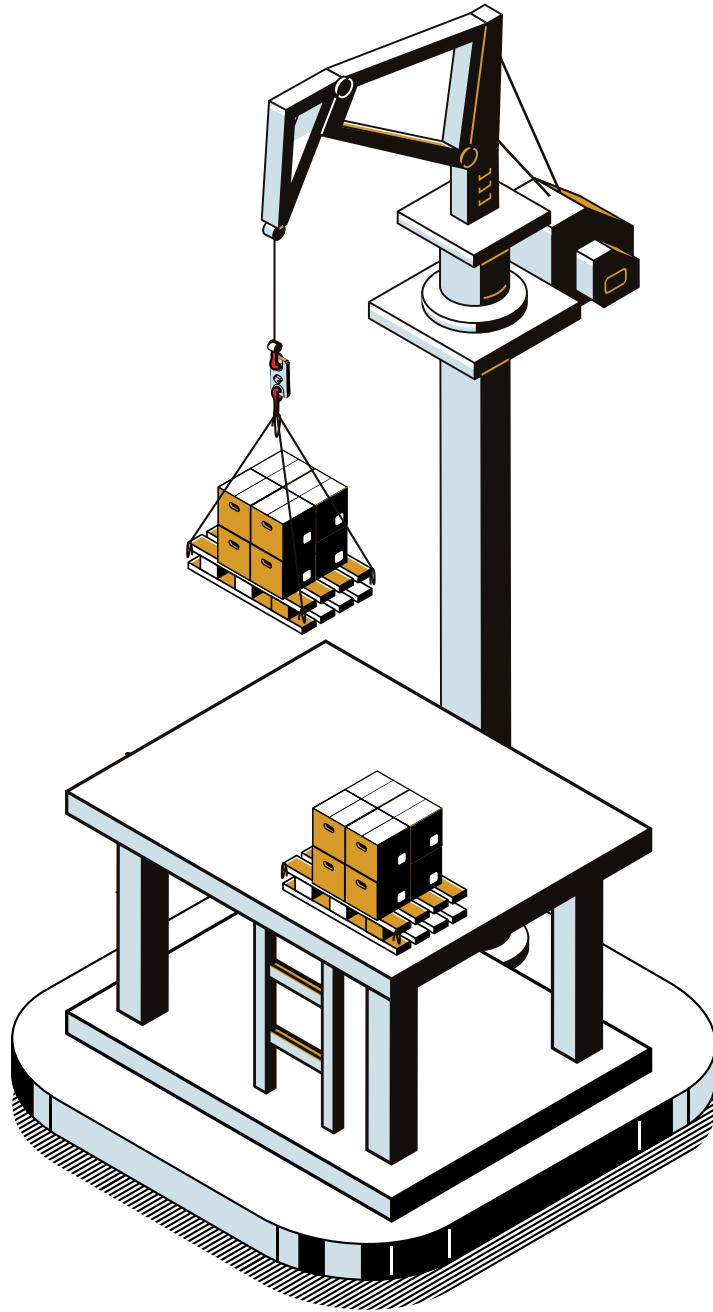


# Interface

## Lifting Solutions



Lifting Solutions v1.2 07/14/2023

# Interface lifting solutions increase efficiency, productivity, and safety for all types of lifting use cases. Accuracy in measurement reduces the risk of accidents and equipment failures. Interface supplies sensor technologies used in equipment, components and machines for increased versatility, safety, and improved operation.

There is a plethora of applications that utilize Interface force, torque and weighing products for equipment such as cranes and forklifts, industrial automation, and machines. Industries heavily reliant on dependable lifting equipment span from maritime to infrastructure, and manufacturing to transportation. For example, modernizing infrastructure is a major priority for governments and companies around the world, and significant investments are being made to support this effort using smart, sensor-based equipment and technologies. Interface products are ideal where lifting plays a part.

Interface provides the industry's most accurate and reliable measurement sensors for the equipment required for safe and efficient lifting applications. Our load cells are frequently used to measure the weight or force being exerted on the lifting equipment. These sensors can be integrated into cranes, hoists, and lifting devices to provide accurate load measurements, allowing operators to ensure they are within safe working limits and prevent overloading. Tension sensors are used in applications that involve lifting or pulling heavy loads with cables, ropes, or chains and are capable of measuring the tension in the lifting element, providing feedback on the load being lifted and ensuring it remains within safe limits.

## Lifting Heavy Objects Solution

Our customer needed to use a crane to move heavy construction materials around the work site and monitor the weight of these objects during lifting. Upon our recommendation, Interface's WTSSHK-B Wireless Load Shackle is connected to the crane load string to measure forces. Our WTS-BS-1-HA Battery Powered Handheld Display is used to wirelessly receive real-time load information and display results. The solution is ideal for the environment of use and allows for flexible and accurate monitoring throughout the project.

