

xStrain

BRIDGE SENSOR DIGITIZER UNIT

Turn Microvolts into Decisions

High-precision digitization for strain, load, and displacement—engineered for distributed SHM in harsh, real-world conditions.

Why xStrain

- Purpose-built for Wheatstone-bridge sensors (strain gauges, load cells, pressure/displacement cells).
- 24-bit $\Delta\Sigma$ ADC and anti-aliasing ensure clean, low-noise mV/V measurements.
- Synchronized networks via GPS or DigiSync® for sub-ms alignment.
- No data gaps: Store&Forward® + local MiniSEED logging.
- Embedded web interface—setup, live charts, logs, OTA updates.
- Rugged IP67 aluminum housing with wide operating range.

What makes it different

- Flexible channel configs: up to 16 single-ended, 8 full-bridge (4-wire), or 4 sensed full-bridge (6-wire) with sense compensation.
- User-selectable sampling 1-1000 SPS—static strain trends to dynamic load events.
- Per-channel digital filters (Butterworth/Chebyshev) + integrated anti-alias filtering.
- Ethernet standard; optional Wi-Fi, DigiMESH®, GSM/4G for any topology.
- Seamless SeedLink streaming + MiniSEED storage across the Digitex stack.

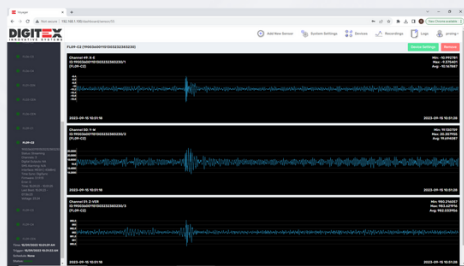
Made for

Bridges • Buildings • Tunnels • Pipelines & tanks • Geotechnical works • Industrial load paths • Research & tests

CE • ISO • Calibration certificate

How xStrain fits your SHM

- Bring true strain/load into your model—capture member stress, settlement and deformation, then correlate with vibration and environment.
- Deploy as compact local digitizers or synchronized nodes across corridors and networks alongside xWave®/xInc®.
- Any link, any scale: CAT5e/PoE, Wi-Fi, DigiMESH®, optional GSM/4G—grow from one to hundreds of nodes.



Configure your unit

Comms to fit the site: Ethernet, Wi-Fi, DigiMESH®, optional GSM/4G.

Local logging: SD/eMMC; MiniSEED with Store&Forward® resilience.

Sampling: 1-1000 SPS; integrated anti-alias filters + per-channel digital filters.

Triggers: Above/Under, relative/absolute with voting, pre/post buffers.

Time sync: GPS or DigiSync®—sub-ms network precision.

Power options: 9-28 V DC, PoE-compatible; optional ~12 h battery and surge protection.

Works with xPlorer®, Voyager®, Nexus, and Vista software.

Outcome snapshot

- Reliable microvolt-level channels from day one—clean, comparable across sites.
- Continuous data through comms drops thanks to Store&Forward®.
- One workspace for teams: acquisition, storage, visualization, and export.

Result: Confident load/strain insights and earlier interventions—without babysitting the network.

Your workflow with Digitex

- **Instrument:** bond gauges / connect bridge sensors; wire power/comms; auto-discover in Voyager®.
- **Acquire:** stream real-time via SeedLink or log locally; sync with GPS/DigiSync®.
- **Analyze:** trend strain/load vs. temperature and events; apply filtering.
- **Act:** set alarms/notifications and share dashboards with stakeholders.
- **Scale:** start single member; expand to spans, corridors, and multi-asset programs.

