STANLAY™

MAX II
Bolt Tension Monitor

Total Control for Bolted Joints!

Features:

- Quantities - Elongation, Load, Stress, Strain and Time (nanoseconds)
- Sunlight readable color QVGA display (320x240 pixels)
- Measure Modes - Pulse-Echo, Echo- Echo, Echo-Echo-Verify (triple echo)
- Auto Correlation - Transducer Placement
- Custom auto calibration feature
- 4GB internal & up to 64GB external SD memory
- USB 1.1 connectivity
- Analog, serial & alarm outputs
- PC & OSX reporting software
- Import & export files - between
- Max II and MiniMax
- Li-Ion pack & 6 AA emergency battery
- backup option
- 2 year warranty.

The Dakota Ultrasonics MAX II, Ultrasonic Bolt Tension Monitor, defines the State of the Art in the measurement of the actual clamp load produced by tightening a fastener. The MAX II can measure time, elongation, load, stress, or %strain in bolts of virtually any material from 1 inch to 100 feet in length. By storing the reference waveform and displaying it for comparison while the elongation is being measured, the MAX II minimizes operator training.

MAX II Bolt Tension Monitor

MAX II Bolt Tension performs the above measurements of a fastener under tension, using the transit time of a wave, Hooke's law, and Young's modulus , by sending an ultrasonic wave down the length of the fastener and accurately measuring the change in transit time between an unloaded versus loaded fastener/bolt, and ultrasonically measuring the change in length.

The instrument provides a menu based selection of material from a list of preset material types. To keep data for a bolt type, for repeated measurements for a batch or measuring the bolt elongation over life, a group can be created of upto 250 bolts containing 1 reference length and up to 51 elongations.

MaxII is the most advanced bolt tension monitor on the market.

SPECIFICATIONS

Physical

Weight: 4.5 lbs (2.04 kgs), with batteries.

Size: 8.5W x 6.5H x 2.5D in (216 x 165 x 70mm).

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

Keyboard: Membrane switch with 21 tactile keys.

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

Display Views: RF (full wave view), +/- Rectified (half wave view), Digits, or split screen combination (wave plus large digits).

Environmental: Meets IP65 requirements.

Connections

USB: Direct USB 1.1 PC connectivity. Windows & OSX interface software.

Power Connector: 12v @ 2amps, adapter 100-240 VAC, .7 Amps, 50-60 Hz.

5 Pin Lemo (includes):

RS232Output - RS232 PC serial interface.

Alarm Outputs - Two independent alarm outputs triggered by the gates.

Analog Out - Proportional outputs (amplitude or distance), 0-10 volts.

Transducer Connectors: Two LEMO 00 connectors.

Memory

Log Formats: Grid (Alpha Numeric).

Capacity: 4 Gb internal & up to 64 Gb External SD slot.

Screen Capture: Tagged interface file (.tif) capture for quick documentation.

Custom Setups: 64 user configurations.

Power Source

Lithium Ion Pack: 10.8v, 2 amp hrs, typical operation 18hrs.

Battery Backup: Emergency battery backup. Six 1.5V alkaline, 1.2V AA Nicad cells, 1.2V AA NI-MH, or other other equivalent power source. Battery life (continuous use): Alkaline (12 hrs), Nicad (5hrs), and NI-MH (12hrs), with default settings.

Electronics

Display: Blanview sunlight readable QVGA TFT color display (320 x 240 pixels). Viewable area 4.54 x 3.40 in (115.2 x 86.4 mm), or 5.7 in (144.78 mm) diagonal. 16 color pallete, multiple color options and variable brightness.

Screen Refresh Rate: 60Hz.

Timing: Precision TCXO timing with single shot 100 MHz 8 bit ultra low power digitizer.

Pulser Types: Spike, Square Wave & Tone Burst.

Pulser Voltage: 100 - 400v.

Pulse Width: Selectable step options Spike, Thin, Wide, HV Spike, HV Thin, HV Wide, TB .5MHz, TB 1MHz, TB 2MHz, TB 5MHz, TB 10 MHz. Spike 40 ns, Square Wave 80 to 400 ns, Tone Burst 50 ns to 1 microsecond.

Gain: 0 to 110dB with 0.2dB resolution. Manual and AGC control.

Damping: 50, 75, 100, 300, 600, & 1500 ohms.

Frequency Band: Broadband 1.8 - 19 MHz (-3dB) filter.

Horizontal Linearity: +/- 0.4% FSW.

Vertical Linearity: +/- 1% FSH.

Amplifier Linearity: +/- 1 dB.

Amplitude Measurement: 0 to 100% FSH, with 1% resolution.

Delay: 0 - 999.999in (25,400mm) at steel velocity.

Measurement Gates: Three independent gates depending on measurement mode selected, with audible and visual alarms. Amplitude 5-95%, 1% steps.

Features

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

Auto Set: Automates the detection, scope, and display setting process for each individual bolt.

Gates: Three measurement gates, depending on measurement mode used, with adjustable start and threshold.

Alarm Limits: Adjustable Hi/LO tolerances with visual LED's and audible beeper. Hardware alarm outputs (accesory cable required).

Field Calibration: Vector or Regression correction curve for increased accuracy using Load & Stress.

Measuring

Units: English (in), Metric (mm), or Time (µs).

Velocity: 0.0492 to .5510 in/µs (1250–13995 m/s).

Measurement Modes: Pulse-Echo (P-E), Echo-Echo (E-E), or Echo-Echo-Echo (E-EV).

Measurement Range: 1 to 999.999in (2540cm) in pulse-echo(P-E) measurement mode. Range will vary using multi-echo modes - dependent on material type and consistency.

Detection: Zero Crossing.

Resolution: +/- 0.00001 in (0.0001 mm).

Calibration: Automatic, Fixed, Single or Two-Point zero calibration options.

Quantities:

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).

%Strain - Ratio of elongation to effective length.

Bolt Materials: Select types from a preset or custom list.

Transducers

Transducer types: Single element - 1 MHz to 10 MHz frequencies, and 1/8" to 1" diameters. Magnetic & Non Magnetic options available.

Glue-On: Available for short bolts with minimal/short elongations to eliminate transducer placement errors.

Connectors: Microdot, Lemo 00, or BNC options depending on the transducer model selected.

Custom Transducers: Available for special applications.

Certification

Factory calibration traceable to NIST & MIL-STD-45662A.

Warranty

2 year limited

CE approved

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Quality Management System
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