

## MicroLab FS-522 Instrument Performance Specifications

### BNC Input:

pH 0-14 pH, resolution 0.0015 pH unit  
Standard industrial pH electrode

REDOX  $\pm 2500$  mV, resolution 76  $\mu$ volt

Dissolved Oxygen, Galvanic sensor  
0-14 mg/L, resolution 0.0025 mg/L

Ion Selective Electrodes  $\pm 2500$  mV  
Uses standard industrial BNC IS electrodes.

**Pressure** 0-2 atm (0-1500 torr), resolution 0.04 torr  
Factory calibrated in torr, atm, inches Hg, kPa  
Leur-lock input fitting

### MicroLab Multi-purpose Sensor Inputs (3)

Industry-standard Category-5 data connectors accept MicroLab sensors (temperature, light, and many more) and user-designed sensors.

Voltage input:  
 $\pm 2500$  mV, Resolution 76  $\mu$ V

Current input:  
 $\pm 25.0$  mA, 2.5 mA, 250  $\mu$ A,  
software selected.

Digital to analog converter (DAC) output,  
software selected.  
 $\pm 2.5$  volts, 0-5 volts, 25 mA  
1 millivolt steps  
Sensor power, power for constant current / constant voltage coulometric titrations.

Digital input: TTL Logic Levels 0,1  
Amber LED indicates Logic 1 input.

Digital output:  
TTL Logic Levels 0,1  
Source or sink 25 mA  
Green LED indicates Logic 1 output.  
Software control of experiments,  
110 VAC switches, etc.

Sensor power supply:  
 $\pm 5$  VDC, Ground

### Sensor Calibration:

Any sensor that produces a voltage or a current in ranges above and fits a linear, log, power, or polynomial response



### Thermocouple

Industrial type K thermocouple input,  
-200 to + 1250 °C, resolution 0.04 °C

### Banana Jack Voltage Input

Four ranges, DC or AC, software selected.  
 $\pm 10$  volts,  $\pm 2.5$  volts  
 $\pm 1.0$  volts,  $\pm 100$  mV

**Conductance Input** Two ranges, software selected.

0-2000  $\mu$ S, resolution 0.03 $\mu$ S  
0-20,000  $\mu$ S, resolution 0.3  $\mu$ S

**Counter** TTL logic levels, for drop counter and radiation counters.

### Three timers, software controlled

Read in seconds, minutes, hours.  
Resolution 0.001 seconds.  
Real time clock

### Dual Power Supply

110 VAC power block or  
9-12VDC for battery-powered field application.

**FASTspec™ Scanning Spectrophotometer**, 360-880 nm,  
Fluorescence, Absorbance, Scatter, Transmission,  
Color comparisons, Water quality tests  
Timed Kinetics at 16 wavelengths.  
Turbidity & nephelometry.  
Sample holder accepts three sample vial sizes,  
14.45mm, 16.65 mm, and 22.45 mm path length.

**Microprocessor:** 16-bit. **ADC:** 16-bit **Communication:** USB

**Operating System:** Windows XP, Windows 2000, Vista,  
Windows 7, Macintosh with Intel Processor & Windows  
Operating system.

### MicroLab Multi-purpose Sensor Input Connections:

Pin 1 (White/orange stripe) - 5VDC. Pin 2 (Orange) TTL Digital in. Pin 3 (White/green stripe) Digital out. Pin 4 (Blue) Voltage in. Pin 5 (White/blue stripe) DAC Out. Pin 6 (Green) Ground. Pin 7 (White/Brown stripe) Current in. Pin 8 (Brown) + 5 VDC.

### Getting Started...

**Installing the Software:** [Install the MicroLab software before connecting the MicroLab USB cable to the computer.](#)

**SITE LICENSE:** A single copy of the MicroLAB software CD constitutes a site license. Installation is permitted on as many laboratory, network, or student computers as necessary. Students may download MicroLab software for use at home from the MicroLab web site, [microlabinfo.com](http://microlabinfo.com), without charge.

MicroLAB software can be installed on the computer by following these steps:

1. If installing on a computer with a previous version of MicroLAB software it is recommended that the old version be 'uninstalled' prior to installation of the new software.
2. Place the enclosed MicroLab CD in the computer's CD-ROM drive.
3. Double left click the **My Computer** icon. Double left click the CD-ROM drive icon.
4. Double left click the uLab Setup Icon.
5. Read the **Welcome Screen** and then click **Next**.
6. Select the directory where MicroLAB will be installed by either typing the desired path or clicking **Browse**. A default directory is provided if desired.
7. Click **Next** after an installation directory has been selected.
8. MicroLAB will be installed on the computer in the specified directory. Click **Close** when the installation is completed.

### Connecting the Hardware

MicroLAB hardware connects to the computer with the **USB** cable.

1. Attach one end of the supplied cable to the MicroLAB hardware rear panel USB port
2. Attach the other end of the cable to any available USB port on the computer. **Note: Software installs for only one USB port. Mark this port with a colored dot or tape.**

MicroLAB hardware requires a 9-12 volt **AC or DC power source**.

3. Attach the supplied power adapter to the MicroLAB hardware rear power connector.
4. If you are using AC power, plug the power adapter into an AC power outlet. If you are using DC power, either polarity will work.
5. Turn the MicroLAB on using the membrane **Power** switch located on the front panel.

MicroLAB **sensors and accessories** are plugged into connectors on the interface front panel.



Plug the desired modular connector sensors or accessories into channels A, B, or C on the front panel.

Connect the pH, REDOX (mV), or Dissolved Oxygen probe to the BNC connector as desired.

Connect the pressure source to the Leur connection. Thermocouple, conductance probe, and counter inputs plug into the designated jacks. The voltage lead plugs into the dual banana jack. Note the red (+) polarity. When reading electrochemical cells, a positive reading results when electrons run in the black clip and out the red clip. Place a light shield over the sample vial when using the **FASTspec™** spectrophotometer.

### Tutorial and operating/programming instructions

An experiment "*Measurement – The Basic Science*" is included on the installation CD. This gives an overview of the software, sensor selection and calibration, data collection, and graphical analysis of experimental data. The 'HELP' selection within the accessible on the software's top menu bar offers assistance as well.

Contact us for help: [www.Microlabinfo.com](http://www.Microlabinfo.com) (888) 586-3274