

DESCRIPTION

The MC6 transducers 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 gage 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, and 4000 pounds. Horizontal load capacities are half of the vertical rating. Models with custom capacities and layouts are available for special applications.

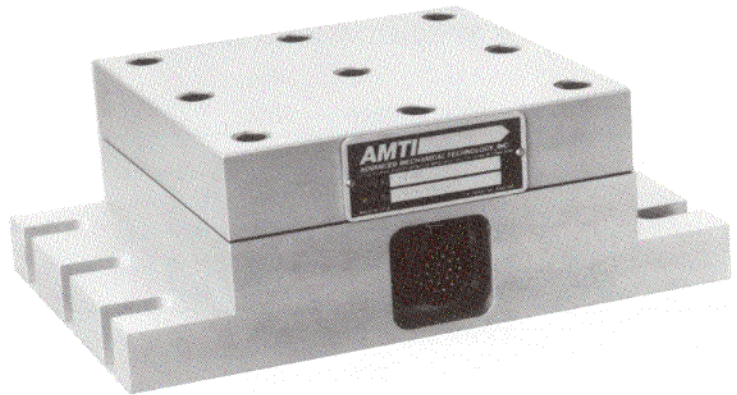
The instrument has a six-inch square top mounting surface equipped with threaded inserts. A high-strength aluminum alloy (7075-T6) is used throughout to withstand harsh manufacturing and testing environments. A durable anodized finish protects the exterior from corrosion while elastomeric O-ring seals protect the strain gages and wiring. Internal potting of the strain gages further insures long life and consistent, reliable performance.

AMPLIFICATION

The MC6 transducer incorporates strain gages and four precision elements in a patented design* to isolate and measure applied forces and moments. As with all conventional strain gage transducers, bridge excitation and signal amplification are required. AMTI's MCA series amplifiers are high-gain devices which provide excitation and amplification for multiple channels in one convenient package. These amplifiers process the signals from a transducer and provide outputs suitable for an A/D converter and digital computer or other recording instrument.

APPLICATIONS

This instrument 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 applications for this transducer include research and development in machining, robotics, ergonomics, biomechanics, and dynamics. These sensors are also well suited for monitoring production processes.



SPECIFICATIONS

The accompanying specifications are for estimating purposes. Actual precision calibrations are furnished with each instrument. The manufacturer reserves the right to alter the specifications without notice.

| MC6 SERIES SPECIFICATIONS (English Units) | | | | |
|---|------|------|-------|----------------------|
| Model: | | | | |
| MC6-X- | 1000 | 2000 | 4000 | |
| CAPACITY | | | | |
| Fz | 1000 | 2000 | 4000 | lb |
| Fx, Fy | 500 | 1000 | 2000 | lb |
| Mz | 1500 | 3000 | 6000 | in-lb |
| Mx, My | 3000 | 6000 | 12000 | in-lb |
| TYPICAL SENSITIVITY | | | | |
| Fz | 0.76 | 0.38 | 0.19 | $\frac{\mu V}{V}$ ** |
| Fx, Fy | 3.00 | 1.50 | 0.75 | $\frac{V}{V}$ lb |
| Mz | 1.50 | 0.75 | 0.37 | $\frac{\mu V}{V}$ ** |
| Mx, My | 0.70 | 0.35 | 0.18 | $\frac{V}{V}$ in-lb |
| STIFFNESS | | | | |
| Fz | 0.80 | 1.30 | 2.00 | $\times 10^6$ lb/in |
| Fx, Fy | 0.12 | 0.25 | 0.50 | |
| NON-LINEARITY | | | | |
| Fx, Fy, Fz | 0.20 | 0.20 | 0.20 | \pm %FSO*** |
| HYSTERESIS | | | | |
| Fx, Fy, Fz | 0.20 | 0.20 | 0.20 | %FSO*** |
| RESONANT FREQUENCY | | | | |
| Fz | 620 | 875 | 1200 | Hertz |
| Fx, Fy | 550 | 800 | 1000 | Hertz |

** μV = microvolts, *** %FSO = % Full Scale Output

MC6 SERIES

FORCE/TORQUE SENSORS

MC6 SERIES SPECIFICATIONS (Metric Units)

Model:

