PI8000

Quick Reference

Keys - Overview

Device ON/OFF	
Medium push (2s)	Power ON / OFF
Very Long push (8s)	Reboot device
During measurement	
Short push	Arming the probe – start / resume measurement
Short push	Disarming the probe – stop measurement

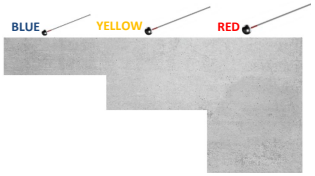
Hammers

Low frequency hammer

High frequency hammer (3 types)
7.5mm, 10mm and 15mm

Ball Diameter, mm	Approximate Contact Time, µs	Maximum Useable Frequency, kHz	Minimum Measurable * Depth, mm
5	22	47	43
6	26	39	52
7	30	33	60
8	34	29	69
9	39	26	77
10	43	23	86
12	52	19	103
15	65	16	129
20	86	12	172

*This is the minimum thickness of a structural element than can be measured
*It also refers to the minimum depth of a flaw that can be detected. All flaws above this depth will not be visible



Select the smaller hammer for thinner elements, and the bigger hammer for wider elements

LED - Behaviour

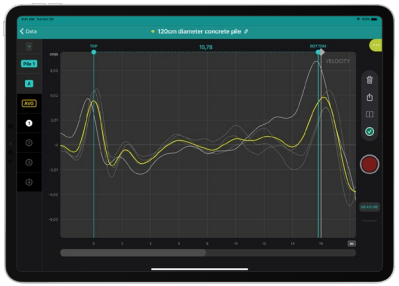
LED behaviour		
Battery Status (when turning on the device)	Green: single quick blink: >20%	
	Red: single quick blink: <20%	
Turn on, awaiting Bluetooth connection	Green pulsing	
Connected, awaiting arming (disarmed) • Paused • Stopped	Blue pulsing	
Armed • Resumed	Blue Solid	
While measuring (rod/wheels)	Blue Solid	
Errors		
Error	Red pulsing	
Device in boot loader mode	Red-Green alternate pulsing	
Battery Charging		
While Charging	Green pulsing 0.5Hz	
Charged done	Green solid	
Error • batteries not charging / not inserted • Overvoltage / overheated	Red solid	

One Sensor – Two Applications

Pile Integrity Test

Deep Foundations:
- Cast in place piles.
- Driven piles.

Detection:
- Piles with free end.
- Piles with toe in bedrock.
- Short piles.
- Necking.
- Bulging.
- Cracks and voids.



Impact Echo Test

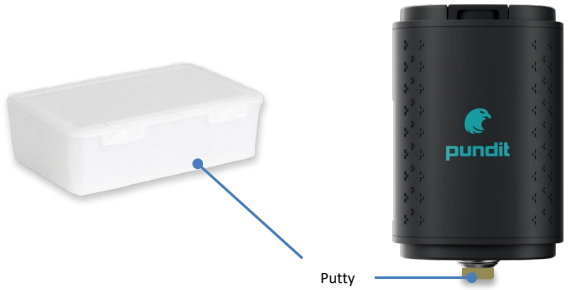
Concrete elements:
- Slab on grade.
- Foundation slab.
- Roof, floors.
- Beams and columns.
- Concrete pavement.
- Walls.
- Tunnels.

Detection:
- Plate thickness and backwall.
- Cracks and voids.
- Delamination.
- Honeycombs.
- Debonding areas.
- PT duct voids.

Contact Solution – Coupling material

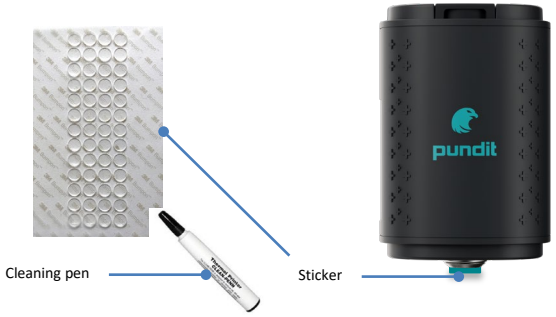
Pile Integrity Test

- Clean the surface from dirt and debris.
- Grind the surface to make it smoother.
- Place a small portion of putty (coupling material) in the sensor tip.
- Change the portion of putty once it gets dirty.
- Perform minimum 5-10 impacts per spot.



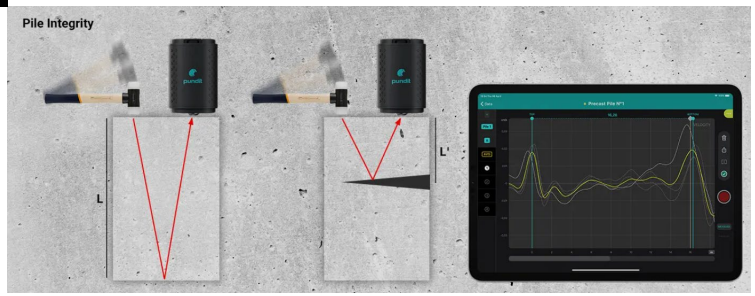
Impact Echo Test

- Clean the surface from dirt and debris.
- Grind the surface to make it smoother.
- DRY CONTACT SOLUTION: Place a silicon sticker (coupling material) in the sensor tip and use it as many times as wanted.
- Once it is broken, replace it with a new sticker and clean the sensor tip with the cleaning pen.
- If coupling is not achieved, use putty.
- Perform minimum 5-10 impacts per spot.

