

## DIGITAL P-S SUSPENSION LOG PROBE

The P-S 'suspension' is a low-frequency acoustic probe designed to measure compressional and shear-wave velocities (slowness) in soils and soft-rock formations. It operates using indirect-excitation rather than mode conversion as in a conventional sonic. It is capable of acquiring high-resolution P and S wave data in borehole depths of up to 1000m.

### PRINCIPLE OF MEASUREMENT:

The probe contains a unique-design powerful hammer source and two receivers, separated by acoustic damping tubes. To acquire data, the probe is stopped at the required depth and the source is fired under surface command. Firing causes a solenoid-operated shuttle aligned across the borehole axis to strike plates on opposite sides of the probe in turn, setting up a pressure doublet in the surrounding fluid. The resultant fluid motion produces a tube wave at the borehole wall with velocity close to the shear velocity of the formation together with a compressional wave. As the waves propagate parallel to the borehole axis, they set up corresponding fluid movements that are detected by the two neutral-buoyancy 3D hydrophone receivers, allowing the wave velocity to be directly measured.

The facility to stack multiple shots and filter the data as in normal seismic data acquisition is included in the operating software.

### FEATURES

- High-energy shear-wave source has typically 20x power of conventional sonic probes
- Low-frequency measurement, more representative of engineering situations
- Stacking of multiple shots
- Probe separates for shipping
- Real-time wavelet (wiggle) display
- Compatible with RG Videologger

### MEASUREMENTS

- Formation compressional-wave velocity (slowness)
- Formation shear-wave velocity (slowness)

### APPLICATIONS

- Engineering
- Rock strength and elasticity
- Correction of seismic velocity

### OPERATING CONDITIONS

- Borehole type: open-hole, water-filled

### SPECIFICATIONS

- Diameter:** 54mm
- Assembled length:** 8.25m (27ft)
- Shipping case length:** 1.45m (4.75ft)
- Weight:** 38Kg (85lb)
- Max. temperature:** 70°C
- Max. pressure:** 5MPa
- Transducer type:** Solenoid and hammer
- Receiver type:** 3D hydrophones
- Receiver spacing:** 1000mm (3.28ft)
- Waveform acquisition period:** 5.12ms to 409.6ms
- Sampling:** 2.5µs minimum
- Down-hole gain:** 0db to 42db (surface control)

### SALES INFORMATION

- Probe:** 26 070 000 Digital P-S suspension log probe in carrying case

