11. Press the [Slope/Oct] key until 6 dB/oct is selected.

Parameters which have only a few values, such as filter slope, have only a single key which cycles through all available options. Press the corresponding key until the desired option is indicated by an led.

The X and Y outputs are somewhat noisy at this short time constant and only 1 pole of low pass filtering.

The outputs are less noisy with 2 poles of filtering.

Press [Slope/Oct] again to select 12 dB/oct.

With 4 poles of low pass filtering, even this short time constant attenuates the 2f component reasonably well and provides steady readings.

Press [Slope/Oct] twice to select 24 db/oct.

Let's leave the filtering short and the outputs noisy for now.

Press [Slope/Oct] again to select 6 db/oct.

12. Press [Freq]

Show the internal reference frequency on the Reference display.

Use the knob to adjust the frequency to 55.0 Hz.

At a reference frequency of 55 Hz and a 6 db/oct, 3 ms time constant, the output is totally dominated by the 2f component at 100 Hz.

13. Press [Sync Filter]

This turns on synchronous filtering whenever the detection frequency is below 200 Hz.

Synchronous filtering effectively removes output components at multiples of the detection frequency. At low frequencies, this filter is a very effective way to remove 2f without using extremely long time constants.

The outputs are now very quiet and steady, even though the time constant is very short. The response time of the synchronous filter is equal to the period of the detection frequency (18 ms in this case).

This concludes this measurement example. You should have a feeling for the basic operation of the front panel. Basic lock-in parameters have been introduced and you should be able to perform simple measurements.