

Dry Point Shear Wave Transducers 40kHz



Quick Reference



Measuring Alignment

Shear wave signals are polarized.

It is necessary to align the transducers to obtain a good signal level.



BNC connectors aligned
MAX signal level

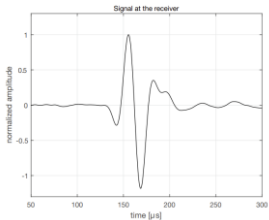


BNC at right angles
MIN signal level

Received Pulse Detection

The received pulse is the first significant negative pulse.

On small samples it may be necessary to the result achieved with automatic triggering



Reference measurement on control sample

Real world example

Name	Date & Time	Measurement Mode	Result	Distance	Velocity	Time 1	Correction Factor
CP22-E01	04/17/2018 3:38 PM	E-Modulus	21.65 GPa	0.205 m	--	59.5 µs	1.00

Signal Curve

Annotations: $t_1 = 59.5 \mu s$ (1.0%), $t_2 = 109.7 \mu s$ (-0.9%). Magnification: 2x.

Settings & Results

Distance: 0.205 m
Density: 2400 kg/m³
Poisson's Ratio: 0.2915
E-Modulus: 21.65 GPa

Device Information

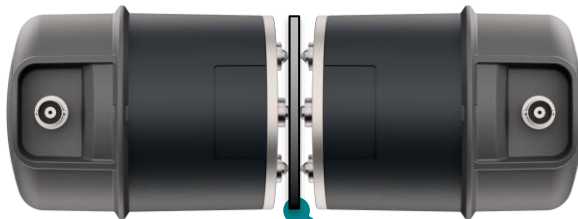
Device Name: Pundit
Serial Number: UP01-001-0749
Software Version: 3.0.11
Hardware Revision: C1

Wave	P	S
Time (µs)	59.5	109.7
Velocity (m/s)	3445	1869
Probe Type	P-wave	--
Probe Freq. (kHz)	54	40
Probe Gain (x)	1	1000
Pulse Voltage (V)	50	50
Calib. Time Offset (µs)	-3.3	-3.3

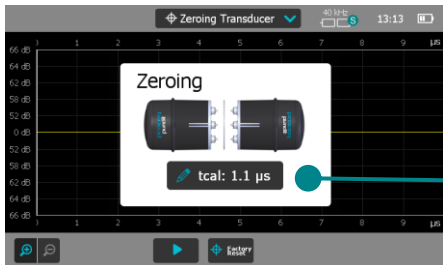
Comment
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Zeroing

Make sure the transducers are aligned using the BNC connectors as a reference

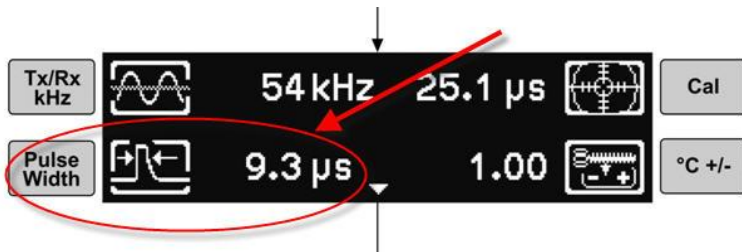


Calibration plate



Calibration time
set to 1.1 μ s

The variable pulse width setting allows non-standard transducers up to 500 kHz to be used with Pundit Lab. Simply set the pulse width accordingly.



Pulse width “p” in microseconds (μs) to be entered here is calculated from the formula $p = 1'000/(2*f)$,
where f = transducer frequency in kHz

Set to 12.5 μs

Specifications

Type:	5 x Dual-Crystal, dry-point contact
Frequency:	40 kHz \pm 4 kHz
Bandwidth:	35 – 40 kHz
Driving voltage:	-200 to +200 V
Matching inductance:	absent
Piezo electrical cell capacity:	5 x 0.6 nF
Connector type:	BNC
Operating temperature:	0...+50° C
Contact surface diameter:	5 x 2 mm
Diameter:	84 mm
Length:	114 mm
Weight:	340 g
Wave type:	Shear wave



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