



Using the PDA to calibrate SPT hammers

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The Pile Driving Analyzer may be used to measure the energy transferred to Standard Penetration Tests (SPT) rods by SPT hammers, as called for by the many project specifications that mandate compliance with the American Society of Testing and Materials Standards ASTM D4633 and ASTM D6066, or with the European Standard EN ISO 22476-3.

Energy transfer measurements are required when SPT results are used to determine the liquefaction potential of sands (ASTM D6066), and improve the reliability of the N value standardization to N60 for any project. In addition, several USA Departments of Transportation require that SPT hammers utilized in soil explorations used in State transportation projects be calibrated (their transferred energy measured) at regular intervals. EN ISO 22476-3 prescribes calibration every 6 months. Both the European Standard and ASTM D4633 accept only one way of determining this energy - through Force and Velocity measurements on the rod.

The PDA model PAX includes the add-on SPT Software Program that makes it fully compliant with the minimum digital sampling frequency requirements of ASTM D4633-10 (50 kHz) and EN ISO 22476-3:2005 (100 kHz), as well as with the low pass filter cut-off requirements of ASTM D4633-10. The PDA model PAK fully complies with the analog system requirements of ASTM D4633-10 when samples are taken at 20 kHz (*).

(*) In soils with low N values (easy driving) sampling at 20 kHz may result in too short a total sample time.