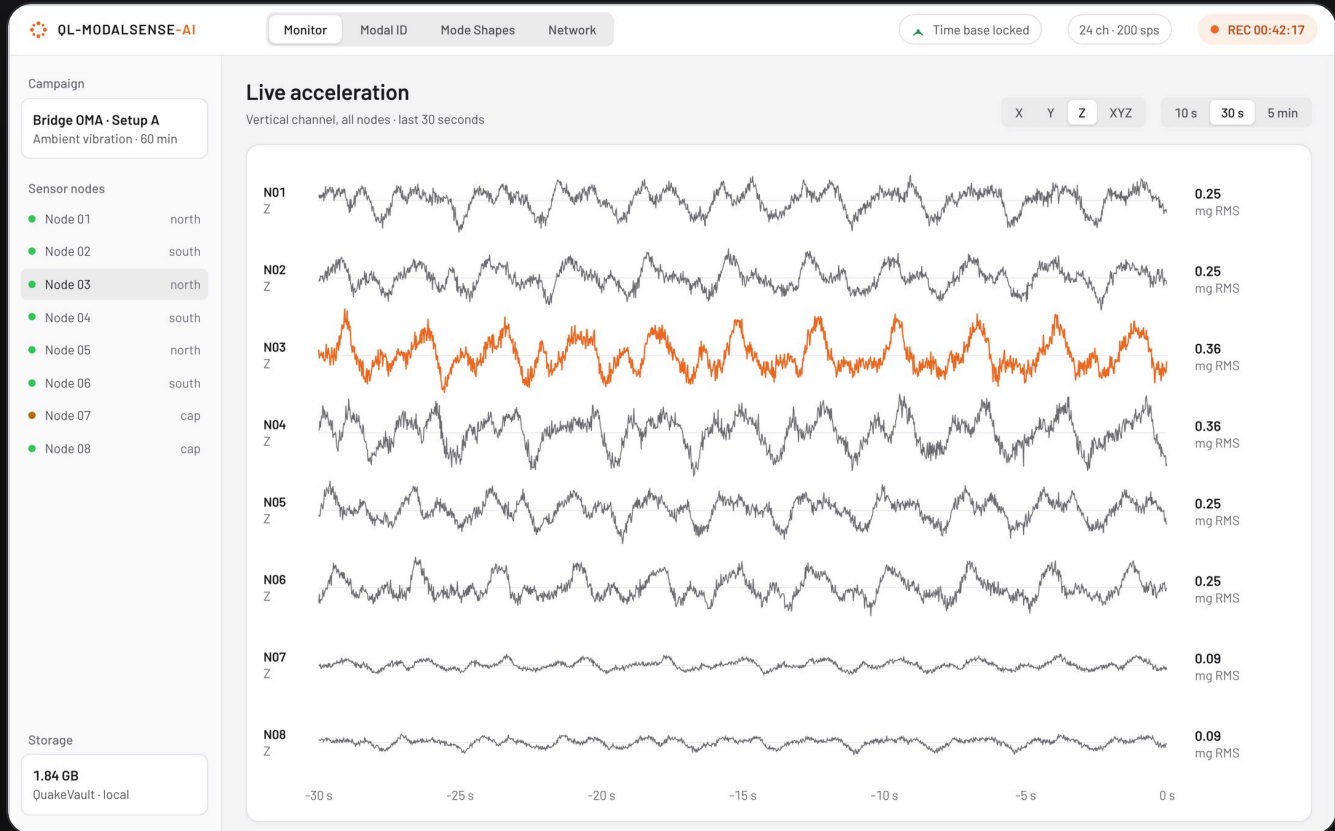




QUAKELOGIC · STRUCTURAL MONITORING SOFTWARE

QL-MODALSENSE-AI

AI-ASSISTED SHM & MODAL ANALYSIS

Records every sensor node on one time base, shows the data live and identifies frequencies, damping and mode shapes on site.

LIVE MULTI-CHANNEL VIEW

AI-ASSISTED MODE PICKING

MODE SHAPES · MAC

BROWSER ACCESS

products.quakelogic.net



MADE IN USA

With Globally Sourced Materials



FROM VIBRATION TO MODE SHAPES, ON SITE.

