

Connecting and Configuring the Vibration and Temperature Sensor



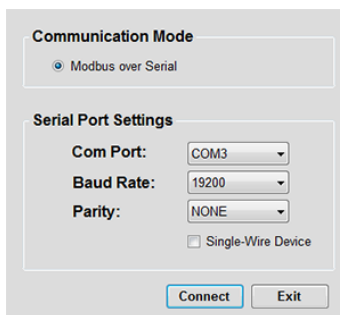
Technical Note

Connect the Vibration/Temperature Sensor to a PC

1. To connect the vibration/temperature sensor to a PC, plug the USB to RS-485 adapter cable into any PC with an active Internet connection. Windows automatically downloads the driver for the converter hardware. Use one of the following cables.

Models	Adapter	Length
BWA-HW-006	RS-485 to USB	1 meter
BWA-UCT-900	RS-485 to USB, with wall plug to power 1 Watt radios during configuration	

2. Plug the sensor directly into the adapter cable's M12/Euro-style connector to supply power and communication to the sensor.
3. On the computer, launch the Banner Sure Cross Sensor Configuration Tool software to configure and test the sensor.

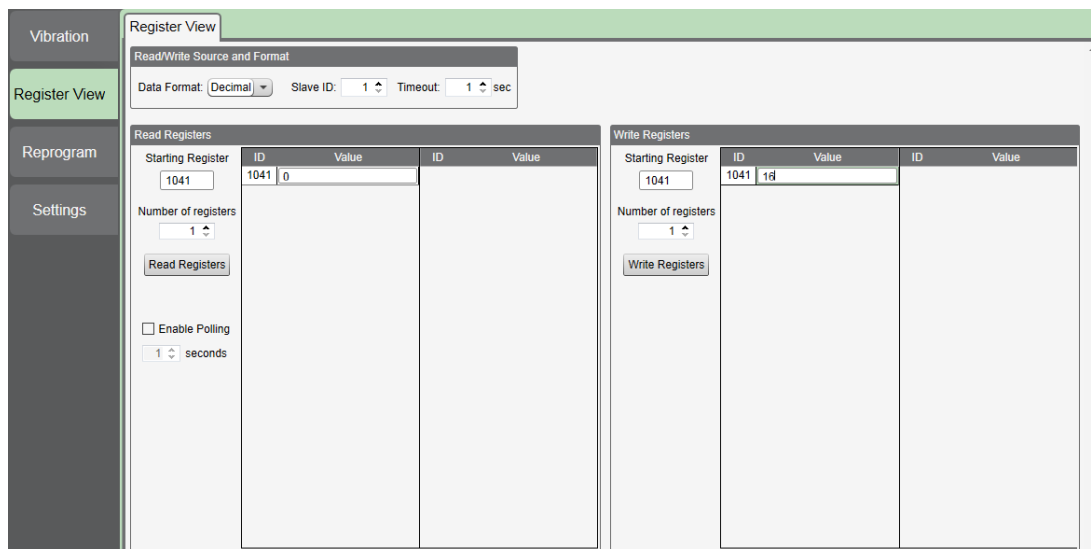


If the Device Type Select screen appears, select **Vibration** from the drop-down list and click OK.

Configure the Vibration and Temperature Sensor Sample Rate

The minimum effective sample rate for the VTx sensor's vibration data is 0.5 seconds. Set the sample rate/interval to 1 second for applications undergoing changing conditions within a relatively short time.

Input the vibration sample rate in increments of 1/16 (0.0625) seconds into Modbus register 1041. For example, to set the sample rate to 1 second, enter 16 into the register ($16 \times 0.0625 = 1$). Enter the temperature sample rate into Modbus register 1081.



Glossary of Vibration Terminology

Crest Acceleration

The crest acceleration is the maximum peak value divided by the RMS (average) value. Observe the acceleration waveform to determine the amount of contact taking place. Optimal values for good bearings usually range from 3 to 4.

Kurtosis

Kurtosis is the measure of the impulse (factor) acquired by the sensor.

Peak Acceleration

The peak acceleration is the highest acceleration measured within the most recent data set acquired by the sensor. Peak acceleration is specific to the respective axis measured and the value is requested by the sensor.

Peak Frequency

The peak frequency is the highest vibration frequency within the most recent data set acquired by the sensor. The maximum frequency measurable is 10 KHz.

Peak Velocity

The peak velocity is the highest pint-velocity recorded within the most recent data set acquired by the sensor. (This assumes a frame of reference of the sensor.)

RMS Acceleration

The RMS acceleration is the average acceleration over the most recent data sample. Typically, 10,000 data points are used in the function to derive each RMS acceleration data value.

RMS Velocity

The RMS velocity is the average velocity over the most recent data sample. Typically, 10,000 data points are used in the function to derive each RMS velocity data value.

Modbus Registers

Measured Value	Z-Axis Register	X-Axis Register	Units	Register Contents
RMS Velocity	2401	2451	inches/second	inches/second × 10000
Peak Velocity	2402	2452	inches/second	inches/second × 10000
RMS Velocity	2403	2453	mm/second	inches/second × 1000
Peak Velocity	2404	2454	mm/second	inches/second × 1000
Peak Frequency	2405	2455	Hz	inches/second × 10
RMS Acceleration	2406	2456	G	inches/second × 1000
Peak Acceleration	2407	2457	G	inches/second × 1000
Crest Acceleration	2408	2458	peak/RMS	inches/second × 1000
Kurtosis	2409	2459	n/a	inches/second × 1000