

# VSMT Force Sensor

## (Order Code VSMT-FORCE)

The VSMT Force Sensor is a "do-it-yourself" force sensor. Integrate it into your own experimental devices to measure forces up to 1000 N. It is set up to measure forces in tension.

The VSMT Force Sensor is rated to 1000 N and will connect to our standard suite of interfaces using a BTA connector.

**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.

### What's Included

- Load cell
- Threaded eye-bolt
- Quick link for connecting hardware

### Compatible Software and Interfaces

See [www.vernier.com/manuals/vsmt-force](http://www.vernier.com/manuals/vsmt-force) for a list of interfaces and software compatible with the VSMT Force Sensor.

### Getting Started

1. Connect the sensor to the interface (LabQuest Mini, LabQuest 2, etc.).
2. Start the appropriate data-collection software (Logger *Pro*, Logger Lite, LabQuest App) if not already running, and choose New from File menu.

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

If you are collecting data using a Chromebook™, mobile device such as iPad® or Android™ tablet, or a Vernier wireless sensor or interface, please see the following link for up-to-date connection information:

[www.vernier.com/start/vsmt-force](http://www.vernier.com/start/vsmt-force)

### Using the Product

Connect the sensor following the steps in the Getting Started section of the user manual.

### Calibration

You should not have to perform a calibration when using the VSMT Force Sensor. The VSMT Force Sensor comes pre-calibrated, and you can simply use the appropriate calibration value that is stored in the data-collection program. If you want to improve the calibration, recalibration is allowed. Follow the same procedure used in calibrating most Vernier sensors—a two point calibration. One of the points is usually with no force applied. Select the calibration option in the program you are using and remove all force from the sensor. Enter 0 as the first

known force. The second point can be set by lifting an object of known mass with the VSMT Force Sensor. Enter the weight of the object for the second calibration point. This must be determined with a properly calibrated scale. For best results the sensor should be calibrated in the same orientation in which it will be used.

### Specifications

Operational range	0 to 1000 N
Safety range (maximum force without damage done to sensor)	0 to 1300 N
12-bit resolution	1 N
Stored calibration values	slope: 241.9 N/V intercept: -107.6 N

### Safety

The VSMT Force Sensor is capable of measuring (and therefore storing) significant forces. When structures fail under stress they can release that energy very quickly. **Note:** Care should be taken to protect people and property from damage due to the potential release of this energy. Vernier recommends the use of safety glasses to protect eyes from flying debris when using the VSMT Force Sensor.

It is also important to connect any hardware securely. Threaded parts should be attached so that a sufficient amount of the threaded component is engaged.

### Troubleshooting

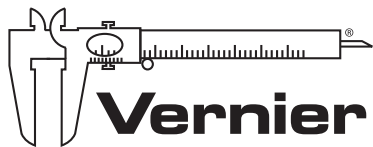
For troubleshooting and FAQs, see [www.vernier.com/til/3344](http://www.vernier.com/til/3344)

### Repair Information

If you have followed the troubleshooting steps and are still having trouble with your VSMT Force Sensor, contact Vernier Technical Support at [support@vernier.com](mailto:support@vernier.com) or call 888-837-6437.

### Warranty

Vernier warrants this product to be free from defects in materials and workmanship as delivered to the customer. This warranty does not cover damage to the product caused by abuse or improper use. Due to the nature of this device this warranty extends only to the initial delivery of the equipment.



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