SENSR®

STRUCTURAL MONITORING SOLUTIONS™

GP2x
User Guide

USB ACCELEROMETER

Version 1.0
February 7, 2010

TABLE OF CONTENTS

1   PREAMBLE

1.1   FCC Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

This device may not cause harmful interference.

This device must accept any interference received, including interference that may cause undesirable operation.

This device must only be used with the supplied interface cables. A Class A digital device is intended for use in commercial, business and industrial environments.

1.2   Software License Agreement

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1.3   Acceptable Use

The SENSR GP2x is a general-purpose instrument only, it is not recommended for any use that requires critical measurement or precision triggering. The GP2x is not to be used for:

- Critical testing
- Monitoring life support or patient diagnoses
- Any type of input or controller for any process or system including but not limited to:
  - Automated production or manufacturing
  - Life support or patient diagnosis
  - Vehicle or machine control
  - Emergency, redundant or back up systems

The GP2x is designed to be used in a protected environment and should not be exposed to liquids.

It is the responsibility of the user to confirm that any use of the product conforms with all country, federal, state, county, municipal laws, ordinances and regulations, if any, applicable to the transport and use of the GP2x.

2   CX1 NETWORK ACCELEROMETER AND INCLINOMETER

2.1   General

The GP2x USB Accelerometer is a 3 - axis motion sensing instrument that allows the user to monitor, record and evaluate; motions, impacts, shocks, drops, orientations and temperature.

2.2   Specifications

Size:	3.935" x 2.560" x 1.140"
Weight:	5.5 oz
Housing Material:	6061 - T6 Aluminum
Power:	25mA max.
Connectivity:	USB
Accelerometer Type:	Programmable 3 Axis MEMS
Accelerometer Range:	User programmable ±2.5, ±3.3, ±6.7, and ±10G
Frequency Response:	DC - 45Hz
Sampling Rate:	400samples/sec per axis
Device Temperature Range:	-20°C to +70°C (-4°F to 158°F)

Note: GP2xL features a high sensitivity accelerometer that has 4 programmable ranges: 1.5g, 2g, 4g and 6g.

2.3 Acceleration Ranges

The GP2x incorporates a programmable 3-axis MEMS accelerometer. The user can select which range is appropriate for their application. It is recommended the user select the lowest range reasonable for their application, as this will optimize data. Choosing an acceleration range does not limit the survivability of the accelerometer, which is shock rated for more than 1000Gs.

2.4 Real-Time Data Capture Mode

The GP2x is a real-time data capture instrument—the user sees the real-time acceleration values as they are occurring. The user can control when the system records/displays data. Recording control can be done on the PC or at the instrument. USB extenders can be used with the GP2X to increase the cable length if required.

2.5 LED Status Indicator

The GP2X has an LED indicator that is used to quickly determine the status of the unit. Depending upon the unit's status the LED will flash green, yellow or red. Each flash color and flash frequency has a specific meaning:

Red, Green, Yellow flash	Instrument is initializing
Green Flash	Instrument is ready to sample data

2.6 Start Button

The GP2x features a top mounted "start" button—this button can be used to control when data is being recorded.

2.7 Temperature

The unit has an internal temperature sensor that is used for accelerometer temperature compensation. The sensor is placed adjacent to the accelerometer and measures the internal temperature of the GP2x. The temperature sensor is factory calibrated to be within ±1.5 ° C. Since the GP2x is an extremely low-power device and does not generate any appreciable heat, it does not affect the reported temperature. The GP2x samples temperature every 10 seconds.

The GP2x's temperature response rating is:

Moving Air
- Time to reach 50% of temperature difference
- 5 minutes 10 seconds
- Time to reach 90% of temperature difference
- 19 minutes

Still Air
- Time to reach 50% of temperature difference
- 11 minutes 15 seconds
- Time to reach 90% of temperature difference
- 1 hour 8 minutes

3   SYSTEM SET-UP

3.1   Installing the Software

This device Please verify that your PC meets the following minimum system requirements:
Operating System: Windows XP SP2, Vista, Windows 7

Note: USB driver support for 32-bit OS only.

