MicroStrain®
Quick Start Guide

3DM-GX3® -35 AHRS with GPS

Version
- 3DM-GX3® -35 firmware 1.1.12 or higher
- 3DM-GX3® -35 software 1.0 or higher

RS-232 Starter Kit
The 3DM-GX3® -35 **RS-232 starter kit** contains:
- 3DM-GX3® -35 AHRS (attitude heading reference system) with GPS module
- RS-232-to-Micro-D communication and power cable with Allen wrench
- 100-240 VAC Power Supply (9 VDC output) with 4 country adapters
- GPS antenna
- MMCX-to-SMA adapter
- 3DM-GX3® -35 software CD (Windows® XP, Vista, 7)

USB Starter Kit
The 3DM-GX3® -35 **USB starter kit** contains:
- 3DM-GX3® -35 AHRS (attitude heading reference system) with GPS module
- USB-to-Micro-D communication and power cable
- GPS antenna
- MMCX-to-SMA adapter
- 3DM-GX3® -35 software CD (Windows® XP, Vista, 7)

Software Installation
- Insert the 3DM-GX3® -35 software CD into the host computer's drive.
- The CD menu will automatically launch. If it does not, navigate to the drive and double-click Auotrun.exe.
- Click the Install 3DM-GX3 Monitor Software button and follow the on-screen instructions to complete the installation. You will receive a message indicating successful installation and be asked to restart the system. Do not restart the system yet.
- Click the Install 3DM-GX3 Hard and Soft Iron Calibration Software button and follow the on-screen instructions to complete the installation. You will receive a message indicating successful installation and be asked to restart the system. Do not restart the system yet.
- Click the Install 3DM-GX3 Drivers button and follow the on-screen instructions to complete the installation.
- Click the Install 3DM-GX3 Manuals button and follow the on-screen instructions to complete the installation.
- Restart the system.

Hardware Installation
- Press the male MMCX connector on the MMCX-to-SMA adapter into the female MMCX connector on the sidewall of the 3DM-GX3® -35 until it clicks. Connect the male SMA connector to the female SMA connector on the GPS antenna.
- **If you have an RS-232 interface**, connect the male Micro-D connector of the USB-to-Micro-D communication and power cable to the female Micro-D connector on the sidewall of the 3DM-GX3® -35 using the Allen wrench. Connect the RS-232 end to your host computer. Attach the appropriate country adapter to your power supply. Connect the power supply lead into the power lead on the RS-232 connector and plug the power supply into an appropriate source. The yellow Activity LED on the 3DM-GX3® -35 will begin throbbing on and off, on and off, indicating it is powered up and in idle state. Proceed to the *Software Operations* section below.
- **If you have a USB interface**, connect the male Micro-D connector of the USB-to-Micro-D communication and power cable to the female Micro-D connector on the sidewall of the 3DM-GX3® -35 using the thumb screws. Connect the USB end to your host computer. The yellow Activity LED on the 3DM-GX3® -35 will begin throbbing on and off, on and off, indicating it is powered up and in idle state. Proceed to either the *If your operating system is XP PRO* or *If your operating system is Vista 32 or Windows 7* section of this guide.

If your operating system is XP PRO
- When you plug the USB interface into your host computer, the operating system will prompt you with the Found New Hardware Wizard.
- Select the Yes, now and every time I connect a device radio button.
- Click Next.
- Select Install the Software Automatically radio button.
- Click Next and wait for the driver to be found.
- Select the 3DM-GX3-35.inf driver.
- Click Next.
- If you receive a Hardware Installation pop-up window, click Continue Anyway.
- Click Finish and the USB driver for the 3DM-GX3® -35 will be installed successfully.

If your operating system is Vista or Windows 7
- When you plug the USB interface into your host computer, the operating system will prompt you with the Found New Hardware window.
- Click Locate And Install Driver Software.
- If you receive the Windows Needs Your Permission To Continue window, click Continue.
- If you receive the Windows Can't Verify… window, click Install This Driver Software Anyway.
- You will receive a successful message indicating the USB driver for the 3DM-GX3® -35 was successfully installed.

