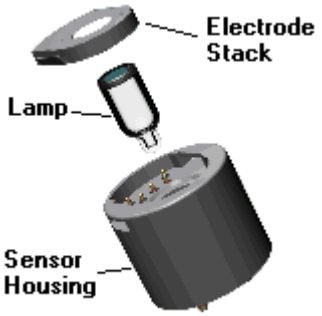
SPERIAN Application Note	PID Sensor Maintenance	Date	September 3, 2008
		Nº	1.0
		By	Michael Burt

There are three important steps in maintaining a properly working PID sensor: calibration, cleaning, and parts replacement. This application note will focus on the cleaning of the lamp, and replacement of the lamp and electrode stack. When using a monitor equipped with a PID sensor in environments that have high levels of particulates in air or water condensation, sensor maintenance must be performed more often than in more mild conditions.

Anatomy of the Sensor

The body of the sensor is made up of a UV lamp, an electrode stack, circuitry to regulate both the lamp and stack and control the output signal, and a smart chip.



A special tool (Sperian part number 05-1365) is used to remove the electrode stack from the top of the sensor. This will allow access to the lamp.

Component Lifespans

The PID lamp should last several thousand hours in normal use. Frequent use in dusty, dirty, or excessively humid environments will reduce the life of the sensor. Often, recalibration or cleaning is all that is necessary when the sensor response is low.
The electrode stack can potentially last the lifetime of the sensor. However, the stack may become contaminated when exposed to acidic gases at high levels of humidity and temperature. If the baseline of the sensor is unstable after being zeroed or when the instrument is moved, or if the sensor becomes sensitive to changes in humidity, then the electrode stack needs to be removed.

Removal of the Electrode Stack

Note: When removing the electrode stack, only use the stack removal tool, Sperian part number 05-1365. Use of non-standard tools will void the sensor warranty.

To remove the electrode stack, locate two slots near the top of the sensor (they may be covered by the sensor label), and line up the two ends of the removal tool with the slots. Place a finger over the top of the electrode stack (the spring underneath the lamp will shoot the stack and lamp out of the sensor housing if you do not put your finger over the stack) and gently squeeze the tool until the stack is released. Slowly lift the stack away from the sensor housing.

Cleaning the Lamp

Sperian offers a cleaning kit specifically for the lamps in PID sensors. This kit, part number 35-0915, contains a few teaspoons of α-alumina powder and 20 cotton swabs. It is recommended that gloves or finger cots are used anytime the lamp must be handled. If not, then always make sure to wash your hands before handling the lamp in order to prevent oils from contaminating it.

To check the lamp for contamination, hold it in front of a light source and view the lamp window at the top. If contaminated, the lamp window will have a faint layer of blue resin on it. If so, it must be cleaned using the α-alumina powder. With a clean cotton swab, collect a small amount of the powder. Use the cotton swab to rub the lamp window in a circular motion. When the lamp is clean, a squeaking noise can be heard.

Warning: Use caution when handling α-alumina powder. Do not inhale powder. Avoid contact with skin and clothes. Wash hands thoroughly before eating, drinking, smoking or applying cosmetics. The powder contains a TVL(TWA) of 10 mg/m^3.

Replacing Components

When reinserting the lamp and electrode stack, make sure that the lamp is fit snugly into the o-ring slot on the electrode stack. The lamp should be flush against the stack, and should be fully supported. When inserting the lamp into the o-ring slot, it is recommended that a twisting motion is used. Before putting the stack and lamp into the sensor housing, ensure that the lamp spring is still in place. If the lamp spring is not in, then the sensor's baseline will be erratic. Once the stack and lamp are inserted into the sensor housing, the stack will snap into place. Replace the hydrophobic filter and sensor gasket if they are dirty or damaged. The sensor should then be ready for use.

Inquiries about PID sensors can be referred to Sperian Instrumentation's technical support at (800) 711-6776.