## Crane Block Safety Check System

Turning to Interface, our customer defined their requirements for a system that will detect if their crane block can lift heavy loads safely and securely. If lifting capacities are exceeded, the measurement would trigger an immediate alarm. Interface's WTSLP Wireless Stainless Steel Load Pin can replace the existing load bearing pin in the crane block in order to measure the force being applied by the heavy load. Data will be transmitted and displayed through both the WTS-BS-4 USB Base Station when paired with the customer's computer and the WTS-BS-1-HA Wireless Handheld for real-time results. The WTS-RM1 Wireless Relay Output Receiver Module will also trigger an alarm when maximum capacity has been reached, providing dual monitoring.

## Crane Force Regulation

The need to regulate the maximum amount of heavy loads being lifted is common. When our customer wants to complete lifting duties faster and safely, they turned to us for a suggestion. They also require a wireless solution so that there would be no long cable interference during production. Interface's WTSLP Wireless Stainless Steel Load Pins are custom made to be used for any and all types of cranes. It is also great for lifting both short and long distances. Paired with the WTS Wireless Telemetry System, the solution measures and logs the data to ensure all regulatory, safety and production requirements are performed and monitored accurately.

# HIGHLIGHT: Crane Capacity Verification

## Customer Need / Challenge

A customer needs a system to detect if their crane block can lift heavy loads securely, in order to keep working conditions and personnel safe at docks and other maritime transportation applications. If lifting capacities are exceeded, the customer wants a system to alarm them in real-time.

## Interface Solution

Interface's WTSTL Wireless Tension Link Load Cell can measure the load's maximum capacity. The WTS-RM1 Wireless Relay Output Receiver Modules also can trigger an alarm that can be set when the maximum capacity of weight and force has been reached. The data is transmitted and can be reviewed with the WTS-BS-1-HS Wireless Handheld Display, or on the customer's monitoring system.

## Results

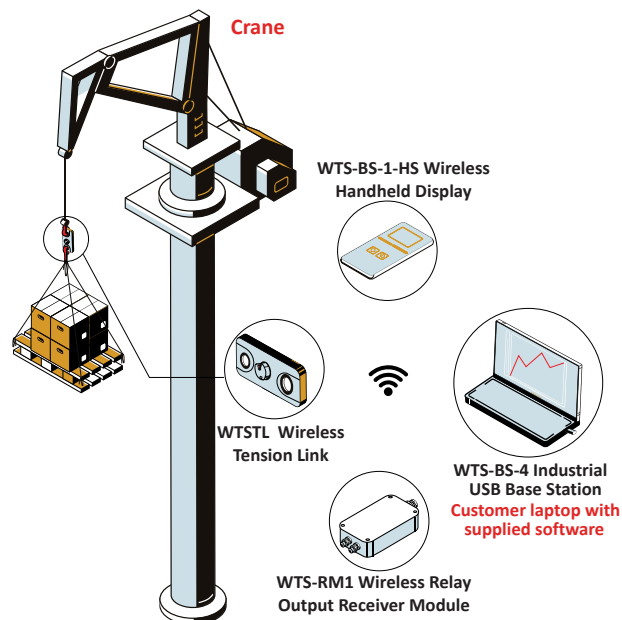
Customer was able to verify if the crane is safe and functional enough to lift its working load limit (WLL) or safe working load (SWL) capacity. The data is transmitted and logged to the customer's PC, or to a handheld device in real-time.

## Materials

- WTSTL Wireless Tension Link Load Cell
- WTS-RM1 Wireless Relay Output Receiver Module
- WTS-BS-1-HS Wireless Handheld Display for Single Transmitters
- WTS-BS-4 Industrial USB Base Station
- WTS Toolkit Software & Log100 Software

## How it Works

The WTSTL Wireless Tension Link Load Cell is installed on the crane, lifting an item that maxes out to the crane's working load limit (WLL). The WTSTL transmits data to the WTS-RM1 Wireless Relay Output Receiver Module and can trigger an alarm when the capacity has been reached. Information is also transmitted both to the laptop through the WTS-BS-4 USB Base Station and the WTS-BS-1-HS Wireless Handheld Display for single transmitters in real-time.



