

TIP #2 Cleaning pH Sensors part 2

Tips for pH Sensor Users

Did you know...

When pH glass is measuring it develops a spongy layer at the surface where an H⁺ ion exchange reaction takes place. When there are constituents that coat the glass, such as Calcium Carbonate they stop H⁺ ion migration between the spongy pH sensitive glass and the process. With reduced H⁺ exchange the pH reading drifts and becomes inaccurate.

The role of the Reference Junction:

The reference also has a fill solution and a porous junction between it and the process. The reference junction acts as a barrier to keep the reference internals in and the process out, avoiding diluting, and rendering the reference useless, while still allowing a small flow of reference ions to leak into the process to complete the measuring circuit. The reference junction can cause pH offset error (or drift) if it becomes partially plugged and begins to interrupt the ion flow and break the measuring circuit.

How to identify if the reference is changing and needs cleaning?

To identify if the glass or reference is changing the pH sensors should be checked monthly in 7 and 4 or 10 buffer. Remove the sensor, rinse in water, remove any significant debris deposits and check in 7 pH for zero (0 mv is at 7 pH, so reference offset is measured near 7). If in 7 the reading is off by more than ± 0.1 the reference is changing and needs cleaning.

Methods of Cleaning

Mechanical cleaning

Mechanical cleaning can be used on sludge, slime, or other deposits in the internal cavities of the sensor. Clean with a soft brush and a beaker or bucket of water. General debris and non-tenacious deposits can be removed in this way. IC Controls sensors are designed to allow a standard flat screwdriver blade to scrape scale and other tenacious deposits off the reference junction quickly. Also, the IC Controls open tip design allows a screwdriver to carefully score and crack hard scale against the glass shaft then carefully slide it up and off the pH glass tip without touching the pH glass. After mechanical cleaning, again check the sensor against a pH buffer. If the sensor is still not developing the proper pH reading in the pH buffer, proceed to chemical cleaning.

Chemical cleaning

Chemical cleaning is a bit more involved, so IC Controls has made a "Chemical Cleaning Kit" **P/N A1600054**. This kit contains all required supplies along with a complete instruction sheet to enable you to complete a chemical cleaning on your sensors. Please see the instruction sheet attached.

For further information on this or any IC Controls products

please check our website or contact us at 1-800-265-9161.

V0900385

Our most popular pH SENSORS include :

IC CONTROLS Model 642
Robust submersible mining sensor



Mounts on 3/4" fnpt pipe (2/3 actual size)

IC CONTROLS Model 642
Optional flange mounting



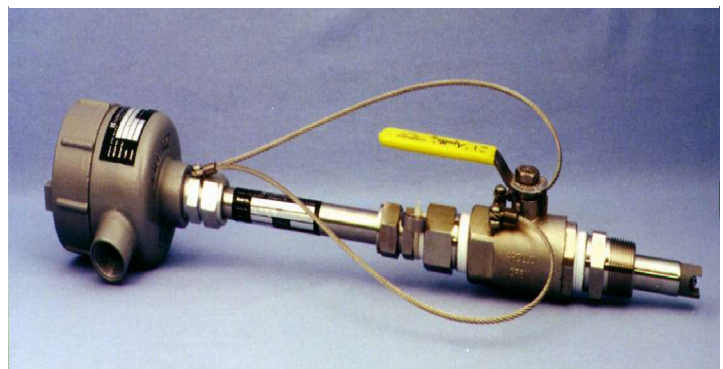
Mounts in 2" flanged pipe tee (1/3 actual size)

IC CONTROLS Model 625



Quick union in-line insertion (1.5" MNPT tee)

IC CONTROLS Model 605



Ball valve retractable cartridge pH sensor (1" MNPT)