



GP2x USB Accelerometer User Manual



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1 Preamble

1.1 FCC Statement

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

- 1) This device may not cause harmful interference, and
- 2) This device must accept any interference received, including interference that may cause undesirable operation

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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:

- i) Critical testing
- ii) Monitoring life support or patient diagnoses
- iii) Any type of input or controller for any process or system including but not limited to:
 - a) Automated production or manufacturing
 - b) Life support or patient diagnosis
 - c) Vehicle or machine control
 - d) 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 GP2x USB Accelerometer

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

GP2x USB Accelerometer 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 $\pm 10G$
Frequency Response:	DC - 45Hz
Sampling Rate:	400samples/sec per axis
Device Temperature Range:	-20°C to +70°C

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

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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, the accelerometer 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

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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 Setup

3.1 Installing the Software

Before installing the software verify that the computer meets the following minimum systems requirements:

NOTE: only 32 bit Operating Systems are supported

- Operating System: Windows XP SP3 or Vista
- CPU: Pentium 4, 2.00 GHz
- System Memory (RAM): 512 MB
- Hard Disk: 200 MB free space
- Display: 1024 x 768, 32-bit "True Color"

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.

You must install the .NET Framework 3.50 before you install the Sensware application.

To install the Sensware application:

- a) Insert the CD into your CD/ DVD drive,
- b) Double-click your My Computer icon
- c) Double-click your CD / DVD drive icon.
- d) Double-click the Sensware2 zipped folder icon (See Figure 1).
- e) Drag the Sensware2 folder from the zipped folder window to an appropriate location on your PC (for example, drag the folder to your desktop.)
- f) Launch Sensware2 by opening the folder copied in step E and double-clicking on the Sensware2 icon.



Sensware2
v2.2.13.zip

Figure 1
Zipped folder icon

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Figure 2
Sensware 2 icon

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.

To install the GP2X Device Drivers for a SENSR instrument:

- a) Insert the CD into your CD/ DVD drive,
- b) Double-click your My Computer icon
- c) Double-click your CD / DVD drive icon.
- d) Double-click the SENSR GP Series Device Drivers zipped folder icon
- e) Drag the SENSR GP Series Device Drivers folder from the zipped folder window to an appropriate location on your PC (for example, drag the folder to your desktop.)
- f) Connect the SENSR GP2X USB cable to your PC.
- g) You should see an indication near the system tray that the computer has detected new hardware.



Figure 3
New Hardware Detected

- h) 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.

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Figure 4
New Hardware Wizard

- i) Allow the wizard to install the software automatically. If the wizard cannot find the correct software, you can install from a specific location. The location to use is the folder copied to your PC in step E.

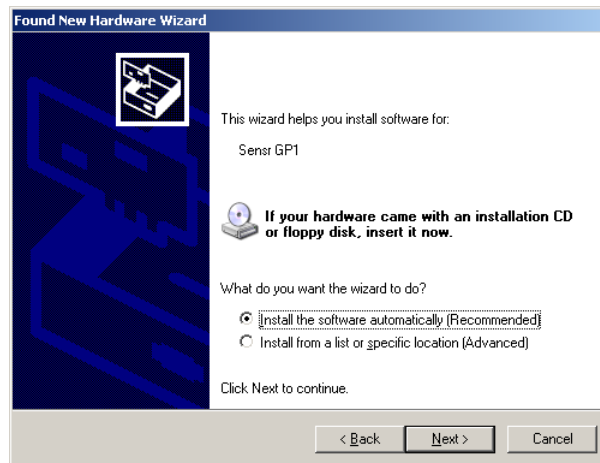


Figure 5
Install Automatically

- j) 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.

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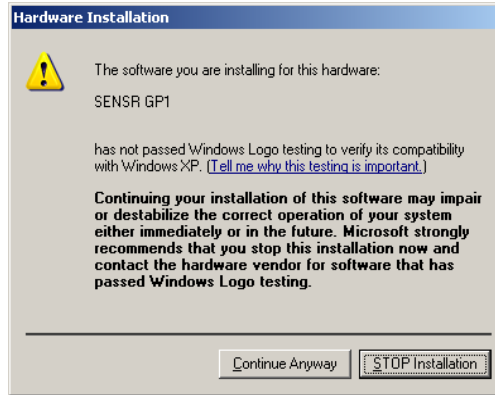


Figure 6
Windows Logo Testing

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



Figure 7
New Hardware Wizard Complete

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

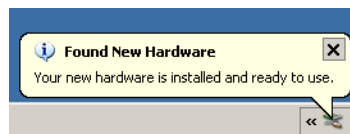


Figure 8
New Hardware Installed

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4 Miscellaneous

4.1 GP2X Maintenance

- 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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