

**Version**

**2.0.0**

MICROSTRAIN, INC.

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Microminiature Sensors

3DM-GX1 RS-485 Network Software

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## Main Screen

First screen on program launch

The Main screen allows the user to navigate to all program functions including connection, configuration, utilities, sampling and display screens and program exit.

### To connect to the 3DM-GX1 network:

- Click <File>.
- Click <Connect>. The Connect screen will appear.
- Follow the instructions for the Connect screen given elsewhere in this Help file.

### To configure the 3DM-GX1 network:

- Click <Tools>.
- Click <Devices>. The Devices screen will appear.
- Select an individual 3DM-GX1 on the network by clicking its radio button. The check boxes have no current function.
- Click <File>.
- Click <EEPROM Map>. The EEPROM Map screen will appear.
- Follow the instructions for the EEPROM Map screen given elsewhere in this Help file.

### To get on-board temperature of the 3DM-GX1 network:

- Click <Tools>.
- Click <Get Temperature>. The Get Temperature screen will appear.
- Follow the instructions for the Get Temperature screen given elsewhere in this Help file.

### To sample the 3DM-GX1 network:

- Click <Display>.
- Click one of the 6 sampling screens available:
  - <Euler Angles>
  - <Orientation Matrix>
  - <Quaternions>
  - <Quaternions and Vectors>
  - <Sensor Bits>
  - <Vectors>
- The selected display screen will appear for further use. Follow the instructions for the particular screen given elsewhere in this Help file.

### To read about the program:

- Click <Help>
- Click <About>. The About screen will appear.
- Follow the instructions for the About screen given elsewhere in this Help file.

**To exit the program:**

- Click <File>.
- Click <Exit>. The program will terminate and communication between the 3DM-GX1 network and the host computer will cease.

## **File section**

## **Connect**

From Main screen

Click <File>

Click <Connect>

The Connect screen allows the user to auto detect the serial port and baud rate of the 3DM-GX1 network, confirm communications with the host and automatically load operating parameters.

### **To auto detect the 3DM-GX1 network:**

- Click <Auto Detect>. The application will automatically test for the 3DM-GX1 network on comm ports 1-16 and at baud rates of 19,200, 38,400 and 115,200.
- If the 3DM-GX1 network is located, the comm port and baud rate will be automatically selected and a confirming message will appear. Click the message <OK>.
- The device addresses and serial numbers will appear in the Addresses and Serial Numbers frame.
- Click <OK>. The Connect screen will disappear and you will be able to proceed with the application.
- If the 3DM-GX1 network is not located, a message will appear indicating that the auto detect has failed. Click the message <OK>.
- Click <OK>. An informational message will appear indicating that the physical network should be checked. Click the message <OK>. The Connect screen will disappear and you should proceed to troubleshoot the problem.
- **N.B.** If you click the <OK> button without running Auto Detect, you will receive an informational message and you will not be able to proceed with the application. You must always run Auto Detect first.

## **Tools section**

## ***EEPROM Map***

From Main screen

Click <Tools>.

Click <Devices>. The Devices screen will appear.

Select an individual 3DM-GX1 on the network by clicking its radio button.

Click <File>.

Click <EEPROM Map>.

The EEPROM Map screen allows the user to read all parameters and to write certain parameters maintained in memory on-board the 3DM-GX1. These parameters include baud rate, comm mode, node address, compensation, gains, operating mode, tare and analog output. The parameters are used to condition the 3DM-GX1 for operation and should only be changed with a thorough understanding of their effect on the device.

### **To read parameters:**

- Click <File>.
- Click <Read>. The program will retrieve the parameters from the on-board memory of the 3DM-GX1 and display them.
- A confirming message box will appear indicating the read has completed. Click <OK>.

### **To write parameters:**

- Enter a new value for a particular parameter by typing the value in the scroll box or by scrolling the value up/down using the scroll box arrows
- Click <File>.
- Click <Write>. The program will write the new parameters to the on-board memory of the 3DM-GX1.
- A confirming message box will appear indicating the write has completed. Click <OK>.

