3DM-GX3®

Startup Settings

Overview

The LORD MicroStrain® 3DM-GX3® inertial sensor family allows the user to pre-program the inertial sensor so that it continuously outputs specific data packets at specific sampling rates each time it is powered on. This functionality facilitates integration of the inertial sensor with other equipment and systems. For example, connection of the 3DM-GX3® inertial sensor to a datalogger becomes quite easy. The user pre-programs the 3DM-GX3® data output settings on his desktop, connects the 3DM-GX3® to the datalogger's RS-232 port, powers the 3DM-GX3®, and the datalogger records the inertial data. This technical note assumes some familiarity with your particular 3DM-GX3® inertial sensor and its accompanying MIP Monitor (Windows-based) software.

Step-by-Step

For our example, we are using the 3DM-GX3®-25 Miniature Attitude Heading Reference System (AHRS) with RS-232 communication interface; all other 3DM-GX3® inertial sensors in the family are pre-programmed in a similar fashion.

- Connect the 3DM-GX3®-25 to your host computer via the RS-232 cable with power on.
- Establish communication with the 3DM-GX3®-25 using MIP Monitor software as normal.
- Click Settings.
- Click System and the System Settings window will appear.
- Select the UART Baud Rate that is compatible with the datalogger, equipment or system to which you will be connecting. In our example, we select the 115200 default baud rate.
- Click OK and the System Settings window will disappear.
- Click Settings.
- Click AHRS and the AHRS Settings window appears.
- Select Timestamp in the Message drop-down, as shown in figure 1.
- Select 100 in the Hz drop-down.
- Select Euler Angles in the Message drop-down.
- Select 100 in the Hz drop-down.
- Click OK and the AHRS Settings window disappears.
- Note in the Activity readout that the device state is reported as *Not Connected,* as shown in figure 2; this indicates that the 3DM-GX3®-25 is in idle state. Confirm the idle state by observing the yellow Activity LED on the 3DM-GX3®-25. The LED will be coming on and going off, coming on and going off, about every one second.
- Click Control.
- Click Run and again observe the Activity readout. It will now indicate *Streaming Data*. Observe the yellow Activity LED and it will be blinking on and off rapidly. The 3DM-GX3®-25 is now outputting Euler Angles at 100 Hz.
- Click Settings.
- Click Save Current Settings as shown in figure 3, and an Information window will appear indicating that settings you have entered will be saved as the startup settings.
- Click OK and the Information window will disappear.
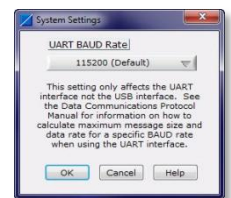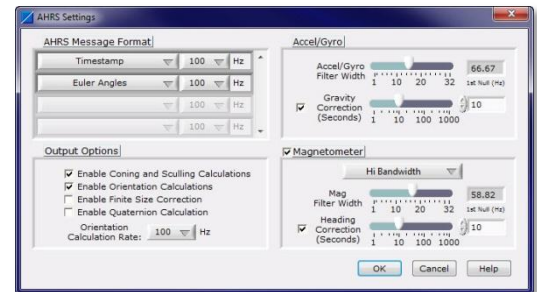- Close the MIP Monitor software.
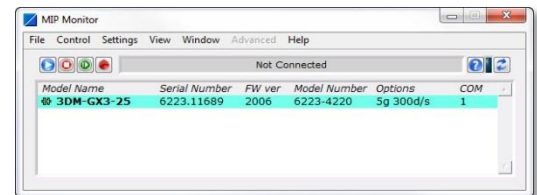

Figure 1: *Baud Rate*

Figure 2: *AHRS Settings*

Figure 3: *Not Connected*

Figure 4: *Save Current Settings*

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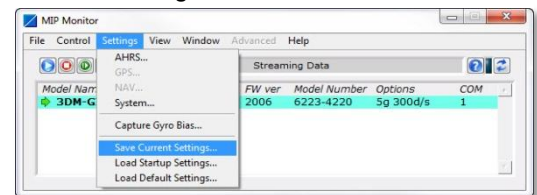**SENSING SYSTEMS**

Connect to Other Equipment or System

The 3DM-GX3®-25 is now ready to be connected to your other equipment or system. Simply connect the RS-232 cable to the 3DM-GX3®-25 and the host equipment, and power the 3DM-GX3®-25. The 3DM-GX3®-25 will begin outputting Euler Angles at 100 Hz. As an example, we describe integration with a software datalogger in this technical note.

Programming Your Own Application

Startup Settings is a function of the 3DM-GX3® inertial sensor family *data communication protocols*. The MIP Monitor software exploits this functionality as we have described. You can also embed the same functionality in your own applications by using the _Save current settings as startup settings_ function found in the 3DM-GX3® data communication protocols. Refer to the particular protocol manual for further details.

Support

LORD MicroStrain® support engineers are always available to expand on this subject and support you in any way we can.