

Pile Driving Analyzer® Model 8G

System for dynamic load testing and pile driving monitoring

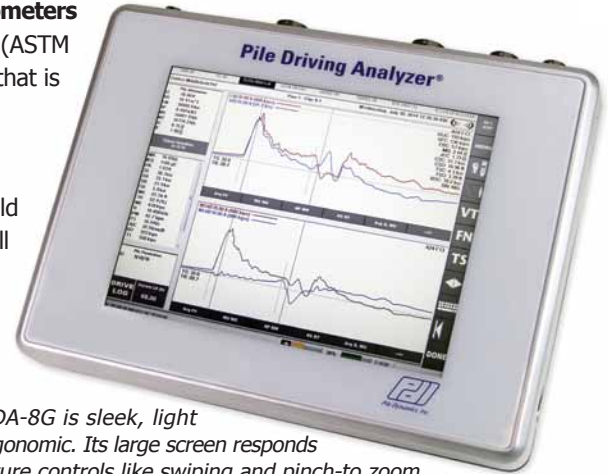


Bearing capacity of all types of deep foundations

The **Pile Driving Analyzer** (PDA) eighth generation (8G) system acquires data from **accelerometers** and **strain transducers** attached to a pile or shaft so that High Strain Dynamic Tests (ASTM D4945) may be performed. The tests require the impact of a pile driving hammer or, if that is not available, of a suitable drop weight.

High Strain Dynamic Load Test with the PDA-8G

The **PDA-8G assesses bearing capacity and structural integrity**. Preliminary field results are further analyzed with the CAPWAP® software, for results that correlate very well with static load tests. High Strain Dynamic Load Tests may be performed on drilled shafts, continuous flight auger, cast-in-situ or driven piles. The PDA-8G has new features that make it easier to use for drilled shaft testing, such as the option of conducting the test with four or more wireless strain transducers. When a ram of sufficient mass is used, high strain dynamic load tests performed with the PDA may meet Rapid Load Test standards (ASTM D7383).



The PDA-8G is sleek, light and ergonomic. Its large screen responds to gesture controls like swiping and pinch-to zoom.



PDA-8G in the field

The Pile Driving Analyzer model 8G is designed with the field engineer in mind. Its screen, with a higher resolution LCD than previous generations of PDAs, displays measured signals and calculated results in real time, and allows more options to be viewed simultaneously.

SiteLink® (Remote Testing*)

- A cost and time efficient alternate to traditional on-site testing
- The engineer performs Pile Driving Monitoring or Dynamic Load Tests from any office
- Real time field to office data transmission via Internet
- Simple field setup

**U.S. Patent No. US 6,301,551 B1*

Pile Driving Monitoring with the PDA-8G

Pile Driving Monitoring helps establish the Driving Criterion and contributes to safe and economical production pile installation. **The PDA-8G calculates the capacity of driven piles at the time of testing (by Case Method and iCAP®), driving hammer performance, driving stresses, and indicators of pile integrity.** The enhanced data transmission of the PDA-8G allows testing during driving with fast hitting hammers having blow rates as high as 120 bpm, without loss of data.

Wireless Mode

- No cables from the accelerometers and strain transducers to the PDA.
 - Fast signal transmission of up to 100 m (330 ft) through WiFi
- The PDA-8G may also be used with cabled (traditional) accelerometers and strain transducers.*



Receiving test data with SiteLink.

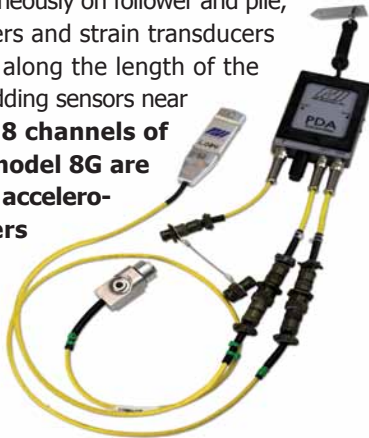
Quality Assurance for Deep Foundations

Four or Eight Universal Data Channels

Most High Strain Dynamic Tests require only 2 strain transducers and 2 accelerometers installed near the top of the foundation. These 2 pairs of sensors are sufficient to obtain the force and velocity records needed for the PDA calculations, thus making four channels of data acquisition adequate for most driven pile tests.

