

Version

2.0.0

MICROSTRAIN, INC.

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.