

# Square Three Axis Load Cell

## Model TR3D-B-\*

- 250 lbf to 16,000 lbf capacities
- Measures forces in three perpendicular directions
- Environmentally protected
- Temperature compensated
- Rugged construction



## Description

Michigan Scientific *TR3D-B-\** Square Three Axis Load Cells are ideal for applications that require force measurements in three perpendicular directions. Available in 250 lbf to 16,000 lbf capacities, these compact transducers are configured for easy adaptation to a variety of applications.

High grade stainless steel or aluminum material, in addition to weatherproof sealing, combine to provide excellent resistance to corrosion and environmental conditions. Temperature compensation of the transducers ensures stable output throughout a wide temperature range.

## Specifications

	TR3D-B-250	TR3D-B-1K	TR3D-B-4K	TR3D-B-4500	TR3D-B-5/5/10K	TR3D-B-16K
Maximum Load Capacity (per channel)	250 lbf (1.1 kN)	1,000 lbf (4.4 kN)	4,000 lbf (17.7 kN)	4,500 lbf (20 kN)	X&Y 5,000 lbf (22 kN) Z 10,000 lbf (44 kN)	16,000 lbf (71 kN)
Maximum Moment Capacity (per channel)	12 lbf · ft (16 N · m)	48 lbf · ft (65 N · m)	165 lbf · ft (220 N · m)	165 lbf · ft (220 N · m)	385 lbf · ft (520 N · m)	1,300 lbf · ft (1.7 kN · m)
Full Scale Output	3.5 mV/V, nominal, all channels	4.5 mV/V, nominal, all channels		2.6 mV/V nominal, Fx, Fy 4.0 mV/V nominal, Fz	2.0 mV/V nominal, Fx, Fy 4.0 mV/V nominal, Fz	4.5 mV/V, nominal, all channels
Sensor	3 four-arm strain gauge bridges					
Nonlinearity	<0.5 % of full scale output					
Hysteresis	< 0.5 % of full scale output					
Temperature Range, Usable	-40 °F to 300 °F (-40 °C to 149 °C)					
Excitation Voltage, Maximum	10 Vdc or Vac rms					
Standard Cable Length	10 ft (3.05 m) shielded, open-ended leads			20 ft (6.1 m) shielded, open-ended leads	10 ft (3.05 m) shielded, open-ended leads	

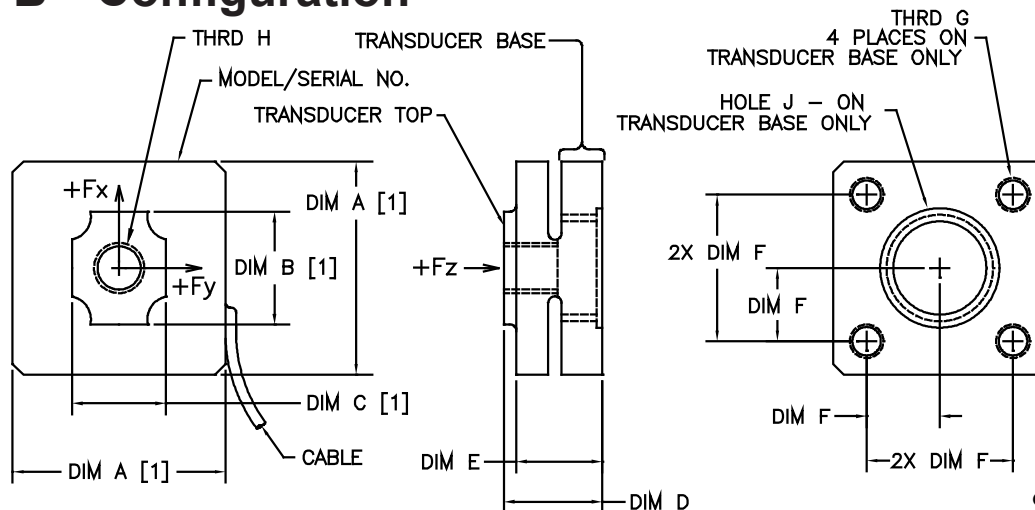
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# Square Three Axis Load Cell

## TR3D-B-\* Configuration



C566014A  
TR3D-B-\*  
03/19/2013

Model	DIM A (in [mm])	DIM B (in [mm])	DIM C (in [mm])	DIM D (in [mm])	DIM E (in [mm])	DIM F (in [mm])
TR3D-B-250 TR3D-B-1K	0.999/1.000 [25.36/25.39]	0.529 [13.43]	0.440 [11.17]	0.499/0.500 [12.66/12.69]	0.403 [10.23]	0.344 [8.74]
TR3D-B-4K	1.997/2.000 [50.72/50.80]	0.907 [23.04]	0.850 [21.59]	0.917/0.921 [23.28/23.39]	0.805 [20.44]	0.688 [17.48]
TR3D-B-4500	1.997/2.000 [50.72/50.80]	0.907 [23.04]	0.850 [21.59]	0.995/1.000 [25.27/25.40]	0.805 [20.44]	0.688 [17.48]
TR3D-B-5/5/10K	1.699/1.701 [43.15/43.21]	0.935 [23.75]	0.808 [20.52]	1.062/1.064 [26.97/27.03]	0.965 [24.51]	0.600 [15.24]
TR3D-B-16K	3.994/3.998 [101.45/101.55]	2.113 [53.67]	1.759 [44.68]	1.834/1.839 [46.59/46.72]	1.609 [40.87]	1.375 [34.93]

Model	THRD G	THRD H	HOLE J (in [mm])
TR3D-B-250 TR3D-B-1K	M4 x 0.7	M6 x 1.0	M14 x 1.50 THRD 0.220 [5.59] DEPTH 0.650 [16.51] DIA CBORE, 0.035 [0.89] DEEP
TR3D-B-4K	M8 x 1.25	M12 x 1.75	1-14 THRD 0.420 [10.67] DEPTH 1.120 [28.45] DIA CBORE, 0.050 [1.27] DEEP
TR3D-B-4500	M8 x 1.25	M12 x 1.75	1-14 THRD 0.420 [10.67] DEPTH 1.120 [28.45] DIA CBORE, 0.050 [1.27] DEEP
TR3D-B-5/5/10K	M8 x 1.25	5/8-18 M16 x 2	5/8-18 THRD 0.420 [10.67] DEPTH M16 x 2 THRD 0.420 [10.67] DEPTH
TR3D-B-16K	M16 x 2.00	M24 x 3.00	2.000 [50.8] DIA HOLE 0.840 [21.34] DEPTH

Dimensions are inch [mm]; all tolerances are  $\pm 0.005$  in [ $\pm 0.13$  mm] unless otherwise specified.

Pilot surfaces: [1]; Maximum recommended pilot depths: 250 and 1K = 0.020 in [0.51 mm]; 4K = 0.030 in [0.76 mm];

TR3D-B-4500 = 0.030 in [0.76 mm] for base, 0.100 in [2.54 mm] for top; 5/5/10K = 0.030 in [0.76 mm]

16K = 0.100 in [2.54 mm] for both the top and the base of the transducer.

Positive outputs result when the transducer top is displaced relative to the transducer base in the directions indicated.

## Ordering Options

Connectors and optional cable length may be specified by the customer.

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