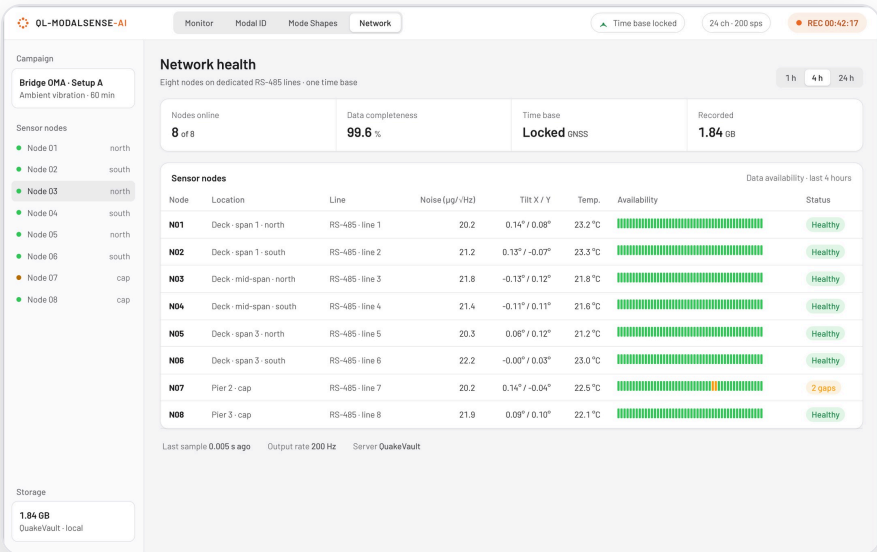
One software for recording, checking and analyzing structural vibration, from a one-day modal test to a permanent monitoring network.

24 CHANNELS LIVE 8 triaxial nodes	1 TIME BASE All nodes, one clock	AI MODE PICKING With confidence value	0 INSTALLS Opens in a browser
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QL-MODALSENSE-AI runs on the QuakeVault edge server and works with QL-MODALINK triaxial sensor nodes. Each node has its own RS-485 line, and the server time-stamps every sample against one clock, so all channels of a test arrive aligned and ready for analysis.

During the test, engineers watch every channel live from a laptop over Ethernet or Wi-Fi, check noise and tilt on each node, and confirm data quality before leaving the structure. After the record is complete, the software computes the singular value spectrum, picks the modes with AI assistance and shows the mode shapes on the structure geometry.

Records stay on site on QuakeVault and export to ASCII, CSV and MAT for reports and further analysis.



Network health: per-node noise, tilt, temperature and data availability.

STANDARD FEATURES

- Live display of all channels
- Per-node RMS, peak, noise floor and tilt
- One time base for all nodes
- Filtering and detrending
- Spectra and power spectral density
- Singular value spectrum
- AI-assisted peak picking
- Frequency, damping and MAC per mode
- Mode shapes on structure geometry
- MAC matrix
- Network health and data availability
- Campaign and setup management
- ASCII, CSV and MAT export
- Perpetual license, free updates

WORKFLOW

RECORD, CHECK, IDENTIFY, REPORT.

Four steps in one window, with no third-party acquisition software and no post-test alignment of separate recorders.

01 RECORD

All nodes stream to QuakeVault on one time base.

