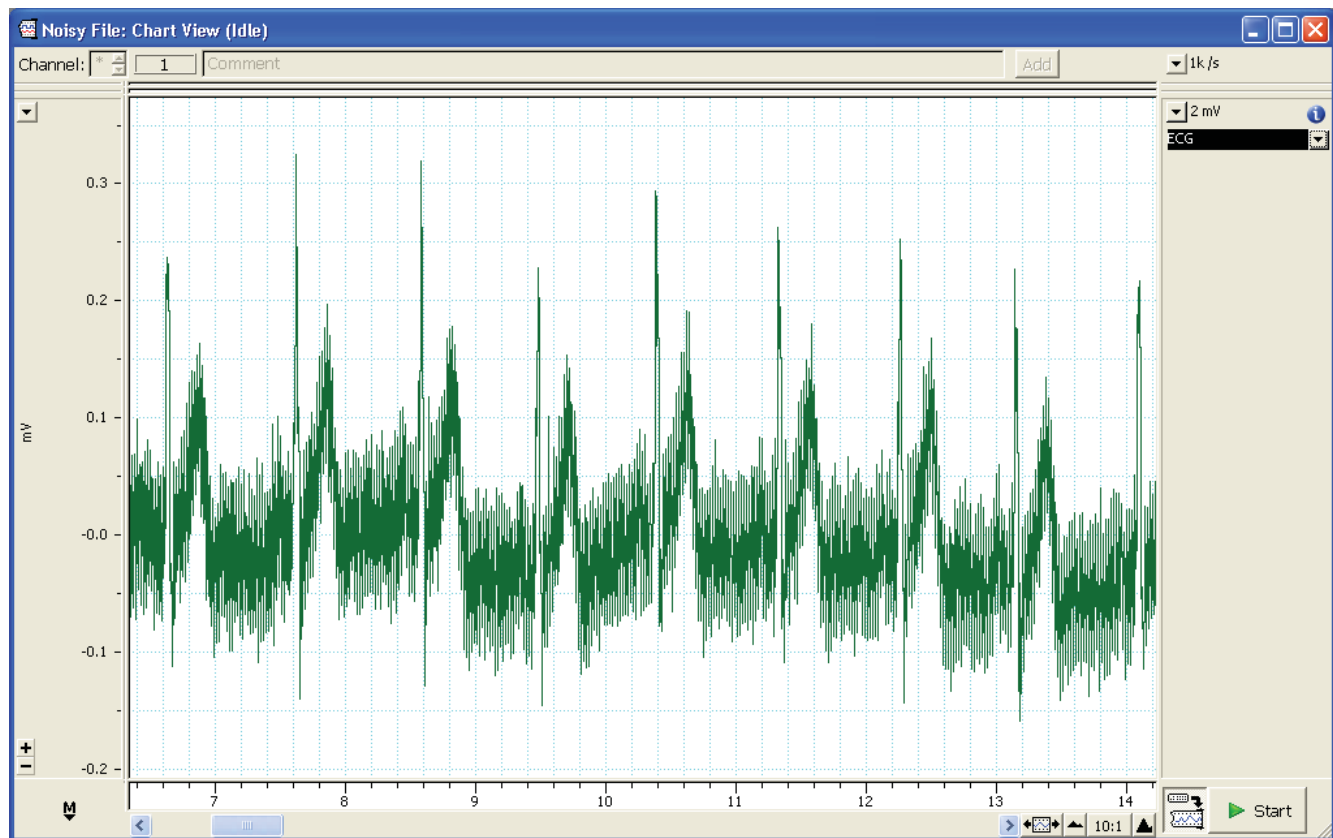


Electrical interference in labs can make obtaining quality recordings difficult at times. Finding and removing the source of such interference is sometimes challenging and occasionally impossible. However, ADInstruments Chart software provides a number of filtering options (hardware and software) for removing noise from these recorded signals.

