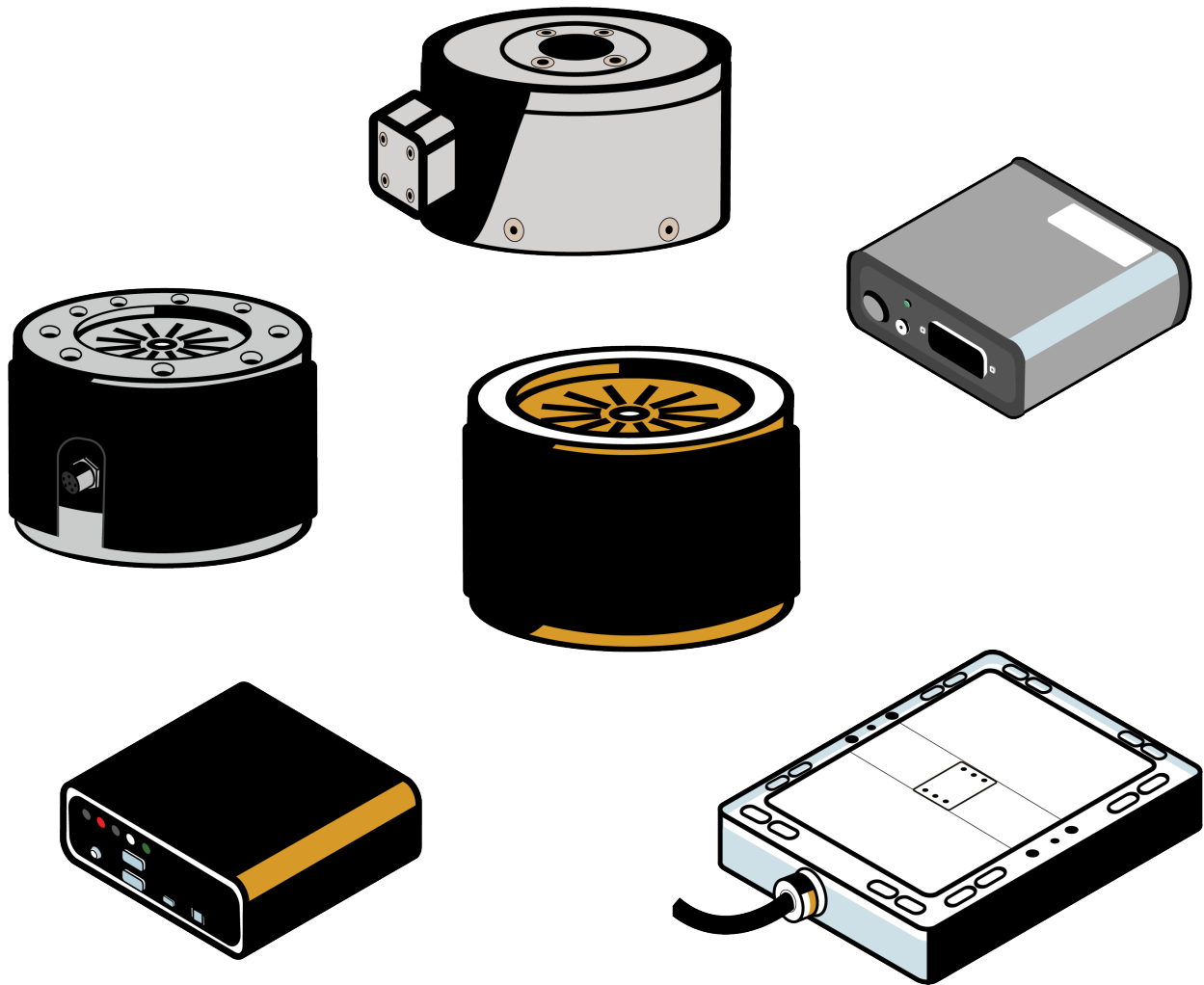


Multi-Axis Sensors



Multi-Axis Sensors v1.2 11-06-2023



interface
FORCE MEASUREMENT SOLUTIONS

The World Leader in Force Measurement Solutions™

Multi-Axis Sensors are designed to measure a multiple of forces and moments simultaneously with a single load cell.

These sensors provide multiple bridges that precisely measure the applied force from one direction with little or no cross-talk from the force or moment. Our 3-axis, 6-axis, and axial torsion load cells provide the ultimate in force and torque measurement. We can measure forces simultaneously in three mutually perpendicular axes, with the 6-axis load cells also measuring torque around those axes.

Data-driven design is at the forefront of product development, especially in highly-regulated markets like aerospace, medical and industrial. Interface's multi-axis sensors are designed to provide the most comprehensive force and torque data points on advanced machinery. With our industry-leading reliability and accuracy, these multi-axis sensors are able to provide the data our customers need to ensure performance and safety in their product design.

