ISO 9001:2000 CERTIFIED

Force and Motion

AMTI

Interface Force Measurements Ltd
Unit 19 Wellington Business Park,
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MC12 Force/ Torque Sensor

DESCRIPTION

The MC12 transducer resolve applied loads into orthogonal force and moment components. These precision sensors feature high stiffness, high sensitivity, low crosstalk, excellent repeatability and long term stability. They exhibit the inherent ruggedness of bonded strain gauge transducers and they incorporate special seals to prevent water and oil contamination.
The MC6 transducer is available with one to six outputs corresponding to Fx, Fy, Fz, Mx, My and Mz. Standard vertical load capacities are 1000, 2000, 4000 lbs. Horizontal load capacities are half of the vertical rating. Models with custom capacities and layouts are available for special applications.

This instrument has a twelve inch square top mounting surface equipped with thread inserts. A high strength T7075-T6 aluminium is used through out to withstand harsh manufacturing and test environments. A durable anodized finish protects the exterior from corrosion while elastomeric O-rings seals protect the strain gauges and wiring. Internal potting of the strain gauges further insures long life and consistent, reliable performance

Applications

The MC12 is particularly suitable for applications requiring simultaneous measurement of several forces and moments that change direction and position over time. Common application for this transducer include research and development in machining and robotics or monitoring production processes

AMPLIFICATION

The MC12 transducer incorporates strain gauges mounted on four precision strain elements in a patented design to measure forces and moments. As with most conventional strain gauge transducers, bridge excitation and signal amplification is required.
AMTI's product line includes one analogue strain gauge amplifier, the MSA-6 and there is one digital signal amplifier, the Gen 5. Both these amplifiers are high gain devices which provide excitation and amplification for multiple channels in one convenient package

Calibration

Each transducer 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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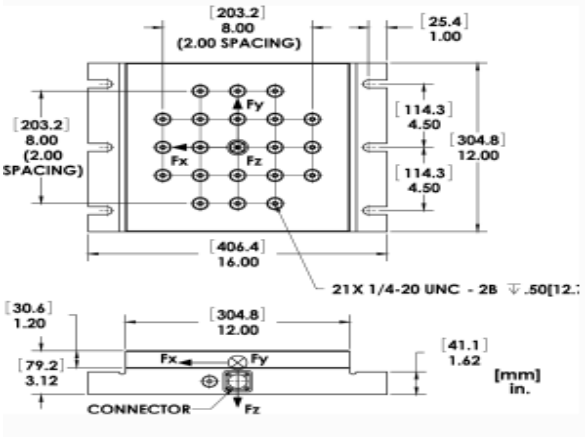
MC12 Force / Torque Sensor Specifications

MC12 SERIES SPECIFICATIONS	1000	2000	4000
Fx, Fy Capacity, lb, (N)	500 (2224)	1000 (4448)	2000 (8896)
Fz Capacity, lb, (N)	1000 (4448)	2000 (8896)	4000 (17,793)
Mx Capacity, in*lb, (Nm)	6000 (678)	12000 (1355)	24000 (2710)
My Capacity, in*lb, (Nm)	6000 (678)	12000 (1355)	24000 (2710)
Mz Capacity, in*lb, (Nm)	3000 (339)	6000 (678)	12000 (1355)
Fx, Fy Resonant Frequency, Hz	450	580	750
Fz Resonant Frequency, Hz	880	1100	1400
Fx, Fy Sensitivity, µV/[V*lb], (µV/[V*N])	3.0 (0.67)	1.5 (0.34)	0.75 (0.17)
Fz Sensitivity, µV/[V*lb], (µV/[V*N])	0.76 (0.17)	0.38 (0.08)	0.19 (0.04)
Mx Sensitivity, µV/[V*in*lb], (µV/[V*Nm])	0.28 (2.48)	0.14 (1.24)	0.07 (0.62)
My Sensitivity, µV/[V*in*lb], (µV/[V*Nm])	0.28 (2.48)	0.14 (1.24)	0.07 (0.62)
Mz Sensitivity, µV/[V*in*lb], (µV/[V*Nm])	0.66 (5.84)	0.33 (2.92)	0.16 (1.46)
Hysteresis % Full Scale Output	0.20	0.20	0.20
Non – Linearity /± % Full Scale Output	0.20	0.20	0.20

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
Output: Fx, Fy, Fz

Footprint Drawing (click on image to enlarge)



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