02 CHECK

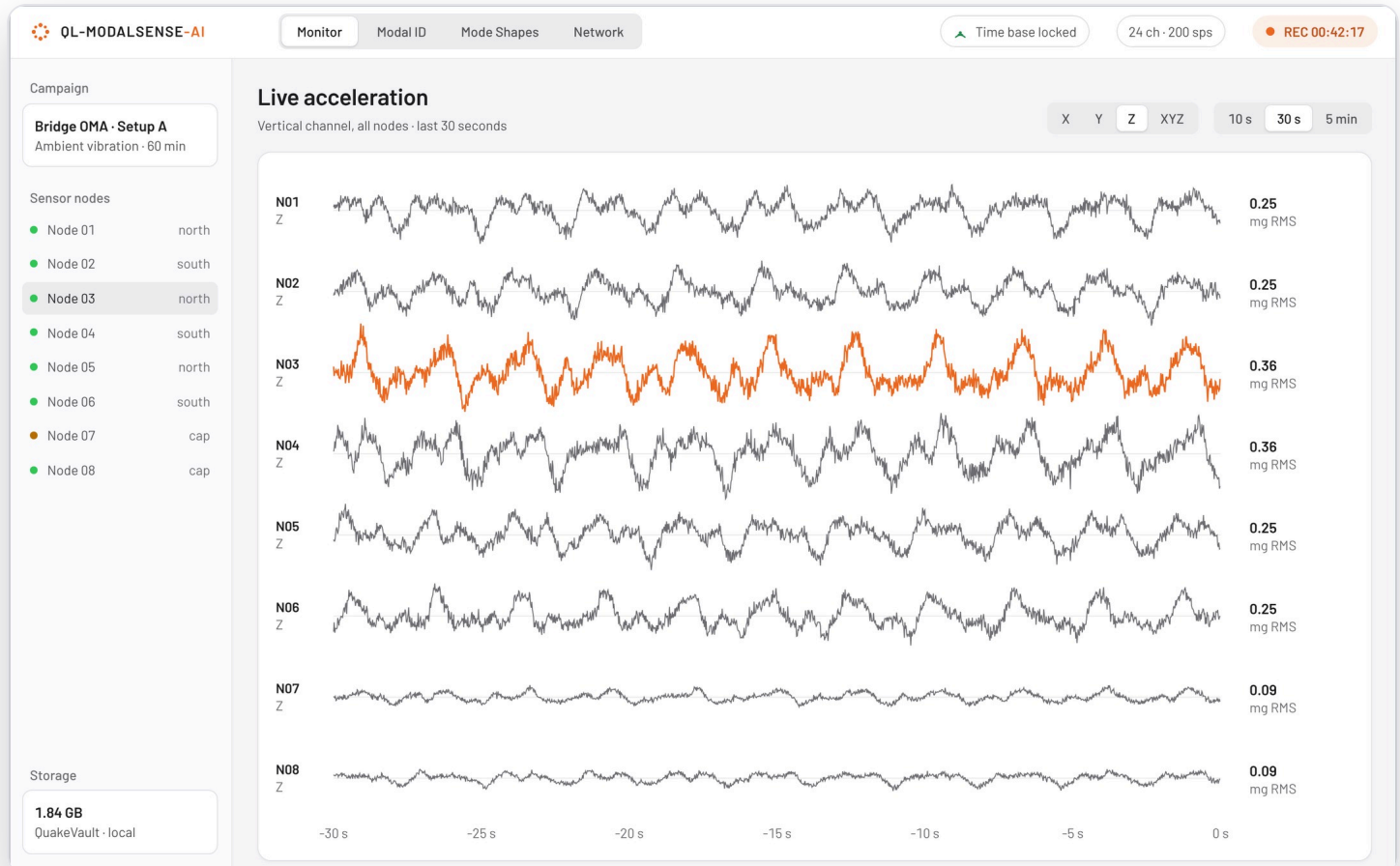
Live traces, RMS, noise and tilt confirm data quality on site.

03 IDENTIFY

AI-assisted picking gives frequency, damping and MAC for each mode.

