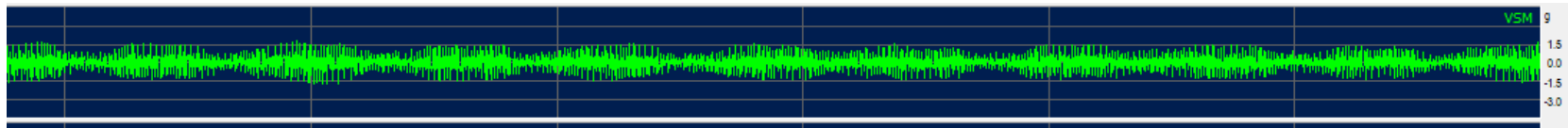


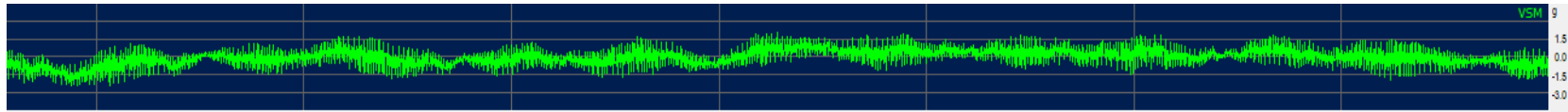
Indication of Sensor Failure

If you see a drift in DC offset of an accelerometer time signal as shown below, this can be an indication of a damaged sensor!

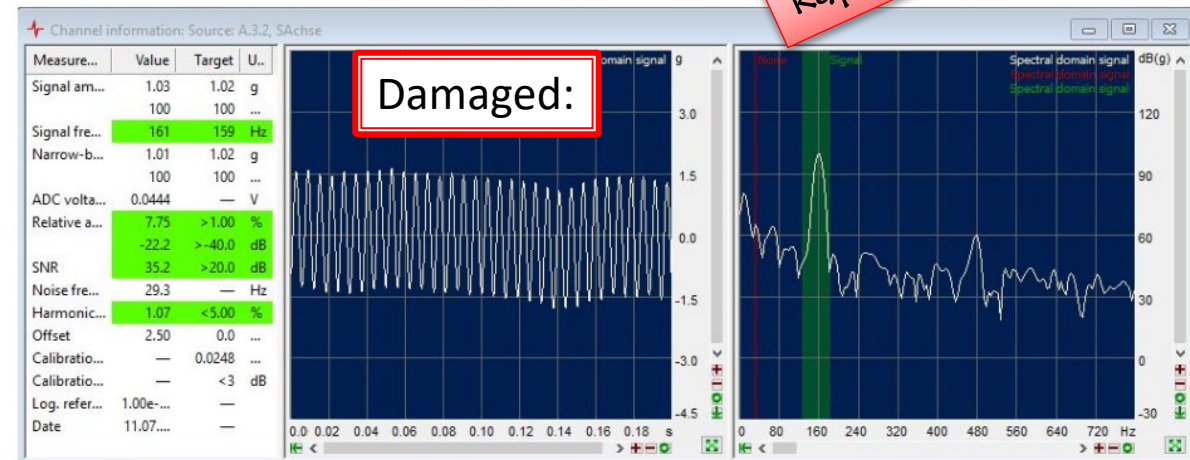
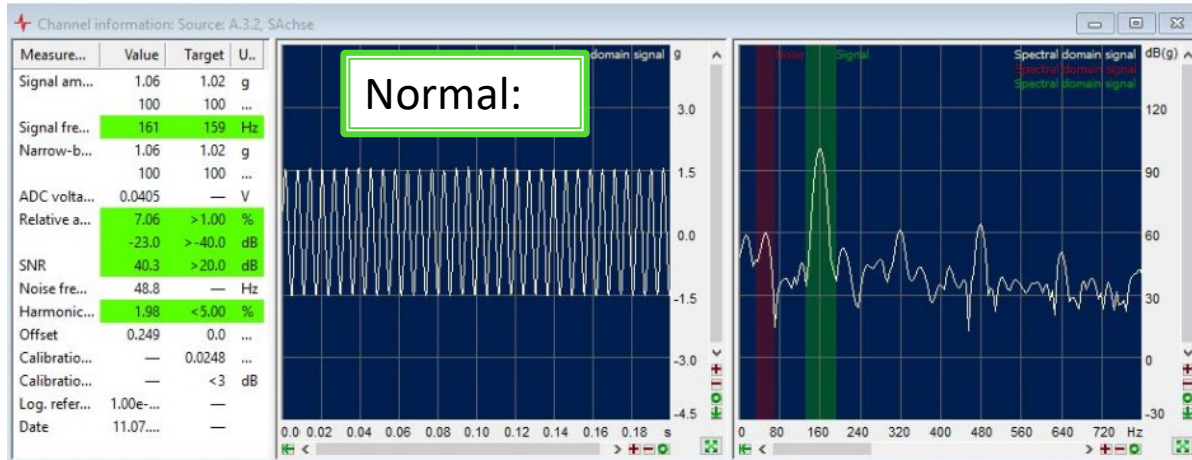
Normal:



