



TECHNICAL SHEET

OIL FIELD	FULL-WAVEFORM SONIC MODULE	SLIM-2.5"
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Generality and principle of measurement

The full-waveform sonic provides multi-spacing digital acoustic-velocity (formation-slowness) measurements with high vertical resolution. Full-waveform recording and CBL measurements are also available. The tool can be stacked with other tools.

A piezoelectric transmitter stimulated by a high-voltage pulse radiates a high frequency acoustic wave through the borehole fluid and formation to the receiver array. An accurate quartz clock measures the first-arrival transit time at each receiver.

Two receivers and two transmitters are used. The probe measures the time of the first compressional arrival at each receiver from each transmitter firing. The data is depth-shifted and processed to remove the influence of the borehole fluid path, tool tilt and caving (depth-derived borehole compensation).

In CBL mode, the attenuation of the first arrival is related to the bond quality and the strength of the cement.

Measurements and applications

Formation velocity (slowness) Compensated DT from each receiver Tx-Rx spacings: 3ft, 4ft, 5ft, 6ft Cement Bond Log (CBL) amplitude and waveform	
IN OPEN HOLE	IN CASED HOLE
Lithology	Location of poor or missing cement behind casing
Porosity	
Rock strength and elasticity	
Fracture indication	
Time to depth correlation for Seismic	

Technical specifications

Length	4.45 m (177")
Diameter	63 mm (2.5")
Weight	51 kg (112lb)
Max. Operating Temperature	125°C
Max. Operating Pressure	86 MPa (12,500psi)
Operating condition	Water / Mud filled; open / cased borehole Diameter : 4" to 12" - 102mm to 305mm

Sensor Array

Numbers of piezoelectric transmitters and offsets	2 (4.75ft ; 5.75ft)
Frequency of emission	20 KHz
Number of receivers and offsets	2 (8.75ft ; 10.75ft)
Range	40 – 240 µs/ft (130-787 µs/m)
Resolution	0.25 µs/ft
Vertical Resolution	1ft or 2ft

