MicroStrain Quick Start Guide: 3DM-GX5-15 Vertical Reference Unit

The 3DM-GX5-15 is a high-performance, industrial-grade, board-level Inertial Measurement and Vertical Reference Unit (IMU/VRU). It combines the strengths of an integrated multi-axis gyroscope and accelerometer, in combination with full temperature compensation, to provide highly accurate inertial measurements.

The 3DM-GX5-15 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 and connectivity kit are purchased separately. There are two variations of the kit, USB cable (p/n 6212-3004) and RS232 communications and global power (p/n 6212-3001). **This guide assumes that you have a connectivity kit and will download the latest version of SensorConnect™ software**.

Step 1:

Download and install the latest SensorConnect™ software:
http://updates.microstrain.com/SensorConnect_12.3.0_x64.msi

Step 2:

Unpack the sensor and connectivity kit.

Step 3:

Attach the interface cable to the sensor. If you are using the RS232 version, you must also plug the power supply into the power jack on the RS232 DB9 connector, and then plug it into AC power.

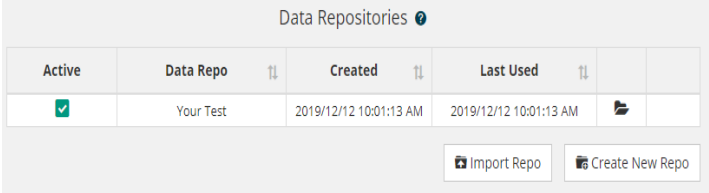
Step 4:

Plug the interface cable into the appropriate computer input. The green LED on the sensor should first blink, then pulse slowly to indicate it is in the idle mode. Sensors are factory-set to idle mode.

Step 5:

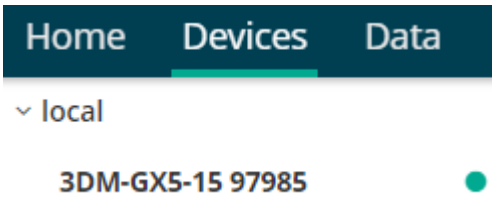
Start SensorConnect. The first thing you must do is create a repository file to which you will store settings and data.

Click 'home' to bring up this screen:



Step 6:

If you are using a USB interface, the sensor will initiate communications with SensorConnect automatically. This is indicated by a green dot just right of the sensor name. You will also notice that the green LED on the sensor is blinking rapidly, indicating active communications.
Click on 'devices' to see this on screen:



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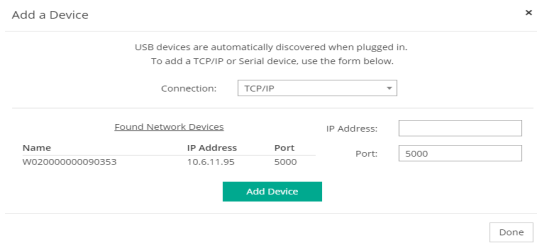
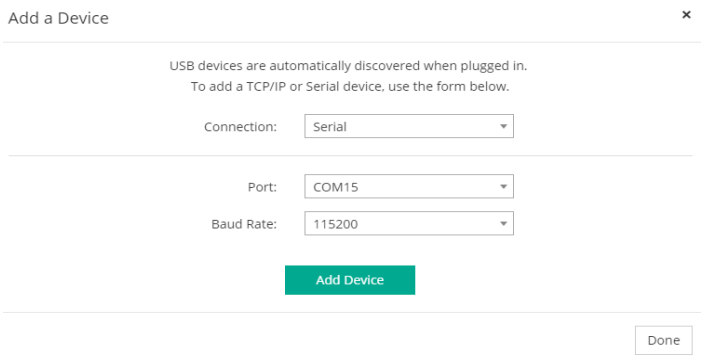
Step 6, continued:

If you are using RS232, click on Devices, and '+ Add Device'.

