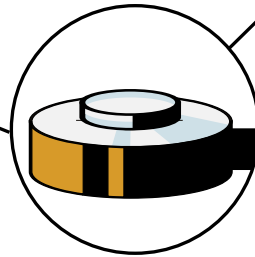
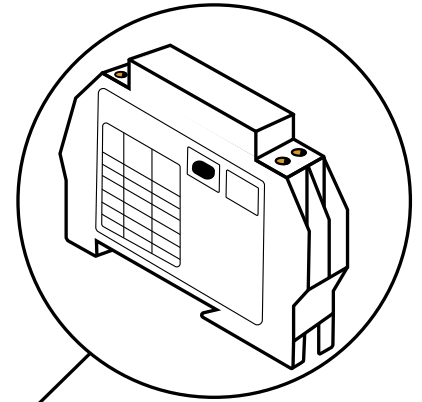
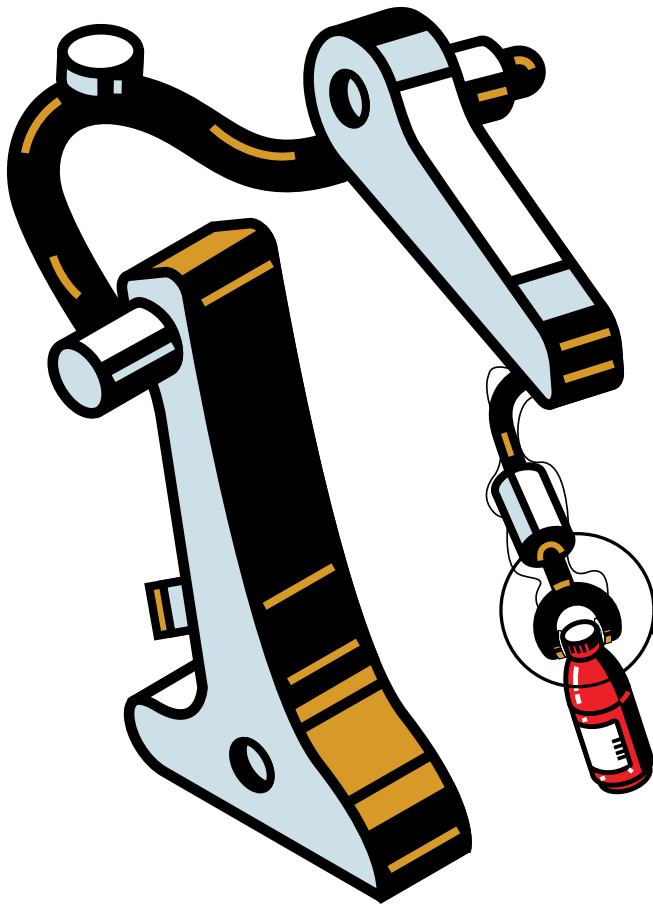
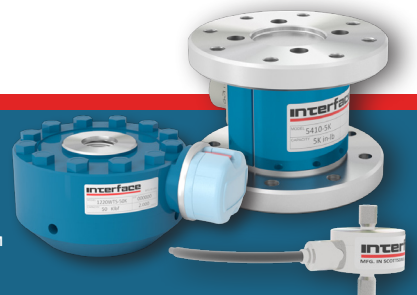


Interface

Industrial Automation Solutions

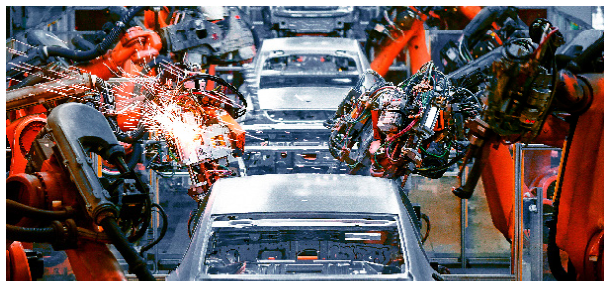


Industrial Automation Solutions v1.2



Industrial Solutions

The high performance you've come to know and trust from Interface products are advancing industrial automation. Interface provides sensor technologies that support the growing requirements in manufacturing today. Our robust solutions are designed to drive productivity, efficiencies, and safety.



Industrial Automation

Since 1968, Interface has been synonymous with high performance sensors for use in aerospace, automotive, energy, medical and a host of other industries. The high performance standards set by Interface, that you know and trust, is what defines our industrial automation solution line of products. Industrial applications require products that can stand the test of time in harsh environments. Interface's industrial line of sensor products and instrumentation have features that can withstand rugged and strenuous environments. We offer stainless steel load cells with welded designs, hermetic seals, submersible capabilities and safety-rated designs. We provide high-level analog output options, extended thermals, and a variety of other application specific solutions.

