

Problem

During automatic production leak testing of small disposable medical devices, 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

Description

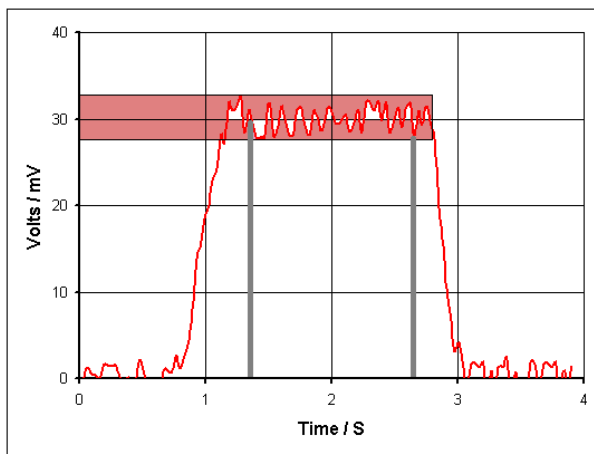
The small low cost devices were tested on a 2 second cycle. They were inserted into the test rig, pressure was applied and measured, and then 1.6 seconds later the pressure was measured again. The quality requirement was to have a very small pressure loss, during this time.

Solution

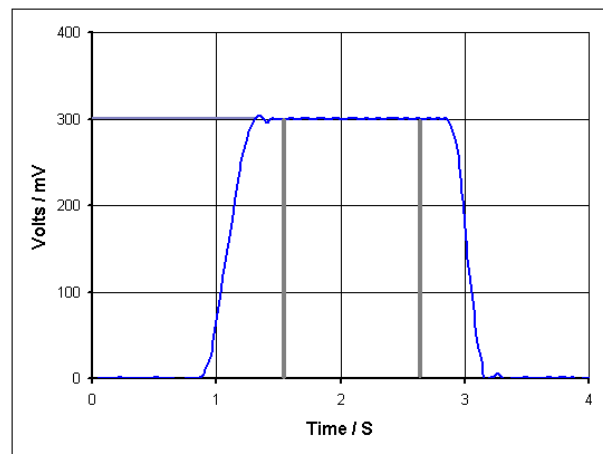
Engineering investigation showed that the signal levels from the pressure transducer were low for this small device, and that there was also a higher than expected noise level on the signal, possibly due to nearby large machinery and motors. Kemo were contacted and after applications advice a CardMaster 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
Error band ~ 12%



After filter installed
Error band > 0.4%

Conclusion

Installation of a Kemo CardMaster 1 unit with 10 Hz type 41 filter reduced false failures to almost zero.

Kemo produce a wide range of signal filters and signal conditioning systems. Visit www.kemo.com for more information.

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