### **To view a parameter matrix:**

- Click <File>.
- Click <View Matrix>. The View Matrix window will appear.
- In the Select frame, select the radio button of the particular matrix to view.
- The selected matrix will be displayed in the matrix frame.
- Click <Close> to close the View Matrix window.

### **To return to Main screen:**

- Click <File>.
- Click <Return>.
- The Devices screen will appear.
- Click <File>.
- Click <Return>.

## ***Get Temperature***

From Main screen

Click <Tools>

Click <Get Temperature>

The Get Temperature screen allows the user to view the current temperature on-board the 3DM-GX1 network.

### **To start sampling temperature:**

- Click <File>.
- Click <Sample>. A check will occur to the left of the menu item indicating sampling is in progress.
- The current temperature will be continuously displayed.
- **N.B.** The check boxes and radio buttons have no current function.

### **To stop sampling temperature:**

- Click <File>.
- Click <Sample>. The check to the left of the menu item will disappear indicating sampling has stopped.

### **To return to Main screen:**

- Click <File>.
- Click <Return>.

## Display section

## ***Euler Angles***

From Main screen

Click <Display>

Click <Euler Angles>

The Angles screen allows the user to visualize either a Gyro-Stabilized or an Instantaneous pitch, yaw and roll angles sampling session via three degrees indicator dials. The screen allows the user to start a session, record a session, capture bias and stop a session.

### **To start Gyro-Stabilized sampling:**

- Click <File>.
- Click <Sample Gyro-Stabilized>. A check will occur to the left of the menu item indicating sampling is in progress.
- The application will start sampling the entire 3DM-GX1 network and will display the pitch, yaw and roll angles of the device selected in the Address frame. **N.B.** The radio buttons are the selectors; the check boxes have no current function.

### **To stop Gyro-Stabilized sampling:**

- Click <File>.
- Click <Sample Gyro-Stabilized>. The check to the left of the menu item will disappear indicating sampling has stopped.

### **To start Instantaneous sampling:**

- Click <File>.
- Click <Sample Instantaneous>. A check will occur to the left of the menu item indicating sampling is in progress.
- The application will start sampling the entire 3DM-GX1 network and will display the pitch, yaw and roll angles of the device selected in the Address frame. **N.B.** The radio buttons are the selectors; the check boxes have no current function.

### **To stop Instantaneous sampling:**

- Click <File>.
- Click <Sample Instantaneous>. The check to the left of the menu item will disappear indicating sampling has stopped.

### **To capture bias:**

- Click <File>.
- Click <Capture Bias>.
- **Note:** Review 3DM-GX1 User Manual for use of this function.

**To save data to a file:**

- Click <File>.
- Click <Save>.
- A “common dialog” box named Save As will appear.
- You may create a new name for the data file in the File Name textbox and select a file type in the Save As Type textbox or you may select an existing file as the data file. Click the Save button. The common dialog will disappear.
- A check will now appear to the left of the <Save> menu item indicating that a file is in place to receive data anytime sampling is active.

**To stop saving data to a file:**

- Click <File>.
- Click <Save>. The check to the left of the menu item will disappear indicating saving has stopped.

**To return to Main screen:**

- Click <File>.
- Click <Return>.

## **Orientation Matrix**

From Main screen

Click <Display>

Click <Orientation Matrix>

The Orientation Matrix screen allows the user to conduct either a Gyro-Stabilized or an Instantaneous orientation matrices sampling session. The screen allows the user to start a session, record a session, capture bias and stop a session.

### **To start Gyro-Stabilized sampling:**

- Click <File>.
- Click <Sample Gyro-Stabilized>. A check will occur to the left of the menu item indicating sampling is in progress.
- The application will start sampling the entire 3DM-GX1 network and will display the orientation matrix of the device selected in the Address frame. **N.B.** The radio buttons are the selectors; the check boxes have no current function.

### **To stop Gyro-Stabilized sampling:**

- Click <File>.
- Click <Sample Gyro-Stabilized>. The check to the left of the menu item will disappear indicating sampling has stopped.

### **To start Instantaneous sampling:**

- Click <File>.
- Click <Sample Instantaneous>. A check will occur to the left of the menu item indicating sampling is in progress.
- The application will start sampling the entire 3DM-GX1 network and will display the orientation matrix of the device selected in the Address frame. **N.B.** The radio buttons are the selectors; the check boxes have no current function.

