

# BP400800

Force Platform



## APPLICATIONS

The BP400800\* Biomechanics Force Platform is particularly suitable for biomechanics, engineering, medical research, orthopedics, rehabilitation evaluation, prosthetics, and general industrial uses. Specific uses include gait analysis, "Romberg" testing or stability analysis, neurological analysis, prosthetics fitting, athletic performance, shoe design, force, power, and work studies.

## DESCRIPTION

AMTI's Biomechanics Force Platform model BP400800 is specifically designed for the precise measurement of ground reaction forces. The platform measures the three orthogonal force and moment components along the X, Y, and Z axes, producing a total of six outputs. The high sensitivity, low crosstalk, excellent repeatability and long term stability of this platform make it ideal for research and clinical studies. It is simple, easy to use, and is available in either 1000, 2000, or 4000 pound (4450, 8900, or 17,8000 Newton) capacities.

## AMPLIFICATION

The BP400800 Biomechanics Force Platform incorporates strain gages mounted on four precision strain elements in a patented design to measure forces and moments. As with most conventional strain gage transducers, bridge excitation and signal amplification are required. AMTI's product line includes two strain gage amplifiers to suit different application needs. AMTI's amplifiers are high gain devices which provide excitation and amplification for multiple channels in one convenient package.

## CALIBRATION

Each platform is inspected and tested in AMTI's calibration facility. The calibration procedure provides a detailed sensitivity matrix and a complete test of all system components, including the amplifier and the connecting cable.

## SOFTWARE

Automated data collection and reduction requires a computer and software. AMTI's software package, BioAnalysis with NetForce, is specifically designed for biomechanics and clinical applications. NetForce provides a simple user interface and extensive database function for easy trial set-up and data acquisition. BioAnalysis performs a comprehensive analysis of the data and presents many summarizing parameters that can be averaged across numerous selectable trails. The BioAnalysis with NetForce software package is available separately or combined in one of AMTI's BIOVEC™ Systems.

## BIOVEC™ SYSTEMS

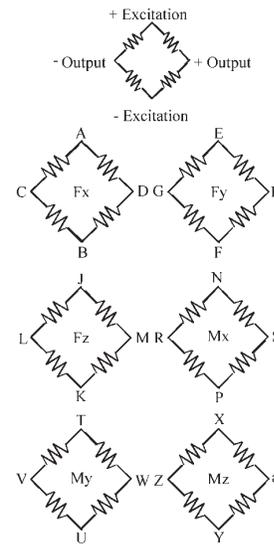
AMTI's BIOVEC™ Systems are complete gait and balance analysis force platform systems. Each system consists of force platforms (from 1 to 4), amplifiers, cables, mounting hardware, A/D converter, and BioAnalysis software.

## CUSTOM

AMTI also offers other transducers to meet your specific needs. Units with larger surface areas are available, and sensors with capacities as high as 3,000,000 pounds (13,345,000 Newtons) have also been constructed. Units are available in waterproof versions and various sizes, load capacities, sensitivities, and materials.

BP400800 SERIES SPECIFICATIONS	1000	2000	4000
Fz Capacity, lb (N)	1000 (4450)	2000 (8900)	4000 (17800)
Fx, Fy Capacity, lb (N)	500 (2225)	1000 (4450)	2000 (8900)
Mz Capacity, in-lb (N)	8000 (900)	16000 (1800)	32000 (3600)
Mx Capacity, in-lb (N)	16000 (1800)	32000 (3600)	64000 (7100)
My Capacity, in-lb (N)	8000 (900)	16000 (1800)	32000 (3600)
Fz Resonant Frequency, Hz	670	740	800
Fx, Fy Resonant Frequency, Hz	340	480	680
Fz Sensitivity, $\mu\text{V}/[\text{V}\cdot\text{lb}]$ ( $\mu\text{V}/[\text{V}\cdot\text{N}]$ )	0.75 (0.17)	0.38 (0.08)	0.19 (0.04)
Fx, Fy Sensitivity, $\mu\text{V}/[\text{V}\cdot\text{lb}]$ ( $\mu\text{V}/[\text{V}\cdot\text{N}]$ )	3.0 (0.67)	1.5 (0.34)	0.75 (0.17)
Mz Sensitivity, $\mu\text{V}/[\text{V}\cdot\text{in}\cdot\text{lb}]$ ( $\mu\text{V}/[\text{V}\cdot\text{Nm}]$ )	0.296 (2.618)	0.148 (1.309)	0.074 (0.655)
Mx Sensitivity, $\mu\text{V}/[\text{V}\cdot\text{in}\cdot\text{lb}]$ ( $\mu\text{V}/[\text{V}\cdot\text{Nm}]$ )	0.118 (1.046)	0.059 (0.523)	0.030 (0.261)
My Sensitivity, $\mu\text{V}/[\text{V}\cdot\text{in}\cdot\text{lb}]$ ( $\mu\text{V}/[\text{V}\cdot\text{Nm}]$ )	0.201 (1.776)	0.100 (0.888)	0.185 (0.444)
Height, in (mm)	4.00 (102)		
Weight, lb (kg)	55 (25)		
Top Plate Material	composite		

**WIRING FOR BP400800**



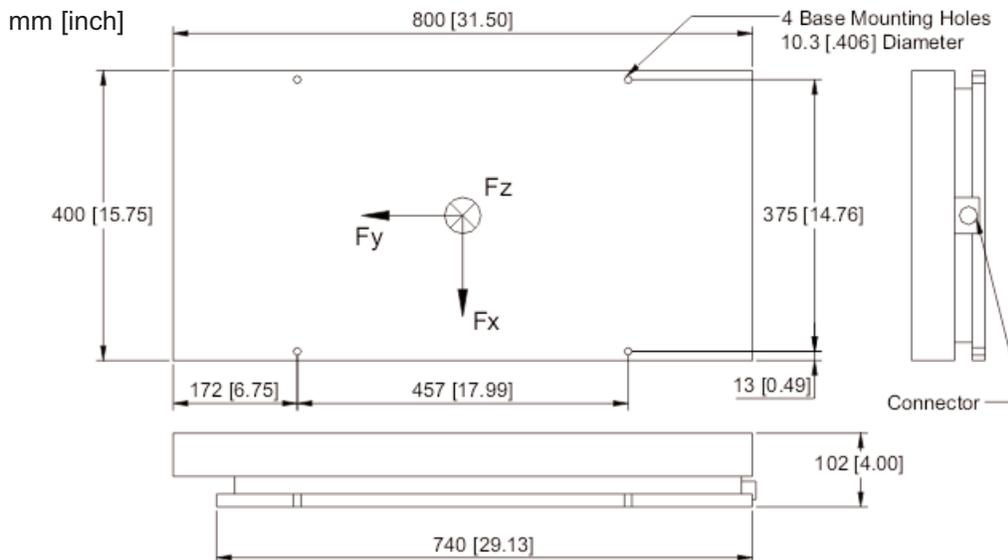
Bridge Fz = 700 ohms  
Bridges Fx; Fy; Mx; My; Mz = 350 ohms

**CONNECTOR TYPE:**

Souriau 851-02E16-26P50-44

**GENERAL SPECIFICATIONS**

- Excitation:** 10V maximum
- Crosstalk:** Less than 2% on all channels
- Temperature Range:** 0 to 125°F (-17 to 52°C)
- Fx, Fy, Fz hysteresis:**  $\pm 0.2\%$  Full Scale Output
- Fx, Fy, Fz non-linearity:**  $\pm 0.2\%$  Full Scale Output



ISO 9001:2000 CERTIFIED



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