Stanford Research Systems
1290 D Reamwood Avenue, Sunnyvale, CA 94089
Phone: 408-744-9040 FAX: 408-744-9049
Email: info@thinkSRS.com Web: www.thinkSRS.com

QCM200 Drift

Below is a plot showing one hour of drift data taken under the following conditions:

Flow cell in place (a syringe was used to expel all bubbles)
Water bath set at 37 degrees C (+/- 0.1 deg C)
QCM200 Internal timebase used
QCM25 (not thermostatically controlled)

The relative resistance plot fit within a +/-1 ohm span and the relative frequency plot fit within a +/-1 Hz span, so the same axis is used for both quantities. The internal timebase of the QCM200 is only specified to 1 ppm. That means that you can not expect long-term results to be better than 5 Hz of drift without using a high stability external reference like the FS725.

The largest factor is temperature. Even using the water bath, the QCM25 temperature will move a few Hz with the room temperature unless you thermostatically control the QCM25 temperature. What you will often see is short term sinusoidal fluctuations (from the water bath controller turning on and off) riding on top of a longer term fluctuation from room temperature changes (air conditioner or heat turning on and off) affecting the QCM25.

The ultimate setup is a flow cell probe with a circulating water bath (often good to +/- 0.05 deg C), a heated, thermostatically controlled QCM25, and a Rb timebase (FS725).