## Wireless Telemetry Systems



**WTS-BS-1-HA** Wireless Handheld Display for Multiple Transmitters  
Provides Summation of Up to 12 Transmitters



**WTS-BS-6** Wireless Telemetry Dongle Base Station  
Compact & Portable Logging  
Fast Configuration  
500m Wireless Range

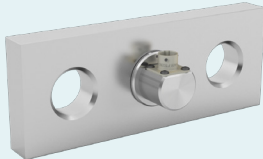


**WTS-BS-4** Wireless Base Station with USB Interface  
Up to 800 m (2,625 ft) range  
Simple plug & play USB  
Configure & calibrate the WTS range



**WTS-RM1** Wireless Relay Output Receiver Module  
Provides limit switching  
Two relays mains rated  
Accepts up to 16 device

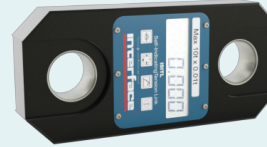
## Tension Links



**ITL** Tension Link Load Cell  
11K to 220K lbf  
5 to 100 MT



**WTSTL** Wireless Tension Link  
11K to 220K lbf  
5 to 100 MT



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



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

## Load Shackles



**ISHK-B** Bow Type Crosby™ Cabled Load Shackle  
2.2K and 2205K lbf  
1 to 1K MT



**ISHK-D** 'D' Type Crosby™ Cabled Load Shackle  
2.2K to 77.2K lbf  
1 to 35 MT



**WTSSHK-B** Wireless Crosby™ Bow Load Shackle  
26.5K and 265K lbf  
12 to 120 MT



**WTSSHK-B-HL** Wireless Crosby™ Bow Load Shackle  
265K to 2205K lbf  
120 to 1K MT



**WTSSHK-B-JR** Wireless Crosby™ Bow Load Shackle  
7.17K to 20.9K lbf  
3.25 to 9.5 MT



**WTSSHK-D** Wireless Crosby™ Load Shackle  
26.5K to 77.2K lbf  
12 to 35 MT

The load shackles are manufactured from high tensile carbon steel. Our basic shackle is the renowned Crosby G2130, G2140, and G2150 series depending on the load rating. An optional rotating bobbin can centralize the load and minimize any point-load effects. We also offer fully submersible and telemetry load shackles.

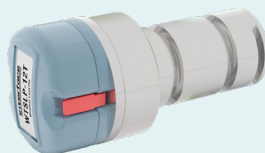
### Interface Load Shackle Benefits:

- Rugged and durable
- Highly accurate with a typical accuracy of +/-0.1%
- Many special designs available
- Custom sizes and higher capacities available

## Load Pins



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



**WTSLP** Wireless Stainless Steel Load Pin  
Up to 3,000K lbf  
Up to 13.3 kN

Machined from high tensile stainless steel, our load pins are suitable for exposed situations including seawater. We offer standard load pins with ratings between 1.1K lbf to 3.3M lbf (500kgs to 1500 MT). Most load pins are custom manufactured to meet specific dimensional requirements.

### Interface Load Pin Benefits:

- Easy to install
- Robust construction
- Replace existing load bearing pins without any system modifications
- Can be supplied with integral connector
- Custom sizes and higher capacities available

## Advancements in Cranes and Lifting Technology

There are countless lifting use cases for sensors that need accurate measurement of force and weighing, including industrial equipment like cranes and forklifts, as well as robotics and smart pallets. Real-time data from sensors allows for precise control, early detection of anomalies, and preventive maintenance, ensuring smooth and secure lifting operations. Interface products are ideal in lifting-based applications and provide the industry's most accurate and reliable data available through force measurement sensors.

## Interface's Smart Solutions in the Lifting Industry

Cranes and lifts have significantly advanced in the recent years thanks to the development of new technologies. Interface's wide range of wireless load pins, tension links, and shackles provide accurate and reliable data on the weights and loads. Data is critical for ensuring safety and also ensuring the lifespan of the equipment.

Our products provide real-time data for maintenance purposes, helping our customers identify and indicate any issues of their lifting applications. As technology continues to rapidly improve, so does Interface's drive to evolve our products to meet your exact needs.

Interface wireless load pins, tension links, and shackles can all be used in more modern kinds of applications such as mobile cranes, smart cranes, drones, and other computer controlled systems. We want to be apart of the areas of lifting solutions that need improvement, no matter the industry.

Smart cranes is one of the newest advancements for lifting applications where our sensor technologies can easily be implemented. These cranes can change their movements based on the environment, loads, and other factors. More and more smart infrastructure solutions such as smart buildings, smart transportation, smart cities, and more are developing to create more sustainable communities.

Interface products are improving the quality and accuracy of lifting equipment and components used for:

- Construction
- Manufacturing
- Shipping
- Transportation
- Oil and Gas
- Hospitals
- Mining
- Aerospace
- Automotive
- Agriculture
- Maritime
- Entertainment

# Lifting Solutions

- Load Pins
- Tension Links
- Load Shackles
- Wireless Telemetry Systems
- Load Cells
- Torque Transducers
- Miniature Load Cells
- Digital Instrumentation
- Self-Indicating
- Weight Indicators
- DAQ Systems
- 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 lifting 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.