3-Axis Load Cells

Interface's 3-axis load cell measures forces simultaneously in three mutually perpendicular axes: X, Y, and Z - tension and compression. Each axis provides a unique mV/V output and requires no mathematical manipulation. The 3-axis load cell is built to minimize eccentric loading effects and crosstalk between axes. The company offers five different models in its 3A series 3-axis load cell designed for a wide variety of capacities.

6-Axis Load Cells

Interface's 6-axis load cell measures forces simultaneously in three mutually perpendicular axes and three simultaneous torques on those same axes. Six full bridges provide mV/V output on six independent channels. A 36-term coefficient matrix is included for calculating the load and torque values in each axis. An 8-channel amplifier with a USB PC interface is also available, which simplifies data analysis. The company offers five different models of 6-axis load cells for a wide variety of capacities.

Axial Torsion Load Cells

Interface's axial torsion load cell is used for measuring both torque and force in a single sensor. Typical applications of the axial torsion transducer include bearing test and material test machines. The features of our axial torsion load cell include minimal cross talk, extraneous load resistance and the load cell is fatigue rated. Customers can also add the following options, an integral cable, compression overload protection and connector protector.

Interface multi-axis load cells are ideally suited to many industrial and scientific applications, such as aerospace, robotics, automotive and medical research (orthopedics and biomechanical). In fact, their unique capabilities are helping the medical industry optimize prosthetic design via multi-axis testing. The automotive industry is using Interface's multi-axis products in wind tunnels, and the military is using them to test the center of gravity in aerospace applications.

Axial Torsion

- What it measures: Fz and Mz in one sensor
- Benefits: Compact design
- Limitations: Fixed ratios of force to torque

2-Axis – 2x Single Axis Sensors

- What it measures: Any two forces or torques simultaneously
- Benefits: Off-the-shelf, high accuracy sensors

3-Axis

- What it measures: Forces in all 3 Axis – Fx, Fy & Fz
- Benefits: Compact design
- Limitations: Fixed capacities in each axis
- How it works: 3 single-axis sensors combined into one sensor

6-Axis

- What it measures: Forces and torques in all axis
- Benefits: Compact design, simplified installation, reduces required engineering
- Limitations: Fixed capacities in each axis
- How it works: 6 full wheatstone bridges
- All six legs react to any given load
- Individual load values are calculated using the product of a all 6 channels of output and a coefficient matrix

Axial Torsion, 2-Axis, & 3-Axis Force & Moment



1216 2-Axis Axial Torsion

Force: 250 to 2K lbf
Torque: 8.85 to 88.5K lbf-in
Force: 50 to 100K N
Torque: 1 to 10K Nm



1516 2-Axis Axial Torsion

Force: 100 lbf
Torque: 50 lbf-in
Force: 444.8 N
Torque: 5.6 Nm



2816 2-Axis Axial Torsion

Force: 3.3K to 15K lbf
Torque: 2K to 7.5K lbf-in
Force: 14.6 to 66.7 kN
Torque: 226 to 847 Nm



5200xyz 3-Axis Force Moment

Force: 1K to 50K lbf
Torque: 400 to 20K lbf-in
Force: 4.45 to 222 kN
Torque: 45.2 to 2.26K Nm

3-Axis Force



3A40 3-Axis Force

Force: 0.45 lbf to 11.2 lbf
Force: 2 N to 50 N



3A60A 3-Axis Force

Force: 2.25 lbf to 112K lbf
Force: 10 N to 500 kN



3A120 3-Axis Force

Force: 11.2 lbf to 1.12K lbf
Force: 50 N to 5 kN



3A160 3-Axis Force

Force: 450 lbf to 11.2K lbf
Force: 2 kN to 50 kN

6-Axis Force & Torque



6A27 6-Axis Force Torque

Force: 11.2 to 44.7K lbf
Torque: 8.85 lbf-in
Force: 50 N to 200 N
Torque: 1 Nm



6A40 6-Axis Force Torque

Force: 1.2 to 112.4 lbf
Torque: 44.3 lbf-in to 177 lbf-in
Force: 5 N to 500 N
Torque: 5 Nm to 20 Nm



6A68 6-Axis Force Torque

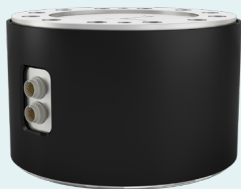
Force: 224.8 to 2.25K lbf
Torque: 177 lbf-in to 4.43K lbf-in
Force: 1 kN to 10 kN
Torque: 20 Nm to 500 Nm



