



# Strains and Accelerometers

## Strains and Acceleration Sensors

*For high strain dynamic foundation testing and other applications*

### **Reliable. Convenient. Durable.**

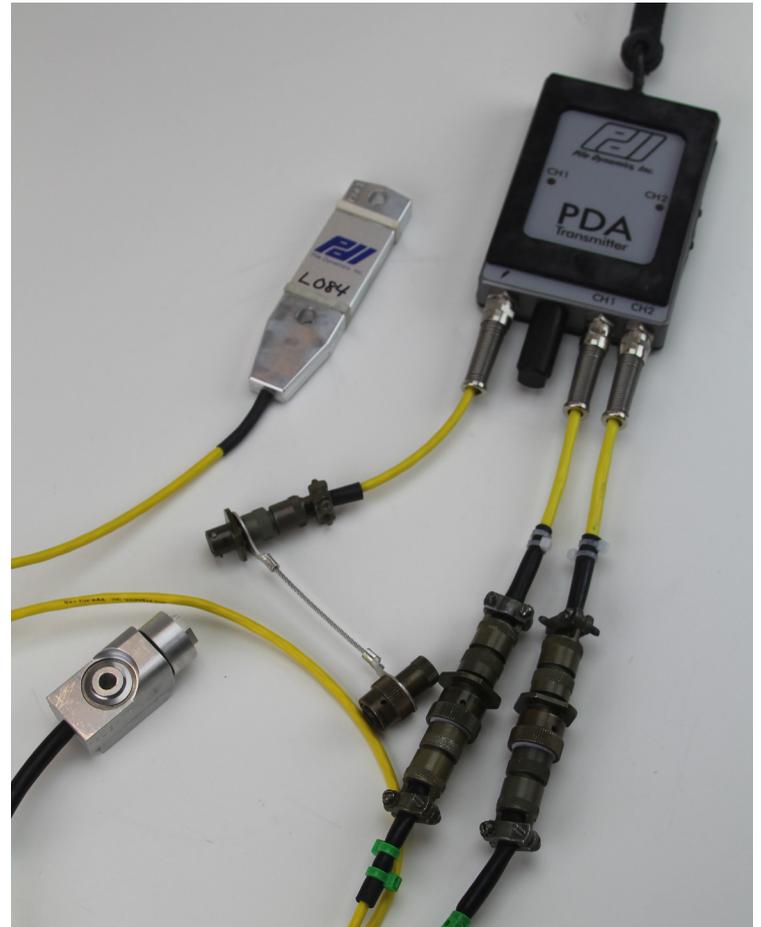
Strain Transducers and Accelerometers manufactured by Pile Dynamics are reliable, convenient to install and remove, and highly durable. The Pile Driving Analyzer® system (PDA) reads and processes electronic signals collected by Accelerometers and Strain Transducers.

- Accuracy: PDI sensors collect axially accurate signals at high micro strain (strain transducers) and “g” (accelerometers) levels.
- Traceability: PDI sensors are traceable to National Institute of Standards and Technology (NIST) specifications. Calibration sheets are furnished with each sensor. Pile Dynamics recommends that sensors be recalibrated at least every two years, in accordance with ASTM D-4945.
- Versatility: In addition to collecting data for high strain dynamic foundation testing with the Pile Driving Analyzer® (PDA) system, accelerometers are also used for SPT hammer energy calibration with either the PDA or the SPT Analyzer. SPT hammer calibration also requires a specially instrumented SPT rod.

PDI strain transducers are compatible with other applications requiring strain measurements, such as static load monitoring and structural monitoring of bridges and other structures.

### **Traditional (cabled)**

Some applications, such as SPT hammer calibration and offshore pile driving monitoring, are better suited for sensors that connect to the PDA by cable.



## Smart Sensor Technology

All accelerometers and strain transducers include Smart Sensor Technology which automatically provides sensor serial number and calibration information to the PDA. The PDA recognizes the sensors, knows to which channel of data acquisition each is connected, and reads their number, calibration, and date of last calibration.

## Installation

When used for Dynamic Foundation Testing or Pile Driving Monitoring, accelerometers and strain transducers are bolted to the foundation, usually at a length of approximately two to three diameters below the top. Strain transducers are attached symmetrically about the neutral axis of the foundation to account for bending effects, and accelerometers are attached near the strain transducers.

Typically, two or four pairs of sensors are used for routine foundation testing. Attachment procedure varies depending on the type of foundation, but is generally quick:

- Steel Pipe Piles: drill and tap holes; magnetic drilling guide available
- Steel H Piles: drill clearance holes and install bolts / nuts
- Timber Piles: drill holes with lag bolts
- Concrete Piles and Shafts: drill holes and embed anchors; metal drilling guide available
- Drilled shafts, augered cast in place, spiral welded piles and other non-uniform foundations: four strain transducers are recommended to assess bending stresses along two axes.

Pile Dynamics, Inc. (PDI) is the world leader in developing, manufacturing and supplying state of the art QA/QC products and systems for the deep foundations industry. The company is headquartered in Cleveland, Ohio, USA, with offices and representatives worldwide. For additional information visit us at [www.pile.com](http://www.pile.com) or contact [info@pile.com](mailto:info@pile.com) today.



- Available in wireless or traditional (cabled) versions.
- Collects electronic signals processed by the Pile Driving Analyzer®
- Accelerometers may be Piezoelectric (PE) or Piezoresistive (PR)
- PR accelerometers are recommended for SPT applications

