

## Testing & Evaluation of concrete and concrete structures for structure and durability performance.



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### Features

#### Conquest & Conquest SL On-site Concrete Imaging

1. Wireless remote control.
2. Line Scanning for reconnaissance surveys.
3. Grid scanning for detailed mapping.
4. Power cable detection.
5. Rugged carry case.
6. AC mains power supply.
7. ConquestView PC omaging software.
8. Self-calibration.
9. Advanced signal processing.
10. Single axle odometer wheel optimized for smooth and rough surfaces.

#### TDR2 (Pile Integrity Tester)

1. Handheld, weight less than 2kg.
2. 200+piles can be tested per day.
3. Storage of over 700 results.
4. Operates 8 hours on full charge.
5. On site analysis of pilelength, section and stiffness.
6. Compliant with ASTM D5882 & AFNOR NFP94-160-2 & 4.
7. Simulation software for analysis of pile and soil properties.

#### Conquest and Conquest SL

Conquest is a GPR System designed specifically for non-destructive inspection of concrete; Conquest uses radio waves and electromagnetic signals to detect structures in concrete. Results are provided on-site, in real time. Conquest SL is lighter and more compact than our standard Conquest, Conquest SL retains the key capabilities including Power Cable Detector (PCD) and Drill Locator. The PCD enhance traditional GPR concrete imaging, increasing safety by mapping the magnetic fields created by current flowing in the electrical wires.



#### TDR2 Pile Integrity Tester

The TDR2 is a rugged and lightweight self contained pile integrity testing system. It is used for checking the integrity of concrete piled foundations. The TDR2 unit uses solid state memory and is built for security of data and speed of operation.

Housed in a tough ABS plastic case and using high quality waterproof connectors, the system can be used in inclement weather conditions. A handy carry pouch is supplied as standard.

The user friendly menu system guides the operator rapidly and displays data in an easy to comprehend format. This versatile system can be used to test precast concrete, cast in place concrete and timber piles of most dimensions.



## Structural & Non Destructive Testing



### Sonic Logging System

The SCXT3000 system is a self contained sonic logging system, suitable for testing concrete piles, barrettes and any mass concrete structure. Transducer cables can be supplied in custom lengths. Cross-hole sonic logging uses ultra sonic transducers to measure the transit time of sound in concrete. The test is carried out in foundations where steel tubes have been installed during construction, normally to the full depth. As the winch wheel turns, the emitter sends an ultra sonic signal, which travels between selected tubes to a receiver. The signal, which is approx 50 – 60 KHz, is captured and stored as time/amplitude trace every 1 cm of the pile length. The single traces are combined into one “sonic profile” or waterfall plot. A typical pile would have 4 tubes enabling 6 profiles to be taken. The first arrival time can be used to determine the ultrasonic pulse velocity if the distance between tubes is measured.

### Impact Echo

Impact-Echo is a method for nondestructive evaluation of concrete and masonry, based on the use of impact generated stress (sound) waves that propagate through the structure and are reflected by internal flaws and external surfaces. Impact-Echo can be used to make accurate, nondestructive measurements of thickness in concrete slabs and plates. It can locate voids in the sub grade directly beneath slabs and pavements.

Impact-E is a Windows-based, interactive, user-friendly, software system for impact-echo testing and for examination and analysis of impact-echo test results. It is the product of two man-years of programming effort by the people who wrote the book on impact-echo. Impact-E software can be installed on any computer and used for all purposes except testing, which requires a data acquisition system from Impact-Echo Instruments that is compatible with the software.



### Features

#### SCXT3000 Sonic logging System

1. Signal every 1 cm depth.
2. Operates from 12VDC or 110/240VAC.
3. Rugged notebook sealed to MIL-STD-810F & MIL-STD-461E.
4. Sunlight readable colour LCD screen as standard.
5. 2D & 3D tomography software.
6. Compliant with ASTM 6760 & AFNOR NFP94-160-1.
7. Calculation of FAT & energy changes.

#### Impact echo

1. 200+ piles can be tested per day.
2. Impedance log for measuring changes in pile properties.
3. Operates > 8hrs on full charge.
4. Handheld weighs less than 2Kg.
5. On site analysis of pile length, section and stiffness.
6. Storage for over 700 results.
7. Instrumented Force hammer.
8. Compliant with ASTM D5882 & AFNOR NFP94-160-2 & 4.
9. Simulation software for analysis of pile and soil properties.

### Structural Health Monitoring Using Vallen AE Sensors



The AE method is one of the few NDE (nondestructive examination) methods which are appropriate for long-term continuous monitoring of flaws. The AE method is more sensitive than other NDE and can detect even incipient flaws. Other methods, which are highly dependent on defect size or surface opening, are only able to detect defects reliably after they have progressed beyond a certain size. The AE method can detect actively growing flaws while other methods require periodic inspection to make sure whether a crack is active or not. Since repair of existing cracks can sometimes do more harm than good to a structure, it is necessary to determine whether a defect is benign or active before repairs are made. For SHM purposes reliably working equipment is needed which can acquire, analyze and issue warning or alarms in real time and autonomously for 24 hours a day, 7 days a week. Vallen Systeme delivers measurement equipment which fulfills the requirements of SHM.



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