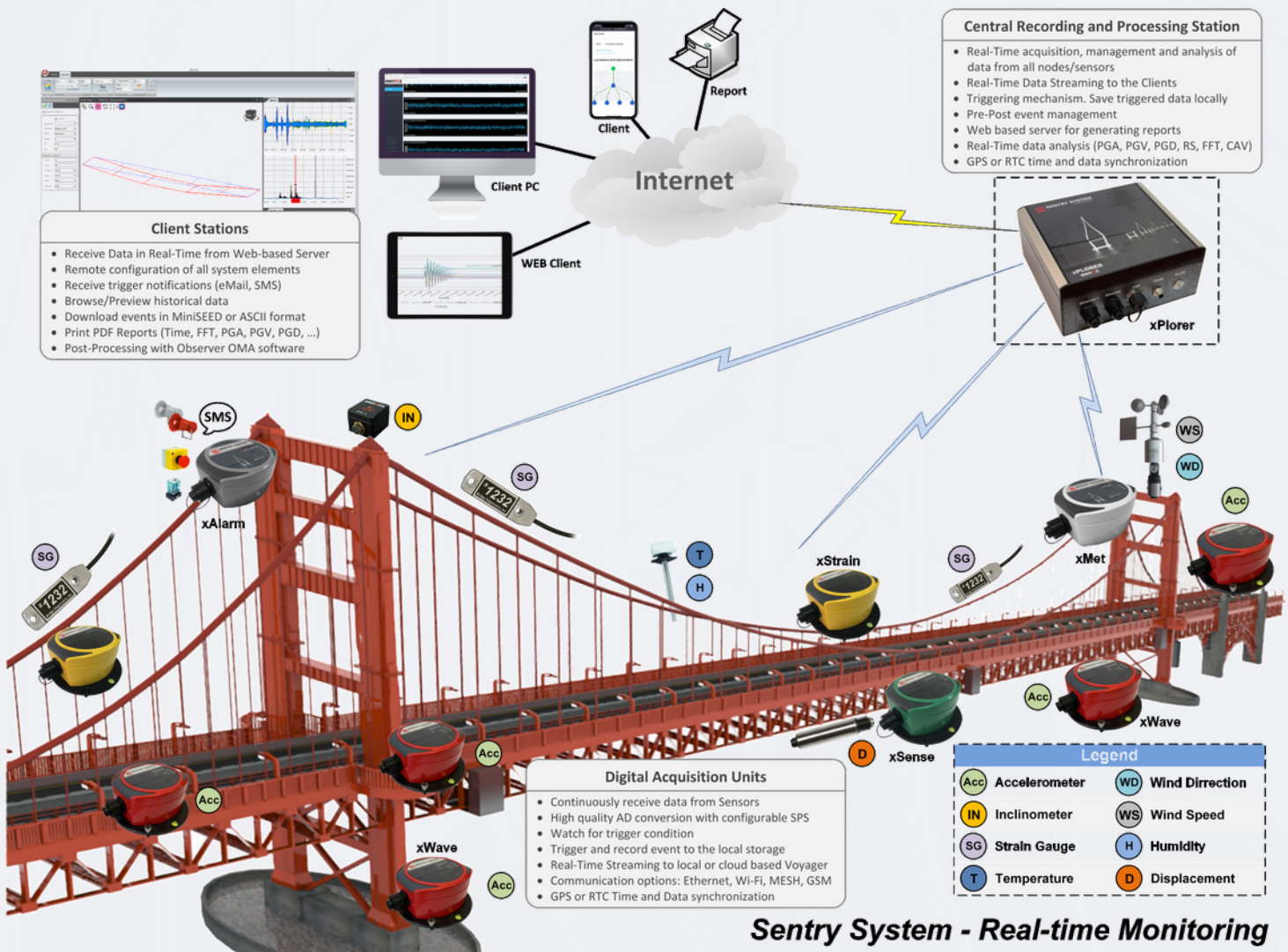
DISTRIBUTED SYSTEM OVERVIEW

xDAS® is Digitex Systems' distributed Structural Health Monitoring (SHM) solution, designed to instrument large and complex structures with networks of intelligent sensors. By combining multiple digital acquisition units, xDAS provides a scalable, modular, and reliable way to capture the dynamic response of structures in real time. From bridges and dams to skyscrapers, tunnels, pipelines, and industrial facilities, xDAS delivers the 'pulse' of any structure continuously, enabling operators to assess safety and performance instantly.

The system integrates seamlessly with Digitex's Voyager® software running on xPlover® or in the cloud, providing centralized acquisition, storage, and analysis. Each xDAS node digitizes sensor data directly at the source, ensuring noise-free transmission over Ethernet, Wi-Fi, DigiMESH®, or low-cost CAT5 cabling. The modular architecture allows hundreds of units to be combined in daisy-chain or star topologies, making it ideal for projects of any scale.

DISTRIBUTED SYSTEM MEMBERS

The Distributed Sentry System family of products consists of several units that can be installed as standalone devices or as part of a complete SHM deployment: **xPlover** – Central Acquisition and Processing Unit, **xWave** – Digital Accelerometer Unit, **xSense** – Voltage Sensor Digitizer Unit, **xStrain** – Bridge Sensor Digitizer Unit, **xGeo** – Digital Geophone Unit, **xInc** – Digital Inclinator Unit, **xMet** – Weather Station Gateway, **xAlarm** – Digital Alarming Unit.



ABOUT DIGITEX

Digitex is a company specialized in design and development of real structural health monitoring systems for a variety of industries and applications including: bridges, tall buildings, campuses, windmills, oil rigs and more. Digitex's innovative solution for ambient vibration measurements and quick health assessment of structures is jointly developed and validated with our partners and advisors from the Universities. When properly configured, the Digitex system is capable of measuring and responding to both natural and man-made events such as: earthquakes, wind, explosions and accidental heavy impacts.