

## DESCRIPTION

The MC818 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 MC818 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.

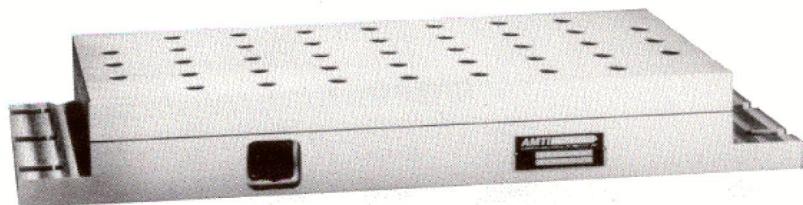
The instrument has an eight by eighteen inch rectangular top mounting surface equipped with threaded inserts. A high-strength aluminum alloy (7075-T6) is used throughout to withstand harsh manufacturing and testing environments. A durable anodized finish protects the exterior from corrosion while elastomeric 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 MC818 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

Originally developed for studying grinding processes, other 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 systems.



## 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.

MC818 SERIES SPECIFICATIONS (English Units)				
Model:	1000	2000	4000	
<b>CAPACITY</b>				
Fz	1000	2000	4000	lb
Fx,Fy	500	1000	2000	lb
Mz	4500	9000	18000	in-lb
Mx	4000	8000	16000	in-lb
My	8000	16000	32000	in-lb
<b>TYPICAL SENSITIVITY</b>				
Fz	0.76	0.38	0.19	$\frac{\mu\text{V}}{\text{V-lb}}$ **
Fx,Fy	3.00	1.50	0.75	$\frac{\text{V-lb}}{\text{V-in-lb}}$ **
Mz	0.56	0.28	0.14	$\frac{\mu\text{V}}{\text{V-lb}}$ **
Mx	0.14	0.07	0.04	$\frac{\text{V-in-lb}}{\text{V-in-lb}}$
My	0.40	0.20	0.11	
<b>STIFFNESS</b>				
Fz	0.50	0.60	0.70	$\times 10^6 \text{ lb/in}$
Fx,Fy	0.12	0.25	0.50	
<b>NON-LINEARITY</b>				
Fx,Fy,Fz	0.20	0.20	0.20	$\pm \text{ %FSO}^{***}$
<b>HYSTERESIS</b>				
Fx,Fy,Fz	0.20	0.20	0.20	$\text{ %FSO}^{***}$
<b>RESONANT FREQUENCY</b>				
Fz	400	400	400	Hz
Fx,Fy	400	560	800	Hz

\*\*  $\mu\text{V}$  = microvolts, \*\*\*%FSO = %Full Scale Output



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\* U.S. Patent #4493220

Bulletin MC818-898



ISO 9001:2000 certified

# MC818 SERIES

## FORCE/TORQUE SENSORS

### MC818 SERIES SPECIFICATIONS (Metric Units)

Model: MC818-X- 1000 2000 4000

#### CAPACITY

Fz	4450	8900	17800	N
Fx,Fy	2225	4450	8900	N
Mz	509	1018	2036	N-m
Mx	452	904	1808	N-m
My	904	1808	3616	

#### TYPICAL SENSITIVITY

Fz	0.17	0.09	0.04	$\frac{\mu\text{V}}{\text{V-N}}$
Fx,Fy	0.67	0.33	0.17	$\frac{\mu\text{V}}{\text{V-N}}$
Mz	4.96	2.48	1.24	$\frac{\mu\text{V}}{\text{V-N-m}}$
Mx	1.24	0.62	0.31	$\frac{\mu\text{V}}{\text{V-N-m}}$
My	3.54	1.77	0.89	

#### STIFFNESS

Fz	8.7	10.5	12.2	$\times 10^7 \text{ N/m}$
Fx,Fy	2.1	4.3	8.7	

#### NON-LINEARITY

Fx,Fy,Fz	0.20	0.20	0.20	$\pm \text{\%FSO}$
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#### HYSTERESIS

Fx,Fy,Fz	0.20	0.20	0.20	$\text{\%FSO}$
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#### RESONANT FREQUENCY

Fz	400	400	400	Hertz
Fx,Fy	400	560	800	Hertz

### GENERAL SPECIFICATIONS

Excitation: 10V

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

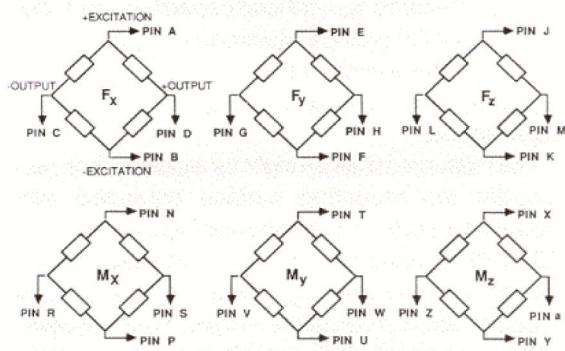
Sensitivity change with temperature:

0.02%/°F (0.01%/°C)

Crosstalk: Less than 2% on all channels

Weight: 45 lb (20.5 Kg)

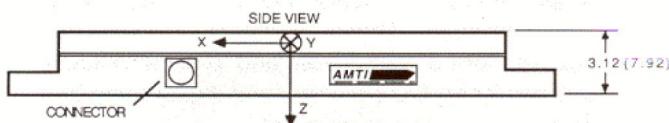
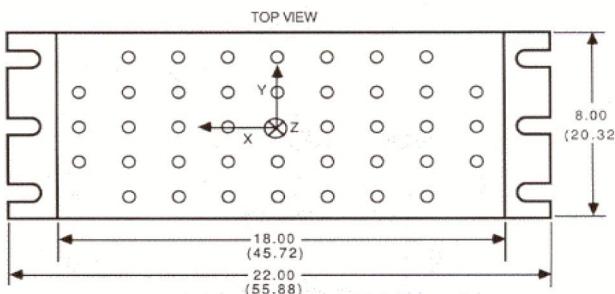
### WIRING



Connector Type: Burndy BTO2E16-26P

MC818 — X — XXXX

Series \_\_\_\_\_  
No. of Channels \_\_\_\_\_  
Capacity \_\_\_\_\_



- Hold-down inserts: 3/8-16 thread, 41 holes on 1.5 by 2.5 inch (3.81 by 6.35) centers.
- Metric threaded hold-down inserts available.
- Six 0.562 inch (1.43) wide mounting slots on 3.0 by 20 inch (3.81 by 50.8) centers.
- All dimensions in inches (cm).

Represented By:



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**AMTI**  
FORCE AND MOTION

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