MicroStrain 3DM-CX5-10 Inertial Measurement Unit: Quick Start Guide

The LORD Sensing 3DM-CX5 family of high-performance, industrial-grade, board-level inertial sensors provides a wide range of triaxial inertial measurements and computed attitude and navigation solutions.

In all models, the Inertial Measurement Unit (IMU) includes direct measurement of acceleration and angular rate, and is fully temperature-compensated and calibrated over the operating temperature range.

The 3DM-CX5-10 Inertial Measurement Unit communicates through a serial connection and is monitored by a host computer. Sensor measurements and computed outputs can be viewed and recorded with SensorConnect software, available as a free download from the LORD Sensing website. Alternatively, users can write custom software with the open source data communication protocol, also available on the site. Data is time-aligned and available by either polling or continuous stream.

The sensor can be purchased by itself, or as part of a development kit. There are two variations of the kit.,The 3DM-CX5-10 communicates via RS232, and is only supported by the RS232 version. (p/n 6212-3010). The kit includes the C-series Connectivity Board and appropriate cables and mounting screws. **This guide assumes that you have a development kit and will download the latest version of SensorConnect™ software.**

Step 1:

Download and install the latest SensorConnect™ software:
http://updates.microstrain.com/SensorConnect_12.1.4_x64.msi

Step 2:
Unpack the development kit, and remove the connectivity board from its anti-stat bag.

Step 3:
Remove the sensor from its packaging, and place it on the mating connector on the connectivity board. Fasten in place with three three 2x56 brass screws, provided.

Step 4:
Attach the interface cable to the connectivity board, using a small straight blade screwdriver. The CX5-10 only communicates via RS232. You must also plug the power supply into the power jack on the RS232 MDB9 connector, and then plug it into AC power.

Step 5:
Plug the cable into the appropriate computer input. The green LED on the board should light, and the LED on the sensor should first blink, then pulse slowly, indicating that it is in the idle mode.
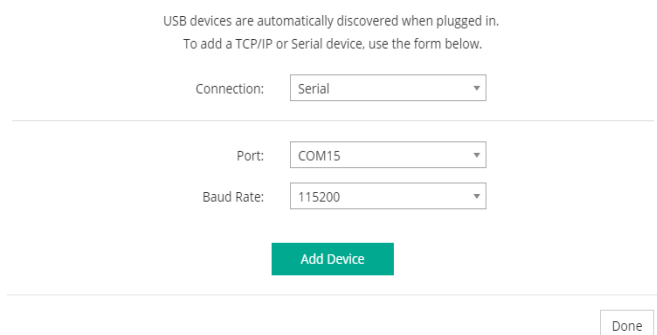
Step 6:
Start SensorConnect. The first thing you must do is identify a repository file to which you will store settings and data:
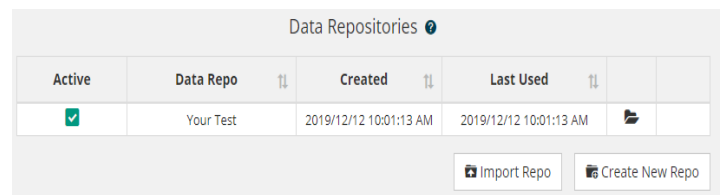
Then click on Devices, and '+ Add Device'. This will bring up the following screen:
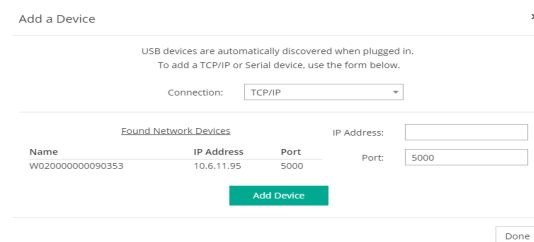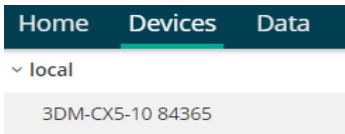

Select serial, and identify your serial port. Clicking the port select arrow should identify available comm's ports. Sensors are factory set to 115200 baud. Click Add Device, and Done:

Step 7:

Click on Devices, on the navigation bar. Your sensor will be listed:

Step 8:

Next, click on Sampling, set data rate to 100Hz, and Click Start. A green dot should appear next to your sensor name.