## Step 1: Determine the frequency of the signal.

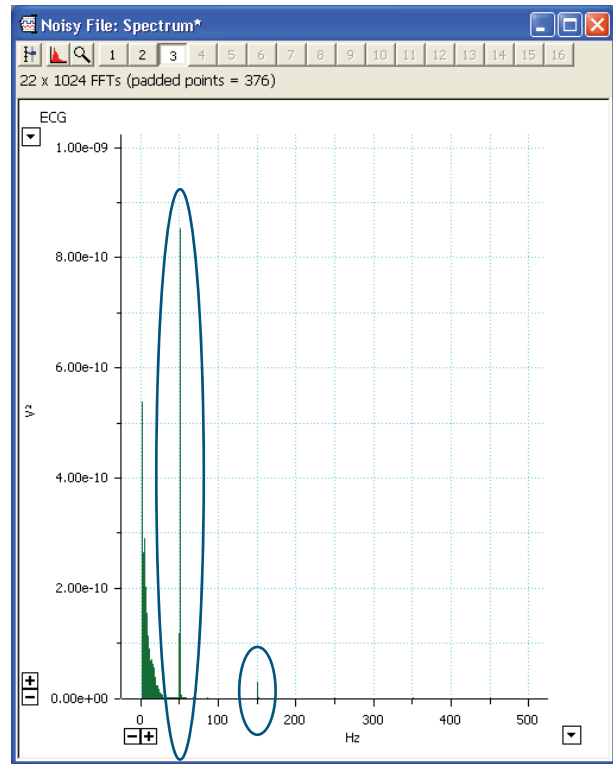
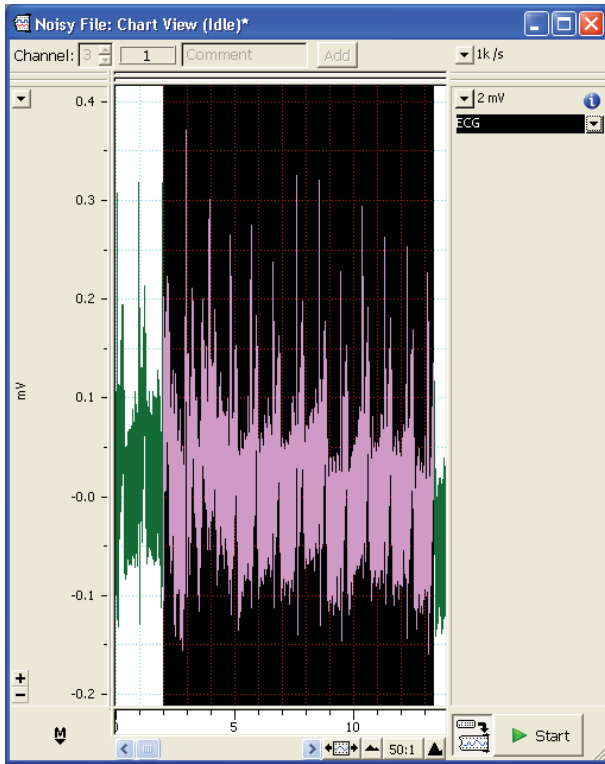
Record the signal of interest as well as the unwanted noise.



Select the newly recorded data.

Choose Spectrum > Window

- Ensure the channel button of the channel above the viewing area is selected
- Identify the frequency of noise, which are different from the frequency of expected signal. Often these other frequencies will be seen as spikes over a narrow frequency range.



