

MicroStrain 3DM-GX5-10 Inertial Measurement Unit: Quick Start Guide

The LORD Sensing 3DM-GX5 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-GX5-10 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 (A), or with a connectivity kit (B). The 3DM-GX5-10 communicates via RS232, (kit p/n 6212-XXXX). The kit includes all necessary cables and power supply. **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:

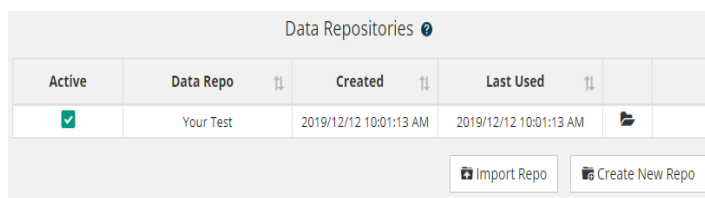
Attach the interface cable to the sensor. Plug the power supply into the power jack on the RS232 MDB9 connector, and then plug it into AC power.

Step 3:

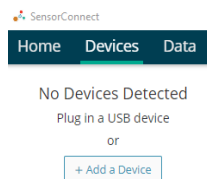
Plug the cable into the appropriate computer input. The green LED on the board should light, and the LED on the sensor should first blink, then pulse slowly, indicating that it is in the idle mode.

Step 4:

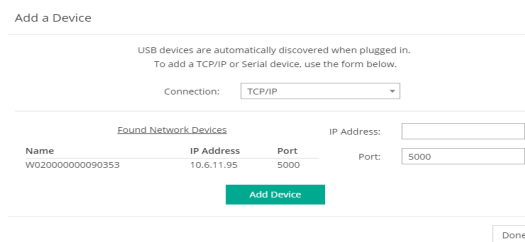
Start SensorConnect. The first thing you must do is create a repository file to which you will store settings and data. Click on HOME to see this screen:



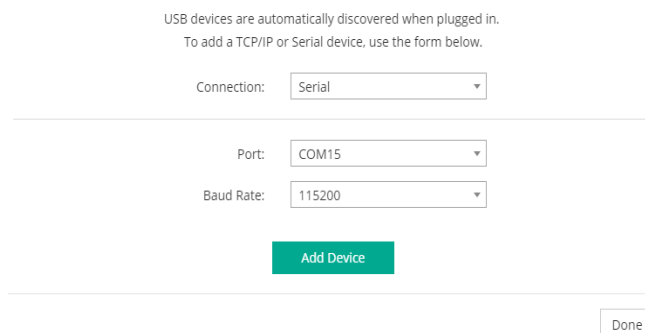
Then click on Devices, and + Add Device:



This will bring up the following screen:



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



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STEP 5: You will see your device listed:

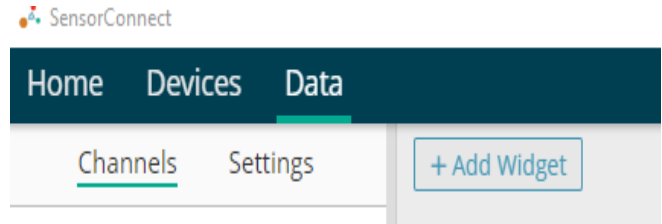


Step 6:

Next, click on your device name, then click Sampling.

