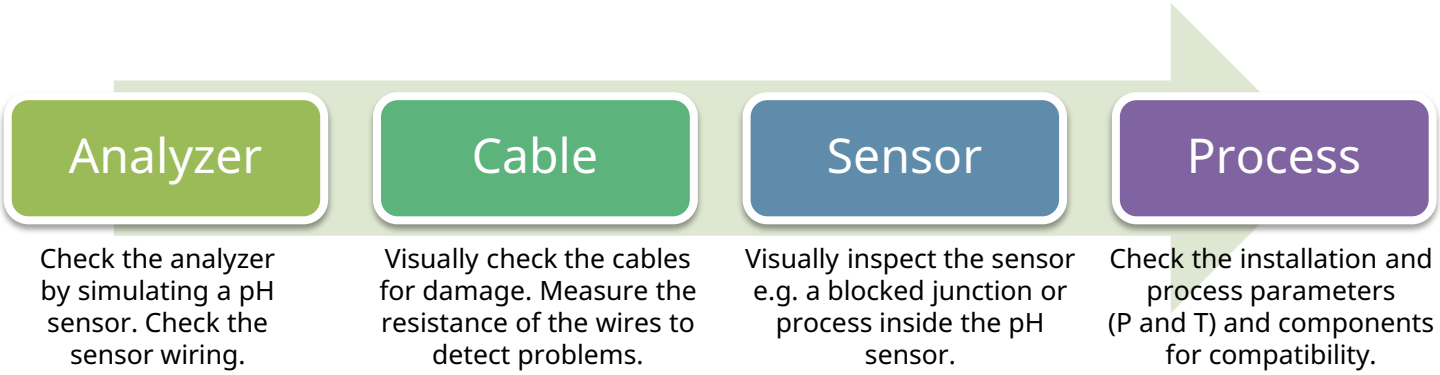
Engineering Skill Set

The ultimate problem with pH measurements is often limited or no process control. In each of these cases, the main question is: ***"How can I make sure I have a reliable pH measurement and extend the lifetime of my pH sensor?"***

Here are the four lessons that are common among top engineers:

Lesson 1: Use a Step-by-Step Approach

First of all, following a logical structure in case of troubleshooting will help drill down the cause of the problem systematically. The sequence of this step-by-step approach is:



Lesson 2: Patience

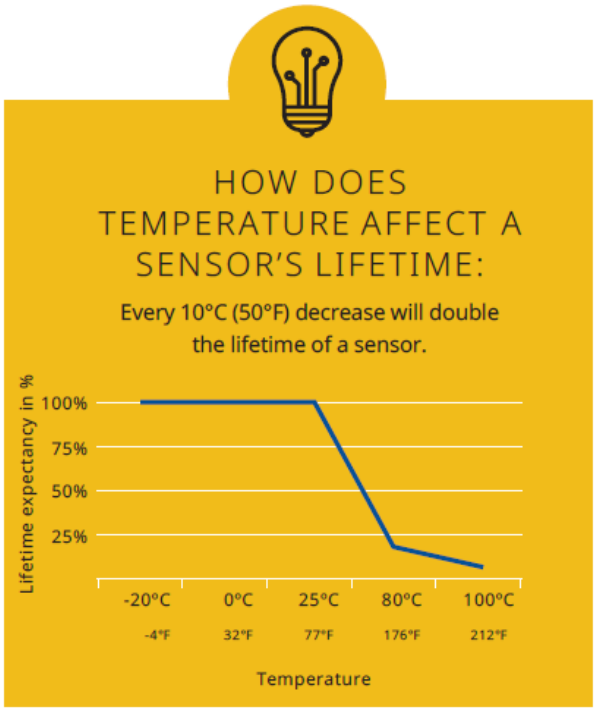
The second important lesson is patience. Hasty conclusions may not always be correct conclusions. For example, if a pH cable looks dirty, it might be tempting to blame it on a faulty cable. But, after following the four step-structure above, another cause may become visible.

Proper calibration also requires patience. Top service engineers when performing pH sensor calibrations waited a bit longer after getting a stable signal, before moving onto the second buffer. This is important because an analyzer is a computer and will only give a stable signal when the mV value has not changed for five seconds (standard setting). Remember sensors that have been installed for some time will become slower. **To increase the accuracy it is important to be patient and take a few seconds more.**

Lesson 3: Slope and zero of a pH sensor

Understanding the meaning of slope and zero of a pH sensor with help indicate the health of the sensor:

- **Slope < 80 %** =
  - sensor needs to be replaced
- **Zero higher than +40 mV** =
  - sensor needs to be replaced
- **Zero lower than – 40 mV** =
  - sensor needs to be replaced



Lesson 4: Temperature effects

Temperature affects the lifetime of a pH sensor. Every 10°C decrease in temperature will double the lifetime of the sensor.

HOW CAN ENGINEERS EXTEND THE LIFETIME OF A pH SENSOR?

Conclusion

Learning these four lessons will help improve engineers' skills and most importantly extend the life of the pH sensors.

1. **Step-by-step approach**
2. **Patience**
3. **Slope and zero of a pH sensor**
4. **Temperature effects**

Read **more** and download our **free pH eBook** to learn about the best practices that can extend the lifetime of a pH sensor.