

# interface

FORCE MEASUREMENT SOLUTIONS.

## CASE STUDY

### Ensuring Certainty in Testing Labs with Precision Force Measurement



#### About

Test and measurement are the bedrock of engineering, manufacturing, product development, and research. Testing labs are where parts, components, and products are rigorously tested to determine quality, reliability, safety, durability, and more. Within these labs are various types of testing equipment, from test benches and stands to diagnostic tools and, of course, sensors.

Force measurement is crucial in testing environments across various products and industries. These sensors are used for structural, strain, stress, material, static, friction, and fatigue testing. Interface is a preferred supplier of high-accuracy load cells and instrumentation based on the demands for exceptional performance, quality, and flexibility in the test and measurement sector.

#### Challenge

Test and measurement (T&M) labs are challenged to provide precision results, whether for an innovative new consumer product or an updated machine part used in assembly on a factory floor. Testing requires data accuracy. This applies to all use cases, from highly regulated industries with tight tolerances to local calibration labs that keep sensors in spec. The need for accuracy is paramount.

Depending on the type of test and measurement project, the span of testing devices is essential. The lab may be conducting tests on a micro-sized robotic surgical device or building thrust stands to withstand the millions of pounds of force during a rocket launch. Test labs require diverse options in capacities, configurations, models, and performance specifications.

Test and measurement lab applications have been integral to engineering for centuries. It's simply part of the science. Proof of viability is one of the purposes of a lab. How long will it last? Can it withstand extreme environments? What is the best material choice? These are all the types of questions a lab must answer.



1200 Standard Precision LowProfile® Load Cell



WTS-AM-1E Wireless Strain Bridge Transmitter Module



5200XYZ 3-Axis Force Moment Load Cell



SI-USB4 4-Channel USB Interface Module

The complexity of testing and measurement has evolved from trial and error to mechanical and electrical performance precision verification. Interface has been at the forefront of this evolution, introducing the first LowProfile Load Cell five decades ago. Today, load cells are no longer confined to just the lab environment.

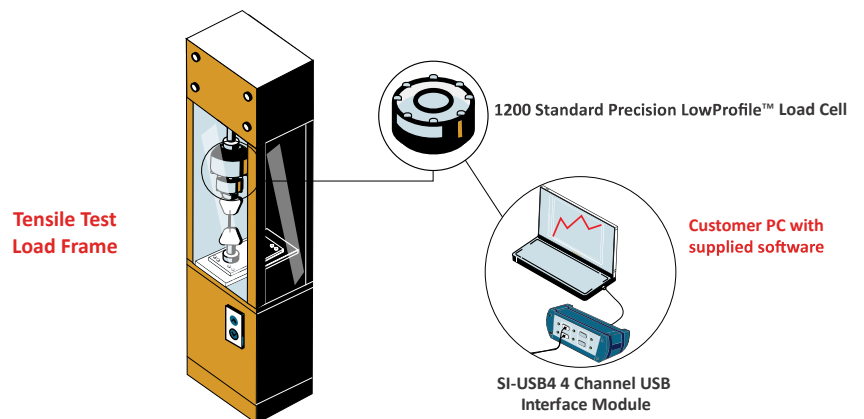
Technicians and engineers are researching performance in integrated product designs, collecting real-time data through wireless communications from unseen sensors. This is Interface's testament to our commitment to innovation and our deep understanding of the industry's needs.

Interface's robust line of load cells, torque transducers, multi-axis sensors, and instrumentation are used on every continent for testing and measurement. We are the top calibration and testing lab supplier for precision sensor devices. We see our products used today for continuous improvement programs, advancements in smart manufacturing, and new product designs. If it must be measured, Interface has a solution. Interface's force measurement products gather data from machines, components, equipment, consumer products, and other applications by metrologists, engineers, and testing experts.

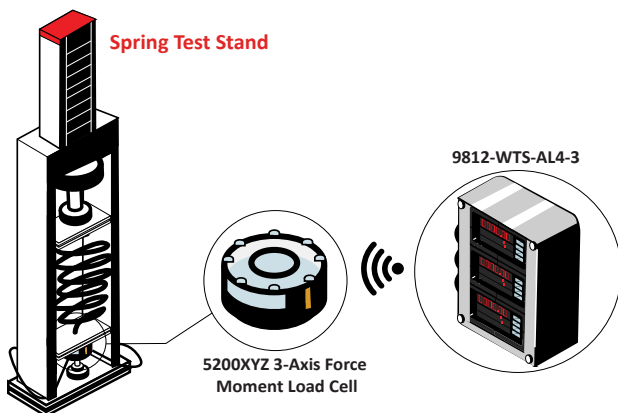
## Solution and Results

### Tensile Testing in the Lab

A test lab provides tensile force tests on different samples and materials until failure. Materials include plastic, steel, or woven fabric for various industries. They wanted to measure tensile strength, yield strength, and yield stress in the lab. Interface's 1200 Standard Precision LowProfile™ Load Cell was installed into the customer's test frame. The tensile test was conducted, force results were captured by the load cell, and the extensometer was synced through the SI-USB4 4-Channel. The supplied software displayed these results on the customer's PC.



### Test Lab Provides Spring Compression Testing



A manufacturer's test lab wanted to test the springs' performance in different machines. They needed to update the functionality of their spring test stand with a wireless solution. Interface suggested using one of our WTS-5200XYZ 3-Axis Force Moment Load Cells with three integral WTSAM-1E Wireless Transmitters and installing it into the spring compression frame. The WTS-5200XYZ 3-Axis Force Moment Load Cell measured the force compression of the spring. The integral WTS-AM-1E Wireless Strain Bridge Transmitter Modules transmitted and displayed the information wirelessly to the LCCA Wireless Instrumentation. It was programmed to trigger an alarm to help in expediting testing.

Precision force measurement is a critical element for ensuring certainty in testing labs. By providing accurate, reliable, and repeatable data, precision sensors can help to improve product quality, safety, and compliance. Interface is a force in the test and measurement world. Contact us to learn more about our product offerings and the various tests we help support.