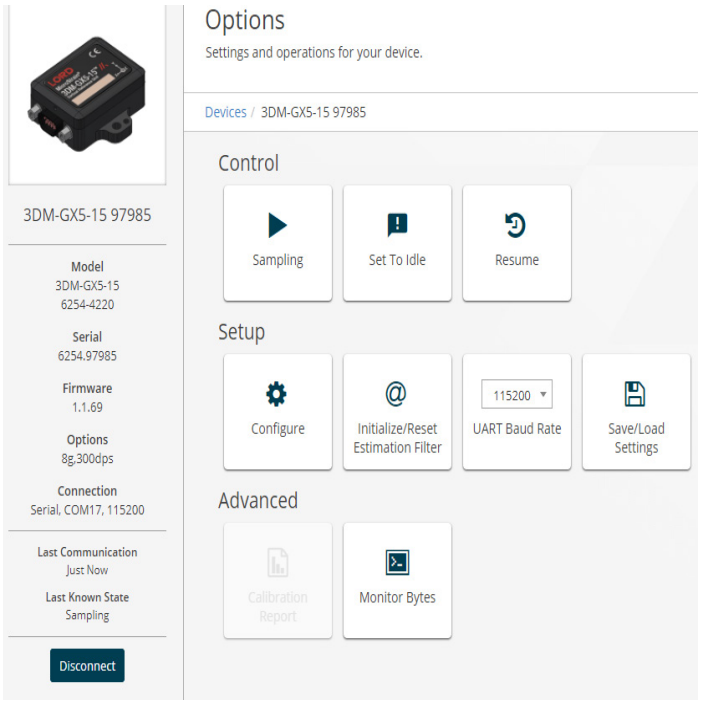


Select serial, and identify your serial port. Clicking the port select arrow should identify available comm's ports. Sensors are factory set to 115200 baud. Click Add Device, and Done:



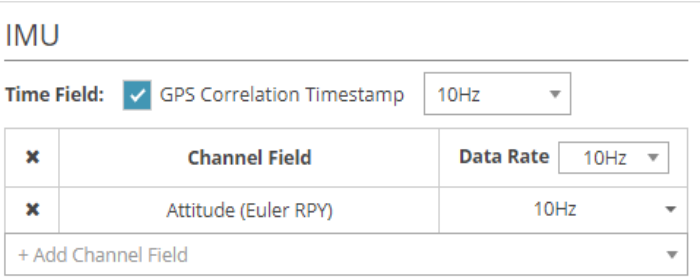
Step 7:

Close that window, and click on your device to see settings:



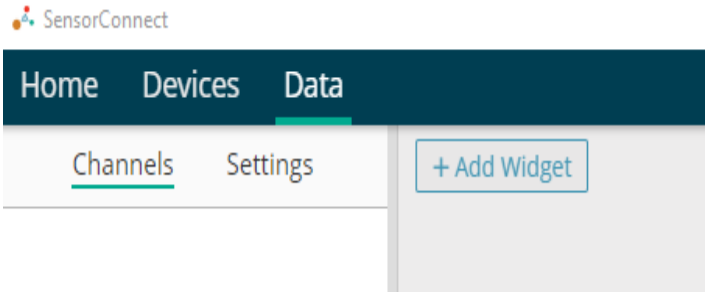
Step 8:

Click on sampling, + add channel field, and Attitude (Euler RPY). Set data rate to 10Hz or higher. Then click "apply" and "start"