MC6-X- 1000 2000 4000

CAPACITY

| | | | | |
|--------|------|------|-------|-----|
| Fz | 4500 | 9000 | 18000 | N |
| Fx, Fy | 2250 | 4500 | 9000 | N |
| Mz | 170 | 340 | 680 | N-m |
| Mx, My | 340 | 680 | 1360 | N-m |

TYPICAL SENSITIVITY

| | | | | |
|--------|-------|------|------|--------------------------|
| Fz | 0.17 | 0.08 | 0.04 | $\frac{\mu V}{V-N}$ ** |
| Fx, Fy | 0.67 | 0.33 | 0.17 | $\frac{\mu V}{V-N}$ ** |
| Mz | 13.27 | 6.63 | 3.32 | $\frac{\mu V}{V-N-m}$ ** |
| Mx, My | 6.20 | 3.10 | 1.55 | $\frac{\mu V}{V-N-m}$ ** |

STIFFNESS

| | | | | |
|--------|-----|-----|-----|-------------------|
| Fz | 14 | 23 | 35 | $\times 10^7$ N/m |
| Fx, Fy | 2.1 | 4.4 | 8.8 | |

NON-LINEARITY

| | | | | |
|------------|------|------|------|------------|
| Fx, Fy, Fz | 0.20 | 0.20 | 0.20 | \pm %FSO |
|------------|------|------|------|------------|

HYSTERESIS

| | | | | |
|------------|------|------|------|------|
| Fx, Fy, Fz | 0.20 | 0.20 | 0.20 | %FSO |
|------------|------|------|------|------|

RESONANT FREQUENCY

| | | | | |
|--------|-----|-----|------|-------|
| Fz | 620 | 875 | 1200 | Hertz |
| Fx, Fy | 550 | 800 | 1000 | Hertz |

GENERAL SPECIFICATIONS

Excitation: 10V

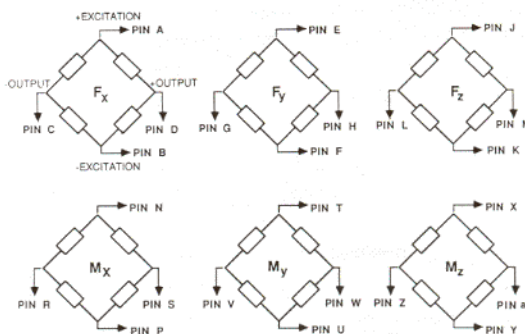
Temperature Range: 0 to 125°F (-17 to 52°C)

Sensitivity change with temperature: 0.02%/°F (0.01%/°C)

Crosstalk: Less than 2% on all channels

Weight: 13 lb (6 Kg)

WIRING



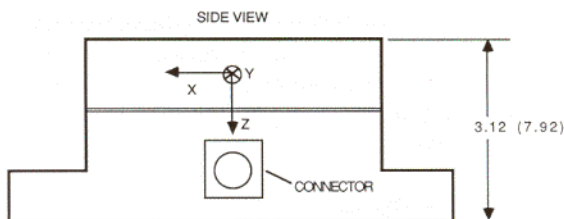
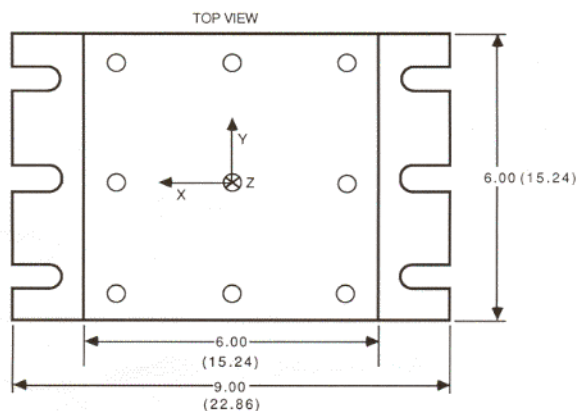
Connector Type: Burndy BTO2E16-26P

MC6 — X — XXXX

Series

No. of Channels

Capacity



- Hole-down inserts: 3/8-16 thread, 9 holes on 2.37 inch (6.01) centers.
- Metric threaded hold-down inserts available.
- Six .056 inch (1.42) mounting slots on 2.0 by 7.5 inch (5.1 by 19.0) centers.
- All dimensions in inches (cm).

ISO 9001 CERTIFIED

AMTI

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