SteViSens® 62

Users Manual for the PC software

Store data on the USB-stick

When an USB-stick is inserted to SteViSens® 62, data-collection and displaying of data in the LED bargraph stops temporarily, and data collected within the last 10 seconds are stored on the USB-stick.
This phase is indicated by only the top left-side red LED is turned ON.

When storing data is completed, SteViSens® 62 returns to normal display mode.
You can now remove the USB-stick.

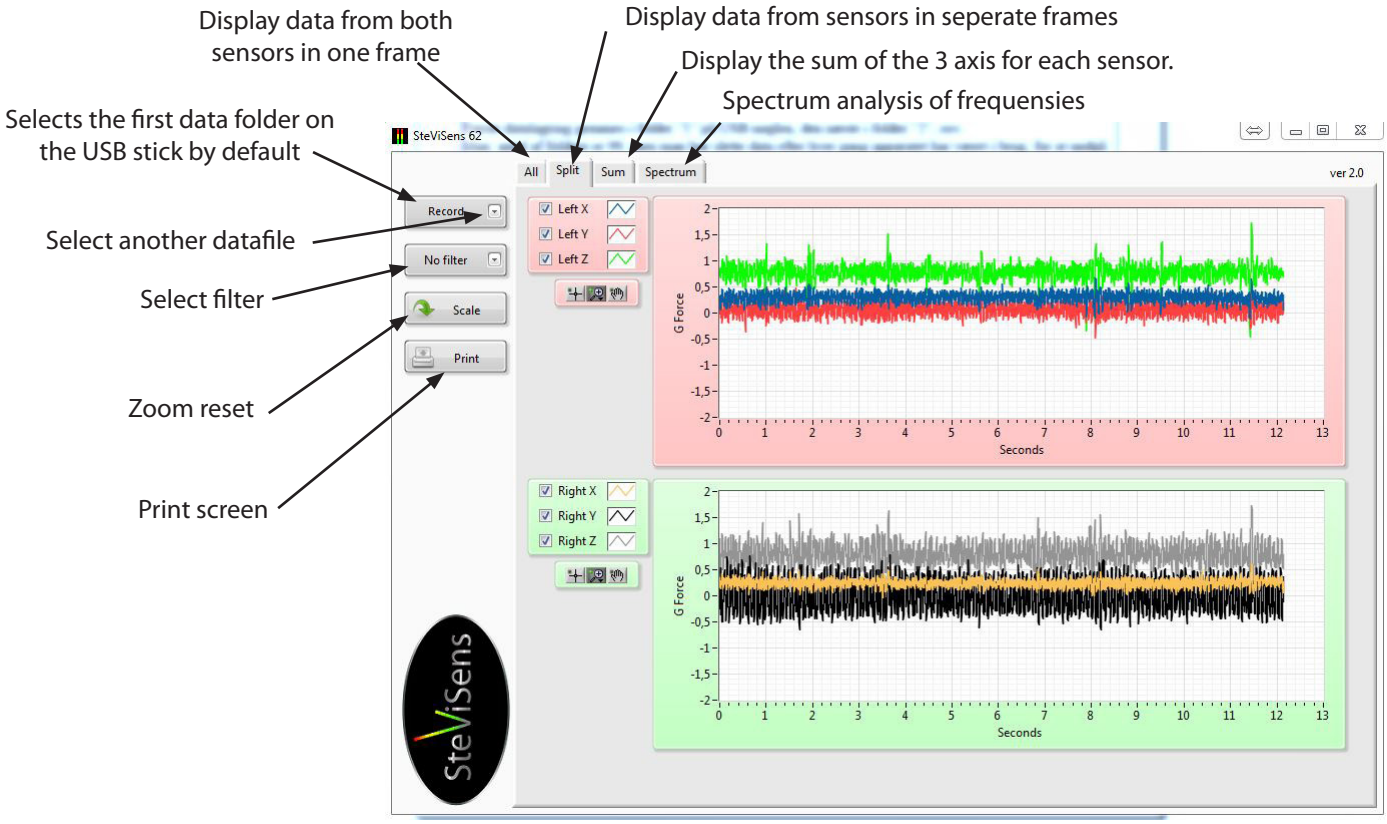
For a second data dump, just insert the USB-stick again. The first data dump are stored in a folder named '1', the second in folder '2', etc. Maximum numbers of folders are 99.

