

Pundit PL-200 – Ultrasonic Pulse Velocity Testing



Introduction

The Pundit PL-200 continue the illustrious Pundit tradition that began in the 1970s. The first to use a new generation touchscreen display unit.

The pulse velocity in a material depends on its density and its elastic properties. These in turn are related to the quality and the strength of the material. The world known Pundit range offers users a reliable and accurate method for determining the sonic properties of materials.

Applications

Ultrasonic testing can be used for:

- The homogeneity of a material
- The presence of voids, cracks or other internal imperfections or defects
- Changes in the concrete which may occur with time (i.e. due to the cement hydration) or damage from fire, frost or chemical attack
- The strength or modulus of a material
- The quality of the concrete in relation to specified standard requirements

Test Method

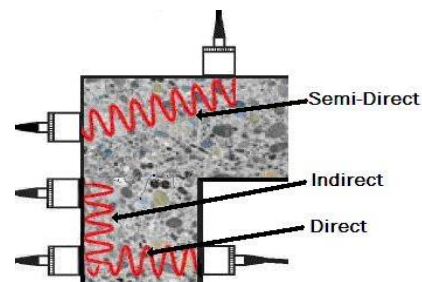
Ultrasonic testing in its most basic mode is called time of flight. This refers to timing the arrival of an ultrasonic pulse from one transducer to another through a solid medium.

The ultrasonic pulse in standard operation is a p-wave (or compression wave). The ultrasonic pulse velocity (UPV) is calculated by dividing the distance between the transducer by the time of arrival.

Features

- Housing specially designed to be used on-site in harsh environments
- Screen with highest resolution and sharpest image available in the market allowing best possible analysis of the measured waveforms
- Settings directly accessible on measuring screen
- On board storage and review of waveforms
- Automatic and manual triggering and user adjustable trigger threshold
- Modular concept: Expandable with all Proceq Pulse Velocity and Pulse Echo transducers, upcoming Pundit ultrasonic products will be directly compatible.

Transmission Modes



The Pundit PL-200 offers three methods of transmission. These can be seen in the image above. The method of transmission is determined by access to the concrete elements surfaces and the characteristic being tested.

Materials

An essential tool for investigating a wide range of materials:

- Concrete
- Ceramics and Refractories
- Timber
- and many others

PL Link Analysis Software

The Windows based PL Link allows data review and retrospective adjustment of measurement setting. It is also used to load strength conversion curves into the system.



Perth

West Perth
0408 034 668

Brisbane

Toowong
0419 477 715

www.pcte.com.au

Melbourne

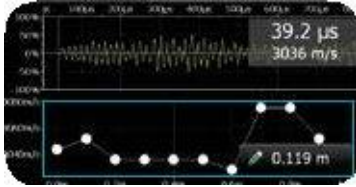
Niddrie
0428 315 502

Sydney

Belrose
0418 381 709

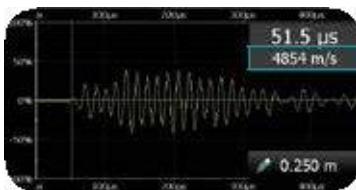
Comprehensive Measurement Modes

Line Scans



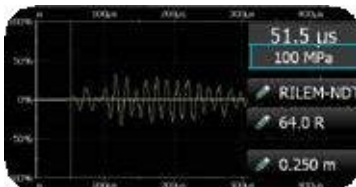
Assesses the concrete uniformity and detects cracks as well as other defects. The measured pulse velocities are displayed as a line.

Pulse Velocity / Transmission Time / Distance



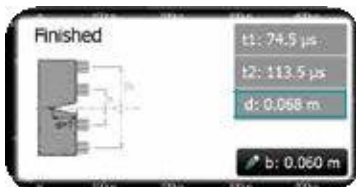
Calculates the pulse velocity of the material under test with zoom and scroll for precise A-Scan inspection. Update rate of up to 25Hz

Compressive Strength



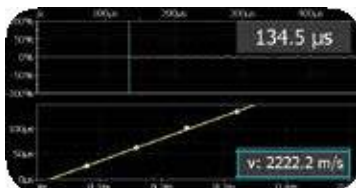
Determines compressive concrete strength via Ultrasonic Pulse Velocity correlation, or by using SONREB.

Crack Depth



Determines the depth of perpendicular cracks according to BS 1881.

Surface Velocity



Improved surface velocity measuring. Determines surface velocity according to BS 1881.

Standards and Norms

EN12504-4 (Europe), ASTM C 597-02 (North America), BS 1881 Part 203 (UK), ISO1920-7:2004 (International), IS13311 (India), CECS21 (China).

Form Supplied

Comes standard with:

- Pundit Touchscreen
- 2 Transducers 54 kHz
- 2 BNC cables 1.5m, BNC Adapter Cable
- Couplant
- Calibration Rod
- Battery Charger, USB cable
- DVD w. Software, Documentation, Carrying Strap, Case

Transducer Frequencies

Comes standard with 54 kHz p-wave transducers, although a range of frequencies are available from 24 kHz to 500 kHz. There are also exponential transducers available for dry coupling and wood applications and a range of 250 kHz shear wave transducers available.



Specifications

Range	0.1-7930 μ s
Resolution	0.1 μ s (< 793 μ s), 1 μ s (>793 μ s)
Display	7" Colour, 800 x 480
Pulse Voltage	100 – 450 Vpp
Bandwidth	20 – 500 kHz
Receiver Gain	1X – 10,000X (0-80dB) 11 steps
Memory	8 GB Flash memory allowing storage of up to 100,000 A-Scans
Battery	Lithium Polymer, 3.6 V. 14.0 Ah
Battery Lifetime	>8h (in standard mode)
Operating Temperature	0° > 30° (Charging, operating) 0° > 40° (Charging, Off) -10° > 40° (Not Charging)
Humidity	< 95% RH, non-condensing
IP Classification	IP 54

About PCTE

PCTE have over 30 years' experience in the measurement and testing of concrete. With experience in research, consulting and construction they are able to assist you in reviewing issues and developing solutions. PCTE can provide more than just the equipment. They can provide leading technical support for your business.

Other Equipment

The full Proceq range of equipment is available for insitu non-destructive concrete measurement, including Schmidt Hammers, Covermeters, Half Potentials, Resistivity and Permeability. The Olson Instrument range includes the NDE360, CTG, Freedom Data PC and DAS as well as the resonance tester. We also supply Intelli-Rock maturity, temp and humidity logging systems, corrosion rate monitoring equipment, and Ground Penetrating Radar.