04 REPORT

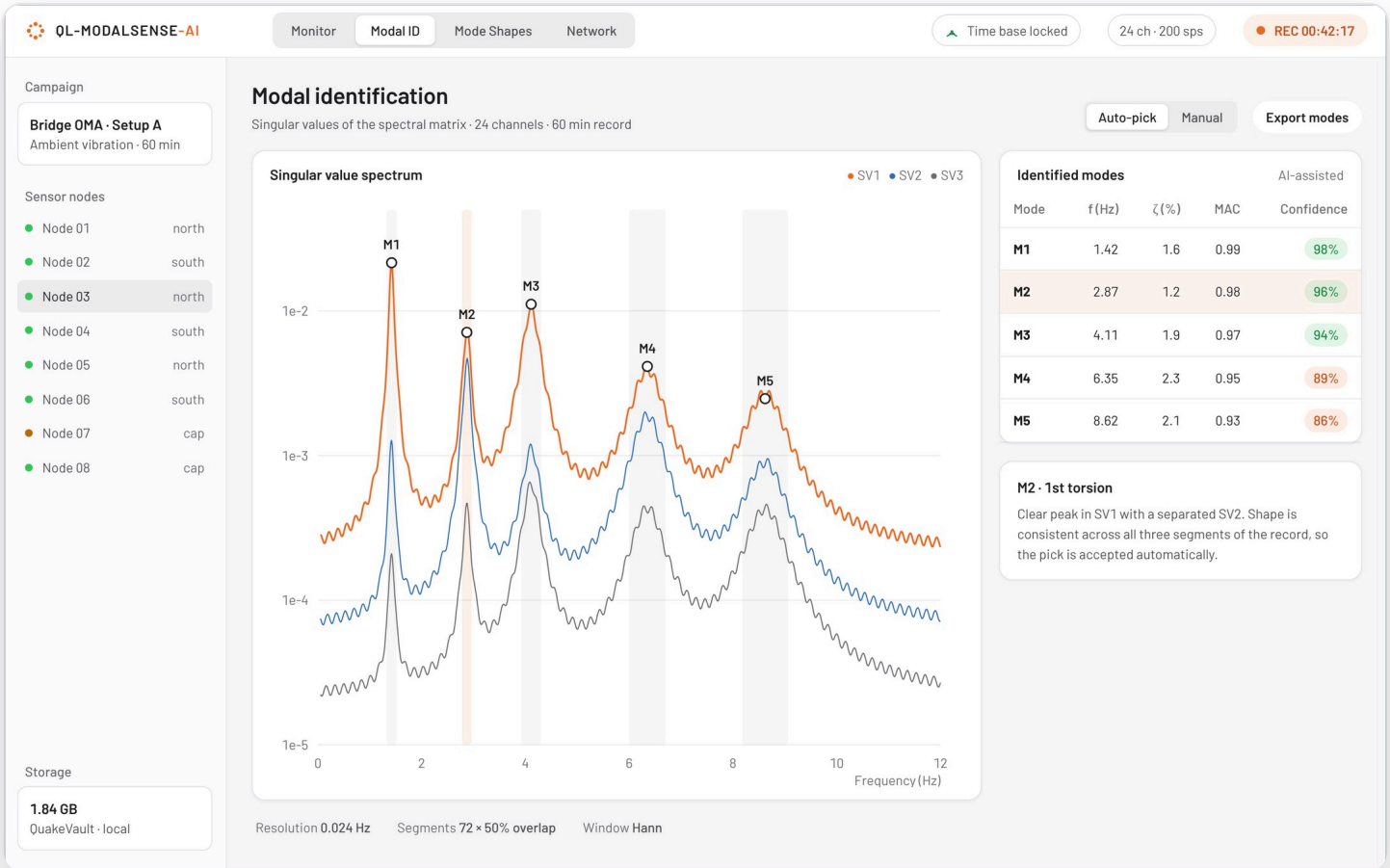
Mode shapes and records export for reports and model updating.



Live monitor: all eight nodes on one time base, with per-node RMS, noise floor and tilt.

THE MODES, PICKED AND SCORED.

The software builds the singular value spectrum from all channels and picks the structural modes, each with a confidence value the engineer can accept or adjust.



Modal identification: singular value spectrum with AI-assisted peak picking, frequency, damping and MAC.

Singular value spectrum

First, second and third singular values over the full record, with configurable window, overlap and resolution.

AI-assisted peak picking

Automatic picks with a confidence value; manual mode for engineer review and adjustment.

Frequency, damping, MAC

Each identified mode is listed with natural frequency, damping ratio and MAC.