6A80 6-Axis Force Torque

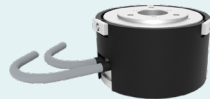
Force: 112.4 to 1.12K lbf
Torque: 177 lbf-in to 2.21K lbf-in
Force: 500 N to 5 kN
Torque: 20 Nm to 250 Nm

6-Axis Force & Torque



6A300 6-Axis Force Torque

Force: 89.9K lbf
Torque: 354K lbf-in
Force: 400 kN
Torque: 40 kNm



6ADF45 6-Axis Force Torque

DIN Flange-Type
Force: 20 N to 50 N
Torque: 1 Nm



6ADF80 6-Axis Force Torque

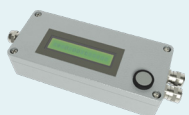
DIN Flange-Type
Force: 100 N to 600 N
Torque: 10 Nm to 30 Nm



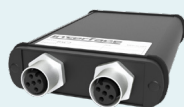
6ADF100 6-Axis Force Torque

DIN Flange-Type
Force: 400 N to 1.2 kN
Torque: 20 Nm to 60 Nm

Compatible Instrumentation



BSC1-HD Single Channel
PC Interface Module
with Analog Output
Single Channel



BSC2 Dual Channel
PC Interface Module
Dual Channel

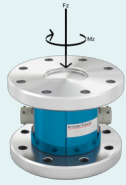


BSC4A Bridge Amplifier &
PC Interface Module
4 Channel



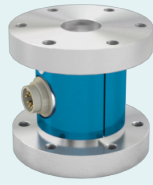
BSC4D Bridge Amplifier &
PC Interface Module
4 Channel

Axial Torsion, 2-Axis, & 3-Axis Force & Moment



5600 2-Axis Axial Torsion

Force: 6K to 180K lbf
Torque: 5K to 300 lbf-in
Force: 27 to 800 kN
Torque: 560 to 33K Nm



AT101 2-Axis Axial Torsion

Force: 112 to 3.37K lbf
Torque: 44.3 to 266 lbf-in
Force: 0.5 to 2 kN
Torque: 5 to 50 Nm



AT102 2-Axis Axial Torsion

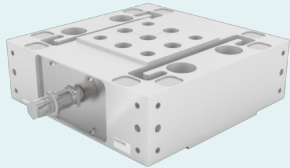
Force: 2.25K lbf
Torque: 88.5 lbf-in
Force: 10 kN
Torque: 10 Nm



AT103 2-Axis Axial Torsion

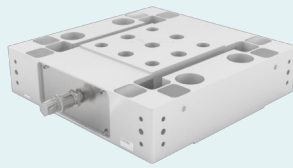
Force: 2.25K to 4.5K lbf
Torque: 88.5 to 177 lbf-in
Force: 10 to 20 kN
Torque: 10 to 20 Nm

3-Axis Force



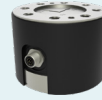
3A300 3-Axis Force

Force: 11.2 lbf to 45K lbf
Force: 50 N to 200 kN



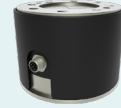
3A400 3-Axis Force

Force: 112K lbf
Force: 500 kN



3AR100 Series Round 3-Axis Force

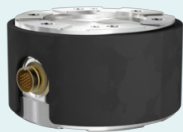
Force: 2.2K lbf to 13.5K lbf
Force: 10 kN to 60 kN



3AR125 Series Round 3-Axis Force

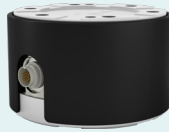
Force: 6.7K lbf to 27K lbf
Force: 30 kN to 120 kN

6-Axis Force & Torque



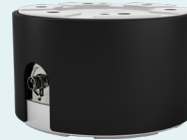
6A110 6-Axis Force Torque

Force: 224.8 to 2.25K lbf
Torque: 885 lbf-in to 6.64K lbf-in
Force: 1 kN to 10 kN
Torque: 100 Nm to 750 Nm



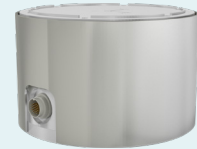
6A130 6-Axis Force Torque

Force: 224.8 to 3.37K lbf
Torque: 1.77K lbf-in to 10.6K lbf-in
Force: 1 kN to 15 kN
Torque: 200 Nm to 1.2 kNm



6A150 6-Axis Force Torque

Force: 449 to 6.7K lbf
Torque: 1.77K lbf-in to 26.5K lbf-in
Force: 2 kN to 30 kN
Torque: 200 Nm to 3 kNm



6A154 6-Axis Force Torque

Force: 11.2 to 112.4 lbf
Torque: 44.3 lbf-in to 442 lbf-in
Force: 50 N to 500 N
Torque: 5 Nm to 50 Nm

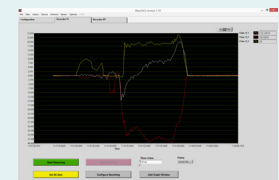
Compatible Software

BlueDAQ Software

The BlueDAQ software is suitable for live viewing, recording, and analysis of stored measuring data. The multiple channels can be recorded over the time axis (y-t diagram) or via an "X-axis" (X-Y diagram). The BlueDAQ software is available for models BX6, BX8, BSC1, BSC2, BSC4D, and the 9330. The measuring data is stored in binary "TDMS" by recording and can be opened, displayed, and exported in text or Excel format with the integrated "File Monitor".

