



Technical Note 103

pH Effects on Pi's Free Chlorine Sensor

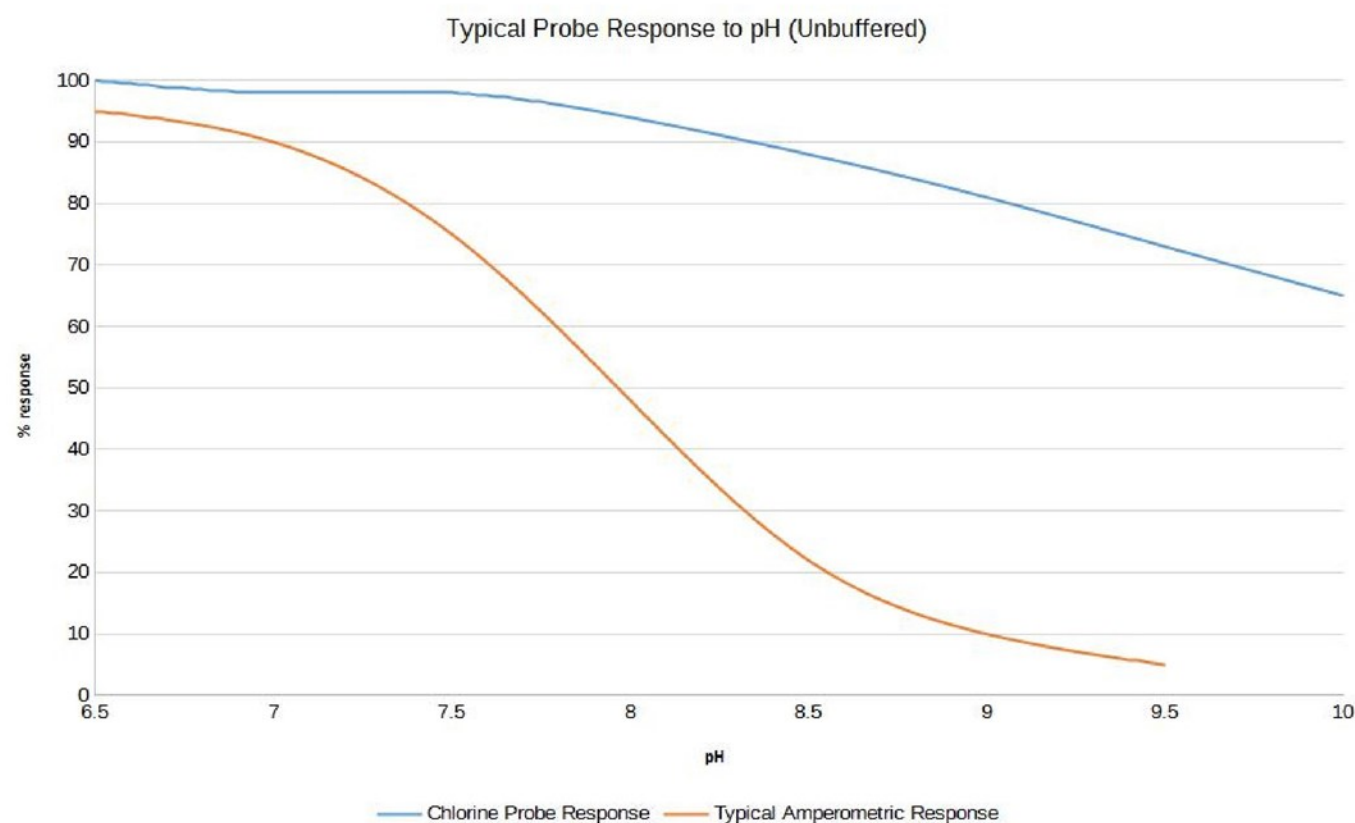
How to interpret the pH graph

The graph below shows how sensitive the Pi 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. In practice Pi has sold over 4000 free chlorine sensors and none of them are buffered.



eg. at pH 7

pH varies by +/- 0.1pH

0.5ppm would vary by +/- 0.02ppm

1ppm +/- would vary by +/- 0.02ppm

3ppm +/- would vary by +/- 0.06ppm

pH varies by +/- 0.5pH

0.5ppm would vary by +/- 0.02ppm

1ppm +/- would vary by +/- 0.04ppm

3ppm +/- would vary by +/- 0.12ppm

pH varies by +/- 1pH

0.5ppm would vary by +/- 0.05ppm

1ppm +/- would vary by +/- 0.1ppm

3ppm +/- would vary by +/- 0.3ppm

eg. at pH 8

pH varies by +/- 0.1pH

0.5ppm would vary by +/- 0.02ppm

1ppm +/- would vary by +/- 0.04ppm

3ppm +/- would vary by +/- 0.12ppm

pH varies by +/- 0.5pH

0.5ppm would vary by +/- 0.05ppm

1ppm +/- would vary by +/- 0.1ppm

3ppm +/- would vary by +/- 0.3ppm

pH varies by +/- 1pH

0.5ppm would vary by +/- 0.08ppm

1ppm +/- would vary by +/- 0.15ppm

3ppm +/- would vary by +/- 0.45ppm

eg. at pH 9

pH varies by +/- 0.1pH

0.5ppm would vary by +/- 0.03ppm

1ppm +/- would vary by +/- 0.06ppm

3ppm +/- would vary by +/- 0.18ppm

pH varies by +/- 0.5pH

0.5ppm would vary by +/- 0.07ppm

1ppm +/- would vary by +/- 0.14ppm

3ppm +/- would vary by +/- 0.42ppm

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.