It is recommended to delete datafiles on the USB-stick after each session, to avoid mixing data from two different vehicles.
The sensors are measuring G-forces, and therefore at least one of the axis will be influenced by gravity from the earth. During power-up SteViSens® 62 compensates for this, and will not display this force in the LED bargraph.

Analyse data

Start the program and insert the USB stick with data, into a USB port on the PC. The program will automatically display data from the first data-folder on the USB stick. Typically folder '1'.

Functions:

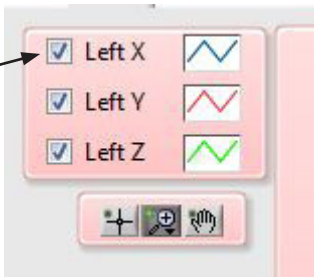


Scaling and display of the measurement result

Immediately the result may look confusing, or at worst incomprehensible.
But with options to zoom in and out, and suppressing the display of one or more axes, the result will be useful and can thus help in troubleshooting.

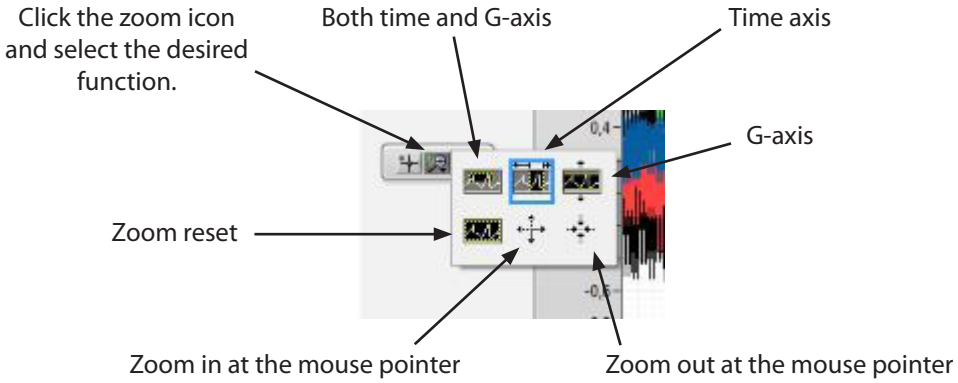
Turn each axis on or off

Click on the little white square, to set or remove the tick.



Zoom functions

First select a zoom function , then select the desired area of the image.
Hold down the left mouse button , delimit the desired area and release the button.



Display in the *Split* window

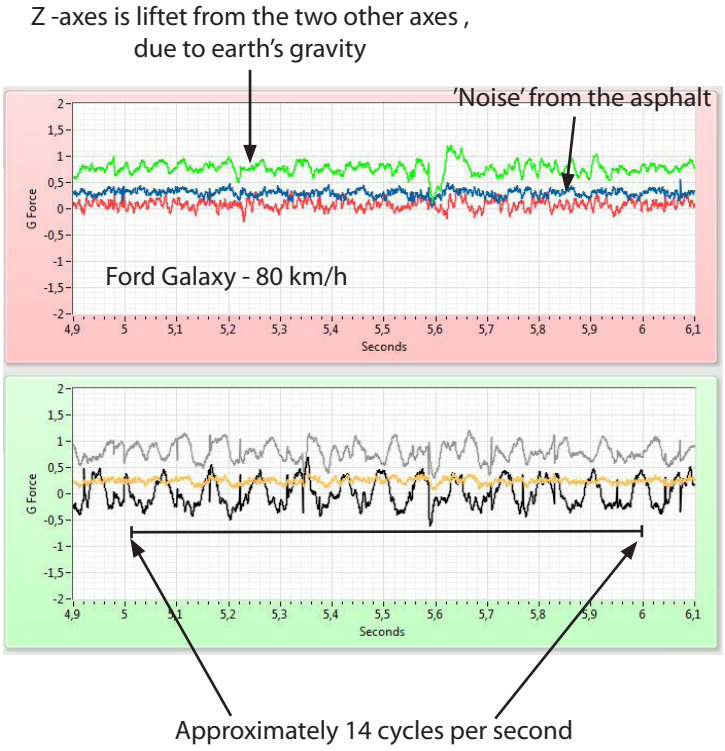
Measured data come from a Ford Galaxy with vibrations in the steering wheel around 80 km/h. The sensors were placed on the two front supporting arms , as close to the wheels as possible

The time axis is zoomed in to about 1 sec .

