

What is the warranty and expected lifetime of MicroLab equipment?



MicroLab's Warranty and Expected Lifetime

MicroLab interface equipment is warranted for five years. Its expected lifetime is much longer than this – many of the original MicroLab 402 interfaces are still in service after ten years.

MicroLab sensors such as pH electrodes and thermistors will be replaced if they have manufacturing defects. Dissolved oxygen electrodes have a relatively short shelf life and should not be stockpiled for use a year later. pH electrodes have a lifetime of a few years. Thermistors can be damaged by heating the tip to incandescence in a flame.

The MicroLab FS-522 was designed for long life in a student laboratory environment. All of its inputs and outputs are protected for static electricity discharge to 9 kilovolts, the “human spark” model.

The FS-522 is manufactured to industrial standards in a U.S. facility that has ISO-9002 certification. This facility also manufactures for NASA and the U.S. military. All MicroLab manufacturing takes place in the U.S.

MicroLab uses standard industrial sensors for pH, pressure, conductance, temperature, etc. These sensors hold up better in a student lab, and have better accuracy.

Rugged, Integrated Design

The photograph above illustrates another advantage of MicroLab: Rugged, integrated design. The section of circuit board directly behind the front panel contains the pressure sensor and all of the signal conditioning amplifiers for all of MicroLab’s sensors. The circuit is tightly organized and because of its short signal leads, is resistant to electrical noise. In a modular educational interface, each sensor amplifier is in a separate enclosure with a separate circuit board and a cable to connect the module to the master interface unit.

MicroLab’s integrated design eliminates the cost of individual sensor amplifier enclosures, circuit boards, and cables. It greatly reduces noise susceptibility. It increases reliability and service life because of the cables, plugs, and mechanical connections that are eliminated. It also eliminates a lot of clutter on the lab bench. This significant savings in components is then invested in high quality integrated circuits for analog-to-digital conversion, and in industrial assembly standards. Because of these savings, a rugged, high resolution MicroLab FS-522 and its industrial-quality sensors are competitive in cost to lower resolution modular educational systems with a similar number of sensors.



Figure 1: MicroLab's FS-522 is designed to industrial standards and assembled in a U.S. ISO-9002 certified factory. The sample cell for MicroLab's patented FASTspec™ scanning spectrophotometer shows in the foreground.



Sensor Inputs – Left to Right

pH / REDOX / Dissolved Oxygen
Pressure
MicroLab multi-purpose inputs (3)
Thermocouple
Voltage
Conductance
Counter
FASTspec™ (top)
Scanning Spectrophotometer
Fluorescence – Absorbance –
Scatter – Transmission
360-940 nm