## The 3DM-GX5-45 Global Navitation Satellite System Inertial Navigation System is the

smallest and lightest industrial GNSS/INS with an Adaptive Extended Kalman Filter available. The GX5-45 is an all-inone navigation solution, with multi-constellation receiver.

Congratulations on your purchase.

Let's get started:



The 3DM-GX5-45 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<sup>™</sup> software.

### Step 1:

Download and install the latest SensorConnect<sup>™</sup> 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 factoryset 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:

		Data Repositories 🛛	
Active	Data Repo 🙏	Created 🗍	Last Used
	Your Test	2019/12/12 10:01:13 AM	2019/12/12 10:01:13 AM
			Timport Repo

## 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:



# Step 7:

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

USI	B devices are auton	natically discove	red when plugge	d in.	
	To add a TCP/IP or	Serial device, us	e the form belov	v.	
	Connection:	TCP/IP		•	
Found 1	Network Devices		IP Address:		
Name	IP Address	Port	Port	5000	
V02000000090353	10.6.11.95	5000	FOIG	3000	
	_				

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:

vhen plugged in. e form below.	matically discovered w or Serial device, use the	USB devices are auto To add a TCP/IP (
v	Serial	Connection:
Ŧ	COM15	Port:
v	115200	Baud Rate:
	Add Device	

# Step 8:

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



#### Step 9:

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

IMU			
Time	Field: 🔽 GPS Correlation Timestamp	10Hz 💌	
×	Channel Field	Data Rate 10Hz	*
×	Attitude (Euler RPY)	10Hz	*
+ Ad	d Channel Field		Ŧ

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

💑 SensorConnect

Home	Devices	Data	
Char	nnels Seti	tings	+ Add Widget

## Step 11: Click on 3D Model.



#### Step 12: Your screen will look like this:



## Step 13:

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 14:

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.



# MicroStrain Quick Start Guide: 3DM-GX5-45 GNSS/INS

#### Step 15:

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

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

eco	ord	to fi	le:								>				
33															
Rea	id - 2	2019	-12-	20 2	0:51	:21.	5485	967	36						
/ 5															
кеа	id - 1	2019	-12-	20 2	0:51	:21.5	5486	307	84						
65	80	10	OE	00	вв	AO	В3	םם	30	28	81	68	40	0.7	6B
16	OE	12	40	91	ΟA	24	DD	2F	1A	AO	00	00	00	06	7E
04															
Rea	id - 2	2019	-12-	20 2	0:51	:21.	5605	824	00						
75															
Rea	id - 2	2019	-12-	20 2	0:51	:21.	5605	987	84						
65	80	1C	0E	oc	BB	AO	77	AO	зc	2B	76	A6	40	07	6B
48	OE	12	40	91	оA	2F	1A	9F	BE	77	00	00	00	06	9D
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46	0.5	12	40	01	02	30	5.9	10	62	48	00	00	00	06	78
10	015	12	10	21	OA		00	10	02	12	00	00	00	00	10

#### Step 16:

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

	[	Data Repositories 🛛		
Active	Data Repo 🌐 🏥	Created 🌐	Last Used	L
<b>•</b>	TEST	2019/12/20 10:31:06 AM	2019/12/20 10:31:06 AM	<b>b</b>
			🖬 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-cx5-45

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: <u>https://www.microstrain.com/software#web</u>

LORD Sensing MicroStrain

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