semm Logging
WELL LOGGING SERVICES

TECHNICAL SHEET

OIL FIELD	DUAL INDUCTION MODULE	SLIM-2.5”

Generality and principle of measurement

The dual induction probe 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 probe includes a fast-response platinum resistance thermometer for measurement of external borehole temperature.

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

Measurements and applications

Deep (ILD) and medium (ILM) conductivity	Hydrocarbon saturation
Temperature and differential temperature	Lithology (in conjunction with other logs)
	Porosity
	Correlation between wells

Technical specifications

Length	4.01 m (81”)
Diameter	63 mm (2.5”)
Weight	31 kg (68lb)
Max. Operating Temperature	125°C
Max. Operating Pressure	86 MPa
Operating conditions	Open hole Ø:102mm (4") to 305mm (12")

Sensor Array

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)
Range for each sensor	0 – 200 Ohm.m (qualitative indication up to 2000 Ohm.m)
Drift over T° range	<2 mS/m
Depth of investigation	ILM : 75cm (30’’), ILD : 150cm (60’’)