Eight channels of data acquisition - 4 strain transducers and 4 accelerometers - are recommended for dynamic tests of augered cast-in-place / continuous flight auger piles and drilled shafts, and might be helpful for spiral-welded pipes. Eight channels are also essential for dynamic measurements to be made simultaneously on follower and pile, and when a pair of accelerometers and strain transducers is installed at a second location along the length of the foundation (for example by embedding sensors near the toe of a concrete pile). **The 8 channels of data acquisition of the PDA model 8G are universal: any combination of accelerometers and strain transducers may be used.**

All PDA-8G channels, either in Wireless or Traditional modes, are compatible with Smart Sensors (no need to input sensor calibration into the PDA).



clockwise from top right: Wireless Transmitter, Accelerometer and Strain Transducer

Engineers around the world have been using the PDA for more than four decades. High Strain Dynamic Tests performed with the PILE DRIVING ANALYZER are standardized by ASTM 4945 and are recognized by, among others, National Codes of Australia, Brazil, Canada, China, Egypt, Qatar, United Kingdom and Eurocode 7; International Building Code (USA); American Association of State Highway Officials, US Federal Highway Administration and most US Departments of Transportation; regional, provincial or municipal governments in Argentina, Mexico and the Philippines; the American Society of Civil Engineers, Deep Foundations Institute and Pile Driving Contractors Association.

Please contact Pile Dynamics for information on compliance with standards from other countries.



Selected PDA-8G Features: 320 X 250 X 68 mm, 5 kg, replaceable battery, external 12V battery connection, battery indicator, Microsoft Windows® 7 Operating System, Ethernet port, 4 USB ports. For complete current specifications visit www.pile.com/specifications.

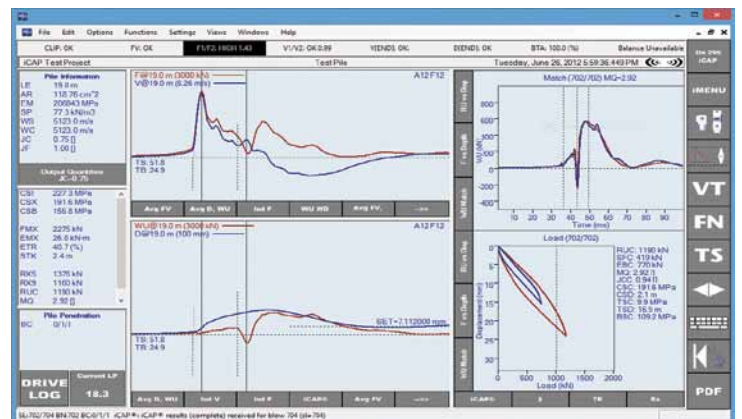
Software: PDA systems include licenses of CAPWAP®, GRLWEAP and of the PDA software suite. The PDA software suite includes PDA-S with iCAP®, PDILOT2 and PDI-Curves.

CAPWAP uses force and velocity records measured by the PDA sensors to, by signal matching, determine resistance distribution and dynamic soil response and simulate a static load test. Hundreds of comparisons demonstrate the very good correlation of CAPWAP analysis with static load testing results. CAPWAP analysis of PDA data is the standard of practice for Dynamic Load Testing.

GRLWEAP is a wave equation analysis program that simulates pile driving. It can be used to evaluate driving stresses and select a hammer for efficient installation or to evaluate the suitability of a drop weight system for the Dynamic Load Test of a drilled shaft.


PDA Software Suite

- **PDA-S** offers a more intuitive interface than former PDA programs, and runs both in the PDA-8G and in an office computer during post processing, offering touchscreen as well as desktop functionality and simplifying the software learning process. In addition to soil resistance at the time of the test, PDA-S outputs a vast array of other variables, customized by the user for each application. PDA-S also issues warnings and alerts during data input and acquisition. It outputs fully customized graphs, with up to three graphs appearing on the screen in real time.
- **iCAP** calculates capacity at the time of testing through a signal matching procedure performed during Pile Driving Monitoring. Because it is based on CAPWAP logic, it is a step beyond capacity determined by the Case Method. With no user interaction, iCAP extracts the soil behavior from dynamic measurements, computes capacity at the time of test, and produces a simulated static load test graph in real time. The PDA-8G offers one touch iCAP results in the field.
- **PDILOT2** generates tables and plots of any PDA quantity PDA versus blow number, length, elevation or any other quantity. It provides the statistical summary output required by ASTM D4945 and is fully customizable.
- **PDI-CURVES** combines plots of Force-Velocity versus time (required by ASTM D4945), and of other quantities from multiple PDA-S files in one single document.



PDA-S software


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