CPU:	Pentium 4, 1.4 GHz
System Memory (RAM):	1GB
Hard Disk:	2 GB free space (for data files)
Display:	1024 x 768, 32-bit "True Color"
Microsoft .NET Frameworks:	2.0 Service Pack 2 or newer and 3.5 SP1 or newer

The software for the GP2x USB Accelerometer is based upon Microsoft's .NET Framework. The user can download this environment from Microsoft using the Windows update utility. Depending on the update settings the "Custom" update option may need to be selected. The .NET Framework 3.5 is considered an optional component and is listed in the Software category.

SensView – A graphics-based data viewer and analyzing program that lets users review real-time and collected data. The program can be used for short-duration monitoring and recording of data from one GP2X.

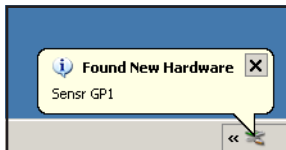**You must install the .NET Framework 3.5 before you install the Sensview application.**

SensView is contained in a compressed folder located in the Applications folder on the SENSR CD. Double-click the icon for the compressed folder, a window should open to show the contents of the compressed folder. Drag the folder inside the window to a location on your desktop. SensView is now located inside this folder on your desktop and is ready to be launched.

To execute the program, double-click the SensView.exe file.

3.2   Connecting the GP2x and Installing the USB Drivers

The SENSR GP2x USB Accelerometer communicates with the computer via USB. Device driver software is required for communication between your PC and each SENSR instrument. Start the driver installation by ensuring that the SENSR CD is in your PC and then connect the GP2X to the host computer.

 You should see an indication near the system tray that the computer has detected new hardware.
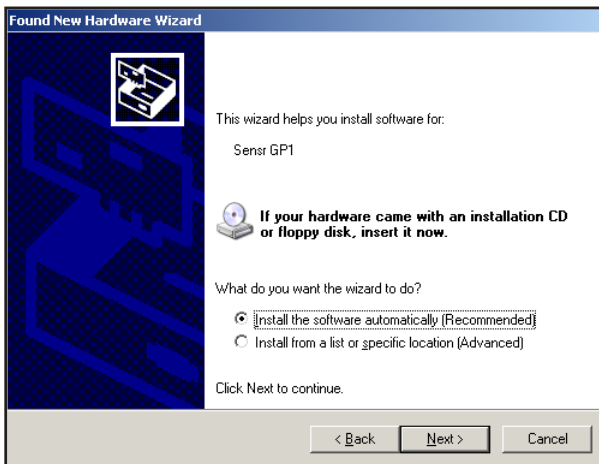
A moment later, a dialog will appear for the Found New Hardware Wizard. Do not allow the wizard to connect to Windows Update to search for software. Click the Next button.

Allow the wizard to install the software automatically. Windows should search the SENSR CD for the appropriate drivers. If the wizard cannot find the correct software, you can install from a specific location. The drivers are located on the SENSR CD in the Drivers\Sensr GP Series Device Drivers Vx.x.x

A warning will appear to advise you that the software has not passed Windows Logo testing. This is not a problem. Click the Continue Anyway button.

When the wizard is finished, this dialog appears. Click the Finish button.

You should see an indication near the system tray that the computer has finished installing the hardware.

4   MISCELLANEOUS

4.1   GP2X Maintenancee

Cleaning   The GP2X can be cleaned by dampening a cloth with Windex™ and wiping down the exterior surfaces. Do not spray cleaning fluid directly on the GP2X.

Calibration   The GP2X uses a DC response accelerometer and is calibrated using the Earth's gravity. The unit is factory-calibrated using precision surface plates and temperature chambers; users who want to check the calibration of their unit can connect a unit to the PC. If it is suspected the unit requires calibration the user can contact the factory to arrange a review.

Storage   Store the unit in a dry, indoor environment.

4.2   Technical Support

For questions about the GP2x or an application, e-mail support at support@Sensr.com or call 563.245.3750. Standard hours of operation are 8 am - 5 pm CST, M—F.

4.3 Product Warranty

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