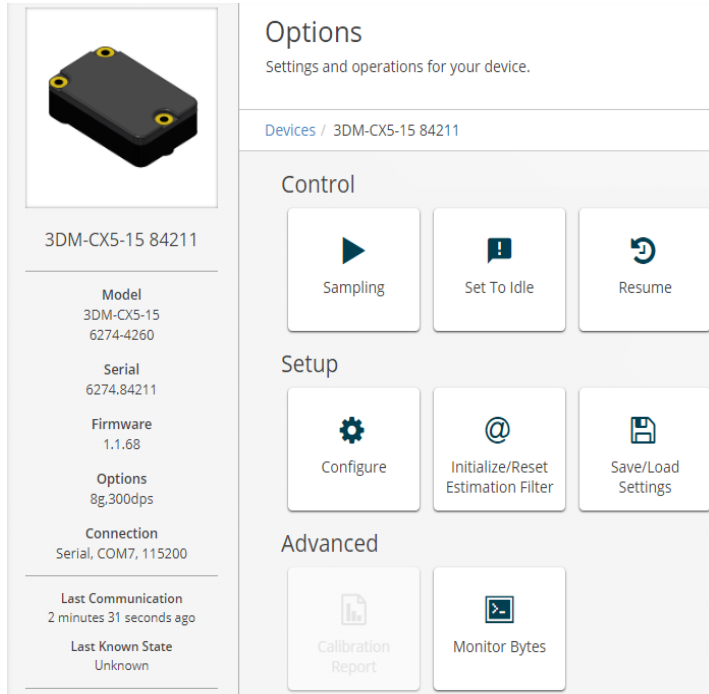
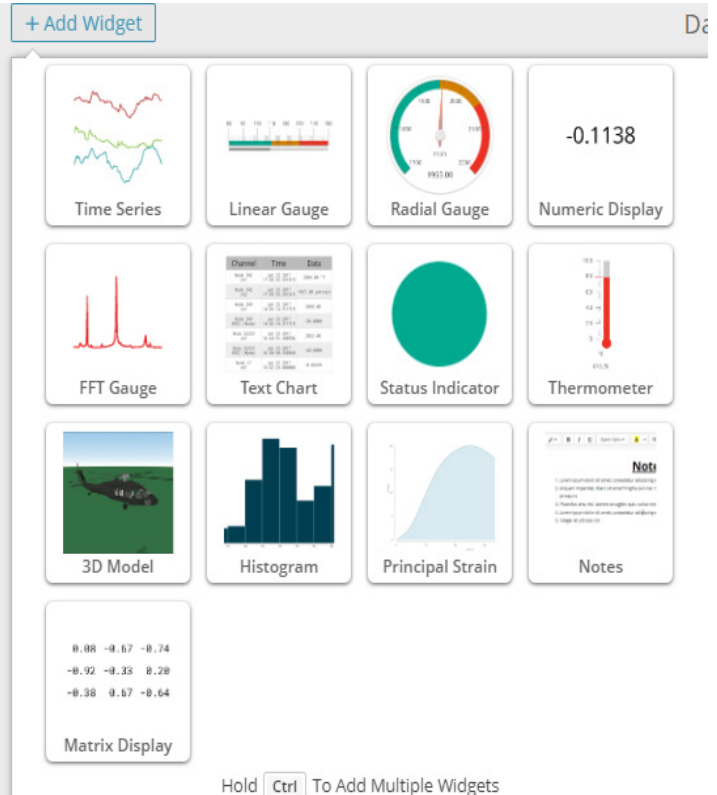
Step 7:

Click on Data, and +Add Widget.



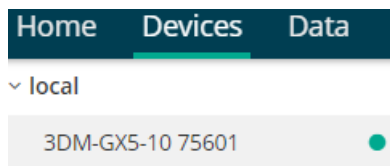
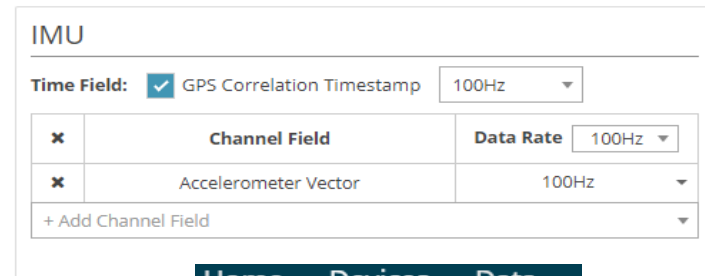
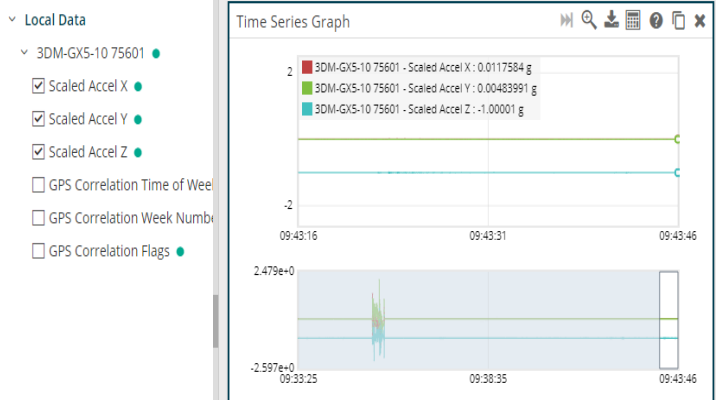
Step 8:

Select Time Series.



Set data rate to 100Hz, and select Accelerometer Vector channel, and check the GPS Correlation Timestamp box. Then click Apply and Start. A green dot should appear next to your sensor name.

Select Scaled Accel, X,Y, and Z. You'll see this screen:

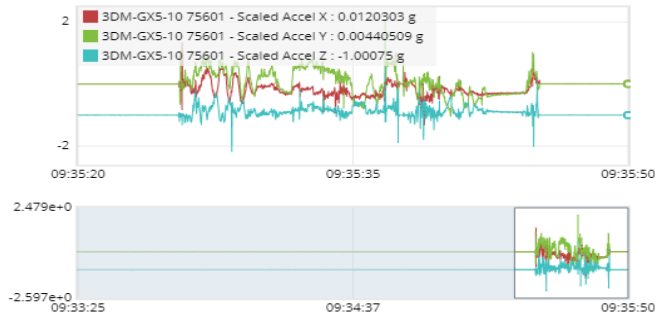


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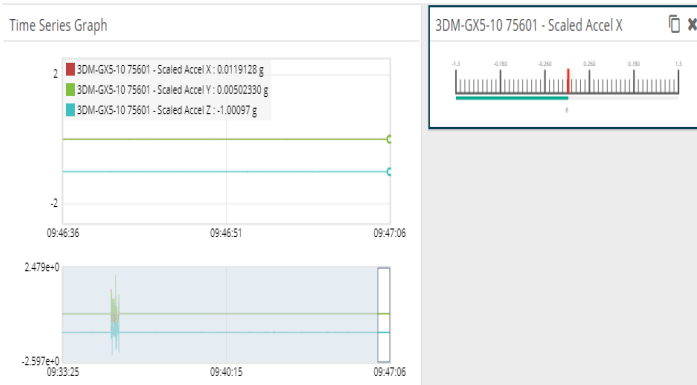
Step 9:

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.

