Interface Construction Solutions





The World Leader in Force Measurement Solutions™

From towering skyscrapers to sustainable housing solutions, our load cells and sensor technologies are helping construction mirror our ever-changing world. It highlights the forefront of shaping modern societies, providing the physical foundations upon which our cities, homes, and essential infrastructure rest.

From the adoption of advanced construction techniques like modular construction and 3D printing to the emphasis on sustainable and resilient design, the construction sector is evolving to meet the demands of a rapidly changing world. Relying on modern sensors in heavy equipment for efficient operations and safeguarding project materials with smart lifting, Interface products are ubiquitous in construction.

Metal Bending Force Material Testing for Construction

A construction material supplier wanted to know how much force it takes to bend different grades of steel metal used for building and infrastructure projects. They use their metal bending machine to create different metal hardware and need to record the amounts of force it takes to bend the metal used for their projects. Interface suggested using a wireless method so cables do not interfere with the machine. The WTS 1200 Standard Precision LowProfile[®] Wireless Load Cell was attached to the head of the hydraulic operated steel bender. Results were wirelessly transmitted to the customer's computer through the WTS-BS-4 Wireless Base Station with USB Interface, where data can be displayed, logged, and graphed with supplied Log100 software.

Construction Reach Stacker

A reach stacker is a vehicle used in construction site to lift, move, and stack heavy containers. A force monitoring system was needed to ensure the safety of surrounding personnel when the reach stacker was used for lifting heavy loads. Interface's WTSLP Wireless Stainless Steel Load Pins were installed into the corners of the lifting mechanism of the reach stacker, where heavy loaded containers are lifted and moved. The force results were then wirelessly transmitted to both the WTS-BS-1-HS Wireless Handheld Display for Single Transmitters and a computer with the WTS-BS-6 Wireless Telemetry Dongle Base Station. Using this solution, the customer was able to monitor their reach stacker with Interface's Wireless Telemetry System and ensure its ability to safely and efficiently life heavy loads on the construction site.

Tensile Testing of 3D Printed Construction Materials

PETG and ASA are 3D printing materials that are for capable of outdoor use and durable to hold over time, which is imperative for use in construction. A customer wants to conduct a tensile force test on different 3D printing materials until failure. These different 3D printing materials being tested included PLA, PETG and ASA to see how it performed in relation to quality, strength, ductility, and stiffness. Interface's 1200 Standard Precision LowProfile[™] Load Cell were installed into the customer's test frame. The tensile test is conducted, and force results captured by the load cell are synced through the INF-USB3 Universal Serial Bus Single Channel PC Interface Module. These results can be displayed on a computer with supplied software.

These three application examples highlight the diversity and range of Interface measurement solutions that are engineered and built for use in the construction industry

HIGHLIGHT: Bridge Construction Wind Monitoring

Customer Need / Challenge

Wind monitoring is a necessary operation during bridge constructions. Strong winds can destroy a bridge under construction since it is a work in progress with poor structural design. Monitoring these winds in real time is much more accurate than using predicted weather forecasts.

Interface Solution

Interface suggests installing the WTS-WSS Wireless Wind Speed Transmitter Module on the highest point of construction, such as a crane. Wind speed results are wirelessly transmitted to the customer's computer through the WTS-BS-4 Wireless Base Station with USB Interface in Industrial Enclosure. It can also be transmitted to the WTS-BS-1 Wireless Handheld Display for Unlimited Transmitters Data to be displayed, logged, and graphed with supplied Log100 software.

Results

Interface's WTS-WSS Wireless Wind Speed Transmitter Module combined with Interface's Wireless Telemetry System was perfect to monitor the wind speed in real-time during the bridge's construction.

Materials

- WTS-WSS Wireless Wind Speed Transmitter Module
- WTS-BS-4 Wireless Base Station with USB Interface in Industrial Enclosure with included Log100 Software
- WTS-BS-1 Wireless Handheld Display for Unlimited Transmitters
- Customer Laptop

How it Works

The WTS-WSS Wireless Wind Speed Transmitter Module is installed to a crane during the bridge's construction The WTS-WSS captures the wind speeds wirelessly transmits it to the customer's PC through the WTS-BS-4 Wireless Base Station with USB Interface in Industrial Enclosure. Customer's also have the option of using the WTS-BS-1 Wireless Handheld Display for Unlimited Transmitters. Results are displayed, graphed, and recorded with supplied Log100 software.



