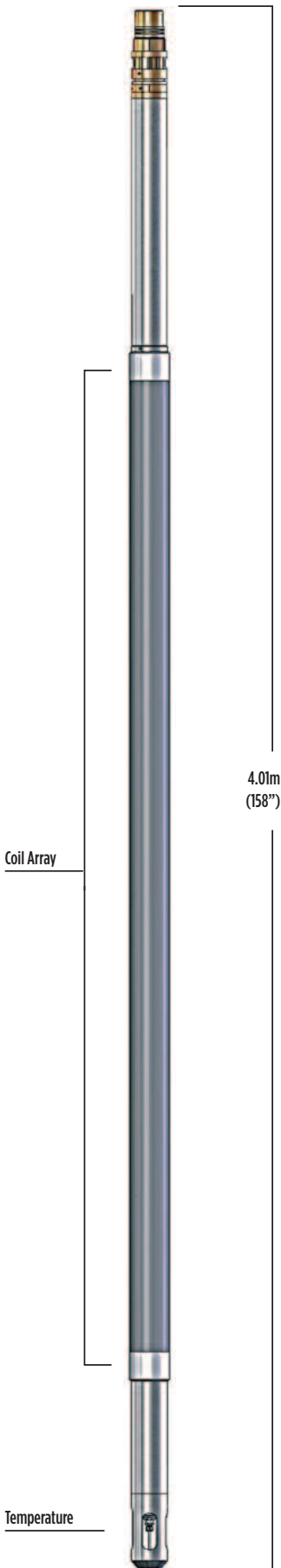


Dual Induction (GDI)



Dual Induction Module

The Dual Induction module provides conductivity logs with deep and medium depths of investigation to profile borehole fluid invasion into the formation.

The tool uses an 'array' technique where multiple sets of in-phase and out-of-phase receiver responses are processed and summed to emulate the vertical and radial responses of classic 6FF40 ILD and ILM logs. The tool may be combined with other measurements and is run at the base of the stack. The module includes a fast-response platinum resistance thermometer for measurement of external borehole temperature.

Principle of Measurement:

An oscillating high-frequency magnetic field created by a transmitter coil within the module induces an alternating electrical current within the surrounding conductive formation. This current, in turn, induces voltages within multiple receiver coils in the module proportional to formation conductivity. The transmitter-receiver spacing determines the depth of investigation of the measurements.

SPECIFICATION:

Features

- Multiple coil 'array' measurement using computer processing to synthesise tool responses
- Internal temperature compensation for low drift
- Oil-filled and pressure-balanced mandrel
- Fully digital telemetry combines with density, neutron and other logging probes
- High-resolution measurement
- Maximum data sampling rate is 1cm (0.4")
- Includes external temperature measurement

Measurements

- Deep conductivity (ILD)
- Medium conductivity (ILM)
- Temperature and differential temperature

Applications

- Hydrocarbon saturation
- Porosity
- Lithology (in conjunction with other logs)
- Correlation between wells

Operating Conditions

Borehole type: open hole \varnothing :102mm (4") to 305mm (12")

Specifications

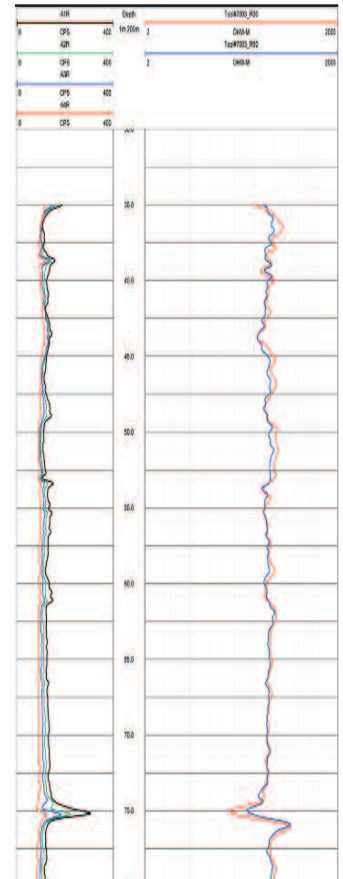
Diameter:	70mm (2.7")
Length:	4.01m (158")
Weight:	31kg (68lb)
Max. temperature:	125°C
Max. pressure:	86MPa (12,500psi)
Operating Frequency:	25.6 kHz
Number of coils:	1 x Tx; 4 x Rx; 4 x focusing
Numbers of spires for each solenoid:	4 x 3-coil sub-arrays
Effective Tx-Rx Spacing:	457mm (18"), 686mm (27"), 914mm (36"), 1.50 m (60") (nominal spacing)
Drift over T° range:	<2 mS/m
Resistivity range:	0 to 200ohm-m (Qualitative indication up to 2000ohm-m)
Depth of investigation:	ILD 150cm (60") ILM 75cm (30")

Part Numbers

1003947 Dual Induction module with temperature

Accessories:

- 1004133 Calibration loop
- 1004134 Fin stand-off (set of two)



Example of logging data