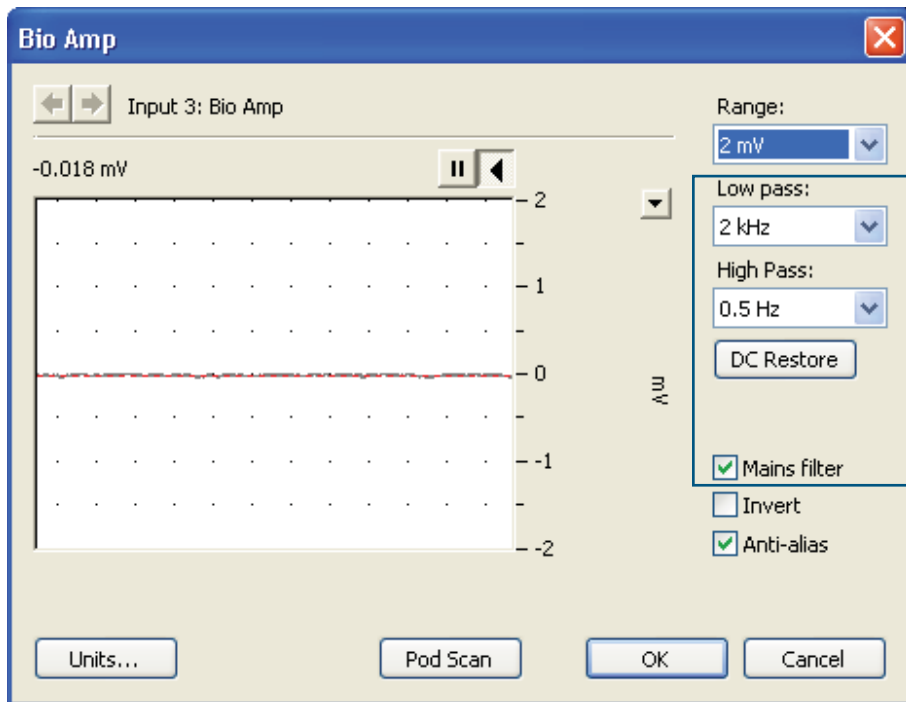
As shown above (right) the main component of noise within the signal occurs at 50Hz.

## Step 2: Removing noise

### A. Hardware option (software controlled filters that are built into the hardware):

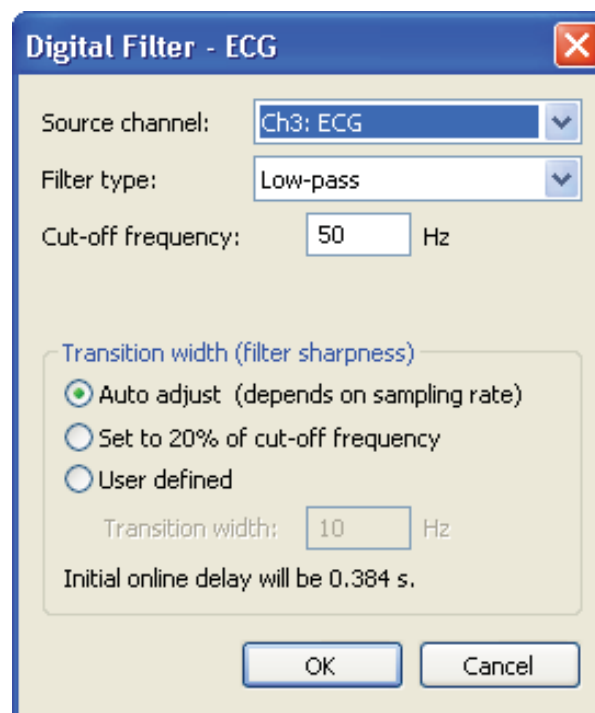
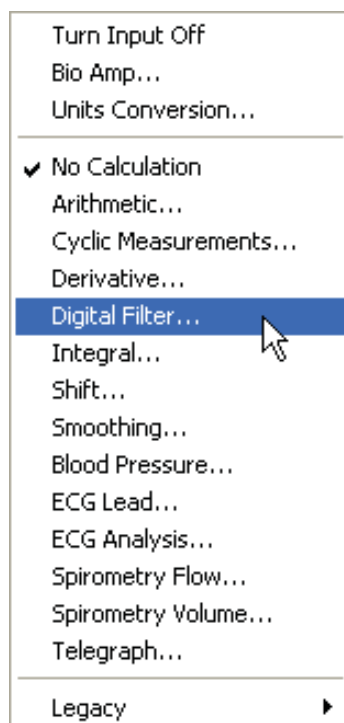
Select Input Amplifier from the channel pull down menu (different amplifier names will appear for each different front-end amplifier attached to the PowerLab).

