



Portable Balance and Postural Sway Platform



- Unprecedented Accuracy  
*Better Data for Better Science*
- Plug & Play USB Interface



## OVERVIEW

AMTI's AccuSway Optimized™ multi-axis force platform is a portable solution for quantifying human balance and postural sway. The AccuSway's innovative, patented design is accurate, economical, and easy to use with AMTI's powerful NetForce, Balance Clinic and Balance Trainer software.

The plug & play USB interface automatically synchronizes multiple platforms and eliminates external power supplies.

AccuSway Optimized attains unprecedented levels of accuracy for measuring Center of Pressure, forces and moments, as well as dramatic reductions in crosstalk. This breakthrough in performance is made possible by AMTI's unique precision grid calibration technology. This new level of accuracy enables clinicians to make better patient measurements, and enables researchers to perform better science based on more accurate input data. The levels of

accuracy achieved with AccuSway Optimized are a quantum leap over previous technologies used in the biomechanics industry.

## SYSTEM FEATURES

### Multi-Component Measurement

Forces: Fx, Fy, Fz  
Moments: Mx, My, Mz

### Digital Output

Plug & play USB 2.0 interface automatically synchronizes up to 12 AccuSway Optimized force platforms.

### High Overload Protection

One-piece sensor element provides extremely high overload protection on all axes.

### Portable - No Mounting Necessary

Just place the platform on a flat surface and use.

### Convenient Surface Grid

A grid on the surface of the platform provides base-of-support coordinates which can be combined with the balance data, allowing the center-of-pressure (COP) to be plotted relative to the subject's foot position.

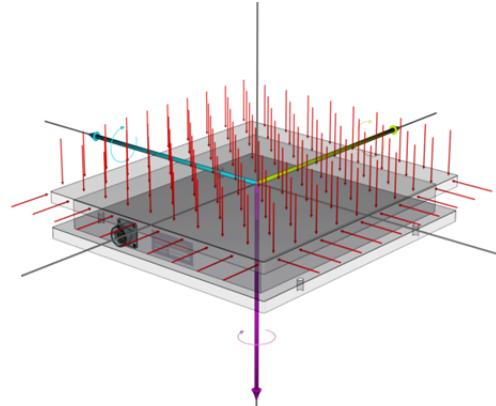
### SOFTWARE

- Plug-and-play integration with major motion capture systems
- Free NetForce™ data acquisition application with subject database
- C++ SDK for developers on request
- LabVIEW instrument driver upon request
- Multiple product integration - automatically synchronizes with other AMTI USB acquisition products
- Seamlessly integrates with AMTI's software applications:
  - BioAnalysis
  - Balance Clinic
  - Balance Trainer

### UNPRECEDENTED ACCURACY

#### **Better Data for Better Science**

AMTI's precision grid calibration technology optimizes each AccuSway Optimized force platform's accuracy. By taking 1275 measurements in a grid pattern and using the points for calibration, enormous improvements in accuracy and reductions in crosstalk are realized – typically 5X better! The result: clinicians and researchers can perform better science from better data. In fact, force platforms are the very basis of clinical analysis and research involving gait, balance, sports performance, and biomechanics, so force platform accuracy matters.



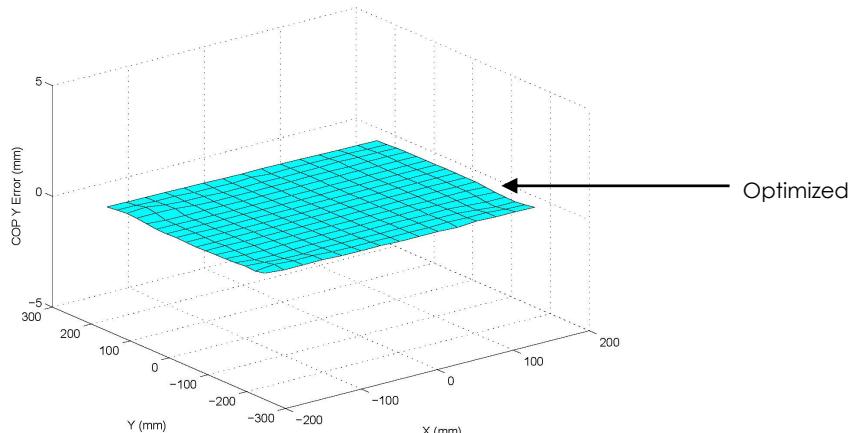
Optimizing Grid Calibration

AccuSway Optimized force platforms are calibrated with 5 separate force values for each of 255 locations across the platform's surface. This automated process applies the forces with a positional accuracy of 0.005mm. Force / moment accuracy, linearity, hysteresis and crosstalk are all measured, and measuring accuracy is verified using NIST-traceable weights with an accuracy of 0.01%.

