ISO 9001:2000 CERTIFIED

Force and Motion

AMTI

Interface Force Measurements Ltd
Unit 19 Wellington Business Park,
Dukes Ride, Crowthorne,
Berkshire, RG45 6LS. U.K.

FS6 Force / Torque Sensor

DESCRIPTION

AMTI's FS6 fixator sensor is specifically designed for the precise measurement of forces and moments. The sensor measures the three orthogonal force components along the X.Y & Z axis, and the moments about those axis, producing a total of six outputs. The characteristics of this strain gauge sensor make it ideal for research and testing environments; it has high stiffness, high sensitivity, low cross talk, excellent repeatability and long term stability. It is easy to use and available in capacities from 100lb to 500lb

APPLICATIONS

The FS6 sensor is particularly suitable for applications requiring simultaneous measurement of several forces and moments, or measurement of forces that change direction and position over time. Common application for this transducer include machining robotics, ergonomics, production processes and dynamics

AMPLIFICATION

The FS6 Fixator Force/Torque Sensor incorporates strain gauges mounted on a precision strain element to measure forces and moments. As with all conventional strain gauge transducers, bridge excitation and signal amplification are required. AMTI's MCA analogue or Force 5 digital amplifiers are high gain devices which provide excitation and amplification for multiple channels in one convenient package. The rack mounted MCA-6 and the desk top Force 5 provide the six channels of amplification required by this sensor. These amplifiers process the sensors low level signals and provide outputs suitable for an A/D converter so that data can be stored and processed by your PC.

Calibration

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

Custom

AMTI also offers special multi-axis transducers to meet your specific requirements. Units are available that are water proof, pressure compensated, non-magnetic, non- conductive and transparent. Capacities from 1lb (4.5N) to 3 million lbs (13.3Mn) can be made.

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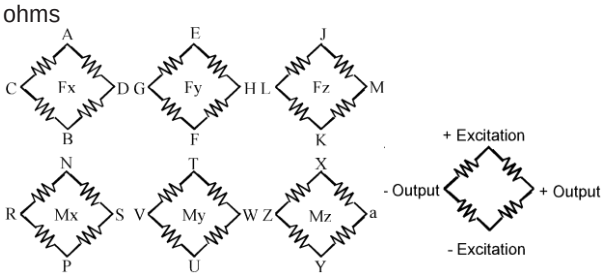
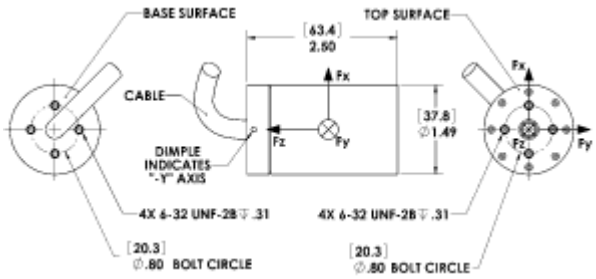
Specifications

FS6 SERIES SPECIFICATIONS	100	250	500
Fx, Fy Capacity, lb, (N)	50 (222)	125 (556)	250 (1,112)
Fz Capacity, lb, (N)	100 (445)	250 (1,112)	500 (2,224)
Mx, My Capacity, in*lb, (Nm)	100 (11)	250 (28)	500 (56)
Mz Capacity, in*lb, (Nm)	50 (5.6)	125 (14)	250 (28)
Fx, Fy Sensitivity, µV/[V*lb], (µV/[V*N])	24 (5.4)	9.6 (2.16)	4.8 (1.08)
Fz Sensitivity, µV/[V*lb], (µV/[V*N])	6.0 (1.35)	2.4 (0.54)	1.2 (0.27)
Mx, My Sensitivity, µV/[V*in*lb], (µV/[V*Nm])	30 (266)	12 (106.3)	6 (53.16)
Mz Sensitivity, µV/[V*in*lb], (µV/[V*Nm])	24 (213)	9.6 (85.02)	4.8 (42.53)
Fx, Fy Stiffness x10/5 lb/in (x10/5 Nm)	0.12 (21.04)	0.3 (52.6)	0.6 (105.2)
Fz Stiffness x10/5 lb/in (x10/5 Nm)	1.7 (298)	4.25 (745)	8.5 (1490)
Mz Stiffness, x10/5 in*ln/ radian (x10/5 Nm/ radian)	0.2 (0.226)	0.5(0.0565)	1.0 (0.113)

Wiring

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





GENERAL SPECIFICATIONS

Weight 0.22lb (100g) Excitation: 10V maximum,: Crosstalk: Less than 2% on all channels: Temperature Range: 0 to 125°F, (-17 to 52°C) Fx, Fy, Fz hysteresis: ± 0.2 % Full: Scale Output: Fx, Fy, Fz non-linearity: ± 0.2% Full Scale Output.

AMTI ADVANCED MECHANICAL TECHNOLOGY, INC.

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