Step 9:

Click on Data, and +Add Widget.
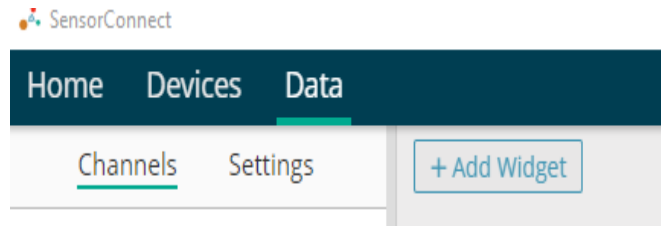
Step 10:

Select Time Series.

Hold Ctrl To Add Multiple Widgets

Click again on your device, and then on Scaled Accel, X,Y, and Z. You'll see this screen:
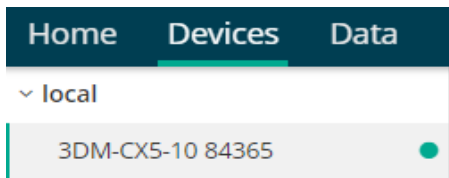
Step 11:

Test the linkage to the widget. Pick up the sensor, and move it in 3 axes. As you move the unit, you'll observe graphical changes in value.
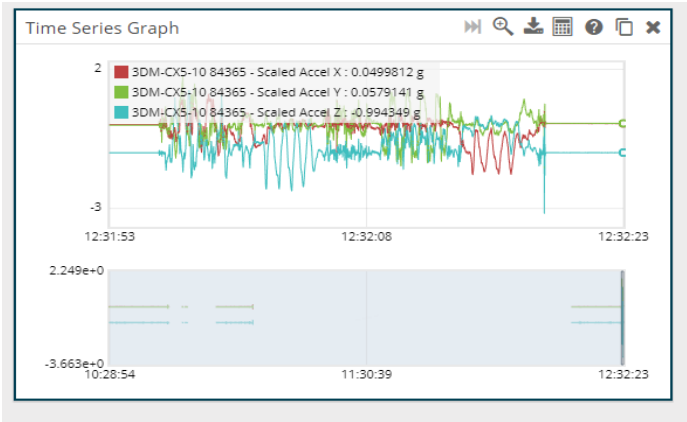
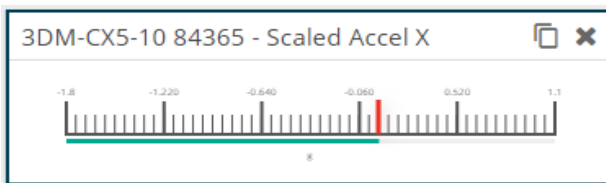Now you know that your sensor is working, and you're in command. Let's add some other widgets. Click on + Add Widget, and select Linear Gauge. Click on the Gauge icon, and under Channels, select Scaled Accel X.
You can re-scale the widget and position it like this:
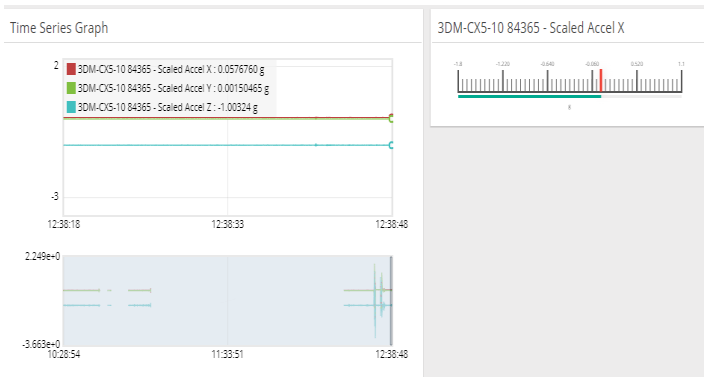
Move your cursor over the linear gauge. An X will appear, and next to it a duplication icon.
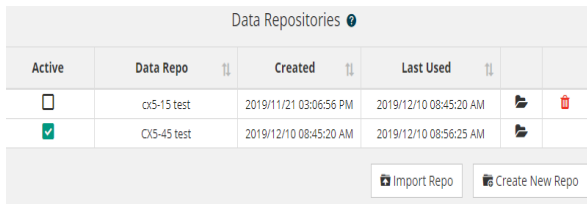
Step 13:

