

interface

FORCE MEASUREMENT SOLUTIONS.

CASE STUDY

Transforming Warehouses into Data-Driven Hubs



About

Warehouses rely heavily on automation and efficiency. Sensor technologies provide crucial data to transform manual processes into streamlined, automated systems. Measurement data allows advanced warehouse management systems to monitor performance, optimize operations, and make informed decisions. Load cells enable automation opportunities, efficiency improvements, and adaptation to changing operational needs. The integration of sensors improves picking, packing, and transportation processes, allowing for precise force application to safeguard goods and equipment.

Challenge

Transforming warehousing requires balancing speed, safety, and operational accuracy. Relying on manual processes can lead to inventory discrepancies, overloading transport systems, and damage to goods during handling. Warehouses also face temperature fluctuations, dust, and moisture. Engineers must define sensor requirements beyond capacity to ensure precision in small tasks, facilitate easy integration, maintain quality, and ensure compatibility with data systems for real-time monitoring within existing conditions.

Interface Solutions

Interface offers force measurement solutions designed to seamlessly integrate into warehouse modernization efforts. Miniature load cells can be embedded into robotic arms, while wireless load pins are ideal for lifting systems, enabling accurate, real-time data collection across operations. Connecting sensors to digital tools and wireless telemetry allows data to be transmitted along conveyors, in storage zones, and throughout the entire transportation process.



WTSLP Wireless Custom Load Pin



WTS-HK-S Next-Generation Wireless Handheld



WTS-AM-1E Wireless Strain Bridge Transmitter Module



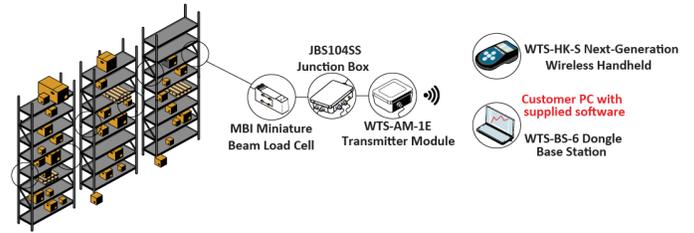
SSB Sealed Beam Load Cell

Warehousing Applications

Warehouse operators benefit from continuous monitoring of activity, including weighing, inventory control, packaging, and container handling.

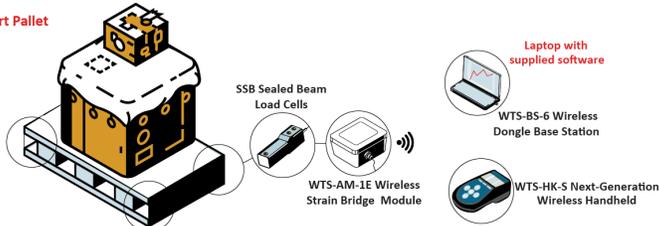
Inventory Weighing

Managing inventory remotely can be challenging without real-time data. A weight-based system provides a simple and accurate way to monitor stock levels. Interface recommends placing MBI Overload-Protected Miniature Beam Load Cells under each corner of inventory shelves. These connect to a JB104SS 4-Channel Stainless Steel Junction Box and a WTS-AM-1E Wireless Strain Bridge Transmitter Module, which wirelessly sends total weight data to a WTS-HK-S Next-Generation Wireless Handheld or a WTS-BS-6 Wireless Telemetry Dongle Base Station, connected to a PC. This system allows warehouse operators to view, log, and track inventory weight with control.



Smart Pallet Weighing

Smart Pallet

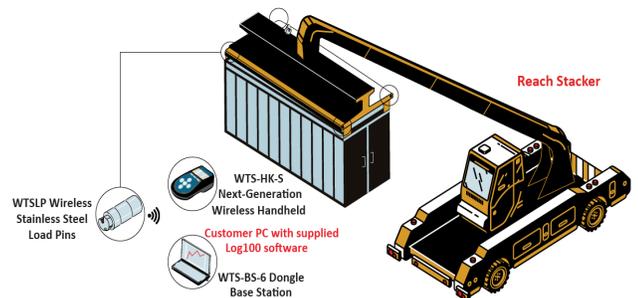


Warehouses use a smart pallet-based weighing system to monitor incoming and outgoing goods, prevent product loss due to weight discrepancies, and support pricing based on load weight. When the requirements call for a wireless, easy-to-deploy solution, Interface recommends integrating multiple SSB Sealed Beam Load Cells into the pallet's base corners. As products are placed

on the pallet, weight data is transmitted through WTS-AM-1E Wireless Strain Bridge Transmitter Modules. The data is then wirelessly sent and recorded on a PC using the WTS-BS-6 Wireless Telemetry Dongle Base Station and its accompanying software, providing a reliable and efficient smart weighing system.

Reach Stackers

Reach stackers are used in warehouses to lift, transport, and stack heavy containers. Monitoring force is critical to ensure safe operation and confirm the equipment is operating within its lifting capacity. Interface's WTSLP Wireless Stainless Steel Load Pins can be installed directly into the reach stacker's lifting points to measure load forces during operation. The collected data is wirelessly transmitted to operators via the WTS-HK-S Next-Generation Wireless Handheld or sent directly to a PC using the WTS-BS-6 Wireless Telemetry Dongle Base Station, enabling real-time load monitoring and ensuring the lift stays within safe limits.



Results

Implementing Interface's force measurement products gives warehouse operations real-time visibility into inventory and material handling processes, making the warehouse more productive and safer. This improves operational efficiency and safety, and promotes a more streamlined, intelligent approach to warehouse management.