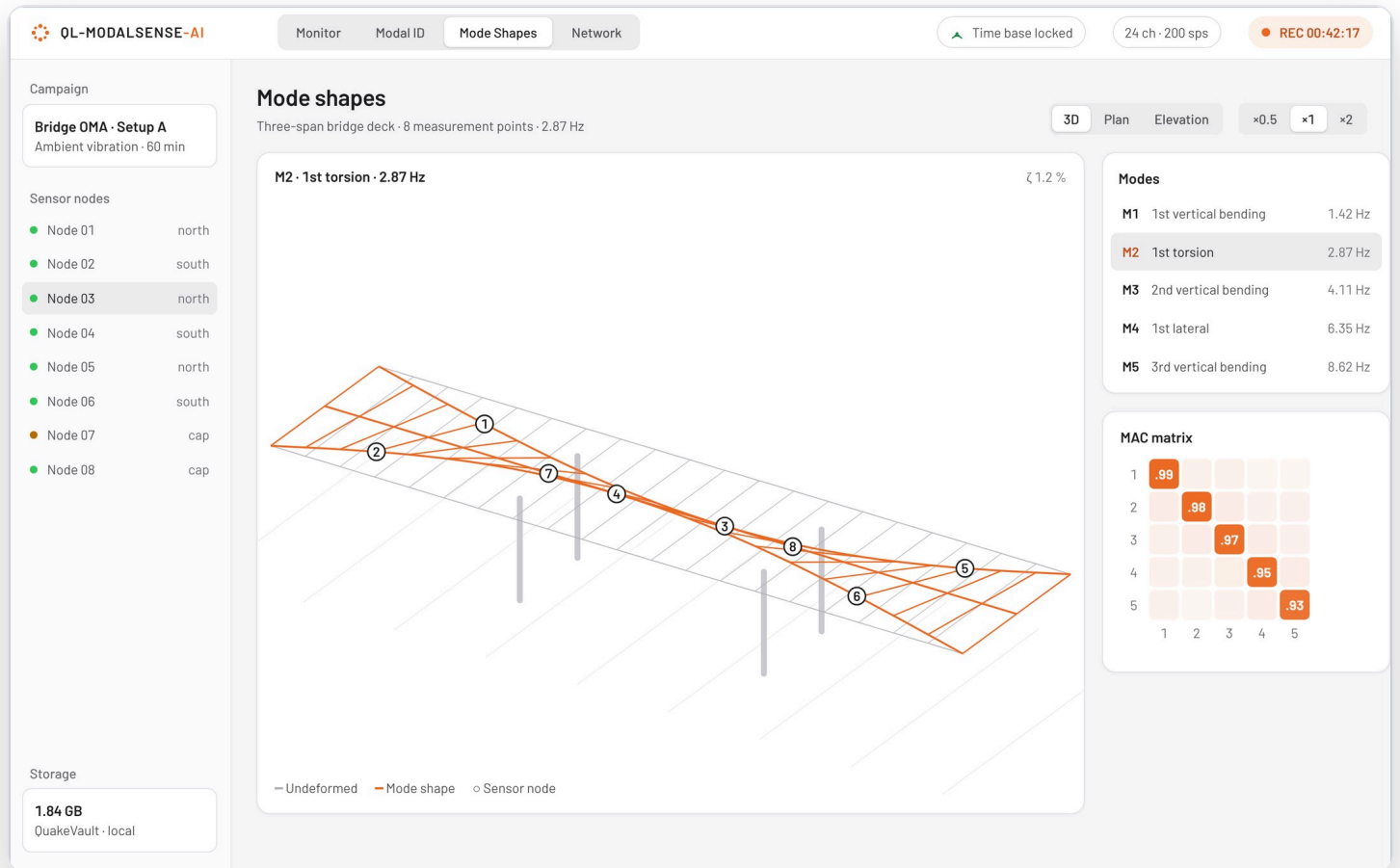
Export

Mode tables and records export to ASCII, CSV and MAT.

MODE SHAPES

SEE HOW THE STRUCTURE MOVES.

Mode shapes appear on the structure geometry at the measured points, with 3D, plan and elevation views and a MAC matrix to compare modes.



Mode shapes on a three-span bridge deck with eight measurement points and the MAC matrix.

Structure geometry

Measurement points placed on the deck, floors or towers as they were installed.

MAC matrix

Checks that identified modes are distinct and consistent.

3D, plan and elevation

Views and amplitude scaling for bending, torsion and lateral modes.

Mode list

All identified modes with frequency, one click to switch shapes.

TECHNICAL SPECIFICATIONS

QL-MODALSENSE-AI AT A GLANCE.