- Low Pass Filter – removes frequencies higher than the set value (high frequency noise), but allows lower values to pass
- Mains Filter – removes the common 50 Hz mains frequency of electrical noise
- High Pass Filter – removes low frequency and DC components and is useful for removing drifting baselines in a signal

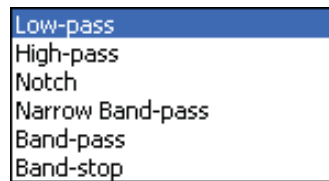


## B. Software option (software filters using calculations based on formulas):

Select Digital Filtering from the channel pull down menu.

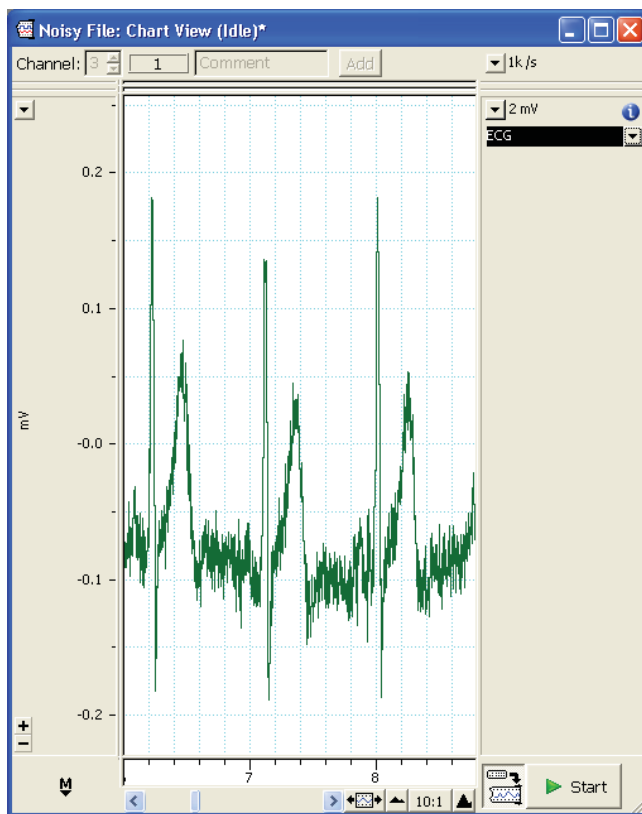


These software filters usually have more flexibility in removing specific frequencies and include filter types such as :-

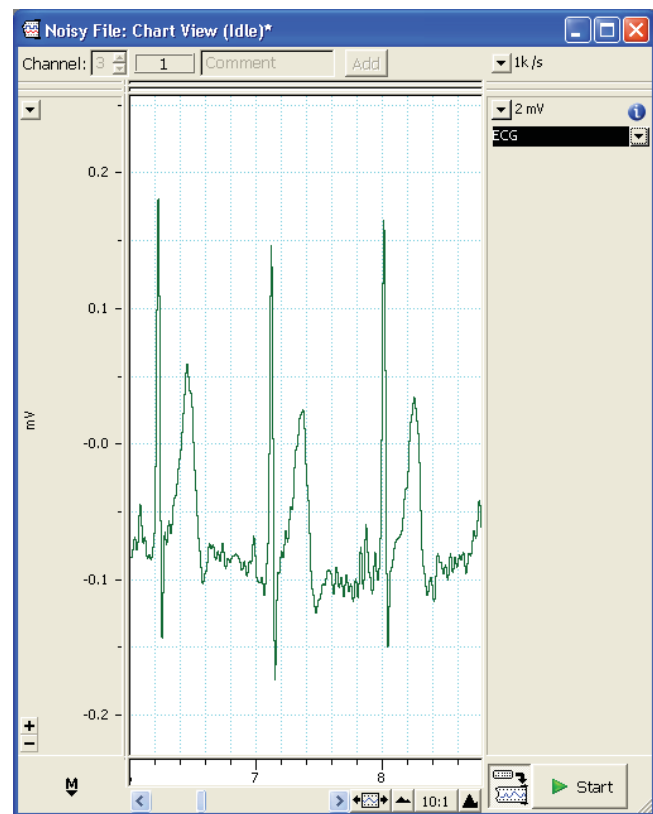


- Select the filter type
- Enter the parameters of the filter
- Click OK

Using these two filtering methods, the majority of signal interference can be removed from your recordings, as shown below.



*Before filtering*



*After filtering*