

Pi^π Technical Note 03

pH Effects on Pi's Free Chlorine Sensor

How to interpret the pH graph

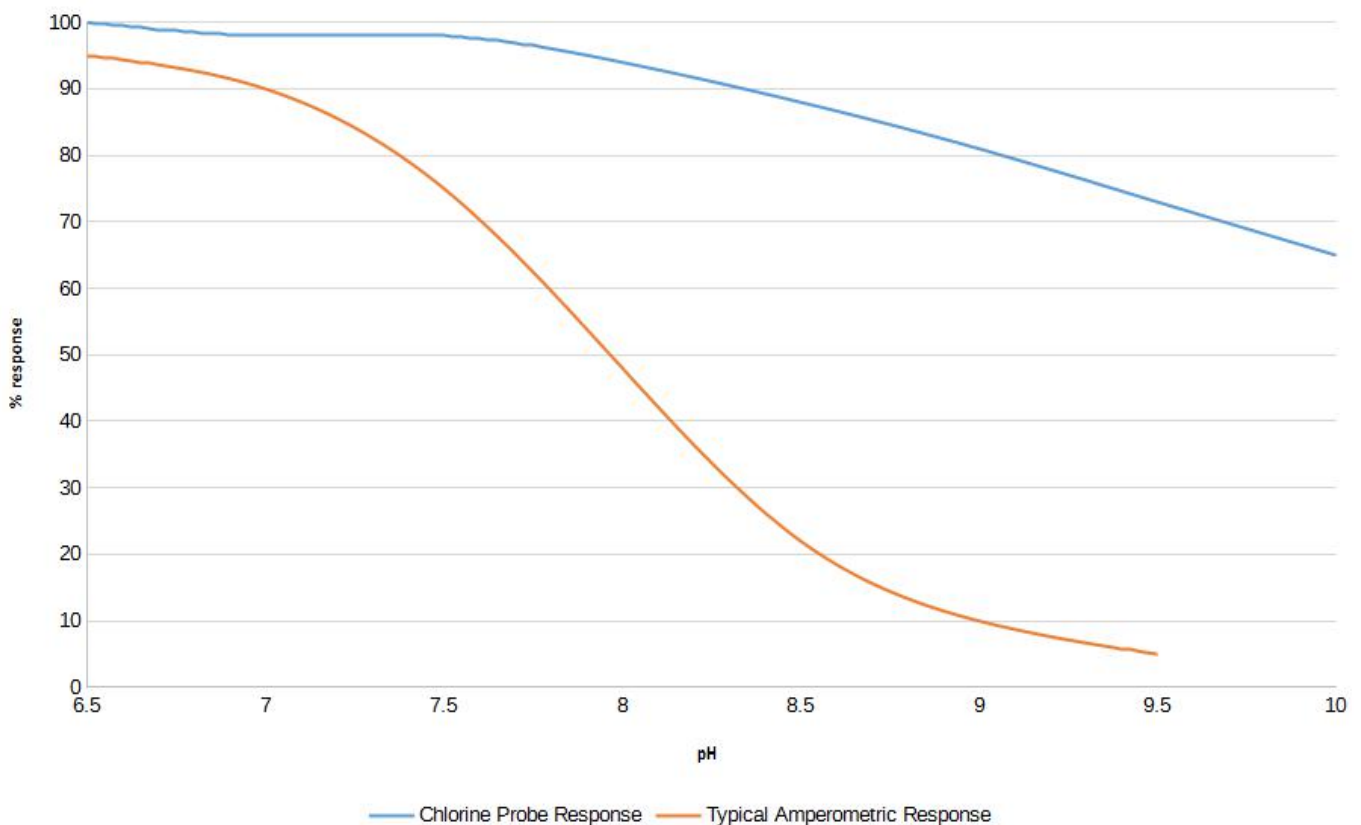
The graph below shows how sensitive the free chlorine sensor is to pH.

The Free Chlorine sensor shows some susceptibility to pH variations above pH 7.

As the pH increases then susceptibility increases.

Very few people need to buffer their chlorine probe. Whether they do or not will depend on what errors are acceptable to them.

Typical Probe Response to pH (Unbuffered)



eg. at pH 7

pH varies by +/- 0.1pH

0.5ppm would vary by +/- 0.02 ppm
1ppm +/- would vary by +/- 0.02 ppm
3ppm +/- would vary by +/- 0.06 ppm

pH varies by +/- 0.5pH

0.5ppm would vary by +/- 0.02 ppm
1ppm +/- would vary by +/- 0.04 ppm
3ppm +/- would vary by +/- 0.12 ppm

pH varies by +/- 1pH

0.5ppm would vary by +/- 0.05 ppm
1ppm +/- would vary by +/- 0.1 ppm
3ppm +/- would vary by +/- 0.3 ppm

eg. at pH 8

pH varies by +/- 0.1pH

0.5ppm would vary by +/- 0.02 ppm
1ppm +/- would vary by +/- 0.04 ppm
3ppm +/- would vary by +/- 0.12 ppm

pH varies by +/- 0.5pH

0.5ppm would vary by +/- 0.05 ppm
1ppm +/- would vary by +/- 0.1 ppm
3ppm +/- would vary by +/- 0.3 ppm

pH varies by +/- 1pH

0.5ppm would vary by +/- 0.08 ppm
1ppm +/- would vary by +/- 0.15 ppm
3ppm +/- would vary by +/- 0.45 ppm

eg. at pH 9

pH varies by +/- 0.1pH

0.5ppm would vary by +/- 0.03 ppm
1ppm +/- would vary by +/- 0.06 ppm
3ppm +/- would vary by +/- 0.18 ppm

pH varies by +/- 0.5pH

0.5ppm would vary by +/- 0.07 ppm
1ppm +/- would vary by +/- 0.14 ppm
3ppm +/- would vary by +/- 0.42 ppm

pH varies by +/- 1pH

0.5ppm would vary by +/- 0.16 ppm
1ppm +/- would vary by +/- 0.30 ppm
3ppm +/- would vary by +/- 0.90 ppm

Notes

- These figures are approximate and may vary from probe to probe.
- The effect on the sensor is predictable so that when the pH goes up the probe signal goes down and vice versa.
- When the pH is restored the probe will return to the original value.
- The normally accepted accuracy of a DPD test is +/- 0.06ppm.
- If the free chlorine sensor pH susceptibility is unacceptable to your process then there are CO₂ and Acetic Acid buffers available, or pH compensation using a pH sensor.

Please ask your sales representative for details.

DONT FORGET! 98% of our customers dont use buffers and are very happy with the performance of their chlorine probes.