Industrial Automation equipment manufacturing often involves a custom piece of machinery designed for a specific process. Specific processes require specific solutions. At Interface, we pride ourselves on our ability to provide application specific solutions. In doing so for nearly 50 years, there is a high probability that we have designed something to fit your needs.

Industry Leading Quality

Interface is celebrated for meeting and exceeding the quality needs for our customer's projects. Our products are built in accordance with A2LA, International Standard ISO/IEC 17025:2005 and ANSI/NCSL Z540-1-1994. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system.

Our team of application engineers and force measurement experts are here to help you get a product that meets your exact needs. We are ready to help!



Solution Capabilities

- Stainless Steel Requirements
- Environmentally sealed for harsh environments
- Loop powered for process control and noise immunity
- Miniature solutions for dimensional constraints
- Wide variety of mounting techniques
- Vast inventory for quick availability
- Custom solutions defined to your exact requirements
- OEM engineered products for inclusion into your products



Industrial Solutions

Interface provides a variety of sensors, including load cells, tension links, load shackles, wireless instrumentation and more for industrial automation equipment and product testing.

Sensors for industrial automation and equipment often perform specific tasks or processes that require custom solutions. With more than 50 years of experience in load cell design and other force measurement solutions, Interface works with manufacturing leaders to design the solutions that will meet the requirements to solve the industrial challenges with proven results.

Automation Solutions

Our industrial automation product makers and manufacturers of equipment and supplies depend on our products to test quality, durability and accuracy in performance. In cases of using miniature load cells in equipment that rely on exact force to press a design on a fragile consumable, to verifying accuracy of intricately machined parts using multi-axis sensors for production lines, we've provided sensors for industrial automation solutions to thousands of customers using standard and custom application-specific sensors. All Interface load cells use our proprietary alloy strain gages to produce the most accurate and reliable data possible, even in demanding industrial environments. We have the solution for your automation system whether it's a manufacturing facility, production site, or R&D lab. Our products are designed to work in robotics, packaging, drones, line machines, lifting equipment and more.

Robotic Arms

Our products have been used in a manufacturer environment for a robotic arm in a packaging plant. Our customer wanted to measure the force and torque of the arm when it lifts items and places them down again. They wanted to ensure the robotic arm was in working order to do the job efficiently and correctly. Interface created a custom solution using our 6A40 6-Axis Load Cell, which was installed at the wrist of the robotic arm. The 6A40 was able to measure all forces and torques (F_x , F_y , F_z , M_x , M_y , M_z). This load cell was connected to our BX8 8-Channel Data Acquisition System and Amplifier with BlueDAQ Software, where results were displayed, logged, and graphed.

Drones

Drones are being used in many different industrial automation applications. When drones are used in delivering packages, it is necessary to make sure everything is in working condition so packaged goods can be delivered safely and on time. We used our WMC Sealed Stainless Steel Miniature Load Cells to measure the weight capacity these drones can take. A small shift or uneven weight distribution is possible when in mid air, and the propeller motors of the drone must be able to compensate for it. The WMC's are installed at the gear legs of the drone, and the drone's processor. It was able to detect the uneven shifts in weight and communicated these results to the customer.

Examples of Industrial Automation Applications Using Interface Measurement Solutions:

- Cranes, Hoists, and Stands and Lifting Equipment
- Hopper, Bin, and Net Weighing
- Production Equipment Positioning and Monitoring
- Robotics
- Fatigue Cycle and Friction Testing of Machines and Equipment

HIGHLIGHT: Robotic Arm Application

Customer Need / Challenge

The Customer needs to lift and move delicate objects, like a glass bottle, in an automated environment with a robotic arm without causing damage to the objects that are being lifted and moved.

Interface Solution

Two ConvexBT Load Button Load Cells are used in the grips of the robotic arm to measure the amount of pressure being applied to the object it is lifting and moving. The DMA2 DIN Rail Mount Signal Conditioner converts the signal received from the two ConvexBT Load Button Load Cells from mV/V to volts to the PLC Controller which tells the robotic arm to stop clamping pressure when a specified amount of pressure is applied to the object.

