

MULTI-AXIS LOAD CELLS

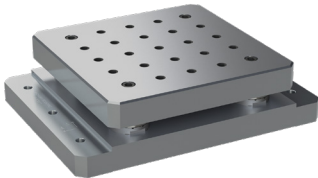
Michigan Scientific Multi-Axis Load Cells are ideal for simultaneously measuring forces in multiple axes in a variety of scenarios. Designed for easy mounting, these load cells provide accurate, reliable results in varying applications.

Features

- Measure forces and moments in multiple axes
- Variety of size, fixturing and load capacity options
- Precisely manufactured for minimal crosstalk
- Excellent linearity and minimal hysteresis
- Environmentally protected (IP67 protection attainable for many applications)
- Individually calibrated and temperature compensated to ensure maximum accuracy
- Rugged construction
- RoHS compliant options
- Shielded cables to protect against EMI



FEATURED PRODUCTS



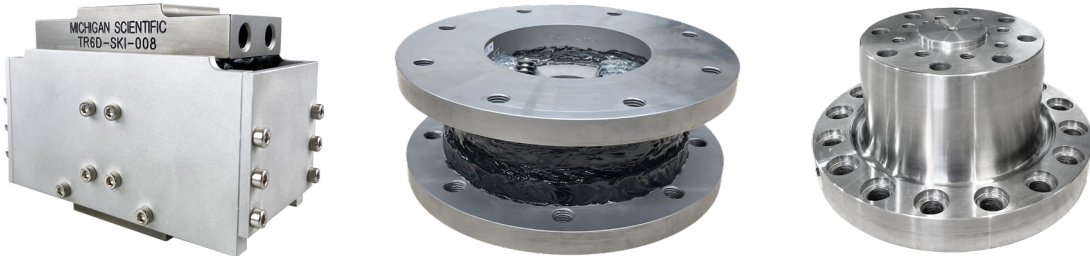
Multi-Channel Strain Gage Amplifier	JB3 Junction Box	Compact Load Platform
Model SGA12	Models JB3-P and JB3-A	Model LP-3030
Up to four Michigan Scientific Three-Axis Load Cells can be connected to a Multi-Channel Strain Gage Amplifier to produce an accurate high-level voltage output signal. It includes a stable differential amplifier and integrated shunt resistors for simplified system calibration. Bridge excitation can be turned on or off while the amplifier package remains powered.	The JB3 Junction Box combines the signals from up to four Three-Axis Load Cells and outputs the total force acting on a load cell array or platform. The unamplified JB3-P can be used with most strain gauge bridge data acquisition modules and the amplified JB3-A version can be used with any high-level voltage data recorder.	Available in a variety of load capacities and designed with a universal mounting pattern, the Michigan Scientific LP-3030 Compact Load Platform is configured to have a higher force and moment capacity than individual load cells. The 12 individual channels can be used to calculate the net forces and moments.

LOAD CELL SERVICES

Customization

When a project requires a custom force and moment measurement solution, Michigan Scientific will work with our customers to define their requirements and propose solutions based on the number of measurement axes, load capacity, size limitations, accuracy, and load cell quantity needed.

Michigan Scientific employs some of the world’s most experienced and creative engineers and physicists in the design of Multi-Axis Load Cells. With our extensive expertise and innovative approach, we are confident we can deliver a solution that will work for your application.



Rentals

Michigan Scientific offers Multi-Axis Load Cell rentals for short-term test needs. Our large rental inventory allows for optimal availability and turnaround times. As with all Michigan Scientific products and services, you can expect excellent customer support to ensure smooth set-up and use of your rental equipment. Contact us to discuss rental terms, select the optimal instrumentation for your application, and arrange the remote or on-site support necessary to support the success of your project.

Calibration

Michigan Scientific helps our customers produce optimal test results by providing precision measurement equipment. Our calibration services ensure the ongoing accuracy and consistency of your Load Cell. Contact Michigan Scientific for pricing and lead times.

Calibration Schedule

Michigan Scientific recommends that customers send in their Load Cells for calibration after the first year of use and every two years after that to ensure they are functioning properly and have not incurred any damage during use.

Quality Management System

The quality management system that includes the design and manufacture of Michigan Scientific Load Cells is certified to the ISO 9001:2015 standard. The calibrations are accredited to ISO/IEC 17025:2017 standards. All reference measurement equipment is traceable to the National Institute of Standards and Technology (NIST).