Software Operations

- Launch the 3DM-GX3® -35 Monitor 2 software and the Main window will appear.
- The software will automatically search for the 3DM-GX3® -35 and display it in the Device pane. The serial number, firmware version, model number, options and comm port will be displayed as shown in *Figure 1*.
- Click the device in the display and it will highlight.
- Click Settings and a drop-down menu will appear.
- Click AHRS and the AHRS Settings window will appear as shown in *Figure 2*.
- Select Euler Angles in the AHRS Message Format pane by clicking the drop-down arrow as shown in *Figure 3*. Leave the default sampling rate of 100Hz as-is.
- Click OK and the AHRS Settings window will disappear.
- Click View and a drop-down menu will appear.
- Click Data Monitor and the Data Monitor window will appear.
- Click the Run button in the tool bar.
- The 3DM-GX3® -35 will begin sampling and display Euler Angles (in radians) at 100 Hz in a continuous graph as shown in *Figure 4*.
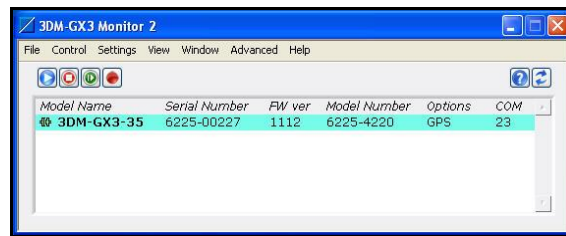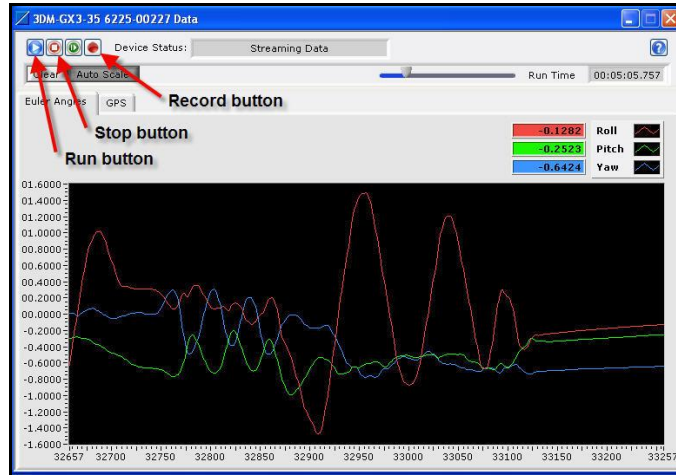

Figure 1 – Main window
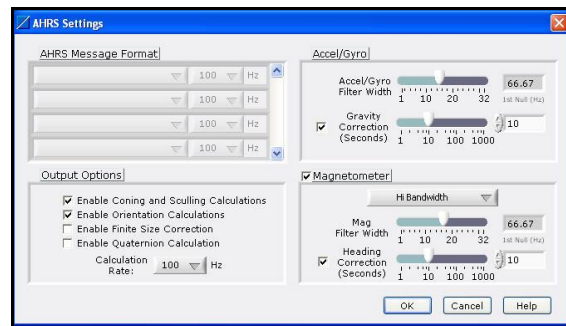
Figure 2 – AHRS Settings window
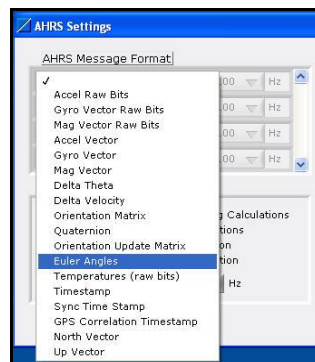
Figure 3 – AHRS Message Format menu

3

Figure 4 – Data Monitor window

- Click the Record button and the Log File Format window will appear.
- Select Spreadsheet File in the drop-down.
- Click OK and the Choose or Enter Path of File window will appear.
- You may choose to navigate to a folder to save your data file and/or create a new file name.
- Click OK and the Choose window will disappear.
- The Euler Angle data will now be written to the data file as it is displayed on the graph.
- Click the Stop button and the 3DM-GX3® -35 will stop sampling.
- Click the red **X** in the upper right hand corner of the Data Monitor window and it will disappear.
- The AHRS is operational! Let's move to the GPS.

- Click Settings.
- Click GPS and the GPS Settings window will appear.
- Select LLH Position in the GPS Message Format pane by clicking the drop-down arrow as shown in *Figure 5*. Leave the default sampling rate of 1Hz as-is.
- Continue by selecting UTC Time, Space Vehicle Information and Hardware Status as shown in *Figure 6*.
- Leave the GPS Dynamics Mode as Portable (default).
- Click OK and the GPS Settings window will disappear.
- Click View and a drop-down menu will appear.
- Click Data Monitor and the Data Monitor window will appear.
- Click the GPS tab and the GPS view will appear as shown in *Figure 7*.
- Observe the colored indicators to the left of the 3 parameters in the Hardware Status pane. To lock-on to GPS, these indicators must all be bright green. **Note:** GPS does not work indoors. Move your antenna to a window sill or outside so that it 'sees' the sky.
- Observe the satellites coming into lock in the Space Vehicle Information pane. Bright green indicates a lock-on.
- Observe the time Coordinated Universal Time in the UTC Time pane. Bright green indicates a lock-on to the GPS satellites.

