

# E-Saximeter

*The essential device for accurate blow counting*

The E-Sax is used by piling inspectors everywhere to generate a complete Pile Driving Log, including:

- Pile name
- Start and stop driving times
- Blow count versus depth
- Blows per minute
- Final equivalent blow count for the last 20 blows
- Stroke of open end diesel hammers
- Potential energy of open end diesel hammers

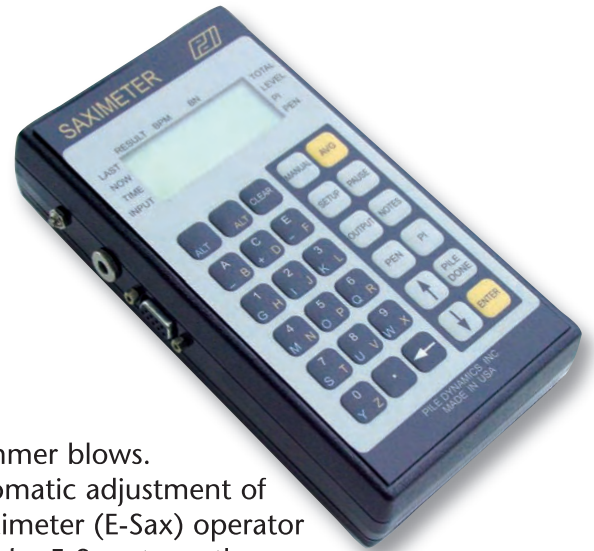
## **Blow Count Versus Depth and Time**

A sound recognition device detects and counts all hammer blows. Background noise is managed through manual or automatic adjustment of the sound level at which a blow is detected. The E-Saximeter (E-Sax) operator indicates the start of driving through the keypad, and the E-Sax stores the number of hammer blows per time increment, yielding Blows Per Minute (BPM).

The operator enters starting depth and depth increment through the E-Sax keypad. As the pile is driven, the operator pushes a button for each depth increment of penetration and the E-Sax stores the number of hammer blows per depth increment.

## **Stroke and Potential Energy**

For open end diesel hammers, the E-Saximeter computes stroke from the measured (BPM). The hammer stroke is then multiplied by ram weight to yield hammer potential energy.



*E-Saximeter with antenna receives energy and depth data from wireless transmitters.*



## **Features**

- Entirely wireless
- Easy to read screen
- Calculator type keypad input
- Computer interface



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## OPTIONAL ENHANCEMENTS:

### DEPTH MEASUREMENT

A depth sensor installed on the hammer leads replaces operator entry of depth of penetration to completely automate the generation of a pile driving log. The depth sensor tracks the movement of the hammer. A wireless transmitter sends depth of penetration information to the E-Sax.

### KINETIC ENERGY MEASUREMENT

A pair of proximity switches mounted on the hammer detects the ram position at two points, just before ram impact.

Ram position and time information are used to calculate impact velocity. A wireless transmitter sends the velocity information to the E-Saximeter, that in turn calculates the Hammer Kinetic Energy (KE) just before impact using velocity ( $v^2$ ) and ram mass ( $m_R$ ) information:  $KE=1/2 m_R v^2$ .

Hammer Kinetic Energy is a fundamental quantity for those performing Wave Equation analysis of Pile Driving (GRLWEAP software program). The ratio of Hammer Kinetic Energy to the manufacturer's rated energy is the Hammer Efficiency. A Pile Driving Analyzer<sup>®</sup> can determine the energy actually transferred to the pile.



Proximity Switches



Depth Sensor

Wireless Transmitter



## E-Saximeter Specifications

**Size:** 100 mm x 190 mm x 50 mm

**Weight:** 700 g, including rechargeable batteries

**Temperature range:** -10°C to +50°C

**Battery:** internal, rechargeable, 8 hour duration

**Internal microphone:** 70 to 115 dB

**Maximum blow detection rate:** 68 bpm for open end diesel hammers; 300 bpm for all others

**Maximum transmission distance with optional depth / energy enhancements:** 60 m

**Range of optional depth sensor:** 49 m

For complete up to date specifications visit [www.pile.com/specifications](http://www.pile.com/specifications)



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