It is clearly seen that the cause must be found to the right.

The vibration frequency can be read to about 14 cycles per second (14Hz) ,which fits with the wheels revolutions per second at 80 km/h.

Displayed data file is on the USB key with the PC program, in the folder named *Demo*.



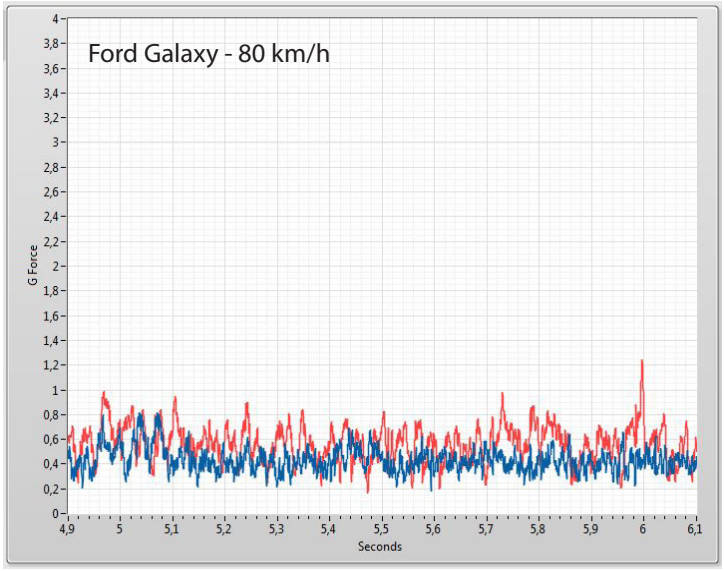
Display in the *Sum* window

Data are shown as the sum of the 3 axes of the left and right sensor.

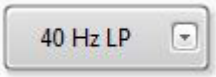
This view is identical to what could be seen in the LED bargraph while driving.

The time axis is zoomed in to about 1 sec.

The curve for the right sensor is generally higher than that of the left , indicating that the cause of the vibrations are to be found on the right side.



Use of frequency filters

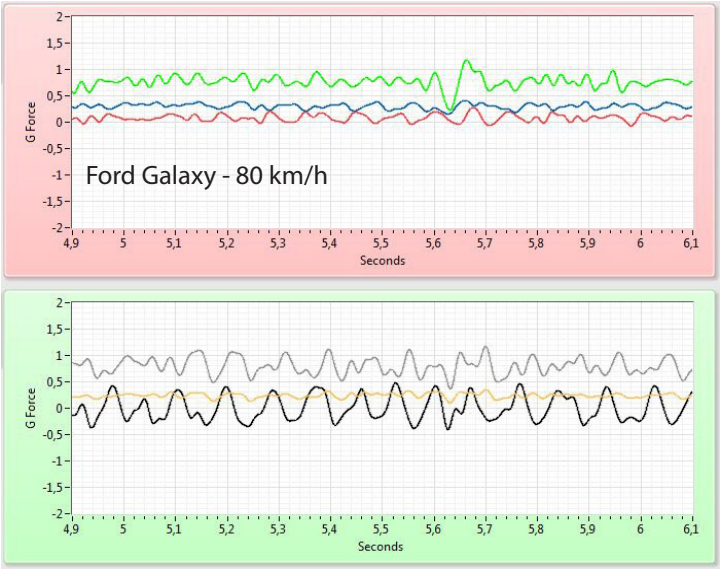


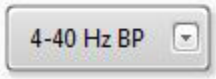
The data shown are the same as shown in *Display in the Split window*, only is the filter ’40 Hz LP’ activated.

LP means low-pass, which means that the filter filters out frequencies above 40Hz.

It therefore removes ’noise’ from among other engine, gearbox and asphalt.

This highlights the vibrations that are related to the wheels revolutions per seconds .



