Electrode Amplifier
(Order Code EA-BTA)

Use our Electrode Amplifier to collect data with almost any electrode that has a BNC connector. This includes electrodes from Vernier such as our pH electrode (order code 7120B), or third-party electrodes, such as pH, ISE (ion-selective electrode), or ORP (oxidation-reduction potential). The Electrode Amplifier can produce an output in mV, pH (when using a pH electrode), or you can perform your own 2-point, linear calibration.

How the Electrode Amplifier Works

The Electrode Amplifier is a circuit that allows the millivolt output of the electrode to be monitored by an interface. The electrode is connected to the BNC connector on one end of the amplifier. The cable from the Electrode Amplifier connects to the interface.

The Electrode Amplifier amplifies the voltage produced by an electrode into a range where it can be monitored by the lab interface.

The Electrode Amplifier will report values in units of pH. If an ORP or ISE electrode is attached, however, you can choose to read in units of mV. Custom, linear 2-point calibrations can also be performed if desired.

Collecting Data with the Electrode Amplifier

This sensor can be used with the following interfaces to collect data:

- Vernier LabQuest® as a standalone device or with a computer
- Vernier LabQuest® Mini with a computer
- Vernier LabPro® with a computer, TI graphing calculator, or Palm® handheld
- Vernier Go!®Link
- Vernier EasyLink®
- Vernier SensorDAQ®
- CBL 2™

Here is the general procedure to follow when using the Electrode Amplifier:
1. Connect the Electrode Amplifier to the interface.
2. Connect an electrode that has a BNC connector to the Electrode Ampilier.
3. Start the data-collection software.
4. The software will identify the Electrode Amplifier and load a default data-collection setup for a pH electrode. **Note**: You can change the units to mV in the software.
5. You are now ready to collect data.

Data-Collection Software

This sensor can be used with an interface and the following data-collection software.

- **Logger *Pro*** This computer program is used with LabQuest, LabQuest Mini, LabPro, or Go!Link.
- **Logger Lite** This computer program is used with LabQuest, LabQuest Mini, LabPro, or Go!Link.
- **LabQuest App** This program is used when LabQuest is used as a standalone device.
- **EasyData App** This calculator application for the TI-83 Plus and TI-84 Plus can be used with CBL 2, LabPro, and Vernier EasyLink. We recommend version 2.0 or newer, which can be downloaded from the Vernier web site, www.vernier.com/easy/easydata.html, and then transferred to the calculator. See the Vernier web site, www.vernier.com/calc/software/index.html for more information on the App and Program Transfer Guidebook.
- **DataMate program** Use DataMate with LabPro or CBL 2 and TI-73, TI-83, TI-84, TI-86, TI-89, and Voyage 200 calculators. See the LabPro and CBL 2 Guidebooks for instructions on transferring DataMate to the calculator.
- **Data Pro** This program is used with LabPro and a Palm handheld.
- **LabVIEW** National Instruments LabVIEW™ software is a graphical programming language sold by National Instruments. It is used with SensorDAQ and can be used with a number of other Vernier interfaces. See www.vernier.com/labview for more information

Note: This product is to be used for educational purposes only. It is not appropriate for industrial, medical, research, or commercial applications.
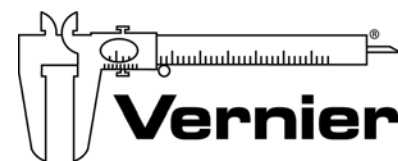
Electrode Amplifier Specifications

Power		7 mA @ 5VDC
Input range		–450 mV to +1100 mV
Impedance		100 M Ohm
Gain		2.2 V/V
Offset		1.20 V (nominal)
Stored calibration (mV)	slope	466.875
	intercept	–559.793
Stored calibration (pH)	slope	–7.752
	intercept	16.237

This sensor is equipped with circuitry that supports auto-ID. When used with LabQuest, LabQuest Mini, LabPro, Go! Link, SensorDAQ, EasyLink, or CBL 2, the data-collection software identifies the sensor and uses pre-defined parameters to configure an experiment appropriate to the recognized sensor.

Warranty

Vernier warrants this product to be free from defects in materials and workmanship for a period of five years from the date of shipment to the customer. This warranty does not cover damage to the product caused by abuse or improper use.