Damaged:



The effect can also be seen in the Calibrator:

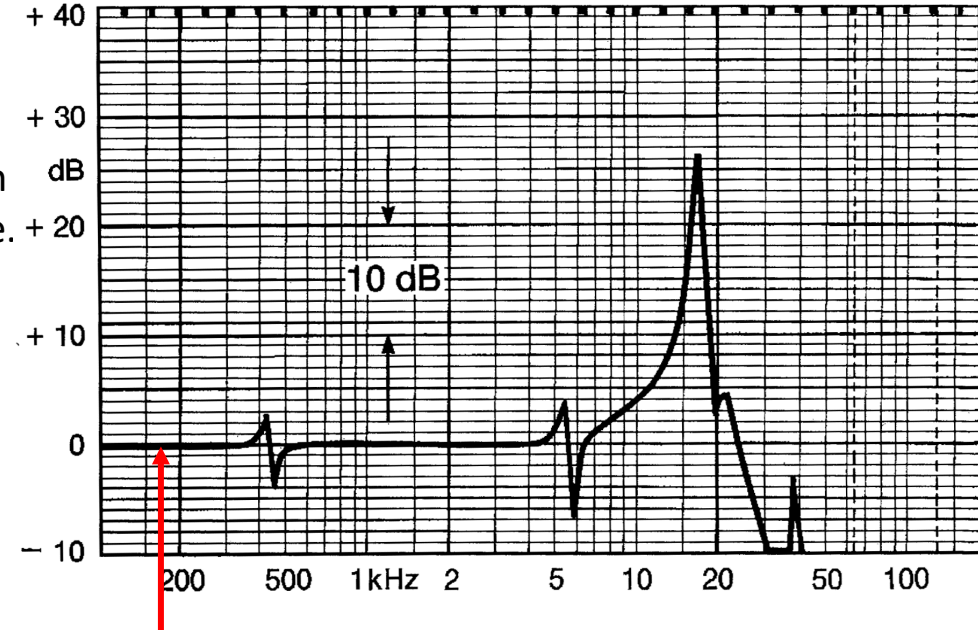


Piezoelectric accelerometers can get damaged if hit sharply from the side or dropped to hard floor. This can crack the piezo crystal and produce signal artifacts as shown above, or also artificial high frequency components beyond 10 kHz.

Dangers for Accelerometers

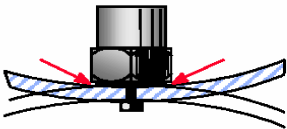
If the piezo crystal gets cracked due to hard hits, the sensor produces artificial high frequency components – one more for each hit:

The graph on the right shows the spectrum for white noise excitation (autocorrelation spectrum) of a sensor which has been cracked twice. Note the resulting peaks at 17 kHz, 5.5 kHz and 450 Hz.

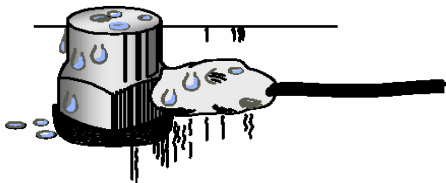


There are several possible dangers to piezo accelerometers:

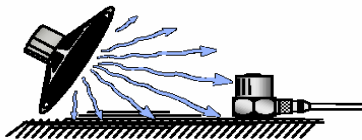
- Base Strain



- Humidity



- Acoustic noise



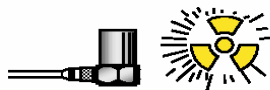
- Corrosive substances



- Magnetic fields



- Nuclear radiation



Calibration at 159.2 Hz will not show the damage directly!