Multi-Axis Load Cells

Precision Instrumentation & Measurement Solutions

STANDARD MULTI-AXIS LOAD CELL SPECIFICATIONS

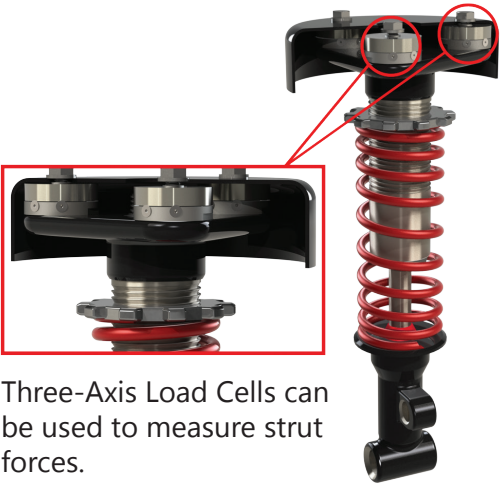
Model	Maximum Load Capacity (per channel)	Maximum Moment Capacity (per channel)	Fatigue Rated Load Capacity for Single Axis	Nonlinearity
Three-Axis Load Cells				
TR3D-A-1K	1,000 lbf (4.4 kN)	30 lbf · ft (40 N · m)	380 lbf (1.6 kN)	<0.5% of full scale output
TR3D-A-3K	3,000 lbf (13.3 kN)	160 lbf · ft (215 N · m)	2,500 lbf (11.1 kN)	<0.5% of full scale output
TR3D-A-5K	5,000 lbf (22 kN)	210 lbf · ft (280 N · m)	3,750 lbf (16.6 kN)	<0.5% of full scale output
TR3D-A-5/5/10K	X, Y axes 5,000 lbf (22 kN) Z axis 10,000 lbf (44 kN)	270 lbf · ft (365 N · m)	4,200 lbf (18.6 kN)	<0.5% of full scale output
TR3D-A-10K	10,000 lbf (44 kN)	340 lbf · ft (461 N · m)	7,600 lbf (33.8 kN)	≤1% of full scale output
TR3D-B-250	250 lbf (1.1 kN)	12 lbf · ft (16 N · m)	200 lbf (900 N)	<0.5% of full scale output
TR3D-B-1K	1,000 lbf (4.4 kN)	48 lbf · ft (65 N · m)	615 lbf (2.7 kN)	<0.5% of full scale output
TR3D-B-4K	4,000 lbf (17.7 kN)	165 lbf · ft (220 N · m)	3,100 lbf (13.8 kN)	<0.5% of full scale output
TR3D-B-4500	4,500 lbf (20 kN)	165 lbf · ft (220 N · m)	3,100 lbf (13.8 kN)	<0.5% of full scale output
TR3D-B-5/5/10K	X, Y axes 5,000 lbf (22 kN) Z axis 10,000 lbf (44 kN)	385 lbf · ft (520 N · m)	X, Y axes 5,000 lbf (22 kN) Z axis 6,000 lbf (26.6 kN)	<0.5% of full scale output
TR3D-B-16K	16,000 lbf (71 kN)	1,300 lbf · ft (1.7 kN · m)	12,350 lbf (54 kN)	<0.5% of full scale output
TR3D-C-10K	10,000 lbf (44 kN)	900 lbf · ft (1.2 kN · m)	8,000 lbf (35 kN)	<1% of full scale for X, Y axes <2% of full scale for Z axis
TR3D-C-16K	16,000 lbf (71 kN)	1,250 lbf · ft (1.7 kN · m)	12,000 lbf (53 kN)	<1% of full scale for X, Y axes <2% of full scale for Z axis
TR3D-C-40K	40,000 lbf (177 kN)	7,000 lbf · ft (9.5 kN · m)	24,000 lbf (106 kN)	<1% of full scale for X, Y axes <2% of full scale for Z axis
TR3D-D-100K	100,000 lbf (444 kN)	15,000 lbf · ft (20.3 kN · m)	70,000 lbf (311 kN)	<1% of full scale for X, Y axes <2% of full scale for Z axis
Five-Axis Load Cells				
TR5D-B-5K	5,000 lbf (22 kN)	600 lbf · ft (815 N · m)	5,000 lbf (22 kN)	<0.5% of full scale output
Six-Axis Load Cells				
TR6D-C-16K	16,000 lbf (71 kN)	1,250 lbf · ft (1.7 kN · m)	12,000 lbf (53 kN)	≤1.0% of full scale for X, Y axes; ≤2.0% of full scale for Z axis; Moments ≤0.5% of full scale for all channels
TR6D-C-20K	20,000 lbf (89 kN)	3,350 lbf · ft (4.5 kN · m)	14,000 lbf (62 kN)	≤0.5% of full scale for X, Y axes; ≤1.5% of full scale for Z axis; Moments ≤0.5% of full scale for all channels
TR6D-C-40K	40,000 lbf (178 kN)	7,000 lbf · ft (9.5 kN · m)	24,000 lbf (106 kN)	≤0.5% of full scale for X, Y axes; ≤1.5% of full scale for Z axis; Moments ≤0.5% of full scale for all channels
TR6D-F-5K	5,000 lbf (22 kN)	800 lbf · ft (1.1 kN · m)	4,750 lbf (21.1 kN)	≤0.5% of full scale
TR6D-F-10K	10,000 lbf (45 kN)	2,500 lbf · ft (3.4 kN · m)	10,000 lbf (44.5 kN)	≤0.75% of full scale