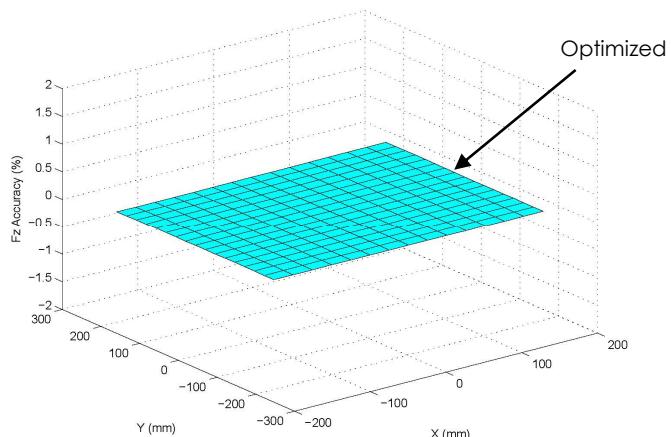
## UNPRECEDENTED ACCURACY (cont.)

The plots below show measured accuracy and crosstalk after optimization. The optimization process yields a dramatic improvement in performance.

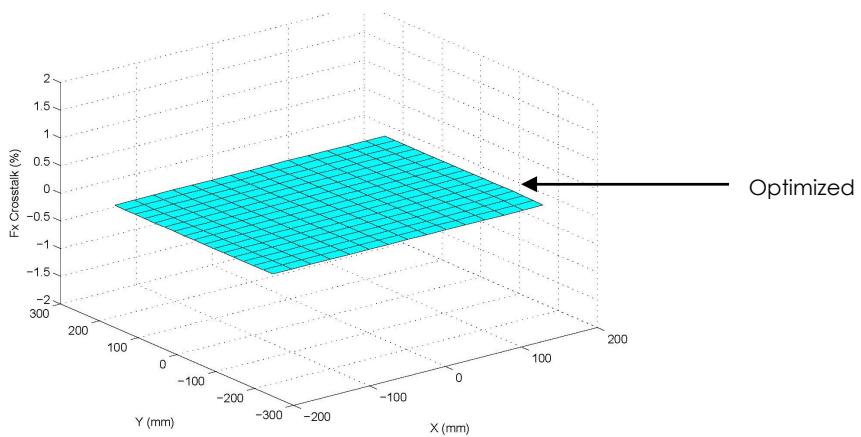
Center of Pressure Accuracy



$F_z$  Accuracy

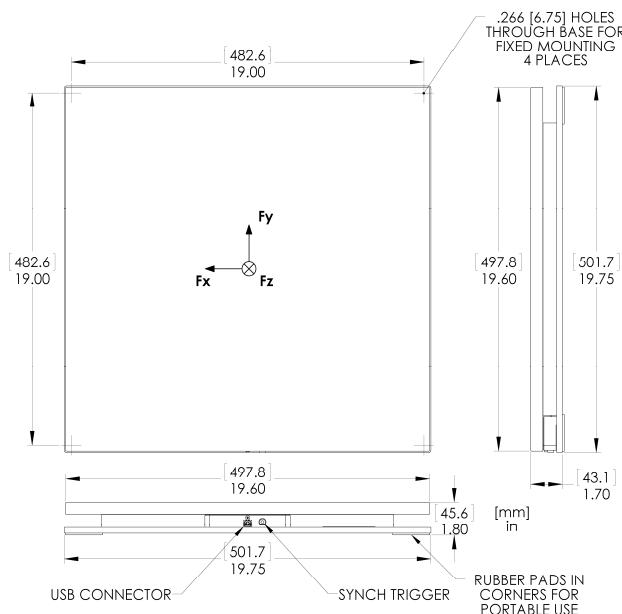


$F_z$  to  $F_x$  Crosstalk



## SPECIFICATIONS

F <sub>z</sub> Capacity, lb (N)	250 (1112)
F <sub>x</sub> , F <sub>y</sub> Capacity, lb (N)	40 (180)
M <sub>z</sub> Capacity, in-lb (Nm)	300 (34)
Resultant Moment Capacity- $\sqrt{(Mx^2+My^2)}$ , in-lb (Nm)	1600 (181)
F <sub>z</sub> Natural Frequency	120 Hz
F <sub>x</sub> , F <sub>y</sub> Natural Frequency	100 Hz
Dimensions, in (mm)	1.79 X 19.75 X 19.75 (45.5 X 502 X 502)
Weight, lb (kg)	25 (11.4)
Digital Data Rate	10 – 1000 data sets per second, user selectable
Interface	USB 2.0
Device Synchronization	Automatic; ultra-low jitter
External Sync Signal	Active = low volts, switch to ground Inactive = high volts, open circuit with internal pull up resistor. Protected to $\pm 10$ V. 1K Ohm input resistance.
Digital Data Transmission	32 bit floating point data containing 6 measurement channels, IEEE format
Power Supply	USB-powered, 380mA
Computer Requirements	USB 2.0 port, Windows 7, 1024 Mb RAM, 1.7 GHz
Filters	Fixed 100 Hz 3rd order analog
Software Force Platform Capacity	NetForce™: up to 12 force platforms (USB hubs required) BioAnalysis™: up to 4 force platforms (USB hub required)
CE Certification	CE Compliant – Medical Grade – Passed AAMI/ES 60601-1, CAN/CSA C22.2 #60601-1, IEC 60601-1, & IEC 60601-1-6



Specifications are subject to change without notice.