

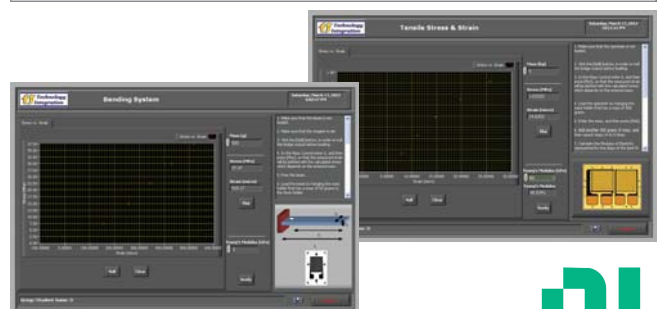
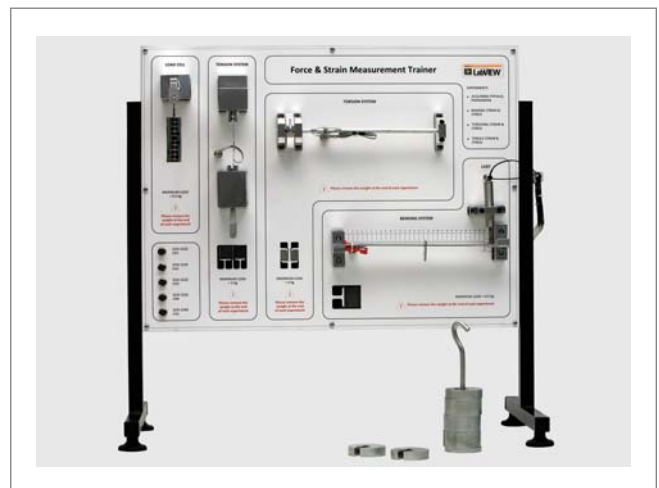


## Curriculum Coverage

- Acquiring Physical Phenomena
- Bending Strain & Stress
- Torsional Strain & Stress
- Tensile Strain & Stress

## Features

- Computer based Force & Strain Measurement Trainer
- Includes all required weight specimens and sensors to measure force & strain
- For use with NI's Data Acquisition & Control hardware



## Description

Strain and Force Measurement Trainer is an ideal setup for introducing strain gauge measurement to students. It introduces the operation principle of strain gauges and the conversion methods between electronic raw data and strain and force.

Developed for use with a wide variety of NI's data acquisition platforms - easy-to-use, highly expand-able programmable automation controllers, intelligent communication interfaces, and rugged I/O modules. These industrial I/O modules filter, calibrate, and scale raw sensor signals to engineering units and perform self-diagnostics to look for problems.

Students will learn how to connect bridge type sensors, strain in bending, torsion, and tension, force measurement using load cells and measurements using the LVDT, ...etc.

## Components

- Strain Gauge
- Load Cell
- Weights
- LVDT (Option)
- Aluminum Shaft (SP)  
Dim (mm): Dia10, L 350
- Aluminum Beam (SP)  
Dim (mm): L 340, W25, T3
- Aluminum Plate (SP)  
Dim (mm): L 120, W25, T2

## NI<sup>1</sup> Compatible Platforms

- Compact RIO
  - Others<sup>2</sup>
- <sup>1</sup> NI  
<sup>2</sup> Please check with us about compatibility of other NI Platforms

## Required NI Modules

- cRIO<sup>3</sup>: NI-9237
- <sup>3</sup>cRIO: for LVDT option, add NI-9219

## Software

- User friendly with easy to use interface
- Developed using NI LabVIEW package
- Built-in safety features & limitations, and designed for students' use

**Ordering Information**  
**Force & Strain Measurement Trainer**

**FSMT001 - A - B - C**

<b>NI* Platform</b> 1... cRIO	<b>Power</b> 1... 220 VAC	<b>Options</b> 0... No Option 1... With LVDT Option
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\*Purchase NI Hardware Separately

For complete product specifications, pricing, and information:  
 e-mail: [info@ti.jo](mailto:info@ti.jo) / website: [www.ti.jo](http://www.ti.jo)

and Images are subject to change at anytime without prior notice.



## Technical Specifications

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### *Force & Strain Measurement Trainer Specifications:*

#### *Dimensions & Volume:*

- Dimensions (LxWxH): 950 x 900 x 50 mm

#### *Torsion:*

- Shaft Material: Aluminum
- Shaft Dimensions: 350 x 10 mm
- Strain Gauges: 350  $\Omega$ , 4 wires, qty. 2
- Maximum Load: 5.0 Kg

#### *Bending:*

- Beam Material: Aluminum
- Dimensions: 340 x 25 x 3 mm
- Strain Gauges: 350  $\Omega$ , 2 wires, qty. 4
- Maximum Load: 0.5 Kg

#### *Tension:*

- Specimen Material: Aluminum
- Dimensions: 10 x 125 x 3 mm
- Strain Gauges: 350  $\Omega$ , 4 wires, qty. 2
- Maximum Load: 5.0 Kg

#### *LVDT:*

- Linearity: <0.2% FSO
- Excitation: 3  $\pm$  1 Vrms
- Excitation Frequency: 5  $\pm$  0.5 kHz
- Protection Rating: IP67

#### *Load Cell:*

- Rated output: 1.0  $\pm$  0.1 mV/V
- Zero balance: 0  $\pm$  0.05 mV/V
- Excitation: 10 V
- Input Resistance: 400  $\Omega$
- Output Resistance: 350  $\Omega$
- Material: Anodized Aluminum
- Maximum load: 3 Kg