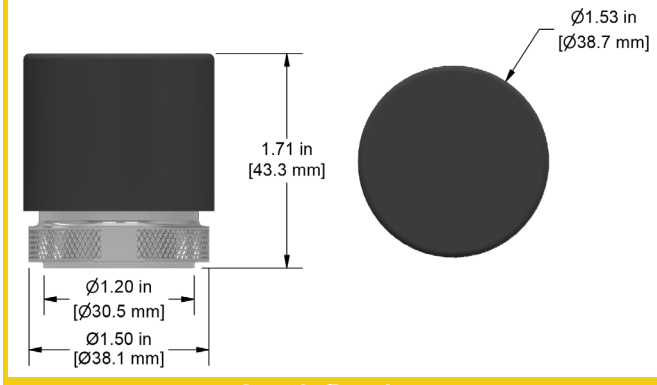
WS300 Series

ConnectSens™ Wireless Triaxial Dynamic Vibration Signal Capture Sensor with Temperature Output

Product Features

- **Ability to schedule readings and request on demand**
- **Up to four years of autonomous operation**
- **User Replaceable battery**



Stock Product

Component Specifications

Specifications below reflect sensor use in conjunction with a CTC Connect Wireless Gateway. If a Connect Wireless Gateway is not used, specifications may vary. CTC does not provide technical support for direct integration of the sensor without a Connect Wireless Gateway.

Sampling Frequency	Configurable sampling frequency
Frequency Response (Y, Z Axes: +9.5/-6dB)	0.5 Hz to 10 kHz (30 CPM to 600000 CPM)
Frequency Response (X Axis: +9.5/-3dB)	0.5 Hz to 7 kHz (30 CPM to 420000 CPM)
Frequency Respone (±10%)	0.5 Hz to 1 kHz (30 to 60000 CPM)
Resonant Frequency (Y, Z Axes; +9.5dB)	5.5 kHz (330000 CPM)
Resonant Frequency (X Axis; +9.5dB)	3.5 kHz (210000 CPM)
FFT	Calculated in software only
Automatic Reading Interval	Configurable in hours from 0-24*
Dynamic Range	Configurable: ±8 g, ±16 g, ±32 g, ±64 g
Data Output Format	Dynamic vibration samples
Sample Resolution	16 bits
Temperature Measurement Range	-40 °C to 80 °C
Temperature Output Measurement Unit	°C
Transmission Range	Range is dependent on Gateway used. See Gateway datasheet.
Power Source	Field replaceable 3.6V 1 Ah lithium battery pack (.35 gram lithium)

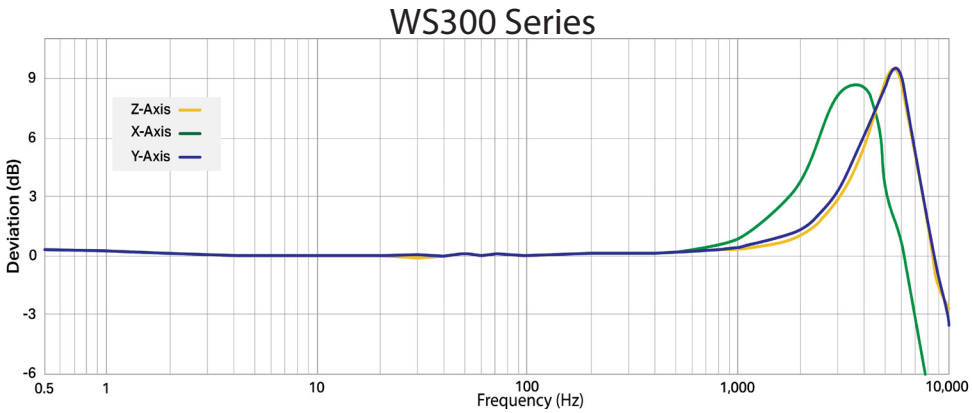
Expected Battery Life	4 years based on 2 readings taken per day at 20 °C
Operating Temperature Range	-40 °F to 176 °F (-40 °C to 80 °C)
Maximum Shock Protection (Powered)	5,000 g, peak for 0.5 ms
Maximum Shock Protection (Unpowered)	10,000 g, peak for 0.2 ms
Sealing	Compressed Silicone O-ring
Ingress Protection	IP67
Operating Range	Line of sight (1,200 ft/365 m)
Wireless Protocol	**Bluetooth®** Low Energy 5.2
Sensing Structure	MEMS - triaxial
Weight	4.6 oz (130 grams)
Case Material	Stainless steel base with nylon cap
Mounting Thread	1/4-28 blind tapped hole
Mounting Torque	Base: 2 - 5 ft/lbs Cap: 4 - 5 ft/lbs
Mounting Hardware Supplied	1/4-28, M6x1, M8x1.25 stud
EMC Compliance	FCC ID: 2BKLG-WSCONNECT ISED: 21201-WSCONNECT CE
Calibration Certificate	CW10
SIL Rating	SIL 2