4

- Observe your Latitude, Longitude and Height in the LLH Position pane. <mark>Bright green</mark> indicates a lock-on to the GPS satellites.
- The GPS is operational!

Help Tip

Click the blue **?** (question mark) in the upper right hand corner of the Data Monitor window. The Context Help window will appear. Move your mouse to the Height MSL readout in the LLH Position pane and hover over it. The definition of Height MSL will appear in the Context Help window. Hover over other readouts on this window for more definitions. The Context Help is available throughout the software.
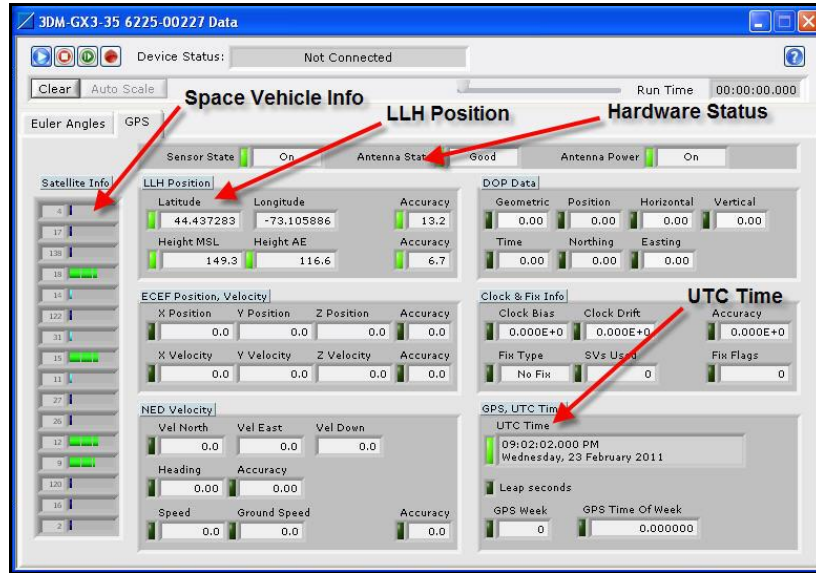

- Click the red **X** in the upper right hand corner of the Data Monitor window and it will disappear.
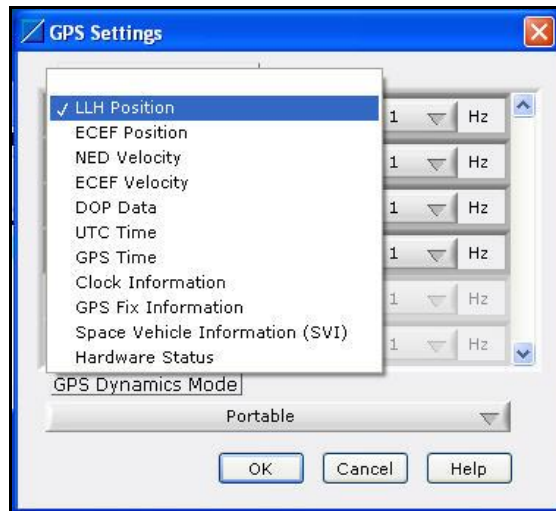
Figure 5 – GPS Message Format menu

Figure 6 – GPS Settings window

Figure 7 – Data Monitor window

- Click Settings.
- Click Save Current Settings and a message box will appear.
- Click OK and the current setup of your 3DM-GX3® -35 will be saved. When you next run your 3DM-GX3® -35, it will start up and run with your saved configuration.

Congratulations!
You are off and running! Please carefully read the accompanying 3DM-GX3® -35 documentation to learn how to successfully put your inertial sensor to work. MicroStrain Support Engineers are always available by phone, email or SKYPE to assist you in any way we can.

Caution
Do not bring the 3DM-GX3® -35 into contact or close proximity with magnets. Magnets will at a minimum disrupt the sensor's operation and can cause permanent damage to its components. Many GPS antennas have a magnetic base; the antenna we provide does not. If you substitute a GPS antenna and its base is magnetic, please keep it away from the 3DM-GX3® -35 (and don't pack them together).

Notes
The power cable is considered a disconnecting device.
The 3DM-GX3® -35 is manufactured by MicroStrain, Inc., Williston, VT USA.

8501-0014 rev 004
Copyright © 2012 MicroStrain, Inc.

MicroStrain® and 3DM-GX3® are registered trademarks of MicroStrain, Inc.

6