

interface

FORCE MEASUREMENT SOLUTIONS.

CASE STUDY

Elevating Esports and Gaming Hardware and Venues



About

The esports and gaming industry has undergone an explosive transformation, evolving from a recreational pastime into a global entertainment and competitive powerhouse. This evolution requires a sophisticated infrastructure, including high-performance hardware, immersive venues, and meticulously engineered peripherals.

From the nuanced tactile feedback of a racing wheel to the robust structural integrity of a multi-tiered esports arena, every component must provide exceptional precision, reliability, and durability. Interface delivers precision force measurement solutions to address complex engineering challenges inherent in this dynamic sector, enabling manufacturers and venue engineers to push the boundaries of performance and realism.

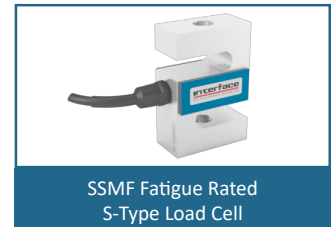
Peripherals have become specialized tools with intricate force feedback, while VR/AR demands precise motion measurement. Esports arenas incorporate intricate systems that require rigorous structural and performance testing, ensuring seamless gameplay and spectator experiences. This evolution calls for carefully considering ergonomics, environmental factors like vibration, and a robust infrastructure to prevent disruptions during gameplay.

Challenge

Traditional testing often lacks the sensitivity needed to capture the subtle forces exerted by players on peripherals. Measuring dynamic forces, such as those generated by rapid movements in VR or the impact on a gaming chair during intense gameplay, presents a significant challenge. The cyclical nature of gaming actions, such as repeated button presses or joystick movements, can lead to fatigue and failure in hardware components. Venues must undergo structural integrity testing under extreme load conditions, including the weight of equipment, spectators, and dynamic forces generated during events. Force feedback systems must accurately replicate real-world forces, providing players an engaging experience.



BPL Brake Pedal Load Cell



SSMF Fatigue Rated S-Type Load Cell



SSB Sealed Beam Load Cells



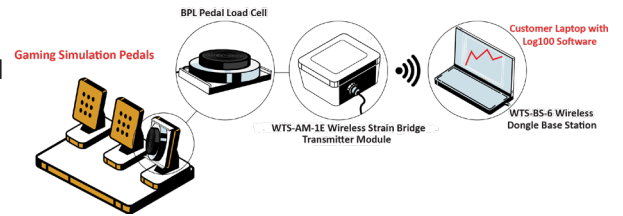
SI-USB4 4 Channel USB Interface Module

Solutions

Interface provides precise force measurement for esports and gaming, enhancing realism, ensuring structural integrity, and guaranteeing hardware durability. Their sensors, including load cells and wireless systems, enable fatigue, structural, weighing, performance, and haptic feedback analysis, optimizing safety and performance.

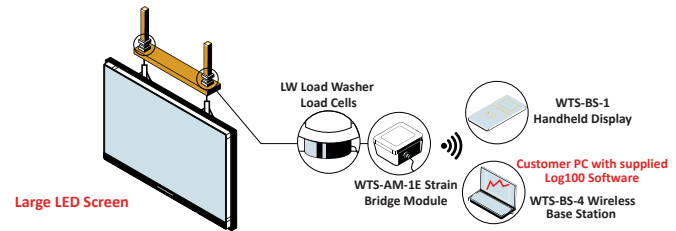
Gaming Simulation Brake Pedal

Using a load cell-based pedal system for racing simulations offers a more accurate, realistic, and responsive experience than traditional pedals, measuring distance instead of pressure. Interface's BPL Pedal Load Cell is installed on the brake pedal to measure the applied force by measuring the force used on pedals, which allows for precise braking control. Data is transmitted wirelessly to a computer using WTS-AM-1E Transmitter Modules and the WTS-BS-6 Base Station.



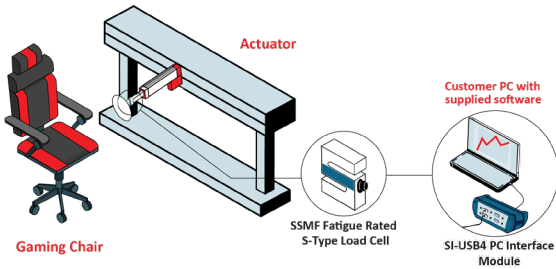
Entertainment LED Screens

Esports venue construction demands precise measurement of massive LED display screen weights and support structure forces for stability. Interface LW Load Washer Load Cells, integrated into support rods, wirelessly transmit data via WTS modules to handheld and base station displays, enabling continuous monitoring during all construction phases.



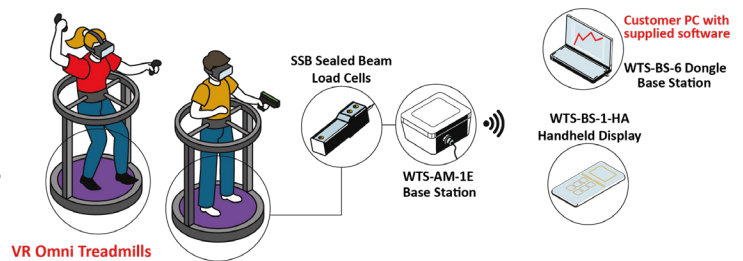
Gaming Chair Fatigue Testing

Gaming chairs must be tested for fatigue, comfort, and wear. Over time, seat and backrest support changes occur due to repeated load cycles and sustained pressure. Interface's SSMF Fatigue-Rated S-Type Load Cell measures the force applied during fatigue testing. The test data is logged, graphed, and stored for analysis using Interface's SI-USB4 Interface Module.



VR Omni Treadmill

VR Omni treadmills are immersive gaming, training, and simulation devices. They must undergo force testing and potential calibration to ensure accurate movement detection. Interface SSB Sealed Beam Load Cells integrated into the treadmill provide simulation test data when the user walks or runs and sends it to the WTS-AM-1E Wireless Strain Bridge Transmitter Modules.



Results

Interface's precision force measurement solutions address the challenges of the esports and gaming industry's rapid evolution. Providing high-accuracy load cells and data acquisition systems aligns with the industry's need to capture subtle and dynamic forces, ensuring realistic experiences and reliable hardware and venue infrastructure equipment. Consequently, Interface facilitates the realization of immersive gaming environments, meeting the demands of competitive players and spectators while ensuring compliance with stringent safety and performance standards.