### **To stop Instantaneous sampling:**

- Click <File>.
- Click <Sample Instantaneous>. The check to the left of the menu item will disappear indicating sampling has stopped.

### **To capture bias:**

- Click <File>.
- Click <Capture Bias>.
- **Note:** Review 3DM-GX1 User Manual for use of this function.

**To save data to a file:**

- Click <File>.
- Click <Save>.
- A “common dialog” box named Save As will appear.
- You may create a new name for the data file in the File Name textbox and select a file type in the Save As Type textbox or you may select an existing file as the data file. Click the Save button. The common dialog will disappear.
- A check will now appear to the left of the <Save> menu item indicating that a file is in place to receive data anytime sampling is active.

**To stop saving data to a file:**

- Click <File>.
- Click <Save>. The check to the left of the menu item will disappear indicating saving has stopped.

**To return to Main screen:**

- Click <File>.
- Click <Return>.

## **Quaternions**

From Main screen

Click <Display>

Click <Quaternions>

The Quaternions screen allows the user to conduct either a Gyro-Stabilized or an Instantaneous quaternions sampling session. The screen allows the user to start a session, record a session, capture bias and stop a session.

### **To start Gyro-Stabilized sampling:**

- Click <File>.
- Click <Sample Gyro-Stabilized>. A check will occur to the left of the menu item indicating sampling is in progress.
- The application will start sampling the entire 3DM-GX1 network and will display the quaternions of the device selected in the Address frame. **N.B.** The radio buttons are the selectors; the check boxes have no current function.

### **To stop Gyro-Stabilized sampling:**

- Click <File>.
- Click <Sample Gyro-Stabilized>. The check to the left of the menu item will disappear indicating sampling has stopped.

### **To start Instantaneous sampling:**

- Click <File>.
- Click <Sample Instantaneous>. A check will occur to the left of the menu item indicating sampling is in progress.
- The application will start sampling the entire 3DM-GX1 network and will display the quaternions of the device selected in the Address frame. **N.B.** The radio buttons are the selectors; the check boxes have no current function.

### **To stop Instantaneous sampling:**

- Click <File>.
- Click <Sample Instantaneous>. The check to the left of the menu item will disappear indicating sampling has stopped.

### **To capture bias:**

- Click <File>.
- Click <Capture Bias>.
- **Note:** Review 3DM-GX1 User Manual for use of this function.

**To save data to a file:**

- Click <File>.
- Click <Save>.
- A “common dialog” box named Save As will appear.
- You may create a new name for the data file in the File Name textbox and select a file type in the Save As Type textbox or you may select an existing file as the data file. Click the Save button. The common dialog will disappear.
- A check will now appear to the left of the <Save> menu item indicating that a file is in place to receive data anytime sampling is active.

**To stop saving data to a file:**

- Click <File>.
- Click <Save>. The check to the left of the menu item will disappear indicating saving has stopped.

**To return to Main screen:**

- Click <File>.
- Click <Return>.

## **Quaternions and Vectors**

From Main screen

Click <Display>

Click <Quaternions and Vectors>

The Quaternions and Vectors screen allows the user to conduct a Gyro-Stabilized Quaternions and Instantaneous Vectors sampling session. The screen allows the user to start a session, record a session, capture bias and stop a session.

### **To start sampling:**

- Click <File>.
- Click <Sample>. A check will occur to the left of the menu item indicating sampling is in progress.
- The application will start sampling the entire 3DM-GX1 network and will display the quaternions of the device selected in the Address frame. **N.B.** The radio buttons are the selectors; the check boxes have no current function.

### **To stop sampling:**

- Click <File>.
- Click <Sample>. The check to the left of the menu item will disappear indicating sampling has stopped.

### **To capture bias:**

- Click <File>.
- Click <Capture Bias>.
- **Note:** Review 3DM-GX1 User Manual for use of this function.

