



Color Touch Screen!

ONE PLATFORM - MULTIPLE NDE TESTS

NDE 360™

Simply put, the most versatile and expandable Nondestructive Evaluation (NDE) Platform for QA/QC. Add on any NDE System(s) as you need them without having to return the unit.

STRUCTURES • PAVEMENTS • FOUNDATIONS • SEISMIC

The use of ultrasonic, sonic, seismic and vibration nondestructive testing techniques for investigating structural elements (e.g. measuring the thickness of a pavement or location of a void, crack etc. in structural members) offer the construction industry powerful tools with which to diagnose and/or locate material defects or measure other parameters such as asphalt pavement thickness and stiffness for QA/QC purposes.

Many NDE techniques have been developed in the last 20 years (i.e. Impact Echo, etc.) but the technology was often either prohibitively priced or far too cumbersome to use practically. The NDE 360™ addresses these issues in a system that transcends all other devices available on the market today.

The NDE 360 is a robust, ruggedized, battery powered handheld system giving mobility and simplicity for use in the field by one person. Test data can be stored on a compact flash and analyzed on-site with minimal effort. The NDE 360™ line includes over a dozen available add-on NDE test/software system options in one platform, making it a complete suite for NDE of civil structures at a much more affordable price than previously possible.



Complete Product Line

Concrete Thickness Gauges (CTG™), Freedom Data PC™, Freedom DAS PC™ (Data Acquisition System), Resonance Tester (RT-1), as well as the NDE 360™.

Visit www.OlsonInstruments.com for complete details and specifications.

ADD-ON NDE TESTS/Data Collection

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| 1. Multiple Impact Surface Waves (MISW-P) | 9. Sonic Echo |
| 2. Impact Echo | 10. Impulse Response |
| 3. Impact Echo Scanner | 11. Parallel Seismic |
| 4. Ultrasonic Pulse Velocity | 12. Ultraseismic |
| 5. Surface Wave Testing (SASW-S) | 13. Surface Wave Testing (SASW-G) |
| 6. Slab Impulse Response | 14. Multiple Impact Surface Waves (MISW-G) |
| 7. Software for Tomographic Velocity Imaging | 15. Seismic Refraction |
| 8. Resonance Testing | 16. Seismic Reflection |

FEATURES


- » Backlit Color Touch Screen, Allows Alphanumeric File Naming and Easy Test Performance
- » 256 Megabyte Removable Compact Flash for Program/Date
- » 6+ Hours Nickel Metal Hydride Battery Life (optional spare battery and charger available)
- » Simple to use Test, Accept, Reject and Numeric Key Buttons
- » Up to 4 Receiver Channels Available with Built-in ICP Transducer Support
- » Handheld/Ruggedized Use
- » Windows Based WINTFS Analysis Software

SPECIFICATIONS

- » 16 Bit AD Converters for all 4 Channels
- » Up to 2 Microseconds/Point on One Channel, or Simultaneous Sampling of up to 12 us/point on 4 Channels
- » Maximum Nyquist Frequency 250 KHz on One Channel
- » Gain Steps x1, x10, x100, x1000, Selectable Per Channel

TEST ON:

