

HYDRAULIC BOLT TENSIONING

echometer[®] Ultrasonic Bolt Load Measurement

The Echometer ultrasonically measures the elongation, stress and load in fasteners, quickly and accurately, and displays the result on an easy to read screen.

The measurement is achieved by determining the change in the transit time of an ultrasonic shock wave along the length of the fastener as the fastener is tightened.

The unit works with all bolt tightening systems and is used to monitor the fastener during the tightening process to ensure accurate initial loading. The retained load in the fastener can then be monitored at any time.

Echometer minimises the requirement for extensive operator training. With built in data recording and reporting through a RS232 interface, the echometer is quick and easy to use and offers a reliable solution to the most difficult bolting problem.

Benefits:

- Quick and simple to operate
- Compact and durable for proven reliability
- Minimal operator training required
- Provides elongation, load, stress and strain measurements
- Accurate and reliable
- Designed to complement Boltight bolt tensioning equipment
- Easy measure during tightening and monitoring during plant operation
- Cost effective
- Simple data recording and reporting



Boltight Echometer



BOLTIGHT[®]
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Specification:

Physical

Size:

Width = 63.5 mm
Height = 165 mm
Depth = 31.5 mm

Weight:

0.4kg (with batteries)

Keyboard:

Membrane switch pad with twelve tactile keys

Operating temperature:

-10°C to 60°C

Case:

Extruded aluminium body with nickel plated aluminium end caps (gasket sealed)

IP Rating:

Rated to IP65. Protected against all dust ingress and water jets from all directions

Data output:

Bi-directional RS232 serial port. Windows PC interface software

Ultrasonic Specification Measurement

Modes:

Pulse-Echo (standard)

Pulse-Echo w/Gate (fine adjust)

Pulsar:

Square wave pulsar with adjustable pulse width (spike, thin & wide)

Receiver:

Manual or auto set gain control with 40dB range

Power source:

Three 1.5V alkaline or 1.2V NiCad AA cells

Typically operates for 150 hours on alkaline and 100 hours on NiCad

Auto power off if idle for 5 minutes

Battery status icon

Transducer

Transducer types:

Single element - 1 to 10 MHz & 1/8" (3.175mm) to 1" (25.4mm) diameters

Locking quick disconnect '00' LEMO connectors

Standard 10ft cable

Custom transducers and cable lengths available on request

Temperature probe for automatic temperature compensation

Measuring:

Range:

From 25.4mm to 2435mm length bolts

Time:

Nanoseconds

Elongation:

Change in length (inches/millimeters)

Load:

Force load applied (pounds kip or kilo newtons)

Stress:

Force per unit area stress (psi or MPa)

Strain:

Percentage strain applied

Resolution:

+/- 0.00001 mm

Velocity range:

1250 - 9999 meters/second

Fixed, single and two point zero calibration options

Select bolt material from a preset or custom list

Display:

A-scan: Rectified =/- (half wave view) or RF (full waveform view)

Limits bar (alarm units):

Set Hi & Lo alarm units for displaying an acceptable tolerance range

Repeatability bar graph - bar graph indicates stability of measurement

Data logger (internal):

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

Memory:

16 megabit non-volatile RAM

Alarm limits:

Set Hi and Lo tolerances with audible beeper, viewable scan bar and visual LED's



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