### **To save data to a file:**

- Click <File>.
- Click <Save>.
- A “common dialog” box named Save As will appear.
- You may create a new name for the data file in the File Name textbox and select a file type in the Save As Type textbox or you may select an existing file as the data file. Click the Save button. The common dialog will disappear.
- A check will now appear to the left of the <Save> menu item indicating that a file is in place to receive data anytime sampling is active.

### **To stop saving data to a file:**

- Click <File>.
- Click <Save>. The check to the left of the menu item will disappear indicating saving has stopped.

**To return to Main screen:**

- Click <File>.
- Click <Return>.

## **Sensor Bits**

From Main screen

Click <Display>

Click <Sensor Bits>

The Sensor Bits screen allows the user to conduct a sensor bits sampling session. The screen allows the user to start a session, record a session and stop a session.

### **To start sampling:**

- Click <File>.
- Click <Sample>. A check will occur to the left of the menu item indicating sampling is in progress.
- The application will start sampling the entire 3DM-GX1 network and will display the sensor bits of the device selected in the Address frame. **N.B.** The radio buttons are the selectors; the check boxes have no current function.

### **To stop sampling:**

- Click <File>.
- Click <Sample>. The check to the left of the menu item will disappear indicating sampling has stopped.

### **To save data to a file:**

- Click <File>.
- Click <Save>.
- A “common dialog” box named Save As will appear.
- You may create a new name for the data file in the File Name textbox and select a file type in the Save As Type textbox or you may select an existing file as the data file. Click the Save button. The common dialog will disappear.
- A check will now appear to the left of the <Save> menu item indicating that a file is in place to receive data anytime sampling is active.

### **To stop saving data to a file:**

- Click <File>.
- Click <Save>. The check to the left of the menu item will disappear indicating saving has stopped.

### **To return to Main screen:**

- Click <File>.
- Click <Return>.

## **Vectors**

From Main screen

Click <Display>

Click <Vectors>

The Vectors screen allows the user to conduct either a Gyro-Stabilized or an Instantaneous vectors sampling session. The screen allows the user to start a session, record a session, capture bias and stop a session.

### **To start Gyro-Stabilized sampling:**

- Click <File>.
- Click <Sample Gyro-Stabilized>. A check will occur to the left of the menu item indicating sampling is in progress.
- The application will start sampling the entire 3DM-GX1 network and will display the vectors of the device selected in the Address frame. **N.B.** The radio buttons are the selectors; the check boxes have no current function.

### **To stop Gyro-Stabilized sampling:**

- Click <File>.
- Click <Sample Gyro-Stabilized>. The check to the left of the menu item will disappear indicating sampling has stopped.

### **To start Instantaneous sampling:**

- Click <File>.
- Click <Sample Instantaneous>. A check will occur to the left of the menu item indicating sampling is in progress.
- The application will start sampling the entire 3DM-GX1 network and will display the vectors of the device selected in the Address frame. **N.B.** The radio buttons are the selectors; the check boxes have no current function.

### **To stop Instantaneous sampling:**

- Click <File>.
- Click <Sample Instantaneous>. The check to the left of the menu item will disappear indicating sampling has stopped.

### **To capture bias:**

- Click <File>.
- Click <Capture Bias>.
- **Note:** Review 3DM-GX1 User Manual for use of this function.

**To save data to a file:**

- Click <File>.
- Click <Save>.
- A “common dialog” box named Save As will appear.
- You may create a new name for the data file in the File Name textbox and select a file type in the Save As Type textbox or you may select an existing file as the data file. Click the Save button. The common dialog will disappear.
- A check will now appear to the left of the <Save> menu item indicating that a file is in place to receive data anytime sampling is active.

**To stop saving data to a file:**

- Click <File>.
- Click <Save>. The check to the left of the menu item will disappear indicating saving has stopped.

**To return to Main screen:**

- Click <File>.
- Click <Return>.

## Help section

## ***Help***

From Main screen

Click <Help>

Click <Help>

The Help menu item launches Adobe Acrobat which in turn displays this 3DM-GX1 Help file (in .pdf format).

## **About**

From Main screen

Click <Help>

Click <About>

The About screen is for informational purposes only and relates 1) the software name and version, 2) the copyright, and 3) the company name, address, website and telephone.

### **To return to Main screen:**

- Click <OK> to return to Main screen.