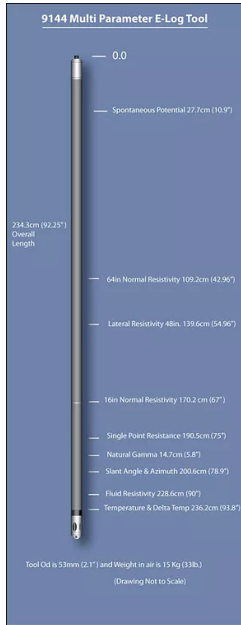


CENTURY GEOPHYSICAL LLC.

PRODUCT DESCRIPTION

9650 Series Induced Polarization Logging Tool



Background Information:

The Induced Polarization Logging tool is a multi-parameter tool for hard rock mining application and uranium exploration. Chargeability of the formation is used to detect sulfide bearing rocks, similar to pyrites and other magnetic minerals. The tool uses a 16 and 64 array electrode spacing and passes an alternating current through the formation, resulting in a measure of chargeability. The tool records four different parameters simultaneously in one pass of the borehole: natural gamma, spontaneous potential, single point resistance, and induced polarization. The natural gamma detector is optional.

Features		
Properties Measured (see diagram)		Tool Specifications
30 Natural Gamma: (optional)" 2.5 x 10.2 cm (1.0 x 4.0 in.) NAI Scintillation Offset: 182.9 (72.0 in.) 40 Spontaneous Potential:" Offset: 137.2 cm (54 in.) 50 Single Point Resistance:" Offset: 137.2 cm (54.0 in.) 60 Induced-Polarization 0.1 mV/V resolution"Offset: 177.8 cm (70.0 in.)	50 64 in. Normal Resistivity: Q _h g _v ≤33; Ø ^{eo} "64Q 8"lp0- 60 16 in. Normal Resistivity: Q _h g _v ≤392Ø ^{eo} "88Q 8"lp0- 70 Fluid Resistivity: Q _h g _v ≤44; Ø ^{eo} "2Ø"lp0- 80 Lateral Resistivity: 6: "lp0' Q _h g _v ≤35; Ø ^{eo} "76Q 8"lp0- 90 Temperature & Delta Temperature: 0.074 C (0.007 F) resolution Offset: 236.2 cm (93.0 in.)	Length: 244 cm (80 in.) Temperature: 85 C (185 F) Diameter: 51 mm (2.0 in.) Pressure: 281 kg/cm (4000 PSI) Weight: 15 kg (33 lb.) Logging Speed: 9 m/min. (30 ft./min.) Tool Voltage Required: 36 VDC
Sensor Response Ranges		
Sensor	Response Limits	Accuracy
Natural Gamma (NG)	0-400,000 API units	+/-5%
Induced-Polarization (IP)	.1 – 200 mV/V	+/-1%
Spontaneous Potential (SP)	-4000 - +4000 mv	+/-1% FS
Single Point Resistance (SPR)	0-10,000 ohms	+/-1% FS
16N and 64N Normal & Lateral Resistivity	0-20,000 ohms	+/-1% FS
Tool Information		
Item	Model #	Part #
Tool with IP, SP, SPR, (No Natural Gamma)	8650	378000A
Tool with NG, IP, SP, SPR	9650	378000B