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BT1-DL

Bolt Tension Monitor

HIGHLIGHTS:

- Precision TCXO timing.
- Sunlight readable LCD display (240 x 160 pixels) .
- Adjustable digitizer - Resolution.
- Pulse-Echo measurement mode.
- Temperature compensation.
- Quantities - Elongation, Load, Stress, Strain and Time (nanoseconds) to the loaded waveform.
- Auto Correlation - transducer placement.
- Auto Calibration.
- USB-C connectivity.
- 4GB internal memory.
- PC & OSX reporting software.
- 2 year warranty.

DAKOTA BT1-DL BOLT TENSION MONITOR

The Dakota BT Bolt Tension Monitor uses ultrasound to precisely measure fastener elongation, time (nanoseconds), load, stress & %strain. This eliminates issues from traditional torque methods by directly measuring tension, saving time and money by avoiding unnecessary removal and refitting of fasteners.

Applications; Wind Turbines, Automotive Frames, Engine fasteners, Bridge Structures, Crane and Anchor bolts, Theme Parks and Infrastructure Projects.

SPECIFICATIONS

PHYSICAL

Weight: 13.5 ounces (with batteries).

Size: 2.5W x 6.5H x 1.24D in (63.5 x 165 x 31.5 mm).

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

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

Keypad: Membrane swich pad with twelve tactile-feedback keys.

Environmental: Meets IP65 requirements.

CONNECTIONS

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

Line Power: USB-C to PC or AC adaptor.

Temperature Sensor: 5 pin Lemo 1.

Transducer Connector: Lemo 00.

MEMORY

Log Format: Grid (Alpha Numeric).

Capacity: 4GB internal memory.

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

Custom Setups: 64 user configurations.

POWER SOURCE

Line Power: USB to PC or power outlet.

Batteries: Three AA cells.

Alkaline 35 hrs, Nicad 10 hrs, NI-MH 35 hrs.

Auto power off after 5 minutes idle.

Battery status icon.

CERTIFICATION

Factory calibration traceable to NIST & MILSTD-45662A.

DISPLAY VIEWS

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

Large Digits: Digital display only.

Alarm Limits Bar: Hi & Lo alarm limits for displaying an acceptable tolerance range.

TRANSDUCERS

Transducer types: Single element - 1MHz to 10MHz frequencies, and 1/8" to 1" diameters.

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.

Temperature probe: Automatic temperature compensation.

ELECTRONICS

Display: 1/8in VGA grayscale display (240 x 160 pixels); viewable area 2.4 x 1.8in (62 x 45.7mm); EL backlit (on/off/auto invert).

Screen Refresh Rate: 30Hz.

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

Pulser Type: Square Wave.

Pulser Voltage: Selectable 100, 150 and 200 volts.

Pulse Width: Selectable options Spike, Thin, and Wide. 80 to 400 ns.

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 - 999.9 in (25,400 mm) at steel velocity.

Measurement Gate: One gate with audible and visual alarm. Amplitude 5-95%, 1% steps.

WARRANTY

2 year limited.

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.

Alarm Limits: Adjustable Hi/Low tolerances with visual LED's and audible beeper.

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

MEASURING

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

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

Measurement Modes: Pulse-Echo (P-E).

Measurement Range: 1 in to 50 ft (25.4 mm to 15.24 M), 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.

Quanties:

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.

Repeatability Bar Graph: Bar graph indicates stability of measurement.

REPLACEMENT

BT1-DL replaces MINIMAX & BG80TDL

CE UKCA

MADE IN THE USA