30-Volt Voltage Probe
(Order Code 30V-BTA)

The 30-Volt Voltage Probe is used to measure electrical potentials in the range of –30 to +30 Volts. This sensor uses an internal voltage divider connected to the +/-10 volt input of the interface. Use this sensor in experiments that involve voltages larger than 10 Volts, such as when working with large solar panels.

The removable leads on the 30-Volt Voltage Probe are heavy duty and have shrouded banana plugs to meet European safety standards.

Since this voltage probe covers such a wide voltage range, its resolution is coarser than our Differential Voltage Probe (DVP-BTA), which we recommend for most experiments.

Note: Vernier products are designed for educational use. Our products are not designed nor are they recommended for any industrial, medical, or commercial process such as life support, patient diagnosis, control of a manufacturing process, or industrial testing of any kind.

Compatible Software
See **www.vernier.com/manuals/30v-bta** for a list of software compatible with the 30-Volt Voltage Probe

Quick Start
1. Plug the sensor into the interface (LabQuest 3, LabQuest Mini, etc.).
2. Connect the interface to your device.
   - If using USB, connect to the USB port on your computer.
   - If using Bluetooth® wireless technology, click your interface type and then select your device.
3. Prepare for data collection:
   - Vernier Graphical Analysis®: Launch the app, if necessary, and click Sensor Data Collection.
   - LabQuest® App: Choose New from the File menu.

The software will identify the sensor and load a default data-collection setup. You are now ready to collect data.

Need Additional Information?
Visit the following link:

www.vernier.com/start-lq-sensor

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Safety
This sensor is designed for voltages up to 30 volts. It should never be used for higher voltages. Students need to use caution when performing experiments with electricity. They should use this sensor only under supervision. Students need to exercise extra caution when dealing with higher voltage and currents which can cause serious injury. Students should keep all equipment away from water and other liquids.

Videos
View videos related to this product at **www.vernier.com/30v-bta**

Calibrating the Sensor
You should not have to perform a new calibration when using the 30-Volt Voltage Probe in the classroom. The sensor will normally be automatically recognize and the proper calibration will be loaded. We have set the sensor to match our stored calibration before shipping it. To improve the accuracy, you have a couple of options. (1) Simply use the data-collection software to zero the sensor. (2) Use the software to perform a two point calibration. This method is especially useful if you want to accurately measure voltage over a narrow range.

Specifications

30-Volt Voltage Probe range	±30 V
Resolution	15 mV
Supply voltage	5 VDC
Supply current (typical)	0.2 mA
Input impedance	30 kΩ
Output voltage range	±10 V
Calibration	slope: 3.0 V/V intercept: 0

Care and Maintenance
Do not wrap the cable tightly around the sensor for storage. Repeatedly doing so can irreparably damage the wires and is not covered under warranty.

How the Sensor Works
The 30-Volt Voltage Probe uses an internal voltage divider made up of a 10 kΩ resistor in series with a 20 kΩ resistor. The input voltage is applied across this voltage divider and the voltage drop over the 10 kΩ resistor is sent to the +/- 10 volt input of the interface. The resulting voltage is then multiplied by 3 for proper calibration.

There are zener diodes between the input and ground lines. These zener diodes will block voltages above 30 volts.

There is a resettable fuse on the ground line of the 30-Volt Voltage Probe that will open if any significant current is drawn on that line. This could happen, for example if you were using it on a grounded interface, with a grounded power supply, and the ground lead was connected improperly to a voltage above ground potential.

Troubleshooting

For troubleshooting and FAQs, see **www.vernier.com/til/2322**

Related Products

Vernier produces a number of different voltage probes, each with different ranges and characteristics:

Voltage Probe (VP-BTA), Range: –10 V to +10 V. The Input Impedance is equal to the input impedance of the interface. This sensor has grounded inputs. This means that the ground (black) lead is connected to the ground of the interface. Keep this in mind when using two of these sensors connected to the same interfaces. VP-BTA reads a non-zero voltage when the leads are not attached to anything. This can cause confusion to novice users.

30-Volt Voltage Probe (30V-BTA), Range: –30 V to +30 V, Input Impedance: 30 kΩ. This sensor has grounded inputs. This means that the ground (black) lead is connected to the ground of the interface. Keep this in mind when using two of these sensors connected to the same interfaces. The sensor reads a near-zero voltage when leads are not attached to anything.

Differential Voltage Probe (DVP-BTA), Range: –6 V to +6 V, input impedance: 10 MΩ. Differential input means that the ground (black) lead is not connected to the ground of the interface. Multiple DVP-BTA sensors can be used while connected to the same interface, without "common ground" confusion. The DVP-BTA sensor reads zero volts when leads are not attached to anything.

Go Direct Voltage Probe (GDX-VOLT), Range: –20 V to +20 V, input impedance: 10 MΩ. This sensor has differential input, which means that the ground (black) lead is not connected to the ground of the interface. Multiple GDX-VOLT sensors can be used while connected to the same interface, without "common ground" confusion. The GDX-VOLT sensor reads zero volts when leads are not attached to anything.

Warranty

Warranty information for this product can be found on the Support tab at **www.vernier.com/30v-bta**

General warranty information can be found at **www.vernier.com/warranty**

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Rev. 8/5/2024

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