

**Application:** Production/Quality

**Kemo Filter used:**  
DR 1200/10Hz/41 Low Pass

Example of wrong sensor selection which caused poor signal to noise ratio. A filter resolved the noise issues making the data clean enough to use.



### Application:

Kemo was contacted by a manufacturer of medical syringes who were having issues during a production/quality leak test of their syringes. During automatic production leak testing of the syringes, higher than expected failure rates were seen. When the 'failed' items were checked they passed inspection. It was concluded that the test rig was producing 'false' failures for this product.

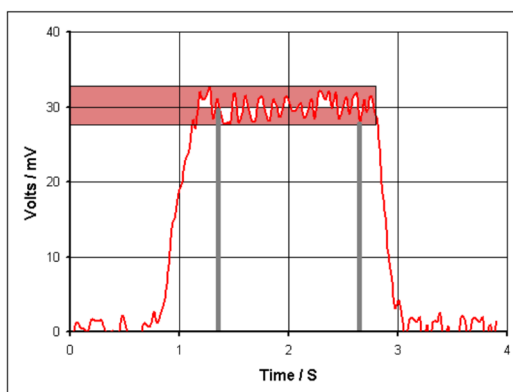
### Method applied:

The small low cost devices were tested on a 2 second cycle. They were inserted into the test rig, pressure was applied and measured, then 1.6 seconds later the pressure was measured again. The quality requirement was to have a very small pressure loss, during this time.

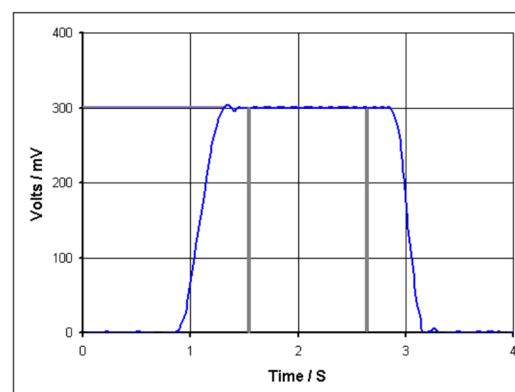
### Investigation:

Engineering investigation showed that the signal levels from the pressure transducer were low for this small device, and that there was also a higher than expected noise level on the signal, possibly due to nearby large machinery and motors. Kemo were contacted and after applications advice a CardMaster 1 was supplied fitted with a general purpose filter set to 10 Hz.

The combination of the filter and the amplification on the CardMaster 1 significantly removed the noise. The 'before filter installed' time history of the signal shows the noise and the possible error band on the signal during the measurement period. The 'after filter installed' time history shows the higher signal level, coupled with the reduced noise, to significantly reduce the error band on the measurement, by a factor of at least 20.



Before filter installed After filter installed



Error band ~ 12% Error band > 0.4%