
VOLTAGE SENSOR BT02

USER'S GUIDE



CENTRE FOR MICROCOMPUTER APPLICATIONS

<https://www.cma-science.nl>

Short description

The CMA BT02 Voltage sensor is a generic probe that can be used to measure voltage between -10 .. 10 Volts. It has two banana (4-mm) plugs for easy connection.

Note that this sensor has a direct connection to the inputs of a measurement interface. The sensor does not have differential inputs, and will not behave like a traditional voltmeter.

To measure a potential difference between two points in a circuit, connect the red and black plugs to the two points. A positive reading means the red plug is at a higher potential than the black plug.

Sensor recognition

The Voltage sensor has a built-in resistor for automatic sensor identification. The sensor information, its name, measured quantity, unit and calibration is automatically read from the system software. If your Voltage sensor is not automatically detected by an interface you have to manually set up your sensor by selecting it from the Coach Sensor Library.

Calibration

The Voltage sensor makes use of the direct connection to an interface via Pin 1 (-10 .. 10 V) and Pin 2 (ground) of the sensor inputs:

$$V_{\text{in}} \text{ (V)} = V_{\text{out}} \text{ (V)}.$$

Practical information

The black lead is connected to the common ground of the interface. Therefore, when two or more voltage sensors are used at same time, the black leads have to be connected to the same point in the circuit.

Suggested experiments

The Voltage sensor can be used in variety experiments such as:

- Discharging of a capacitor
- Investigating battery life
- Electromagnetic induction, and many more.

Technical Specifications

<i>Sensor kind</i>	Analog, generates an output voltage between -10 .. 10 V
<i>Measurement range</i>	-10 .. 10 V Direct connection to CLAB via Pin 1 (-10 .. 10 V) and Pin 2 (ground) of sensor inputs.
<i>Calibration</i>	None $V_{in} (V) = V_{out} (V)$
<i>Resolution using 12 bit 5 V A/D converter</i>	4.9 mV
<i>Chemical tolerance</i>	None (air only)

Warranty:

The Voltage sensor BT02 is warranted to be free from defects in materials and workmanship for a period of 24 months from the date of purchase provided that it has been used under normal laboratory conditions. This warranty does not apply if the sensor has been damaged by accident or misuse.

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

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