ACQUISITION	VALUE
Sensors	QL-MODALINK triaxial nodes, Modbus RS-485
Standard system	8 nodes, 24 acceleration channels
Node outputs	Acceleration, tilt, angular rate, temperature
Output rate	0.2–200 Hz per node
Time base	One clock for all nodes, GNSS or NTP
Live view	All channels; X, Y, Z or XYZ; 10 s to 5 min windows
Node status	RMS, peak, noise floor, tilt, temperature
Network health	Nodes online, data completeness, availability per node
Campaigns	Setups, sensor locations, notes

ANALYSIS	VALUE
Processing	Filtering, detrending, spectra, PSD
Modal analysis	Singular value spectrum of the spectral matrix
Mode picking	AI-assisted, with confidence value; manual mode
Mode results	Frequency, damping ratio, MAC
Mode shapes	3D, plan, elevation; MAC matrix
Export	ASCII, CSV, MAT
Platform	QuakeVault edge server, on site
Access	Web browser over Ethernet or Wi-Fi
Storage	Local on QuakeVault; no cloud required

LICENSE

Perpetual license with free software updates.

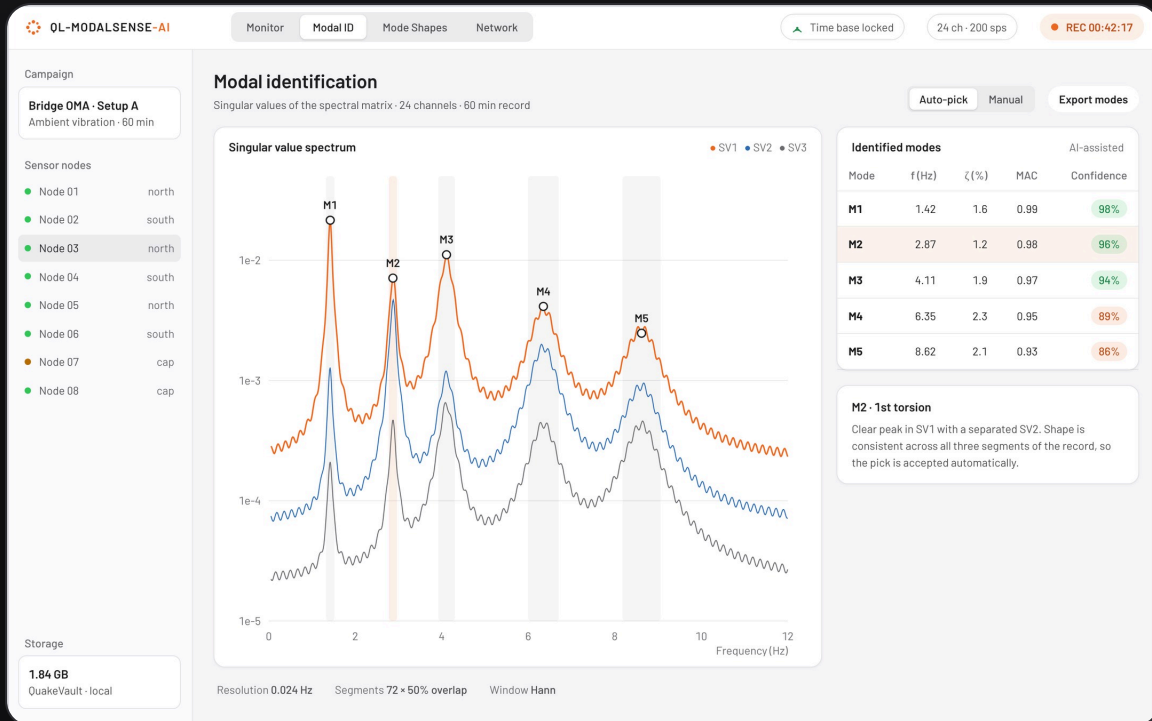
COMMISSIONING

Remote commissioning and online training.

SUPPORT

Lifetime technical support from QuakeLogic, Roseville, California.

Developed and supported by QuakeLogic under an ISO 9001:2015 quality management system. Specifications are subject to change without notice.



QL-MODALSENSE-AI · AI-ASSISTED SHM & MODAL ANALYSIS

ONE SUPPLIER FOR SENSORS, SERVER AND SOFTWARE.

QuakeLogic delivers seismic monitoring, structural health monitoring and testing systems worldwide, from portable modal tests to permanent bridge and building networks.

HEADQUARTERS

QuakeLogic Inc.
2008 Opportunity Dr., Suite 130
Roseville, CA 95678, USA

CONTACT

+1 (916) 899-0391
sales@quakelogic.net
products.quakelogic.net

CREDENTIALS

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