LowProfile[®] Load Cells



1000 Fatigue Rated LowProfile™ Load Cell 250 lbf to 50K lbf 1.25 kN to 225 kN

Torque Transducers

Deerface

1200 Standard Precision LowProfile™ Load Cell 300 lbf to 100K lbf 1.33 kN to 445 kN

T5 Standard Precision

Pedestal Mount

0.88 lbf-in to 8.85K lbf-in

0.1 Nm to 1K Nm



1200 High Capacity Standard Precision LowProfile™ Load Cells 200K lbf to 2,000K lbf 890 kN to 8,896 kN

Tension Links

Multi-Axis



ISITL Self-Indicating Tension Link 2.2K to 661K lbf 1 to 300 MT



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



WTSLTL Lightweight Wireless Tension Link 2.2K to 661K lbf 1 to 300 MT

Load Pins



T2 Ultra Precision Shaft Style

Rotary Torque Transducer

0.9 lbf-in to 177K lbf-in

0.1 Nm to 20K Nm

LP Stainless Steel Load Pin Up to 3,000K lbf Up to 13.3 kN

Instrumentation



920i Programmable Weight Indicator and Controller 32 scale accumulators 100 setpoints, 30 configurable setpoint types



WTSLP Wireless

Stainless Steel Load Pin

Up to 3,000K lbf

Up to 13.3 kN

9850 Torque Transducer and Load Cell Indicator 7800 samples/sec/channel Works with torque transducers, load cells, encoders, LVDTs and speed pickups



3A 3-Axis Force Load Cell Force: 4.5 lbf to 112K lbf

Force: 10 N to 500 kN

9890 Strain Gage, Load Cell, and MV/V Indicator Large Dual-Line 6-Digit Display, 0.60" & 0.46" 0.03% Accuracy



6A Series 6-Axis Standard Capacity Load Cell Force: 11.2 to 22.5K lbf Torque: 8.85 to 88.5K lb-in Force: 50 to 100K N Torque: 1 to 10K Nm



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

Wireless Telemetry and Bluetooth® Telemetry Systems



WTS LowProfile® Series Load Cells 25 lbf to 2,000K lbf 111 N to 8,896 kN



WTS-WSS Wireless Wind Speed Transmitter Module Low power mode providing exceptional

battery life in excess of 12 months Constantly monitors average wind speed



WTS-BS-4 Wireless Base Station with USB Interface Up to 800 m (2,625 ft) range Simple plug & play USB Configure & calibrate the WTS range



BTS-AM-1 Bluetooth Telemetry System "AA" Battery Powered Bluetooth Strain Gage Transmitter

Why the Construction Industry Prefer Interface Products

Load cells also are commonly used in construction equipment including cranes, hoists, and lifts. By incorporating Interface's load cells into these machines, construction operators can reliably ascertain the loads being lifted or moved, ensuring compliance with secure operational thresholds.

By providing real-time load data, Interface's load cells enable engineers and construction industry players to make informed decisions regarding the structural design, material selection, and load capacity of different machines and equipment. Torque transducers assist in evaluating and monitoring static and rotary movements of objects like motors and tools. Instrumentation is used to gather the data from measurements, which can influence design and be used as embedded technologies to give real-time feedback in use, just as in cranes and lifts.

Safety is of the utmost importance in the construction sector. Severe failures in equipment can be dangerous to machine operators, and protection and safety for users can be used through the use of force sensor technologies with Interface's precision load cells, torque transducers, load pins, tension links and load shackles.

Interface provides various sensors for a range of construction use cases around the world, including:

- Bridge Construction
- High-Rise Building Construction
- Crane and Heavy Lifting Operations
- Foundation Load Testing
- Structural Monitoring
- Material Testing
- Construction Equipment Calibration
- Residential and Commercial buildings
- Infrastructure Programs
- Industrial Construction
- Civil Engineering Projects
- Tunneling
- Environmental Remediation
- Heavy Equipment Manufacturing

Interface works closely with construction industry product and equipment suppliers. Our quality, durable and accurate measurement solutions are ideal for all types of use cases. Contact us to see how we can help you for your next project.

Construction Solutions

- High Capacity Load Cells
- LowProfile[™] Load Cells
- Torque Transducers
- Load Pins
- Load Shackles
- Tension Links
- Multi-Axis
- Instrumentation
- Wireless Telemetry Solutions
- Bluetooth Telemetry Solutions
- Interface Mini[™] Load Cells
- Digital Instrumentation
- Custom Solutions

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 construction 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.



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