Advanced Systems
for
Drilling Performance™

Compensated Resistivity Measurements

Frequency	Measurement	Range	Accuracy
2 MHz	Phase Difference	0.1 – 3,000 ohm-m	±1% [0.1 – 50 ohm-m] ± 0.5 mmho/m [above 50 ohm-m]
	Amplitude Ratio	0.1 – 500 ohm-m	±2% [0.1 – 25 ohm-m] ± 1.0 mmho/m [above 25 ohm-m]
400 kHz	Phase Difference	0.1 – 1,000 ohm-m	±1% [0.1 – 25 ohm-m] ± 1.0 mmho/m [above 25 ohm-m]
	Amplitude Ratio	0.1– 200 ohm-m	±5% [0.1 – 10 ohm-m] ± 5.0 mmho/m [above 10 ohm-m]

LWD Gamma Ray Specifications

Physical Parameters	
Length 46 in. 117 cm	
Outside Diameter 1.875 in. 48 mm	
Measurement	
Measurement Range, Accuracy, (Apparent API Units)	API-calibrated 0 - 800 API; +0.16 API, (based on typical API Corr. factor of 1.35 API counts/sec)
Vertical Resolution	6 in. 152 mm
Max. Data Sampling	Every 5 sec
Update Resolution	2.5 to 3.5 points/ft at 50 ft/hr;
(real time)	0.8 to 1.2 points/ft at 150 ft/hr
Memory	2 MB / 8 MB
Environmental	
Operating Temperature	0° to 347° F 0° to 175° C
Pressure	20,000 psi 137.9 MPa
Shock	500 g, 1 ms, 5,000 shocks per axis
Vibration	25 g RMS, 20 - 500 Hz bandwidth

Depth of Investigation, Vertical Resolution

R_f = 1 ohm-m R_{xo} = 0.5 ohm-m	Depth of Investigation		Vertical Resolution**
	Short Spacing Radius	Long Spacing Radius	
2 MHz Phase	21 in. (533 mm)	28 in. (711 mm)	8 in. (203 mm)
400 kHz Phase	30 in. (762 mm)	39 in. (991 mm)	12 in. (305 mm)
2 MHz Amplitude	34 in. (866 mm)	44 in (1,118 mm)	8 in. (203 mm)
400 kHz Amplitude	52 in. (1,321 mm)	66 in. (1,676 mm)	12 in. (305 mm)
R_f = 10 ohm-m R_{xo} = 0.5 ohm-m	Depth of Investigation		Vertical Resolution**
	Short Spacing Radius	Long Spacing Radius	
2 MHz Phase	26 in. (660 mm)	37 in. (940 mm)	8 in. (203 mm)
400 kHz Phase	36 in. (914 mm)	49 in. (1,245 mm)	12 in. (305 mm)
2 MHz Amplitude	40 in. (1,016 mm)	53 in. (1,346 mm)	8 in. (203 mm)
400 kHz Amplitude	60 in. (1,524 mm)	76 in. (1,930 mm)	12 in. (305 mm)

** 90% response in conductive beds