OPTIMA

ACCURACY MATTERS

AMTI
FORCE AND MOTION

www.amti.biz

WHY OPTIMA?

The OPTIMA™ Line of Force Platforms

introduces a revolutionary development in force measurement technology. With output measurements up to 100 times more accurate than any other force platform, the OPTIMA Line provides levels of accuracy never-before seen.

AMTI's best-in-industry calibration guarantees our customers the highest level of accuracy, which is achieved over the entire working surface and enables AMTI to comply with the latest ASTM International standard.

Globally, AMTI is the only force plate manufacturer to follow ASTM International's "Standard Test Method for Verification of Multi-Axis Force Measuring Platforms" with our patented OPTIMA line of force plates.

When you purchase an OPTIMA you are getting the BEST force plate system available. Each OPTIMA system is composed of an OPTIMA Force Plate, an OPTIMA Signal Conditioner, an OPTIMA Calibration Certificate, mounting hardware, and cabling.

Up to 100x more accurate over the entire working surface of the force plate.

HOW IT'S DONE

Overview

AMTI's patented precision calibration is an exacting process involving up to 4000 measurements taken along a high-density grid that covers the entire platform's surface. Multiple loads are applied at up to 400 locations using a precision machine capable of maintaining absolute positioning accuracy of 0.005 mm (certified by The Association for Manufacturing Technology).

First, live loads from 50 pounds to full scale capacity are applied across the top and sides of the force plate. Next, "NIST traceable" dead weights of 50, 100, and 200 pounds (accurate to 0.01%) are used to verify the system's performance in the physiological testing range. Finally, secondary characteristics such as linearity and hysteresis are measured at eight locations using a ten-point-up, ten-point-down, calibration protocol. This exhaustive calibration and verification process ensures that each OPTIMA system offers the best possible accuracy and measurement quality available.

AMTI's patented OPTIMA calibration process involves up to 4000 measurements taken over the entire working surface of the plate.

OPTIMA-HPS

High Performance Series

HPS400600

The most accurate force plates on the market. Period.

The OPTIMA-HPS line undergoes the highest density calibration – this means the largest number of calibration locations and applied loads – resulting in the highest accuracy available.

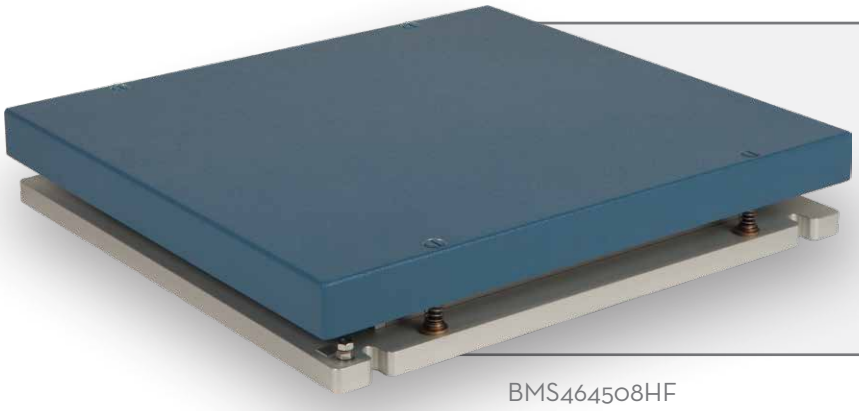
OPTIMA-HPS SPECIFICATIONS	
COP ERROR, TYP*	<0.2 mm
CROSSTALK, % APP LOAD, TYP	±0.05%
MEASUREMENT ACCURACY, % APP LOAD, TYP*	±0.1%

*minimum applied load: 50 lbs

AVAILABLE MODELS			
Model Number	Dimensions	Capacities Available	Composite Top Design
HPS400600	400 mm x 600 mm	4448, 8896 N	
HPS400600HF	400 mm x 600 mm	4448, 8896 N	✓
HPS464508	464 mm x 508 mm	4448, 8896 N	
HPS464508HF	464 mm x 508 mm	4448, 8896 N	✓

OPTIMA-BMS

Bio-Measurement Series



BMS464508HF

OPTIMA Technology in the most affordable package

The OPTIMA-BMS line expands AMTI's patented OPTIMA calibration to our large area force platforms. The result is a force plate that is easily more accurate – right to the edges – than any of our competitors systems and second only to the High Performance Series (HPS).

OPTIMA-BMS SPECIFICATIONS	
COP ERROR TYP*	<0.5 mm
CROSSTALK, % APP LOAD, TYP	±0.2%
MEASUREMENT ACCURACY, % APP LOAD, TYP*	±0.5%

*minimum applied load: 50 lbs

AVAILABLE MODELS			
Model Number	Dimensions	Capacities Available	Composite Top Design
BMS400600	400 mm x 600 mm	4448, 8896 N	
BMS400600HF	400 mm x 600 mm	4448, 8896 N	✓
BMS464508	464 mm x 508 mm	4448, 8896 N	
BMS464508HF	464 mm x 508 mm	4448, 8896 N	✓
BMS600600	600 mm x 600 mm	4448, 8896 N	✓
BMS600900	600 mm x 900 mm	4448, 8896 N	✓
BMS6001200	600 mm x 1200 mm	4448, 8896 N	✓
BMS900900	900 mm x 900 mm	4448, 8896 N	✓

BEST IN CLASS

The OPTIMA Signal Conditioner

The OPTIMA signal conditioner (OPT-SC) is the heart of the OPTIMA System. It provides seamless integration between your AMTI force plate and your chosen data collection system. Using our smart technology, the OPTIMA amplifier communicates directly with the platform to ensure the correct calibration file is loaded, therefore reducing human error.