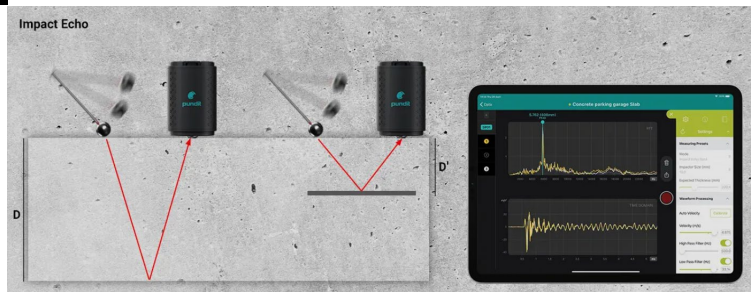


Technical Principle

Pile Integrity Test



Impact Echo Test



First calibration of speed

Pile Integrity Test

- Select Pile Integrity Mode **(0).**
- Input the expected length of the pile **(1)**.
- Perform 5-10 impacts at the top of the pile.
- Press the calibration button **(2)**.
- Revise that the length shown on the app **(3)** matches with the expected one.

* If the length of the element is not known, estimate a wave velocity of 4.000m/s.

(3) Measured length

(0) Measuring Mode

(1) Expected length

(2) Calibration button

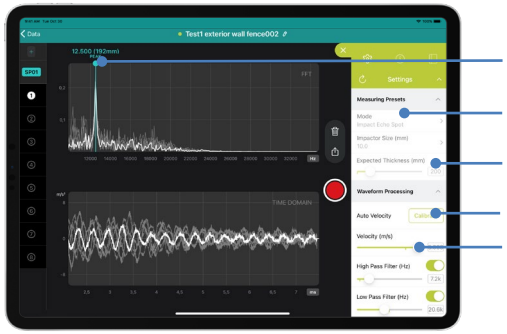
Wave velocity

Pulse Velocity	Concrete Quality Grading
> 4'500 m/s	Excellent
3'500 – 4'500 m/s	Good
3'000 – 3'500 m/s	Medium
<3'000 m/s	Doubtful

Impact Echo Test

- Select Impact Echo Spot / Grid mode **(0)**.
- Input the expected thickness of the concrete element **(1)**.
- Perform 5-10 impacts in the surface far away from the sides (lateral faces, construction joints, etc).
- Press the calibration button **(2)**.
- Revise that the thickness shown in the frequency peak **(3)** matches with the expected one.

* If the thickness of the element is not known, estimate a wave velocity of 4.000m/s



(3) Measured thickness

(0) Measuring Mode

(1) Expected thickness

(2) Calibration button

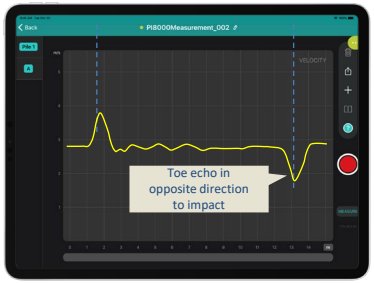
Wave velocity

A few examples

Pile Integrity Test

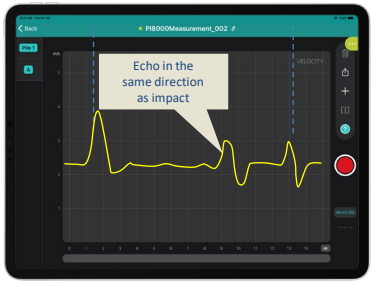
Pile with free end

Toe in bedrock



Short pile

Necking – reduction in diameter



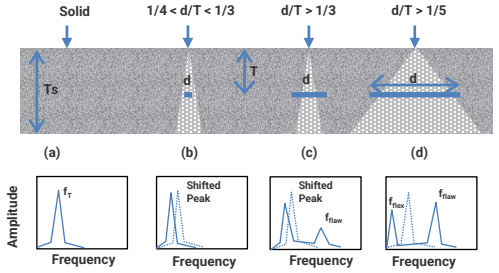
Bulging – increase in diameter

*These examples are shown as a reference only and are valid theoretically. However, the signal from a real case scenario can differ and it is the responsibility of the inspector to correctly identify and interpret it.

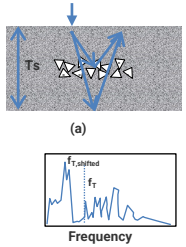
A few examples

Impact Echo Test

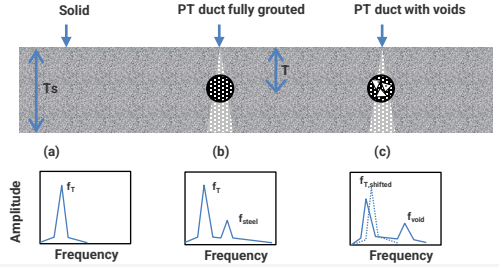
Cracks & Delamination



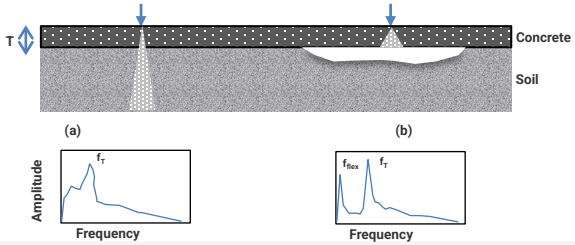
Honeycomb



Voids in post tensioning duct



Plates in contact with soil



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SWISS MADE

For more information on the product use of the product,
please refer to the Product Name PI8000 documentation

It is available for download on

https://www.screeningeagle.com/en/products/pundit-pi8000

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