

DESCRIPTION

The MC36 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 MC36 transducer is available with one to six outputs corresponding to F_x , F_y , F_z , M_x , M_y , and M_z . Standard vertical load capacities are 100, 250, 500, and 1000 lb. Models with custom capacities are also available.

The instrument has a three by six inch top mounting surface equipped with threaded inserts. A high-strength aluminum alloy (7075-T6) is used throughout to withstand harsh manufacturing and testing environments, and a steel base is available for use with magnetic chucks. 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 MC36 transducer uses strain gages on two precision elements 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 produce a high-level analog signal suitable for an A/D converter and digital computer or other recording instrument.

APPLICATIONS

The size and layout of this transducer make it ideal for many applications. It is commonly used for monitoring machining processes, and it is particularly suitable for grinding studies because of its high stiffness and high sensitivity in the vertical direction.



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.

MC36 SERIES SPECIFICATIONS (English Units)

Model:	MC36-X-	100	250	500	1000	
CAPACITY						
F_x, F_y, F_z	100	250	500	1000	lb	
M_y, M_z	300	750	1500	3000	in-lb	
M_x	150	375	750	1500	in-lb	
TYPICAL SENSITIVITY						
F_z	3.0	1.5	0.75	0.38	μV^{**}	
F_x, F_y	12.0	6.0	3.0	1.5	V-lb	
M_z	2.6	1.3	0.65	0.32		
M_x	11.4	5.7	2.9	1.4	μV^{**}	
M_y	2.8	1.4	0.7	0.35	V-in-lb	
STIFFNESS						
F_z	30.0	60.0	120.0	240.0	$\times 10^4$ lb/in	
F_x	3.5	7.0	14.0	28.0		
F_y	2.5	5.0	10.0	20.0		
NON-LINEARITY						
F_x, F_y, F_z	0.2	0.2	0.2	0.2	$\pm \% FSO^{***}$	
HYSERESIS						
F_x, F_y, F_z	0.2	0.2	0.2	0.2	$\pm \% FSO^{***}$	
RESONANT FREQUENCY						
F_x, F_z	500	700	1000	1400	Hertz	
F_y	350	500	700	1000	Hertz	

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



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 sales@absolutegauge.com; www.absolutegauge.com,
 Toronto: 416 754 3168, Montreal: 514 695 5147, Toll Free: 1 888 754 7008

MC36 SERIES

FORCE/TORQUE SENSORS

MC36 SERIES SPECIFICATIONS (Metric Units)

Model:
MC36-X 100 250 500 1000

CAPACITY

Fx,Fy,Fz	445	1112	2225	4450 N
My,Mz	33.9	84.8	169.5	339.0 N·m
Mx	17.0	42.4	84.8	169.5 N·m

TYPICAL SENSITIVITY

Fz	0.67	0.34	0.17	0.08	µV
Fx,Fy	2.70	1.35	0.67	0.34	V-N
Mz	23.0	11.50	5.25	2.88	
Mx	100.9	50.4	25.2	12.6	µV
My	24.8	12.4	6.20	3.10	V-N·m

STIFFNESS

Fz	525	1050	2100	4200 $\times 10^5$ N/m
Fx	60.0	120.0	240.0	480.0
Fy	40.0	80.0	175.0	350.0

NON-LINEARITY

Fx,Fy,Fz	0.20	0.20	0.20	0.20 \pm %FSO
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HYSTERESIS

Fx,Fy,Fz	0.20	0.20	0.20	0.20 %FSO
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RESONANT FREQUENCY

Fz	500	700	1000	1400 Hertz
Fx,Fy	350	500	700	1000 Hertz

GENERAL SPECIFICATIONS

Excitation: 10V

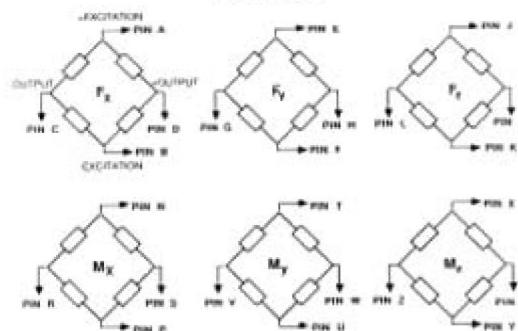
Temperature Range: 0 to 125°F (-17 to 52°C)

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

Crosstalk: Less than 2% on all channels

Weight with steel base: 11 lbs (5 Kg)

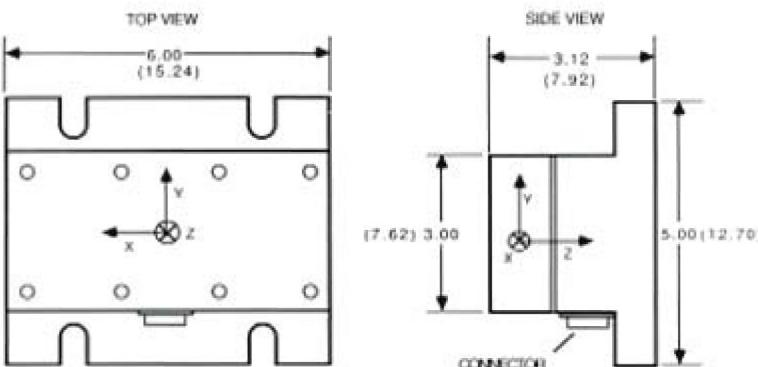
WIRING



Connector Type: Burndy BTO2E16-26P

MC36 — X — XXXX

Series _____
No. of Channels _____
Capacity _____



- Hold-down inserts: 3/8-thread, 8 holes on 2.25 by 3.5 inch (5.72 by 8.89) centers.
- Metric threaded hold-down inserts available.
- Four 0.44 inch (1.12) mounting slots on 4.0 (10.2) by 3.5 (8.89) inch centers.
- All dimensions in inches (cm).

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ISO 9001:2000 certified

Tel: 617-926-6700 • Fax: 617-926-5045

E-mail: sales@amtmail.com • www.AMTI.biz