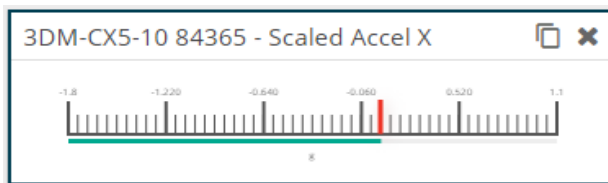
Time Series Graph



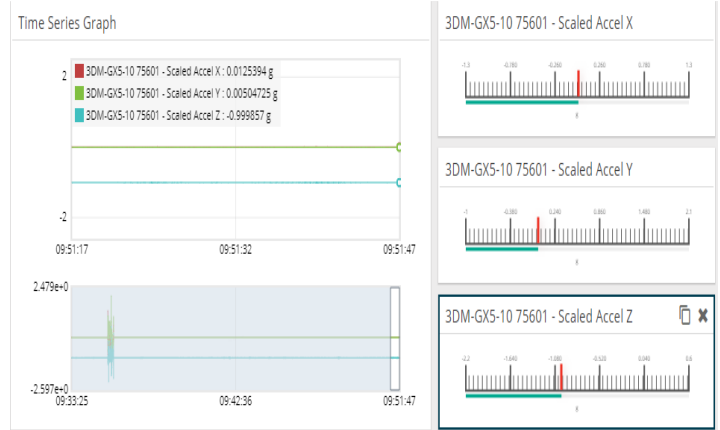
Now you know that your sensor is working, and you're in command. Let's add some other widgets. Click on + Add Widget, and select Linear Gauge. Click on the Gauge icon, and under Channels, select Scaled Accel X. You can re-scale the widget and position it like this:



Move your cursor over the linear gauge. An X will appear, and next to it a duplication icon.



Step 10: If you click on the duplicate icon on the first gauge, you can place two more linear gauges. Click on each of them, and select Accel, X and Y, respectively. Now you'll see the gauge displays move, as you manipulate the sensor.



Step 11: There is one last step to consider, before exploring SensorConnect further, or incorporating the sensor into your own data handling system.

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

3DM-GX5-10 75601 byte monitoring

3DM-GX5-10 75601 byte monitoring

Record to file:

75

Read - 2019-12-19 14:54:33.665111552

```
65 80 1C 0E 04 3C 49 6A 19 3B AB 7C C6 BF 7F F9
9F 0E 12 40 A2 8D 1C 28 F5 C2 8F 00 00 00 00 A7
08 75 65 80 1C 0E 04 3C 50 4D 76 3B 8D 1B 68 BF
80 02 99 0E 12 40 A2 8D 21 47 AE 14 7B 00 00 00
00 30 59 75 65 80 1C 0E 04 3C 48 62 C8 3B B5 BA
BD BF 7F EF 4F 0E 12 40 A2 8D 26 66 66 66 66 00
00 00 00 66 03
```

Read - 2019-12-19 14:54:33.694981376

75

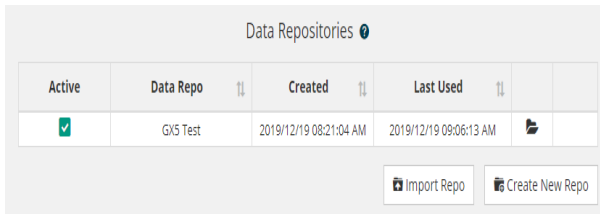
Read - 2019-12-19 14:54:33.6952624

```
65 80 1C 0E 04 3C 43 6A B1 3B 8C 8F CA BF 7F EC
C4 0E 12 40 A2 8D 2B 85 1E B8 52 00 00 00 00 97
D3 75 65 80 1C 0E 04 3C 3E 04 62 3B AB B9 2A BF
80 08 DA 0E 12 40 A2 8D 30 A3 D7 0A 3D 00 00 00
00 D2 6A 75 65 80 1C 0E 04 3C 45 AA 55 3B A3 BE
5B BF 80 10 A6 0E 12 40 A2 8D 35 C2 8F 5C 29 00
00 00 00 8E 06
```

Pin to Bottom

Clear

Step 12: When you're done exploring SensorConnect, click on Home, and save your setup and data to a repository file:



Active	Data Repo	Created	Last Used	
<input checked="" type="checkbox"/>	GX5 Test	2019/12/19 08:21:04 AM	2019/12/19 09:06:13 AM	

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 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>