If you click on the duplicate icon in this window, you can place two more linear gauges. Click on each of them, and select Accel, X and Y. You'll see the gauge displays move, as you manipulate the sensor.
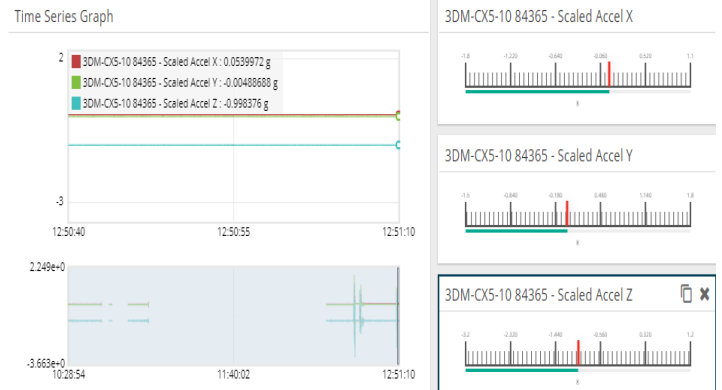
Step 13:

There is one last step to consider, before exploring SensorConnect further, or incorporating the sensor into your own data handling system.
Click on Devices, and select Monitor Bytes. You can see streaming data:
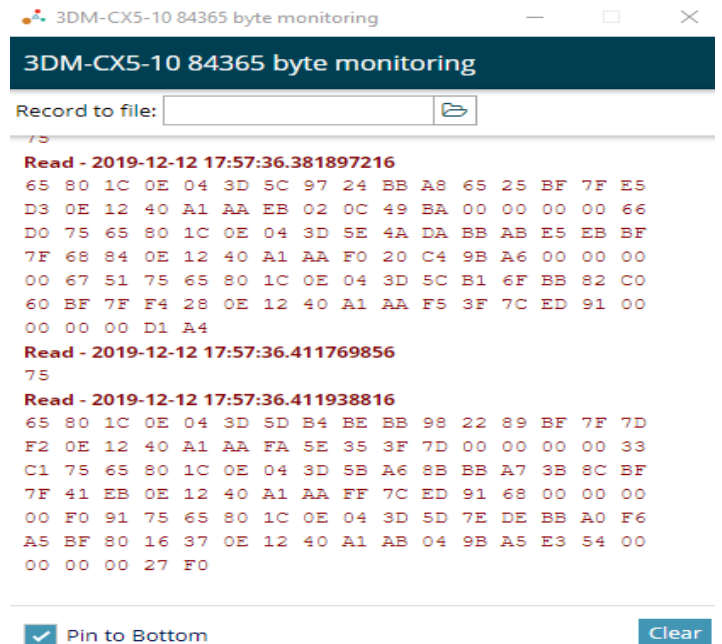
Step 14: When you're done exploring SensorConnect, click on Home, and save your setup and data to a repository file:

	Data Repositories ❓				
Active	**Data Repo** ⇅	**Created** ⇅	**Last Used** ⇅		
☐	cx5-15 test	2019/11/21 03:06:56 PM	2019/12/10 08:45:20 AM	📂	🗑
☑	CX5-45 test	2019/12/10 08:45:20 AM	2019/12/10 08:56:25 AM	📂	

📦 Import Repo   📦 Create New Repo

Now, you're ready to put your sensor to work in your application. For sensor pinout and other details, refer to the user manual, which is found on the MicroStrain website:

https://www.microstrain.com/inertial/3dm-cx5-10

Additional information about MicroStrain data communications software, details of the connectivity board and related information will be found by scrolling down to DOCUMENTATION.

Details about other MicroStrain software can be found here: https://www.microstrain.com/software#web