



GEOPHYSICAL LOGGING PROBES

**Fullwave
Sonic 1TX-4RX**

ASNC

MEASUREMENT PRINCIPLE

The probe measures the time taken for high frequency sound waves to travel from a transmitter to a series of receivers. The high frequency sound waves travel through the borehole fluid, along the borehole wall and back to an array of four receivers spaced at 20cm intervals, starting from 60cm from the transmitter. At each receiver the waveform is sampled according to a set of user definable parameters (sample rate, gain, threshold etc). The user defined parameters are controlled by the operator depending on the purpose of the survey (formation velocity, interval transit time, cement bond etc). As well as a log of formation velocity or interval transit time, the fullwave form for each receiver is recorded and made available to the client.

Data processing includes calculation of porosity, interval transit times for seismic survey depth conversions and shear wave picking for elastic rock properties (Poisson's Ratio, Young's Modulus etc) calculation.

Ideally suited for:

- Coal exploration and mining.
- Velocity control for seismic surveys.
- Cement bond logging of cased boreholes.

Operations & Calibration:

- Minimum borehole diameter of 60mm.
- Fluid filled borehole.
- Open borehole and/or cased borehole.

Typically recorded in an uphole logging direction at logging speeds of 5 - 6 m/min. (Downhole logging can be recorded for QA purposes).

Final curve units can be for transit time, microseconds per foot (or metre) and for velocity kilometres per second or metres per second.

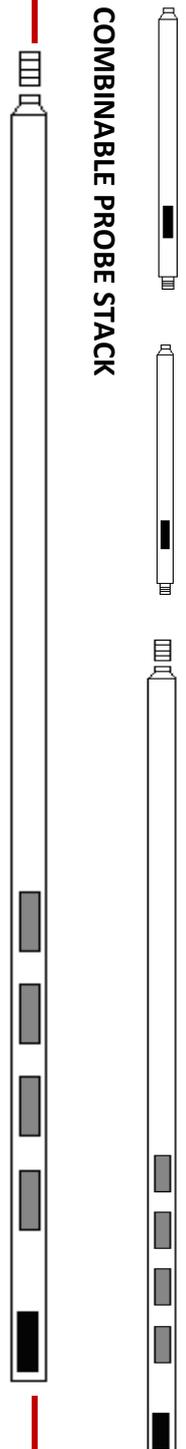
Calibration is set by the manufacturer.

Probes can be stacked to the top and the bottom of the probe. Typical combinations are:

- Gamma, gamma and magnetic deviation.

SINGLE PROBE RUN

COMBINABLE PROBE STACK



PHYSICAL SPECIFICATIONS

Weight	17.0kg
Length	2.20m
Diameter	50mm
TX—RX Spacing	60, 80, 100, 120cm
Frequency	28kHz
Sampling	2 or 4 microseconds
Maximum Pressure	20 MPa
Maximum Temperature	80°C

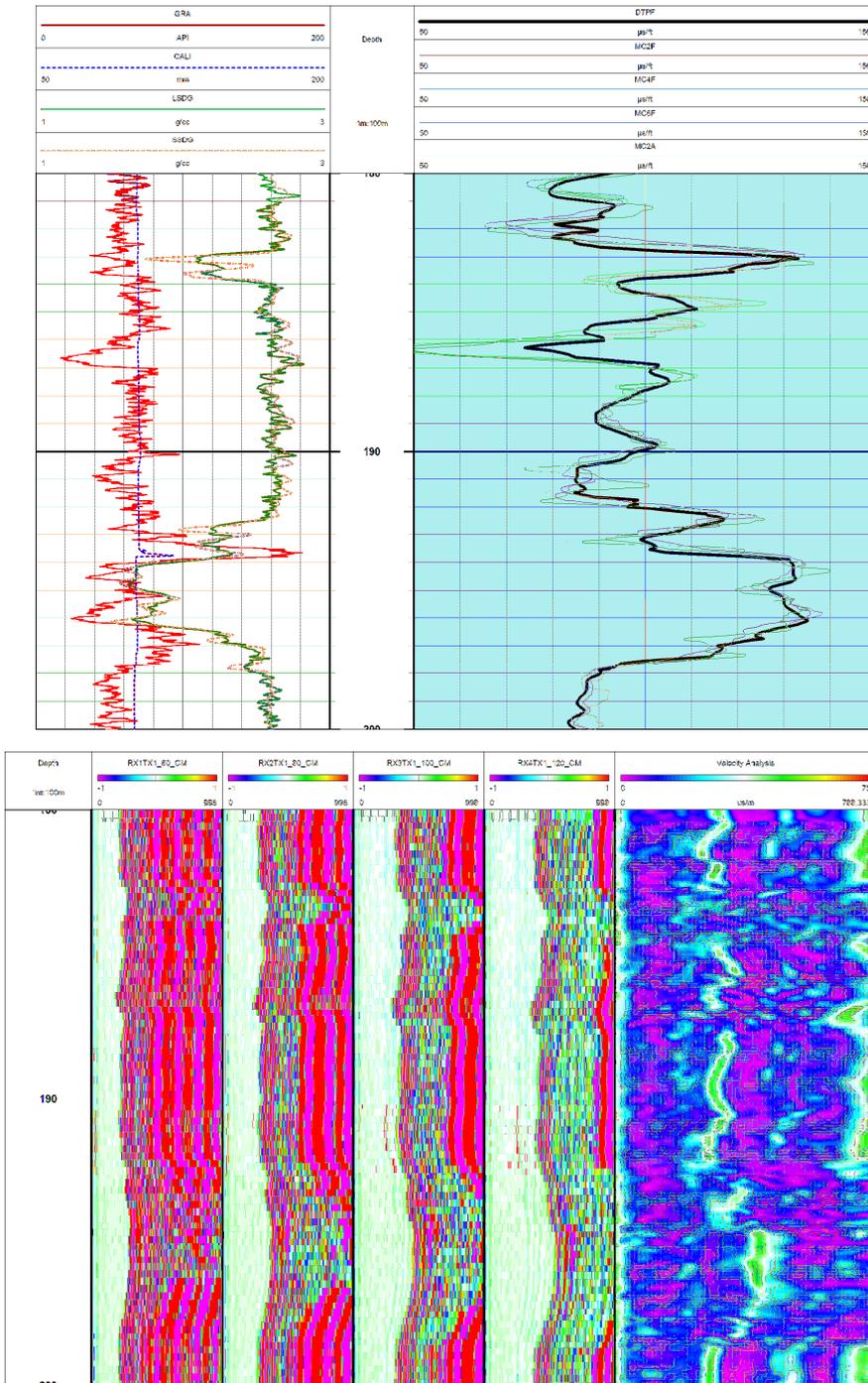




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