*For a value of 0, no automatic readings will occur. Readings must be triggered manually.

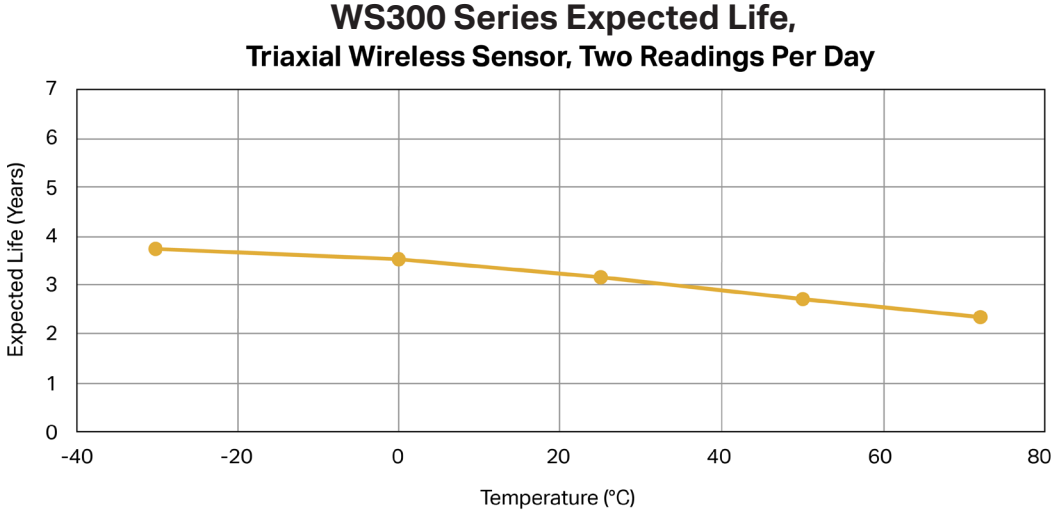
WS300 Series

ConnectSens™ Wireless Triaxial Dynamic Vibration Signal Capture Sensor with Temperature Output

Example Frequency Response at 25,600 Hz Sampling Rate



Battery Information



WS300 Series

ConnectSens™ Wireless Triaxial Dynamic Vibration Signal Capture Sensor with Temperature Output

