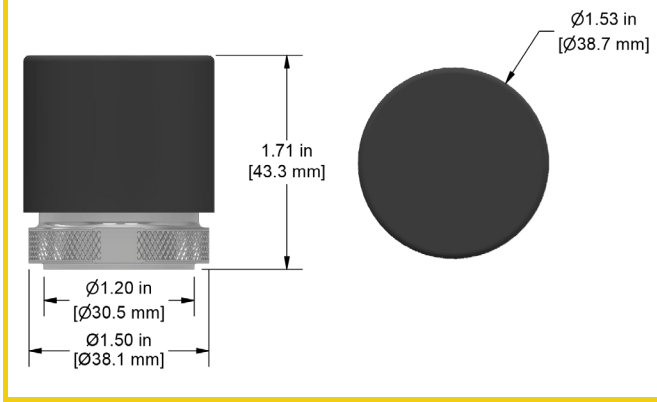
WS200 Series

ConnectSens™ Wireless Single Axis Dynamic Vibration Signal Capture Sensor with Temperature Output

Product Features

- **1200 ft (365 m) line of sight range**
- **Up to four years of autonomous operation**
- **User Replaceable battery**



Stock Product

Component Specifications

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

Sampling Frequency	Configurable sampling frequency
Frequency Response (+9.5/-6dB)	0.5 Hz to 10 kHz (30 CPM to 600000 CPM)
Frequency Respone (±10%)	0.5 Hz to 1 kHz (30 CPM to 60000 CPM)
Resonant Frequency (+9.5dB)	5.5 kHz (330000 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
Power Source	Field replaceable 3.6V 1 Ah lithium battery pack (.35 gram lithium)
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)	5000 g, peak for 0.5 ms
Maximum Shock Protection (Unpowered)	10000 g, peak for 0.2 ms
Sealing	Compressed Silicone O-ring
Ingress Protection	IP67
Operating Range	Line of sight (1200 ft/365 m)
Wireless Protocol	**Bluetooth®** Low Energy 5.2
Sensing Structure	MEMS
Weight	4.6 oz (130 grams)
Case Material	316L SS 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, or 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.

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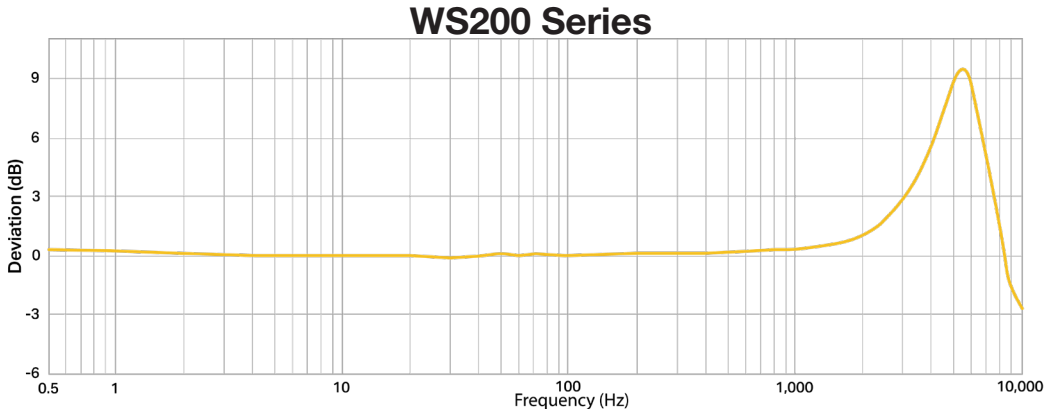
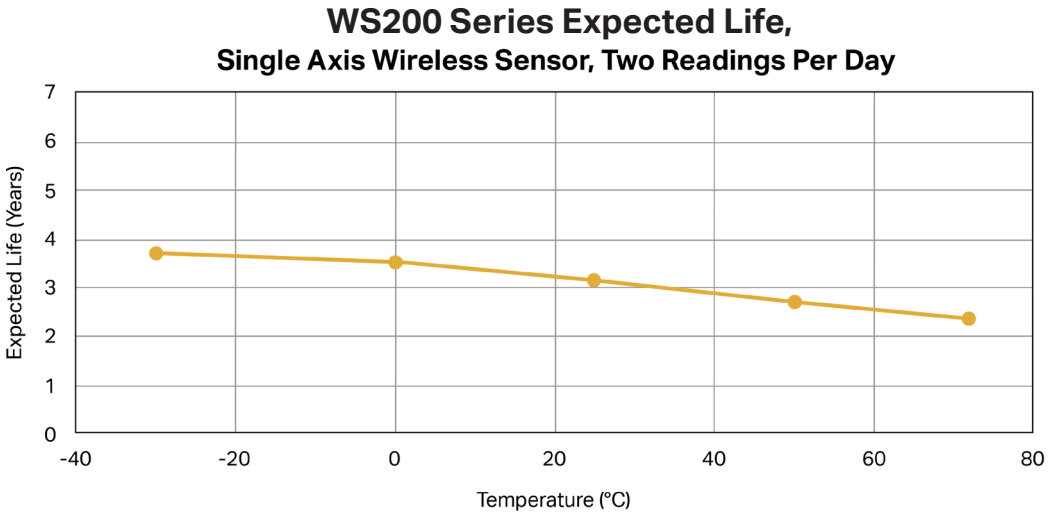
Example Frequency Response at 25,600 Hz Sampling Rate



Battery Information



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Configuration Information

[ ][ ]/WS[2][0][1] - [3] [6] [4] - [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	**201** = AC Coupling **202** = 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† **6** = 51,200 Samples† **7** = 64,000 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 **24** = 24 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 °C, replace the battery in half that time.