Results

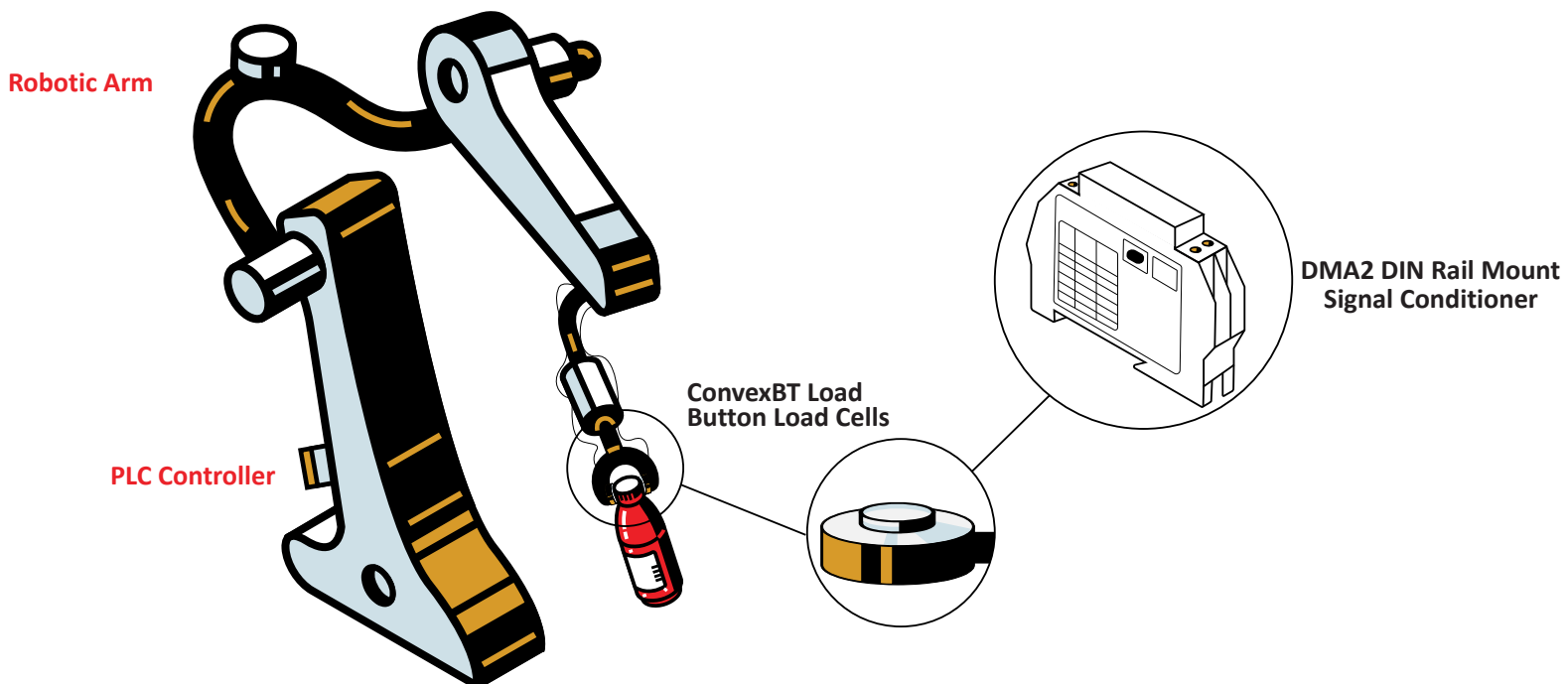
The ConvexBT Load Button Load Cells accurately measured the amount of pressure applied to the object the robotic arm was lifting and moving without causing any harm or damage to the object.

Materials

- (2) ConvexBT Load Button Load Cells
- DMA2 DIN Rail Mount Signal Conditioner
- PLC Controller

How it Works

The ConvexBT Load Button Load Cells are connected underneath a rubber grip pad on both sides of the robotic arms clamping device. When the rubber grips make contact with the object it is grabbing pressure is applied to both of the ConvexBT, a signal is sent to the PLC Controller which tells the robotic arm to stop clamping pressure based on a predetermined force of pressure



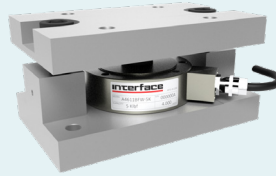
Product Examples for Industrial Solutions



2400 Standard Stainless Steel Low Capacity Load Cell
100 lbf to 5K lbf
0.44 kN to 22 kN



3200 Precision Stainless Steel Load Cell
2.5 lbf to 100K lbf
12.5 kN to 445 kN



A4200 And A4600 WeighCheck™ Load Cells
2.5K lbf to 50K lbf
11.1 kN to 222 kN



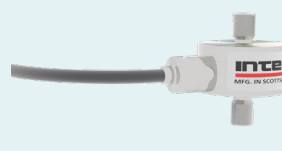
5400 Series Flange Style Reaction Torque Transducer
1K lbf-in to 500K lbf-in
110 Nm to 55K Nm



