ADINSTRUMENTS

ML303 pH Pod

Pod Series

Description

A low-cost signal conditioner designed to work with PowerLab units with Pod support. The pH Pod is a unity-gain, high-input impedance amplifier, capable of interfacing to a variety of potentiometric electrodes.

System Compatibility

The pH Pod connects to any PowerLab hardware units with Pod ports (8-pin DIN inputs). PowerLab and MacLab (except 4s, 8s and 16s) units without Pod ports can connect to Pods by using the FE305 Pod Expander.

The pH Pod is supported by the following versions of ADInstruments software:

WINDOWS

- LabChart v6 or later
- Chart v3.4.8 or later
- Scope v3.6.3 or later
- LabTutor 1.3 or later

MACINTOSH

- LabChart v6 or later
- Chart v3.6.3 or later
- Scope v3.6.3 or later

Note: Earlier software versions do not support Pods.
Visit our website for information on operating system requirements.

Transducer Compatibility

The pH Pod is suitable for operation with the following types of electrodes:

- Glass pH and combination electrodes – MLA042 pH Electrode
  – MLT5733 pH Electrode Tuff Tip
- Potentiometric redox – MLA060 Redox Electrode
- Ion selective electrodes ($Ca2^{+}$, Na^{+}, K^{+}, Cl^{-}, NO^{-3}, etc.)

Applications

Monitoring pH or other potentiometric signals.

Theory of Operation

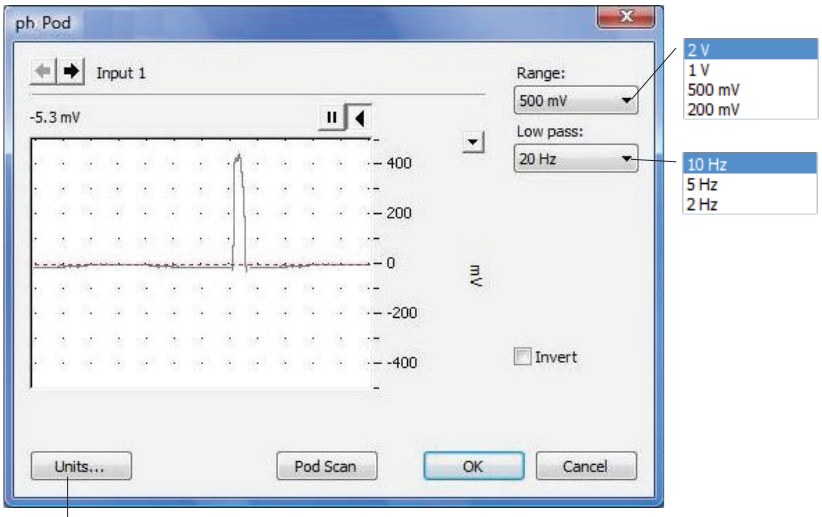
The pH Pod consists of an electrometer amplifier configured as a non-inverting, unity gain, high input impedance buffer. As pH measurements tend to slowly change, an active 10 Hz 2nd order Bessel filter follows the input amplification stage. This filter reduces high frequency noise and, in particular, reduces mains based 50/60 Hz interference.

Operating Instructions

Connect the electrode to the BNC connector on the rear panel of the pH Pod. Connect the 8-pin DIN cable from the rear panel of the pH Pod to a PowerLab Pod port (or to one of the Pod ports of a Pod Expander connected to the PowerLab).

Do not connect other devices such as Front-ends or Instruments to the corresponding BNC connector on the channel used by the Pod.

Pods can be connected to the PowerLab unit while its software is running, but not when recording data. Once detected, the functions of the pH Pod are combined with those of the PowerLab and software, replacing the Input Amplifier dialog with the pH Pod dialog (shown below).



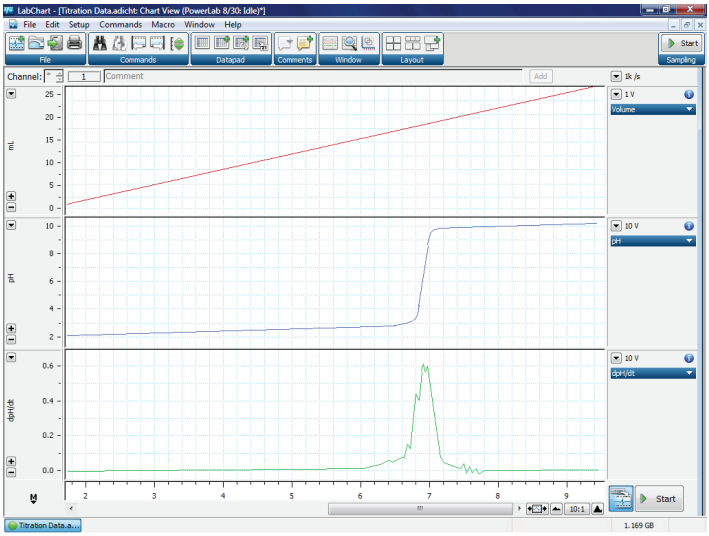
Click this button to open the "Units Conversion" dialog.

Stacking and Unstacking Pods

Pods stack by clicking into place on top of each other. To separate stacked Pods, push the top Pod towards the back and then pull them apart from the back. See picture on right.

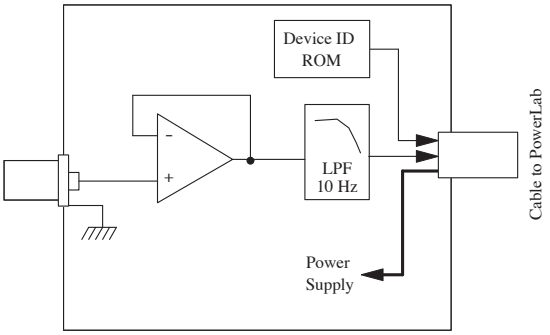
Typical Data

The screen capture below shows typical potentiometric titration data recorded using a PowerLab and pH Pod.



Volume is displayed on Channel 1, pH on Channel 2 and dpH/dt on Channel 3.

Technical Diagram



pH Pod block diagram

Caution

Read “Statement of Intended Use” on our website or in “Getting Started with PowerLab” before use. Do not connect other devices such as Front-ends or Instruments to the corresponding BNC connector on the channel used by the Pod.

Specifications

Input impedance:	10^{13} Ω
Input ranges:	2 V, 1 V, 500 mV, 200 mV
Gain accuracy:	0.5 % or better on all Gain ranges
DC drift	<5 µV/°C
Frequency response:	DC–10 Hz
Low-pass filter ranges (E series):	10 Hz 2nd order Bessel (fixed)
(S series):	10, 5 and 2 Hz (5 & 2 Hz by digital filtering)
DC offset error (maximum):	<0.1 % full scale
Amplifier noise:	<6 µV p-p (0.1 Hz to 10 Hz)
Input connector:	BNC
Dimensions (l x w x h):	108 x 58 x 35 mm
Weight:	200 g

All specifications were tested at the time of printing and are subject to change.

Ordering Information:

ML303	pH Pod	
	For use with:	
	MLA042	pH Electrode
	MLA060	Redox Electrode
	MLT5733	pH Electrode - Tuff Tip for student use