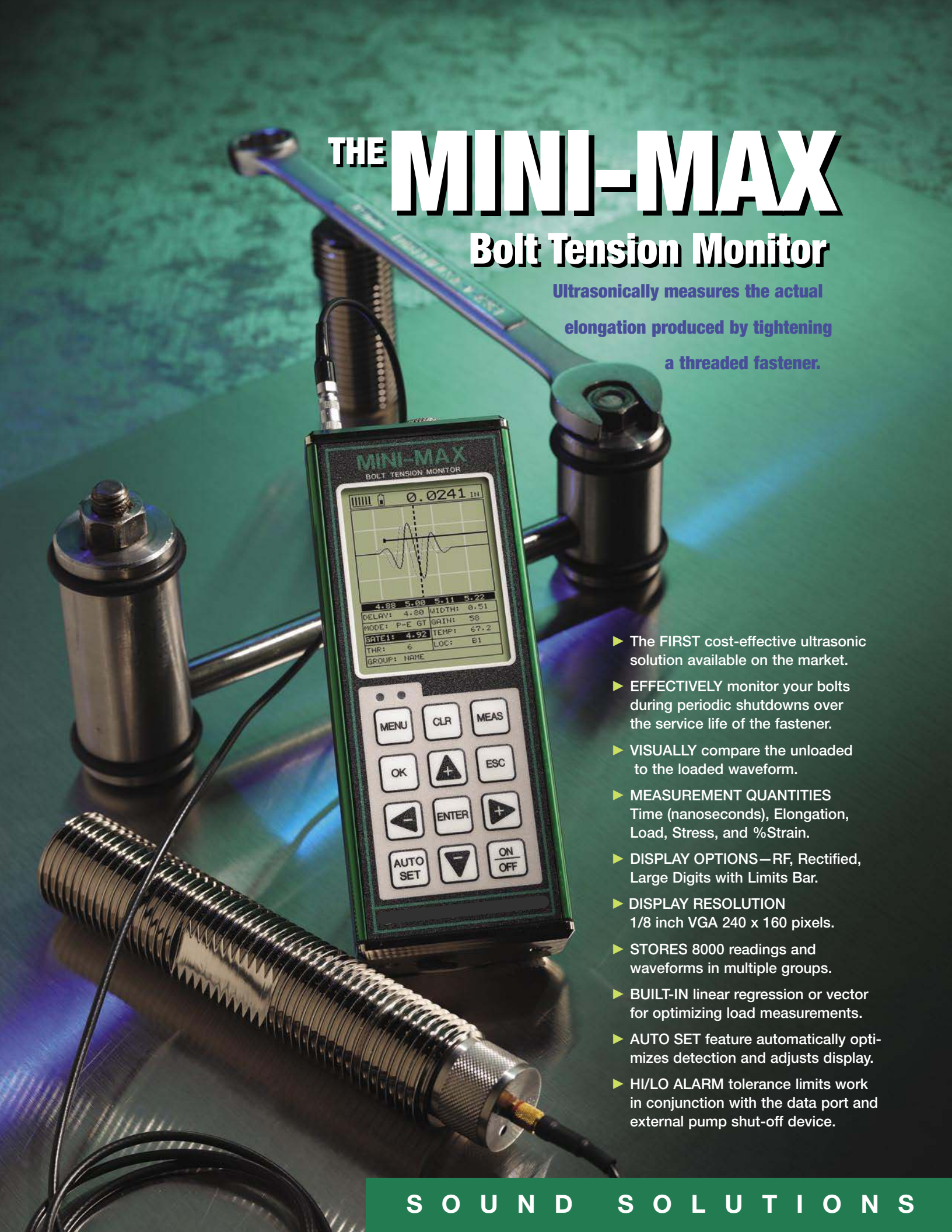
THE MINI-MAX

Bolt Tension Monitor

Ultrasonically measures the actual elongation produced by tightening a threaded fastener.