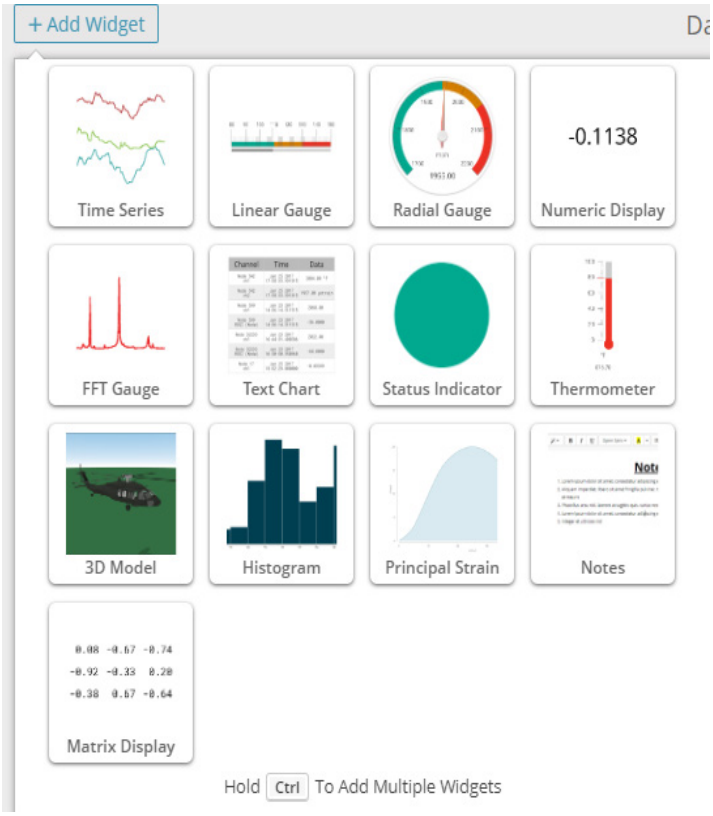
Step 9:

Click on Data, and +Add Widget.



Step 10:

Click on 3D Model.



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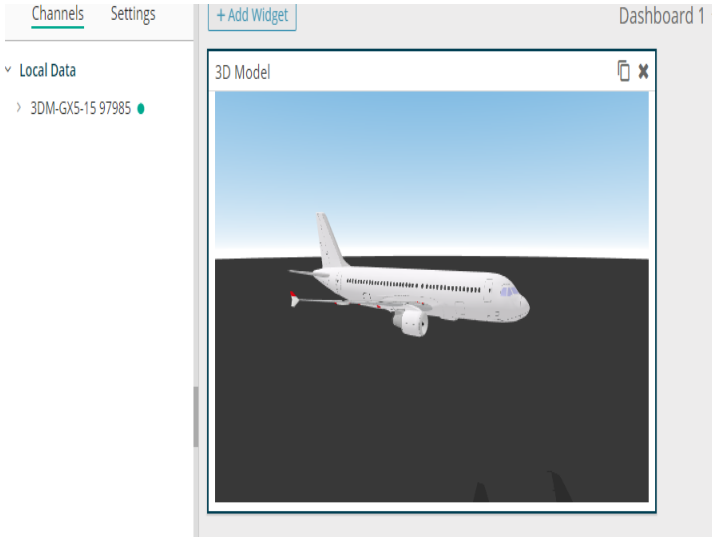
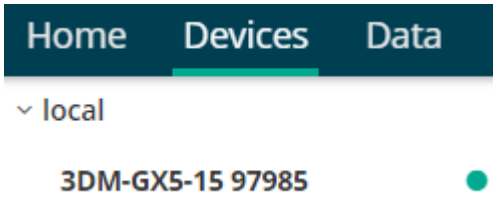
Step 11:

Your screen will look like this:

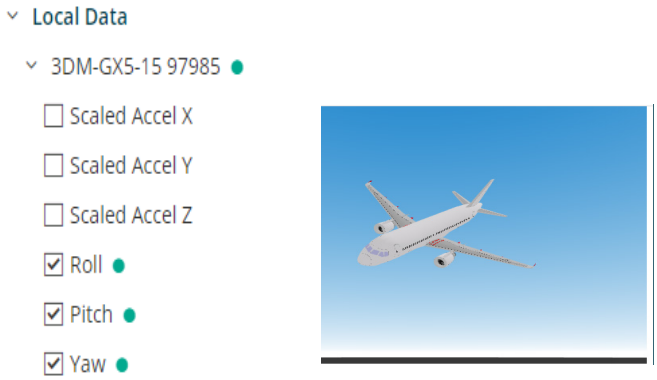


Step 12:

Now let's get data into the model. Under Channels, click on local data, and click on your device. There will be a green dot alongside the sensor name, indicating that it's connected.