INDUSTRIES AND APPLICATIONS

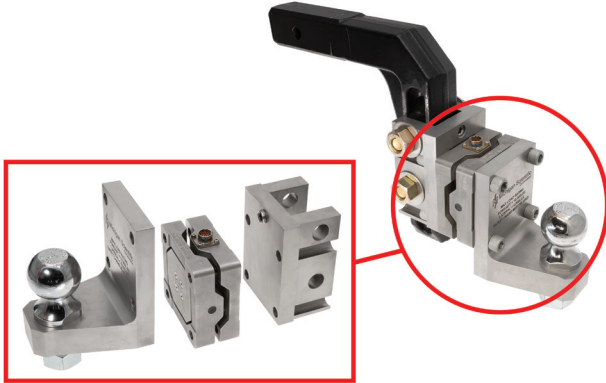
Michigan Scientific Multi-Axis Load Cells are used extensively across many industries and applications to provide innovative and reliable test solutions. We provide models of all sizes, compatible with a range of environments from delicate medical applications to harsh industrial operations.

Automotive

- Body Mounts
 - Carrier Bearing Mounts
 - Seat Tracks
 - Air Bag Inflation Forces
- Powertrain Mounts
 - Suspension Mount Forces
 - Engine Mount Forces
- Tire Patch Forces
 - Motorcycle Axle Forces
 - Trailer Hitch Forces



Three-Axis Load Cells can be used to measure strut forces.



Trailer Hitch Load Cell Packages measure real-world forces in various towing situations.

Manufacturing/Industrial

- Machine Tool Cutting Forces
- Rock/Granite Machining Operations
- Process, Control Feedback



Load Cells are commonly used in industrial applications to measure forces and moments.

INDUSTRIES AND APPLICATIONS

Contact Michigan Scientific today to learn how Multi-Axis Load Cells can be used in a range of force measurement applications across automotive, heavy equipment, manufacturing, aerospace, energy, medical, defense, marine, and other industries.

Agriculture & Heavy Equipment

- Fifth-Wheel Mount Forces
- Hitch Mount Forces
- Cab Mounts
- Suspension/Axle Mounts
- Implement Forces
- Bucket and Blade Forces
- Drawbar Load Measurements
- Crane Component Measurements

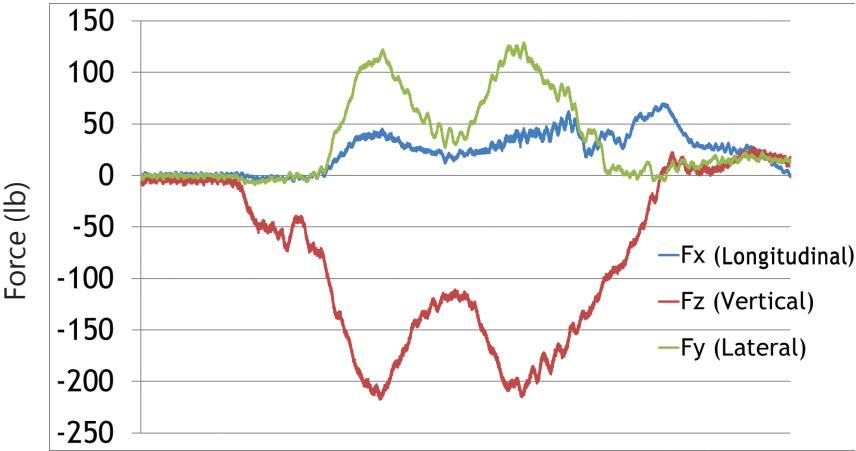
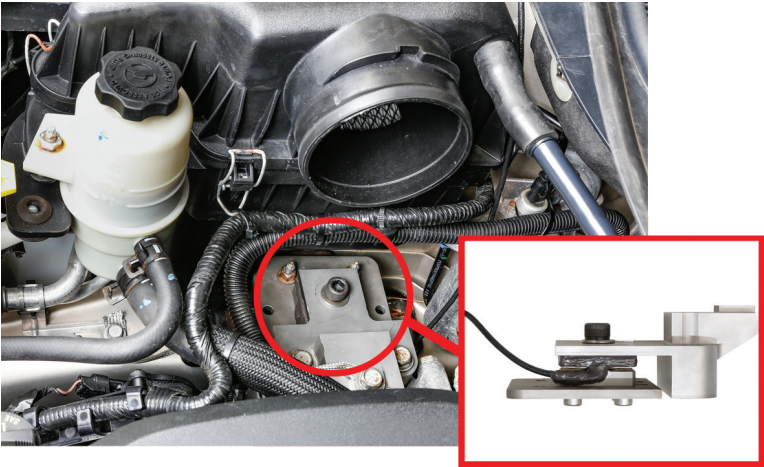


Engine Mount Forces Case Study

Used in a variety of vehicle applications for testing and validation, Michigan Scientific Three-Axis Load Cells are ideal for measuring engine-to-body mount forces.

The graph below shows data from force measurements using a model TR3D-B-4K during an engine mount test.

Read the full case study and learn more about load cell applications at www.michsci.com.



Michigan Scientific TR3D-B-4K 4,000 lb capacity Three-Axis Load Cell