The amplifier offers a simplified setup and the digital integration option allows you to connect directly to a motion capture computer, eliminating the need for an external analog-to-digital board.

The amplifier is fully software configurable with four gain and three excitation options for each channel, allowing you to tune your system to achieve the best resolution for your measurements of interest. In order to give you the most accurate data, the amplifier automatically corrects for voltage drop along the cable and uses calibrated gain and excitation voltage values.

Digital integration makes setup simple and straightforward – even when using a third-party motion capture software – so you can get straight to your research using the most accurate system available.

With its advanced features the OPTIMA signal conditioner allows for simple setup, increased accuracy and the option for direct digital integration.

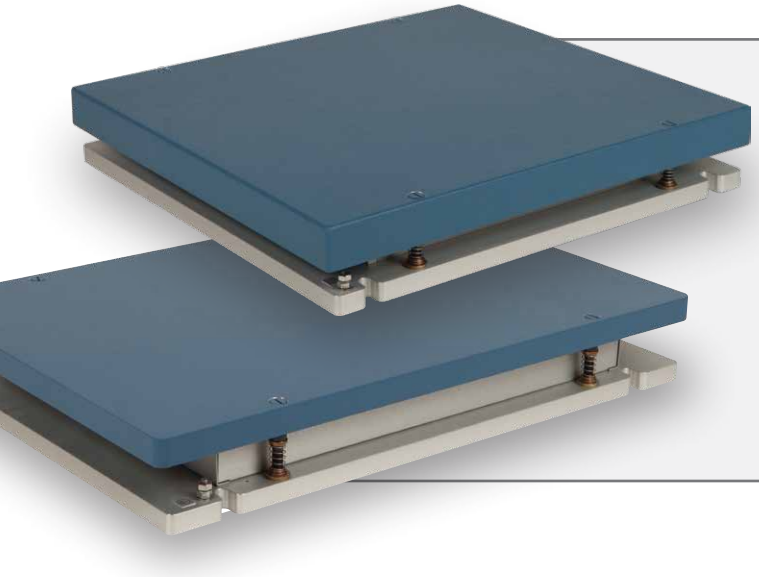
NEW ASTM STANDARD

ASTM F3109-16

The AMTI OPTIMA-HPS and BMS systems are raising the bar for force platform performance. Our patented technology meets the new ASTM F3109-16 standard for verification across the entire platform's working surface and sets an unprecedented technological standard for gait and biomechanical force measurement systems.

The ASTM F3109-16 standard establishes a global precedence for force plate verification, a critical component in research and healthcare to ensure quality of measurement. With applications such as human performance research, sports biomechanics, and gait analysis, surgeons, physicians, and physical therapists rely on data from force plates to make medical decisions.

ASTM F3109 "specifies procedures for performance verification of multi-axis force platforms commonly used for measuring ground reaction forces during gait, balance and other activities." AMTI continues to lead the way as the only force plate manufacturer to conform to these standards, with our line of OPTIMA force plate systems.



Only the OPTIMA platforms conform to the new technological standard for gait and biomechanical force measurement systems.

SYSTEM FEATURES

FORCE PLATFORM		
	OPTIMA-HPS	OPTIMA-BMS
SENSING TECHNOLOGY	Six four-arm strain gage bridge inputs	
COP ERROR, TYPICAL*	<0.2 mm	<0.5 mm
CROSSTALK, % APP LOAD, TYP	±0.05%	±0.2%
MEASUREMENT ACCURACY, % APP LOAD, TYPICAL*	0.1%	±0.5%
SMART IDENTIFICATION TECHNOLOGY	Ensures correct calibration information	

*minimum applied load: 50 lbs

AMPLIFIER: OPT-SC	
Bridge excitation	Channel independent, software configurable – 2.5, 5 or 10 VDC
Amplifier gains	Channel independent, software configurable – 500, 1000, 2000, 4000
Auto zero	Push button or software initiated
Anti-aliasing filter	1000 Hz low pass, 2-pole Butterworth
Analog output range	+/- 5 volts
Analog output reconstruction filter	1000 Hz low pass, 3-pole Butterworth
Analog output DAC	16 bit
Sample rate	Max: 1200 Hz/channel Min: 10 Hz/channel
Synchronization	Genlock, external trigger, internal clock
Digital Signal Processor	16 bit
Digital data	IEEE 754 floating point, 32 bit
Data Integration	USB Digital or analog output smart platform technology

Mounting rail system

- AMTI's through-top mounted force plates and extensible mounting rail system gives your lab the maximum flexibility for experimental setup and the option for future lab growth
- Variable force plate configurations accommodate gait specific to walking or sports studies
- Color-coded components make installation easy
- Perfect platform alignment speeds gait lab installation

Filler plates

- Allow you to organize your platforms optimally for the experiment on hand
- Quarter, half, and full length filler plates accommodate the spatiotemporal gait measures of different populations while reducing targeting

State-of-the-art signal conditioning

- 1 kHz anti-aliasing filters, oversampling, and digital signal processing
- Fully calibrated and NIST-traceable
- Tested to medical-grade standards for safety, essential performance, and electro-magnetic compatibility

Intuitive and easy to use

- Fully software configurable
- Automatic balancing of strain gage bridges initiated by front-panel button or through software
- Multiple OPTIMA Signal Conditioners automatically synchronize data sampling

Half-filler Force Plate Quarter-filler

ISO 9001:2015 certified
ISO 13485:2016 certified

CE

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