Configuration Information

□□ /WS 3 0 1 - 3 6 3 - 1 2

Stud Type	Output Samples Coupling	Dynamic Range	Sampling Frequency*	Number of Samples*	Auto Read Rate**
Blank = ¼-28 **M** = M6x1 **M8** = M8x1.25	**301** = AC Coupling **302** = DC Coupling	**1** = ±8 g **2** = ±16 g **3** = ±32 g **4** = ±64 g	**1** = 400 Hz **2** = 800 Hz **3** = 1,600 Hz **4** = 3,200 Hz **5** = 6,400 Hz **6** = 12,800 Hz **7** = 25,600 Hz	**1** = 1,600 Samples **2** = 3,200 Samples **3** = 6,400 Samples **4** = 12,800 Samples† **5** = 25,600 Samples†	**00** = Gateway Triggered Acquisition (manual reading or user configured intervals under 1 hour) **01** = 1 Hour **02** = 2 Hours **03** = 3 Hours **04** = 4 Hours **05** = 5 Hours **06** = 6 Hours **07** = 7 Hours **08** = 8 Hours **09** = 9 Hours **10** = 10 Hours **11** = 11 Hours **12** = 12 Hours **13** = 13 Hours **14** = 14 Hours **15** = 15 Hours **16** = 16 Hours **17** = 17 Hours **18** = 18 Hours **19** = 19 Hours **20** = 20 Hours **21** = 21 Hours **22** = 22 Hours **23** = 23 Hours

* Not all pairings are available. See below chart valid configurations.
† Requires a Read Rate of 10 minutes or greater.
** Achievable battery life depends on environmental conditions, configuration options, and sensor use. CTC recommends replacing the battery every 4 years, regardless of remaining battery life reported by software, due to effects of battery degradation over time. If operating above 50 ºC, replace the battery in half that time.

WS300 sensors provide raw dynamic vibration samples only. Sensors do not calculate/provide an FFT or other frequency analysis data, this must be calculated separately in software. CTC Connect Wireless Gateways automatically perform these calculations and make an FFT of the sensor data available, see the wireless gateway datasheet for more information

Sampling Frequency	Number of Samples	Reading Duration (s)	Read Rate Options
400 Hz (24000 CPM)	1600	4	1 minute to 24 hours
	3200	8	
800 Hz (48000 CPM)	1600	2	1 minute to 24 hours
	3200	4	
	6400	8	
1600 Hz (96000 CPM)	1600	1	1 minute to 24 hours
	3200	2	
	6400	4	
	12800	8	10 minutes to 24 hours
3200 Hz (192000 CPM)	1600	0.5	1 minute to 24 hours
	3200	1	
	6400	2	
	12800	4	10 minutes to 24 hours
	25600	8	
6400 Hz (384000 CPM)	1600	0.25	1 minute to 24 hours
	3200	0.5	
	6400	1	
	12800	2	10 minutes to 24 hours
	25600	4	
12800 Hz (768000 CPM)	3200	0.25	1 minute to 24 hours
	6400	0.5	
	12800	1	10 minutes to 24 hours
	25600	2	
25600 Hz (1536000 CPM)	6400	0.25	1 minute to 24 hours
	12800	0.5	10 minutes to 24 hours
	25600	1	

WS300 Series

ConnectSens™ Wireless Triaxial Dynamic Vibration Signal Capture Sensor with Temperature Output

Connectivity

Connectivity

CTC WS300 sensors broadcast readings over **Bluetooth®** Low Energy 5.2, which can be picked up by CTC Connect Wireless Gateways. Complete your data collection route from your desk when utilizing a WS300 with a gateway. Maximum sensor range and maximum active sensor connections are dependent on gateway used. Please see gateway datasheets for details.

ConnectView™ Web App

CTC offers an easy to use web app that is included with the purchase of any Connect Wireless Gateway.

Key features include:

- The ability to configure dynamic ConnectSens™ Sensors
- Nickname sensors and assign sensors to machine groups
- Easily view and export data:
  - Dynamic sensor signal plot and FFT
- Set early warning and critical alert levels
- View battery life
- Web interface runs off of your local network - you own your data and control your security. This means no recurring data fees when utilizing your local network.

Our API also allows OEM customers to utilize their own software to communicate with CTC ConnectSens™ Wireless Sensors via a CTC Connect Wireless Gateway.

ConnectSens™ Wireless Sensor

ACCESS2000 Long-Range Wireless Gateway with Wi-Fi or Ethernet

ConnectView™ Web App or Your Own OEM Software