BlueDAQ-PRO Software

License to activate the "Professional Functions of the BlueDAQ software.



BlueDAQ

Scale Input/Output,
Force & Moment Value Calculation,
Graphing, Logging, & Display

Compatible Instrumentation



BSC4D-BT Portable 4-Channel Bluetooth Data Logger

4 Channel



BX6-BT Portable 6-Channel High Speed Bluetooth Data Logger

6-Channels, 6-Axis Compatible



BX8-AS Data Acquisition System & Amplifier

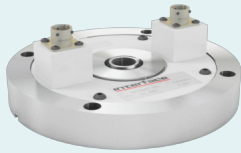
8 Channel



BX8-HD15 Data Acquisition System & Amplifier

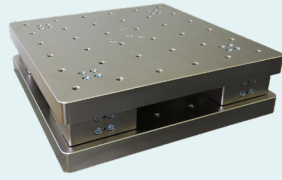
8 Channel

Axial Torsion, 2-Axis, & 3-Axis Force & Moment



TXY 2-Axis Force

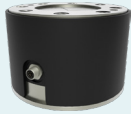
X: 1K to 2K lbf
Y: 500 lbf
X: 4.4 to 8.8 kN
Y: 2.2 kN



Force Plates

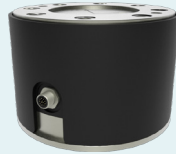
A system of multiple multi-axis sensors mounted between two plates

3-Axis Force



3AR155 Series Round 3-Axis Force

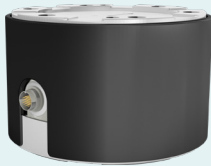
Force: 11.2K lbf to 56.2K lbf
Force: 50 kN to 250 kN



3AR225 Series Round 3-Axis Force

Force: 22.5K lbf to 112K lbf
Force: 100 kN to 500 kN

6-Axis Force & Torque



6A175 6-Axis Force Torque

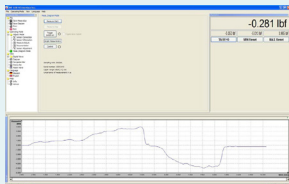
Force: 2.25K to 11.2K lbf
Torque: 8.85 lbf-in to 44.3K lbf-in
Force: 10 kN to 50 kN
Torque: 1 kNm to 5 kNm



6A225 6-Axis Force Torque

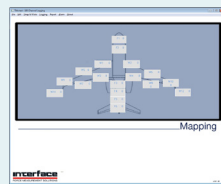
Force: 11.2K to 44.9K lbf
Torque: 88.5K lbf-in to 177K lbf-in
Force: 50 kN to 200 kN
Torque: 10 kNm to 20 kNm

Compatible Software



SI-USB

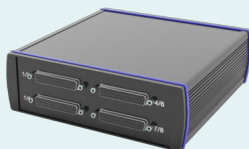
Setup & Scaling, Logging, Graphing, & Display



Log 100

Display, Logging, Graphing, & Mapping

Compatible Instrumentation



BX8-HD44 Data Acquisition System & Amplifier 8 Channel



SI-USB PC Interface Module Dual Channel

Interface Multi-Axis Sensors

- 2-Axis
- 3-Axis
- 6-Axis
- Axial Torsion
- LowProfile™
- Fatigue Rated
- Moment Compensated
- Flange Mount

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Interface force measurement multi-axis sensors are available in many design configurations for project designs requiring the highest performance.

To learn more about the Interface products or force measurement solutions call 480-948-5555.

Interface is the world's trusted leader in technology, design and manufacturing of force measurement solutions.

Our clients include a "who's who" of the aerospace, automotive and vehicle, medical device, energy, industrial manufacturing, test and measurement industries.

Interface engineers around the world are empowered to create high-level tools and solutions that deliver consistent, high quality performance. These products include load cells, torque transducers, multi-axis sensors, wireless telemetry, instrumentation and calibration equipment.

Interface, Inc., was founded in 1968 and is a US-based, woman-owned technology manufacturing company headquartered in Scottsdale, Arizona.