- The FIRST cost-effective ultrasonic solution available on the market.
- EFFECTIVELY monitor your bolts during periodic shutdowns over the service life of the fastener.
- VISUALLY compare the unloaded to the loaded waveform.
- MEASUREMENT QUANTITIES Time (nanoseconds), Elongation, Load, Stress, and %Strain.
- DISPLAY OPTIONS—RF, Rectified, Large Digits with Limits Bar.
- DISPLAY RESOLUTION 1/8 inch VGA 240 x 160 pixels.
- STORES 8000 readings and waveforms in multiple groups.
- BUILT-IN linear regression or vector for optimizing load measurements.
- AUTO SET feature automatically optimizes detection and adjusts display.
- HI/LO ALARM tolerance limits work in conjunction with the data port and external pump shut-off device.

S O U N D S O L U T I O N S

MINI-MAX SPECIFICATIONS

Physical

Size:
Width (2.5 in/63.5mm)
Height (6.5 in/165mm)
Depth (1.24 in/31.5mm)

Weight: 13.5 ounces (with batteries)

Display:
Membrane switchpad with twelve tactile keys.

Operating Temperature:
14˚F to 140˚F (-10˚C to 60˚C)

Case:
Extruded aluminum body with nickel-plated aluminum end caps (gasket sealed).

Data Output:
Bi-directional RS232 serial port. Windows® PC interface software.

Display:
1/8 inch VGA grayscale display (240 x 160 pixels);
Viewable area 2.4 x 1.8 inches (62mm x 45.7mm);
EL backlit (on/off/auto)

Ultrasonic Specifications

Measurement Modes:
Pulse-Echo (standard)
Pulse-Echo w/Gate (fine adjust)

Pulser:
Square wave pulser with adjustable pulse width (spike, thin, wide).

Receiver:
Manual or Auto Set gain control with 40dB range.

Timing:
10-bit 250 MHz digitizer.

Warranty

2 year limited

Power Source

Three 1.5V alkaline or 1.2V NiCad AA cells.

Typically operates for 150 hours on alkaline and 100 hours on NiCad (charger not included).

Auto power off if idle for 5 min.

Battery status icon.

Measuring

Range:
From 1 to 48 inches (25.4 to 137 cm)

Time—Nanoseconds

Elongation—Change in length (inches/millimeters)

Load—Force load applied (pounds KIP or megapascals MPa)

Stress—Force for unit area stress applied (inches per inch or millimeters per millimeter)

Resolution:
+/- 0.00001 inch (0.0001 mm)

Velocity Range: 0.0492 to .3937 in/ms (1250 to 9,999 meters/sec)

Fixed, Single, and Two-point zero calibration options.

Select bolt material types from a preset or custom list.

Units:
English & Metric / Farenheit & Centigrade.

Display

A-Scan—Rectified +/- (half wave view), or RF (full waveform view).

Large Digits—Display and toggle between nanoseconds, elongation, load, stress, and strain;
Digit Height: 0.400 inch (10mm).

Limits Bar (alarm limits)— Set Hi & Lo alarm limits for displaying an acceptable tolerance range.

Repeatability Bar Graph—
Bar graph indicates stability of measurement.

Data Logger (Internal)

Total of 8,000 readings in multiple bolt groups. Stores both waveform views, nanoseconds, elongation, load, stress and strain for each reading.

Memory:
16 megabit non-volatile ram

Transducer

Transducer types:
Single element (1 MHz to 10 MHz & 1/8 to 1inch diameters).

Locking quick disconnect "00" LEMO connectors.

Standard 10 foot cable.

Custom transducers available for special applications.

Temperature probe for automatic temperature compensation

Features

Setups:
64 custom user defined setups; Factory setups can also be edited by the user.

Gate:
Gate used to fine adjust where the detection point occurs.

Alarm Limits:
Set Hi and Lo tolerances with audible beeper, viewable scan bar, and visual LEDs.

Auto Set:
Locates the detection signal, optimizes the gain setting, and adjusts the overall display to show the waveform and detection point automatically.

Field Calibration:
Vector & linear regression

Certification

Factory calibration traceable to national standards.

9/05 (05-104/2.5M)

CHECK•LINE® – PRECISION QUALITY CONTROL INSTRUMENTS

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