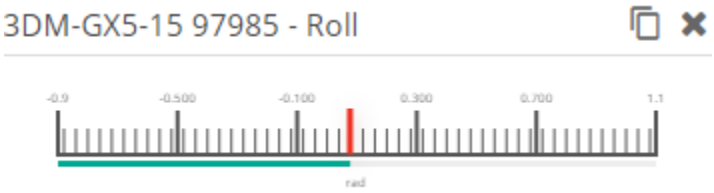
Clicking on your sensor will bring up a selection of data channels. Click on Roll, Pitch and Yaw:



Step 13:

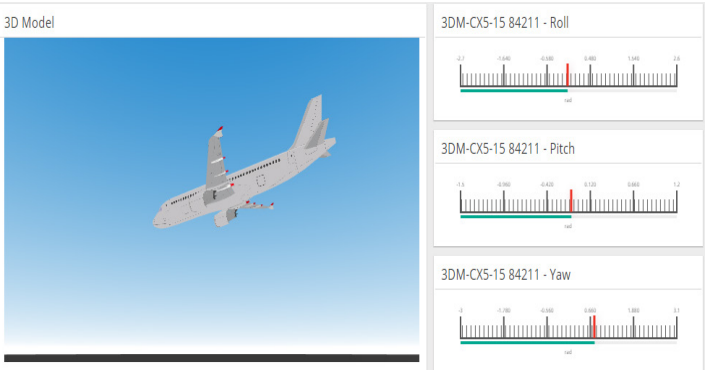
Test the linkage to the widget aircraft...pick up the sensor, and move it in 3 axes. The plane should respond.

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 select the Roll data channel, in the local data list:



The X icon will close this gauge. The page icon to its left will make duplicates.

Click on the duplicate icon twice, and place two more linear gauges. Click on each of them, and select pitch and yaw data. You'll see the gauge displays move, as you manipulate the sensor.



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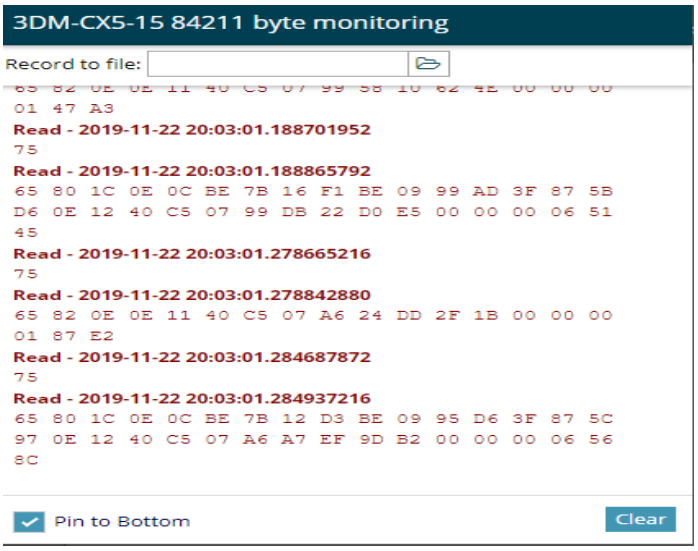
Step 14:

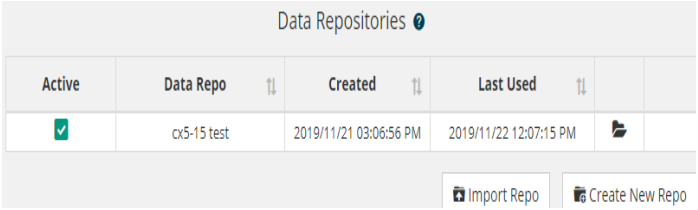
There is one last step to consider, before exploring SensorConnect further, or incorporating the sensor into your own data handling system.

Click on Devices, and select Monitor Bytes. You can see streaming data:



Step 15:

When you're done exploring SensorConnect, click on Home, and select a data repository to save your setup and data.



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-cx5-45

Additional information about MicroStrain data communications software 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

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