WS200 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. Access360 Gateway devices automatically perform these calculations and make an FFT of the sensor data available, see the Access360 datasheet for more information.

Sampling Frequency	Number of Samples	Total Reading Duration (s)
400 Hz (24000 CPM)	1600	4
	3200	8
800 Hz (48000 CPM)	1600	2
	3200	4
	6400	8
1600 Hz (96000 CPM)	1600	1
	3200	2
	6400	4
	12800	8
3200 Hz (192000 CPM)	1600	0.5
	3200	1
	6400	2
	12800	4
	25600	8
6400 Hz (384000 CPM)	1600	0.25
	3200	0.5
	6400	1
	12800	2
	25600	4
	51200	8
12800 Hz (768000 CPM)	3200	0.25
	6400	0.5
	12800	1
	25600	2
	51200	4
	64000	5
25600 Hz (1536000 CPM)	6400	0.25
	12800	0.5
	25600	1
	51200	2
	64000	2.5

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Connectivity

Connectivity

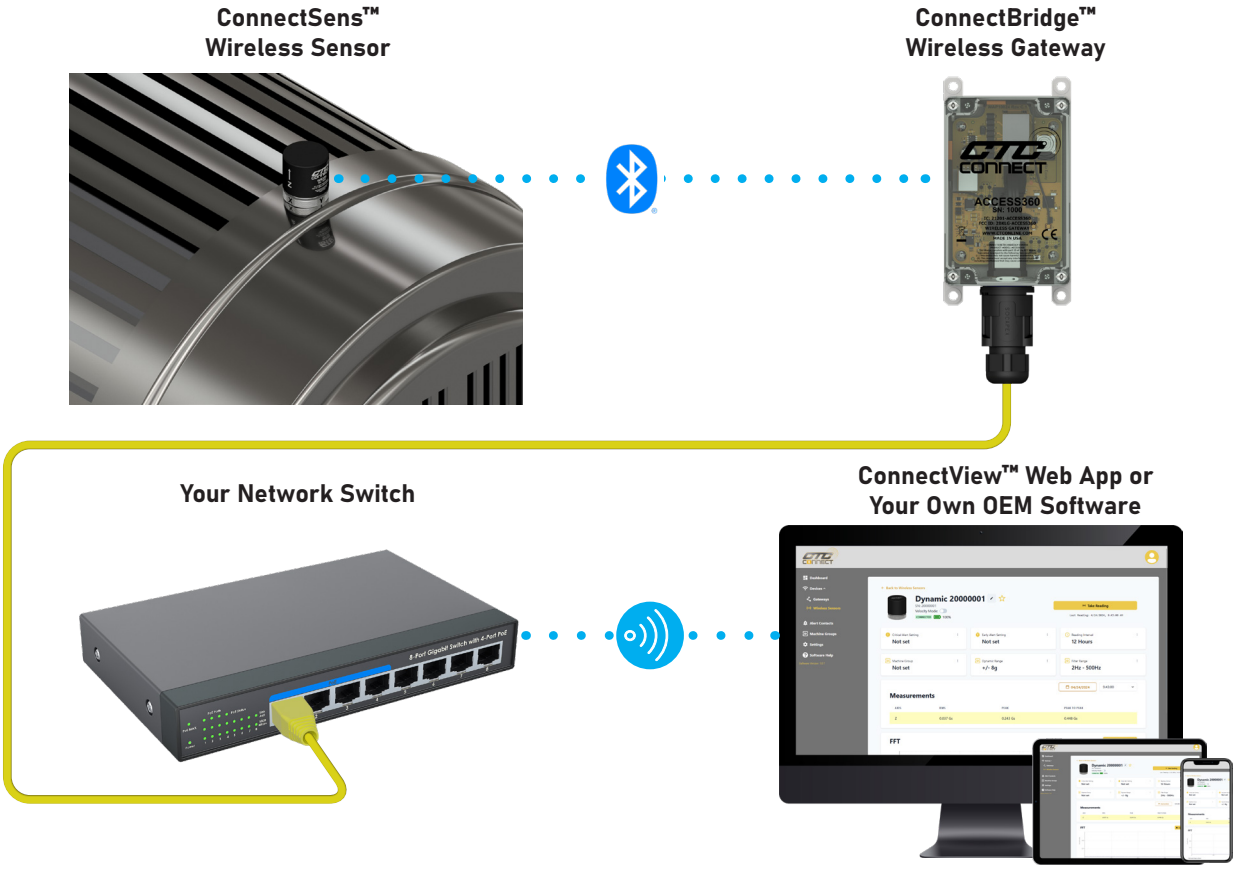
CTC WS200 sensors broadcast readings over **Bluetooth®** Low Energy 5.2, which can be picked up by CTC ACCESS360 wireless gateways. Complete your data collection route from your desk when utilizing a WS200 with a gateway. Each gateway can be used with an unlimited number of CTC wireless sensors within range, and allow for 20 simultaneous connections. ACCESS360 gateways connect to your plant's network via an ethernet connection to request a reading on demand.

ConnectView™ Web App

CTC offers an easy to use web app that is included with the purchase of any ACCESS360 gateway. Key features include:

- The ability to configure dynamic ConnectSens™ Sensors
- Nickname sensors & assign sensors to machine groups
- Easily view and export data:
  - Dynamic sensor signal plot & 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 ConnectBridge™ gateway.



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