



- Measures X & Y forces
- 2 mV/V +/- 0.25% each axis
- Cross talk <0.5%
- Fatigue rated
- Custom designs & capacities available
- SAE 4340 alloy steel construction with satin nickel finish
- Supplied with mating connectors

SensorData's M231 X-Y Force Sensor is primarily used to measure radial (R) and side (S) forces in tire test machines. The M231 sensor element was designed to ensure that force components would be evenly distributed over 360 degrees of tire rotation. Strain gage bridge wiring cancellation techniques provide a signal that is virtually error free. The M231 is the only force sensor of its type to be fatigue rated. The M231 is also available in sizes and capacities not covered by this data sheet. Consult the factory for details.

### Specifications - X(R) & Y(S) Axis

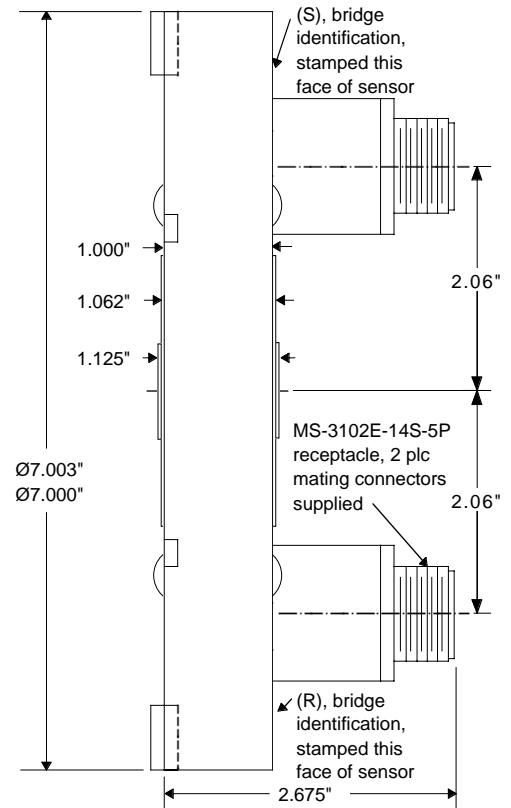
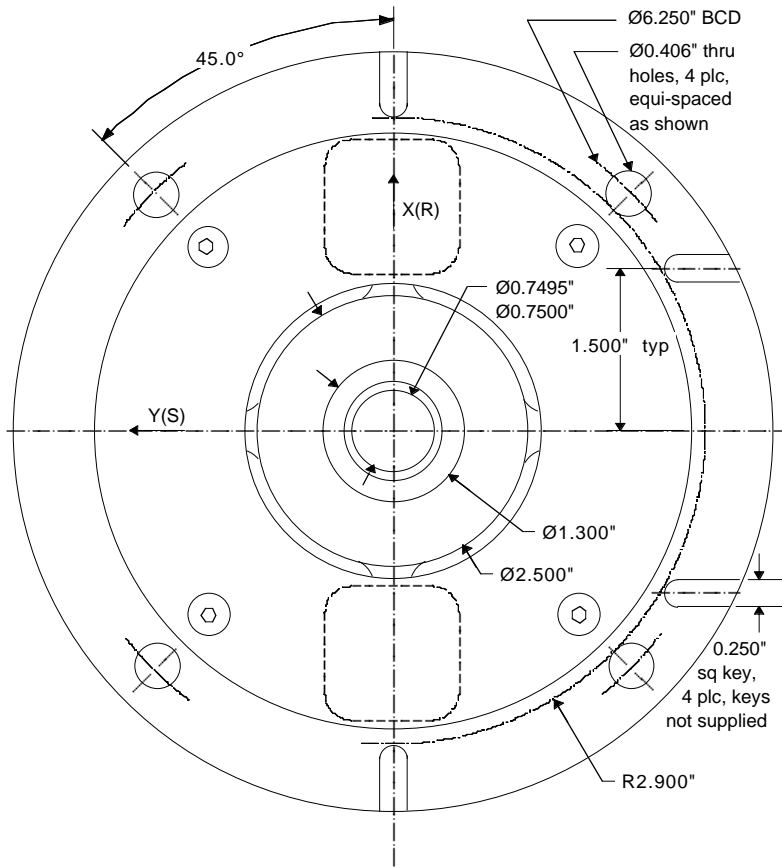
(Subject to change without notice)

Rated Capacity	See table next page
Nonlinearity	0.10% of rated output
Hysteresis	0.10% of rated output
Nonrepeatability	0.05% of rated output
Rated Output, typical	2 mV/V +/- 0.25%
Zero Balance	+/-1% of rated output
Temperature Range, operating	-65 to +200 F
Temperature Range, compensated	+70 to +170 F
Temperature Effect on Output	0.002% of load/F
Temperature Effect on Zero	0.002% of rated output/F
Input Impedance, minimum	380 ohms
Output Impedance	350 +/- 3.5 ohms
Excitation Voltage, typical	10 VDC or VAC rms
Excitation Voltage, maximum <sup>(1)</sup>	20 VDC or VAC rms
Insulation Resistance	>5000 megohms at 50 VDC
Maximum Load, safe <sup>(2)</sup>	150% of rated capacity
Maximum Load, ultimate <sup>(3)</sup>	200% of rated capacity
Deflection at Rated Capacity, typical	0.0025 in
Fatigue rating, full fatigue tension to full fatigue compression	10 <sup>8</sup> cycles
Number of Bridges	2
Weight	7.5 lb
Construction	SAE 4340 alloy steel with satin nickel finish

<sup>(1)</sup> Temperature gradients caused by higher excitation voltages may effect performance.

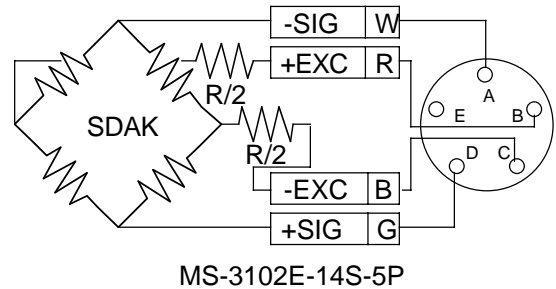
<sup>(2)</sup> With load centered, maximum load that can be applied without producing a permanent shift in performance characteristics.

<sup>(3)</sup> With load centered, maximum load that can be applied without physical damage.



Model	Capacities - Lb	
	X(R)	Y(S)
M231-STD-1000/500	1000	500
M231-STD-2000/1000	2000	1000
M231-STD-1500/500	1500	500
M231-STD-2000/500	2000	500
M231-STD-2000/750	2000	750

M231-STD models are according to the above drawing. Consult SensorData's representative or the factory for information and availability on specials not listed above.



**ORDERING INFORMATION**

- M231-STD-X(R)/Y(S) Standard; include X(R) and Y(S) capacities from table above. Mating connectors supplied.
- Cable Assembly Optional; 10 ft, color coded, shielded, mating connector sensor end, customer supplied connector instrument end.
- Cable Assembly Optional; 10 ft, color coded, shielded, mating connector sensor end, leads stripped and tinned instrument end.

**IMPORTANT NOTICE**

Dimensions above are in inches unless otherwise noted. Manufacturer not responsible for any modification to product, fixtures, or accessories made by user or third party. User should request certified drawings before designing mountings or fixtures. Manufacturer reserves right to modify or change design, dimensions, specifications, and features of this product without prior written notice. Changes to NOTICE must be in writing and accepted by manufacturer.