CONCRETE • MASONRY • ASPHALT • WOOD • SOIL • ROCK

PHOTO	TEST	APPLICATION	METHOD	ACCESS/MATERIALS
PAVEMENT, STRUCTURAL AND TUNNEL SYSTEMS				
	Multiple Impact Surface Waves (MISW)	Determine pavement thicknesses of asphalt or concrete, base, subgrade and layer elastic moduli. Structural/tunnel applications.	Accelerometer/Geophone receiver(s) measure compression and surface wave arrivals from manual/automated impacts at multiple points. Modeling software for layered systems.	One-sided access requirement for asphalt, concrete, masonry, soil and rock.
	Impact Echo (IE) ASTM C1383	Determine the thickness of a concrete or masonry element and detect internal flaws and for QA of repairs from sound wave resonant echoes.	IE Test Head with displacement transducer and solenoid taps the concrete creating a sound-wave. Optional 0.1 kg impulse hammer and accelerometer.	Access to only one side of the concrete (or masonry) element is required.
	Impact Echo Scanner (IES)	Roll on smooth concrete for IE scanning of thickness/flaws every 25 mm and scan lengths of up to 4 to 5 m in length. For International Sale and Governmental USA sales only.	Diagnose voided post-tensioned bridge ducts, void/honeycomb, cracking, delaminations and thickness profiling by scanning.	One-sided scans for smoother finish or formed concrete up to 1 m thick.
	Ultrasonic Pulse Velocity (UPV) ASTM C597	Determine the relative strength and quality of concrete and is also used for locating internal defects. Sonic Pulse Velocity (SPV) for thicker materials.	Transmitting and receiving transducers send and receive ultrasonic pulses through concrete, allowing velocity and amplitude to be calculated.	Normally requires 2-sided access or access around corners. Test concrete, masonry, wood and stone with UPV and SPV options.
	Surface Wave Testing (SASW-S) ACI 228.2	Concrete quality vs. depth (for fire and freeze-thaw damage assessment), and condition assessment of concrete slabs and tunnel liners.	Surface waves are created by a hammer strike and collected by two receivers which are in-line at a set spacing. Typically done with the SASW bar as shown.	Access to only one side of the concrete element is required. Also conduct SASW tests on masonry and stone.
	Slab Impulse Response (SIR) ACI 228.2	Used for finding and mapping voids below slabs on grade, dam spillways and behind tunnel liners. Also used on concrete structures for defects.	The slab surface is struck with a calibrated impulse hammer and the response collected by an adjacent receiver.	Access to only one side of the concrete element is required.
	Software for Tomographic Velocity Imaging	Images of voids, honeycomb, cracks, uncured or weak concrete in beams, columns, and piers using UPV/SPV measurements.	Velocities collected using the NDE 360 are fed into the tomography software allowing for 2-D and 3-D displays of the internal make-up of concrete elements.	Access to 2 or more sides of the element are required to produce 2D/3D images.
	Resonance Testing (RT) ASTM C215/C266	Conduct resonance tests of concrete cylinders/beams or rock cores.	Measure Young's and Shear Moduli of concrete and stone/rock and test concrete for freeze-thaw durability.	Square cast or cut specimens are required for testing per the ASTM standard.
FOUNDATION DEPTH AND INTEGRITY SYSTEMS				
	Sonic Echo/Impulse Response (SE/IR) ASTM D5882	SE/IR tests are performed to evaluate the integrity and determine the length of deep foundations.	The foundation top is struck by a hammer and the response of the foundation is monitored by an accelerometer and/or geophone receiver.	Either the top or access to the upper side are required for foundation testing.
	Parallel Seismic (PS) ACI 228.2	Used to determine lengths of deep foundations which are long and slender, have inaccessible tops, or have unusual construction (multiple subgrade elements).	The structure/foundation is struck by a hammer and the response of the foundation is monitored by a hydrophone or geophone receiver lowered down a cased borehole.	A 50-100 mm ϕ cased borehole is drilled to 3-5 m below the foundation.
	Ultraseismic (US)	US investigations can evaluate the integrity and find the length of foundations such as drilled shafts, piers and driven or auger-cast piles.	The foundation top is struck by a hammer and the response of the foundation is monitored by a 3-component receiver at multiple vertical locations.	A least 1.5-1.8 m of the side of the structural element is required to be exposed for mounting the receiver.
SIMPLE SEISMOGRAPH SYSTEMS FOR GEOTECHNICAL SEISMIC SURVEYS				
	Options for: SASW-G, MISW-G, Seismic Refraction & Seismic Reflection	SASW or MISW are applied primarily to get shear wave velocities of soil and rock for seismic design. Rippability/depth of bedrock with Seismic Refraction/Reflection.	Seismic waves are created by a sledghammer and collected by geophone receiver(s) that are mounted on the soil/rock in a line. Theoretical modeling is used to get layer thicknesses and seismic velocities by matching experimental surface wave data.	Requires access to surface. A linear area of at least 1.5 x the depth in question is required and preferably longer.