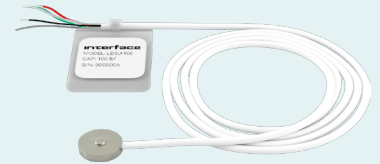
LBS Miniature Compression Load Cell
5 lbf to 1K lbf
0.02 kN to 4.45 kN



LBM Compression Load Button Load Cell
25 lbf to 50K lbf
0.11 kN to 222.4 kN



WMC Sealed Stainless Miniature Steel Load Cell
5 lbf to 500 lbf
22 N to 2,200 N



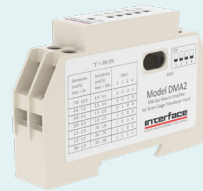
ConvexBT Load Button Load Cell
5 lbf to 1,000 lbf
22.24 N to 4.44 N



REC Rod End Load Cell
1K lbf to 50K lbf
5 kN to 220 kN



WMC Rod End Load Cell
15K lbf to 200K lbf
65 kN to 900 kN



DMA2 DIN Rail Mount Signal Conditioner
 $\pm 10V$, $\pm 5V$, 4-20 mA
10-28VDC Power



T25 High Speed Shaft Style Rotary Torque Transducer
0.885 lbf-in to 44.3K lbf-in
0.1 Nm to 5K Nm



9330 Battery Powered High Speed Data Logging Indicator
Powers up to 4x 350 ohm sensors
Stores up to 6 sensor calibrations



BX8 8-Channel Data Acquisition System and Amplifier
 $\pm 5V$, $\pm 10V$, 4-20mA, and 0-20 mA Outputs
8-Channel Synchronized Sampling



9890 Strain Gage, Load Cell, & mV/V Indicator
 ± 15 , ± 25 , ± 150 , ± 250 mV
Bipolar Input Ranges
Powers up to 12 x 350 ohm Sensors



BSC4D Multi-Channel Bridge Amplifier And PC Interface Module
 $\pm 10V$ and 4-20mA or USB outputs
4 independent channels



INF-USB3 Universal Serial Bus Single Channel PC Interface Module
 ± 3 mV/V, ± 4.5 mV/V ± 5 VDC, ± 10 VDC
4-20 mA, 12 ± 8 mA and 5V TTL



CSC Miniature Sealed Stainless Steel Load Cell
5 lbf to 500 lbf
22 N to 2,200 N



SGA Signal Conditioner
1.7 lbf-in to 177 lbf-in
0.2 Nm to 445 kN



WTS Wireless Telemetry System
17.7 lbf-in to 44.3K lbf-in
2 Nm to 5K Nm

Meeting the Demands of Industrial Automation

As machines and equipment have grown to be more common place production line use, the requirements of testing the components and production use cases require advanced sensor technologies and supporting products that can meet this demand.

Interface industrial automation solutions offer an array of capabilities and capacities for all types of industrial applications such as designing machines used in assembly, enhancing operating machines or supporting digital transformation. As IIoT and Industry 4.0 keep advancing manufacturing, so does Interface to meet the requirements of product designers, engineers, testing labs and on-the-line teams. What hasn't changed is the quality of Interface's precision line of load cells, transducers, instrumentation and accessories.

Interface solutions help to provide the benefits of industrial automation, including:

- Increase in production and stream line throughput
- Reduce cost
- Improve product quality
- Eliminate waste and increase efficient use of materials
- Drive industrial advancements

Why partner with Interface for Industrial Automation solutions?

Interface's experienced team are renowned specialists in force and torque measurement manufacturing and technology. Our depth of knowledge and wide range of capabilities for all industries help to create solutions of all types, whether special transducers made to your exact specifications or complete customized sensor, instrumentation, and software systems.

We collaborate as a part of your team to ensure your specifications are designed to meet your exact use requirements.

Designing a complete force measurement solution is what we know and what we do exceptionally well. It is possible because we have a full team of experienced electrical, mechanical and software engineers dedicated to customized design, testing and validation. Interface can integrate custom, standard and even third-party products to meet the precise requirements of your specific application.

Our expertly-trained application engineers and global representatives are available to help you get the exact products and services you need. You can request a quote on our website or work with our experienced design engineers to customize the exact force measurement solutions to meet your precise requirements.

For sales, service, or support go to www.interfaceforce.com or call us for immediate help at 480-948-5555.

Industrial Solutions

- Load Cells
- Torque Transducers
- Wireless Telemetry Solutions
- Weighcheck Systems
- S-Type Load Cells
- Load Pins and Load Shackles
- Load Buttons
- Interface Mini™ Load Cells
- Signal Conditioners
- Instrumentation
- Multi-Axis Sensors
- Digital Instrumentation
- Calibration Equipment

If you know what you need and are ready to talk to our application engineers, email or call today!

To learn more about the Interface industrial automation solutions provided 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.