

STRUCTURAL TESTING SYSTEM



RAW DATA. REFINED RESULTS.

30 YEARS
OF TESTING EXPERIENCE
BUILT-IN



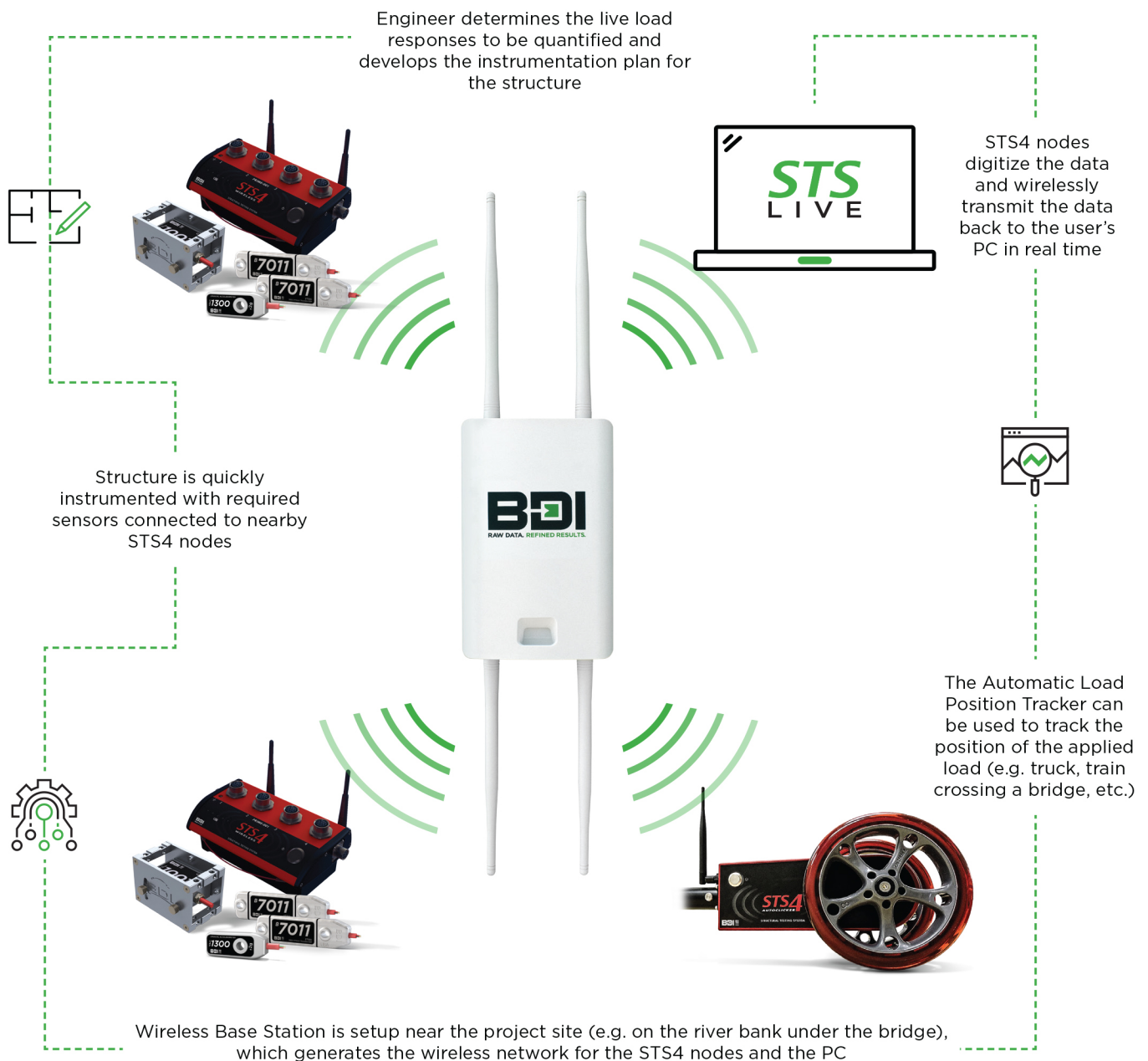
THE STS4 IS THE WORLD'S ONLY DATA ACQUISITION SYSTEM THAT HAS BEEN DESIGNED BY CIVIL ENGINEERS EXPRESSLY FOR STRUCTURAL TESTING.

INTELLIGENT SENSORS, LI-ION BATTERY POWER, WIRELESS COMMUNICATION, AND RUGGED DESIGN MAKES THIS SYSTEM HIGHLY EFFICIENT AND EXTREMELY EASY TO DEPLOY ON CHALLENGING PROJECTS.

OVER-VIEW

In the late 1980s, University of Colorado researchers performed diagnostic load testing during a nationwide bridge evaluation program which led to the development of a rugged and efficient data acquisition system. This unique Structural Testing System (STS) allows our teams and clients to load test a typical structure in one day! Since then, BDI has been constantly upgrading and refining the hardware, software, and testing procedures. Consequently, our latest version, the STS4, has approximately 30 years of testing experience built into its operation and has been adapted for use on all types of structures.