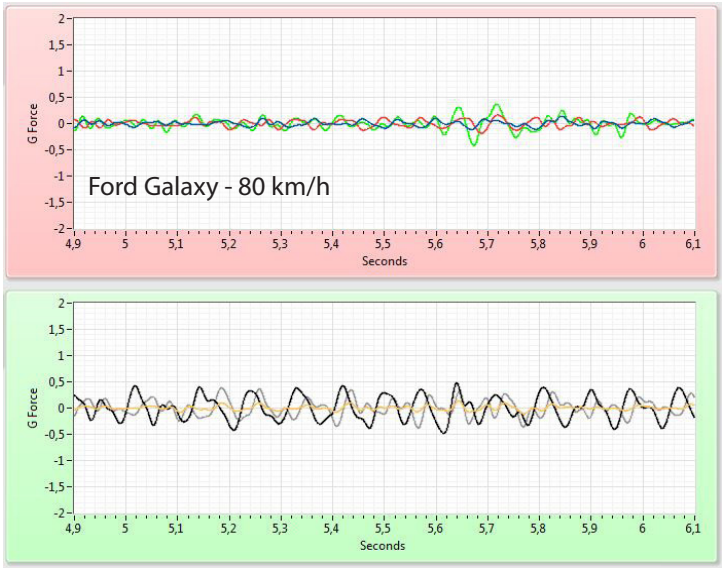


The data shown are the same as shown in *Display in the Split window*, only is the filter ’4-40 Hz BP’ activated

BP means bandpass, which means that the filter allows frequencies between 4Hz and 40Hz. Lower and higher frequencies removed.

The main difference from the ’40 Hz LP’ filter is that this filter removes the influence of the earth’s gravity , so all axes is around zero G.

Still no question of the fault to be found in the right side.



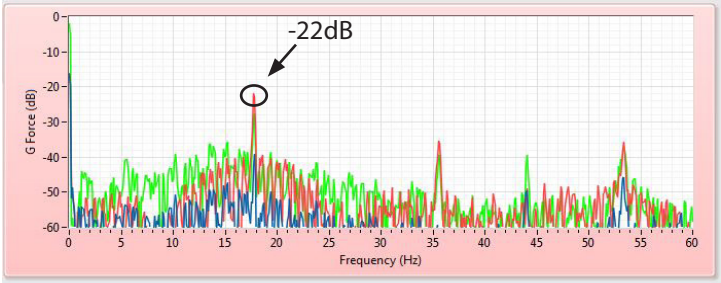
Using Spectrum Analysis

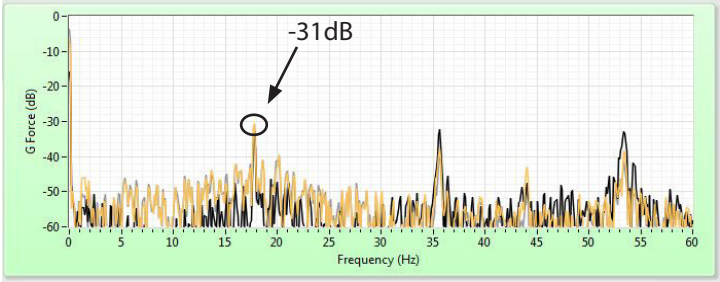
Spectrum analysis is used to see which frequencies are measured and how powerful they are each. Here one needs to know the wheel revolutions per second , at the particular speed.

This measurement is from BMW 530D where the wheels rotating at 18 rev/sec . (18Hz)

dB scale is logarithmic and goes from 0dB to -60dB.
6dB = x2, 10dB = x3, 20dB = x10
0dB corresponds to a force of 2G.

The measured difference of 9 dB , corresponding to the vibration of the left-hand side is almost 3 times stronger than on the right.





USB stick

The USB key contains in addition to the PC program, installation and user guides, a file named *SETUP.txt*

The file contains a number that determines how many seconds each data collection stores to the stick.
Max. value is 50 , corresponding to 50 seconds.
If the file is missing, 10sec. will be stored as default.
Change the value using *notepad.exe*

Any USB stick can be used, but they must be formatted to FAT32/16K and named *STEVISENS*