HOW IT WORKS



STS4 UNIQUE FEATURES

4-Channel Wireless Nodes: Our rugged four-channel data acquisition units are powered by long-lasting Li-Ion batteries and utilize standard wireless network communication protocol.

- + 4 analog sensor inputs and 4 temperature inputs
- + 24-bit ADC with 1kHz sample rate per channel
- + Programmable 0 to +5Vdc and +15Vdc excitation
- + Backup wired Ethernet communication (IEEE 802.3af PoE Compliant)
- + 4 GB on-board storage
- + Up to 40 hours of battery-powered testing time
- + Outdoor-rated enclosure
- + Operating temp: -10°C to +55°C

Wireless Base Stations: These ruggedized network hubs generate the wireless network for the STS4 nodes and the user's computer. Multiple Wireless Base Stations can be linked to increase the network range and each unit contains a backup wired Ethernet connection. Optional internal radio receives the position data from the Automatic Load Position Tracker.

Intelliducers: All sensors supplied with STS4 systems are equipped with our Intelliducer technology that store the sensor's name, calibration factor, and other pertinent sensor information. This "plug and play" feature dramatically reduces the time and effort required to track sensor cabling and associated settings. This, in turn, significantly reduces the possibility of user error in the field.

Automatic Load Position Indicator: This rugged wireless device tracks the position of the applied live load (e.g. test truck or train) during the load testing phase. This feature is critical for future analytical comparisons by allowing data to be collected as a function of load position in addition to time.

STS-LIVE: A substantial effort has been undertaken to develop and continually improve the STS4 data collection software. STS-LIVE allows the user to immediately initiate the system and begin testing with very little configuration required, while also giving the user some powerful tools to rapidly quantify the quality of data that is being collected.

COMPATIBLE SENSORS

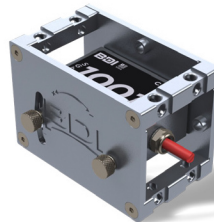
With an input voltage range of either +/-5Vdc differential or +10Vdc single-ended, the STS4 nodes can handle most analog sensors on the market. The sensor typically supplied with our systems include:



STRAIN TRANSDUCER



ACCELEROMETER



TILTMETER



DISPLACEMENT



PRESSURE TRANSDUCER



FOIL GAGE + COMPLETION MODULE



LOAD CELL



THERMISTOR

SOFTWARE

STS-LIVE: Data Collection

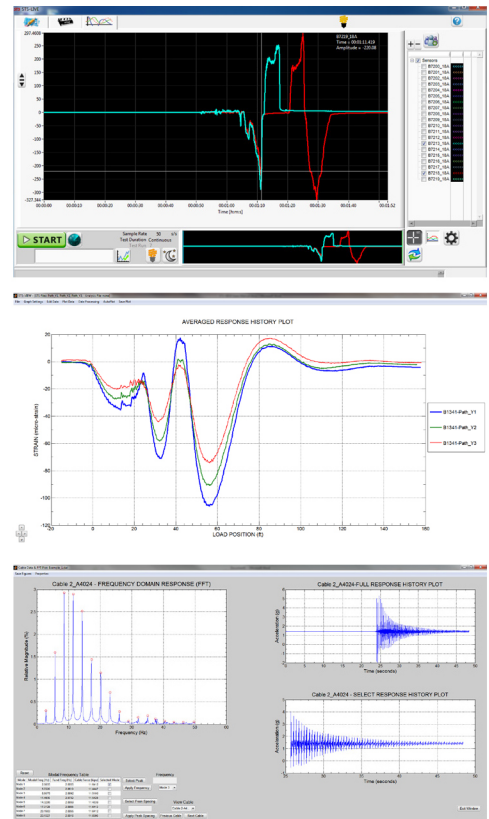
- + No programming required
- + Performs automatic system diagnostics
- + Input basic factors, such as test length and sample rate
- + Simple yet powerful graphing features

STS-VIEW: Data Evaluation

- + Post process data for reporting
- + Display data as a function of time and load position in real-time
- + Immediately evaluate structural responses, such as neutral axis locations and axial forces
- + Input Finite Element Analysis results

STS-CFA: Cable Forces

- + Efficiently measure cable forces in the field
- + Acceleration measurements used to determine in-situ cable forces



ADDITIONAL OPTIONS

Equipment Leasing: We stock a large inventory of STS4 systems and sensors so you can complete your own live load testing project without purchasing hardware. We can also assist with field training and support services.

Data Collection Services: For clients interested only in evaluating test data, our field crews can safely and efficiently collect the required responses based on the experience of working on hundreds of projects in all types of field conditions.

Long-Term Structural Monitoring: Our very successful STS structural testing system's architecture can be configured into a Structural Monitoring System (SMS) for tracking and recording data for a wide range of long-term/permanent projects.

740 S PIERCE AVE UNIT 15
LOUISVILLE, CO 80027

+1.303.494.3230

LEARN MORE AT BDITEST.COM

