

Array Compensated Resistivity Tool (ACRt™) System

FAST, ACCURATE, STATE-OF-THE-ART ARRAY INDUCTION

OVERVIEW

The Halliburton LOGIQ® Array Compensated Resistivity Tool (ACRt™) logging system combines a new asymmetrical array sonde geometry with novel architecture and processing to produce the shortest array induction-type tool in the industry without compromising dynamic range and accuracy.

The tool incorporates a transmitter that operates at three frequencies simultaneously with six sub arrays of antennas strategically spaced from six to 80 in. from the transmitter. Unlike other array induction tools, the receiver arrays are asymmetrical, which makes for a much shorter tool when compared with standard symmetrical arrays common in the industry.

From the operation at multiple frequencies, accurate correction of skin effect can be applied to the measured conductivity data.

The information obtained by the six receivers is used with a direct measurement of mud resistivity and caliper to automatically, and in real time, correct the measured conductivity by borehole effects. This information is then combined by a focusing algorithm to produce five radial resistivity curves with different depths of investigation (10, 20, 30, 60, and 90 in.).

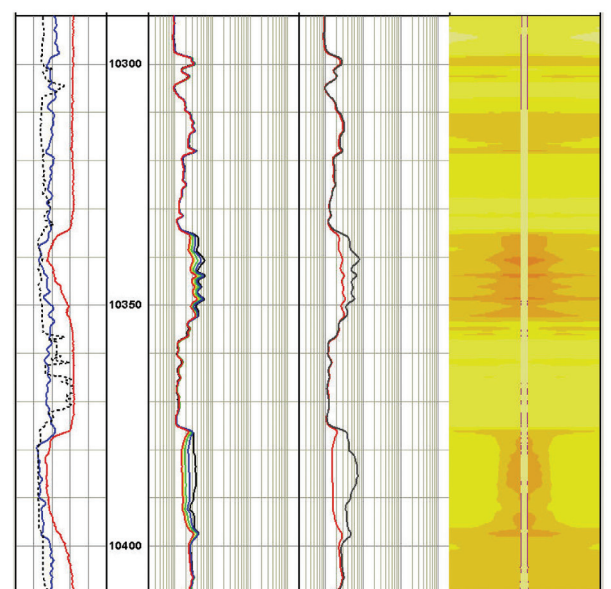
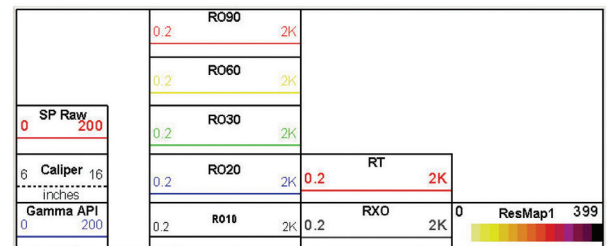
The software focusing algorithm can also produce the five radial resistivity curves with different vertical resolution (1, 2, and 4 ft). These curves are used for thin-bed analysis, as well as correlation and comparison with other logs.

The radial resistivity curves can be used to find R_t , R_{xo} , and the diameter(s) of a linear invasion profile, D_1 , D_2 , or they can be used to create a resistivity invasion image that helps clarify the invasion processes in the formation.

Other unique features of the LOGIQ® ACRt tool are that the temperature is characterized, and two thermometers in the sonde correct in real time any temperature effects that occur, especially in the short arrays.

FEATURES AND BENEFITS

- » Comprehensive, multifrequency data acquisition at multiple spacings for accurate invasion profiling
- » Real-time R_t - R_{xo} - D_i log data processed via 2D software focusing
- » Integrated mud-resistivity cell and proprietary thermal-correction scheme for accurate, real-time corrections of borehole and thermal effects
- » Accurate, shallow induction measurements for reliable R_{xo} without the need for washout-sensitive pad-type microresistivity sensors
- » Absent mechanical caliper data, borehole corrections can be driven by electrical caliper derived from short-spaced induction data



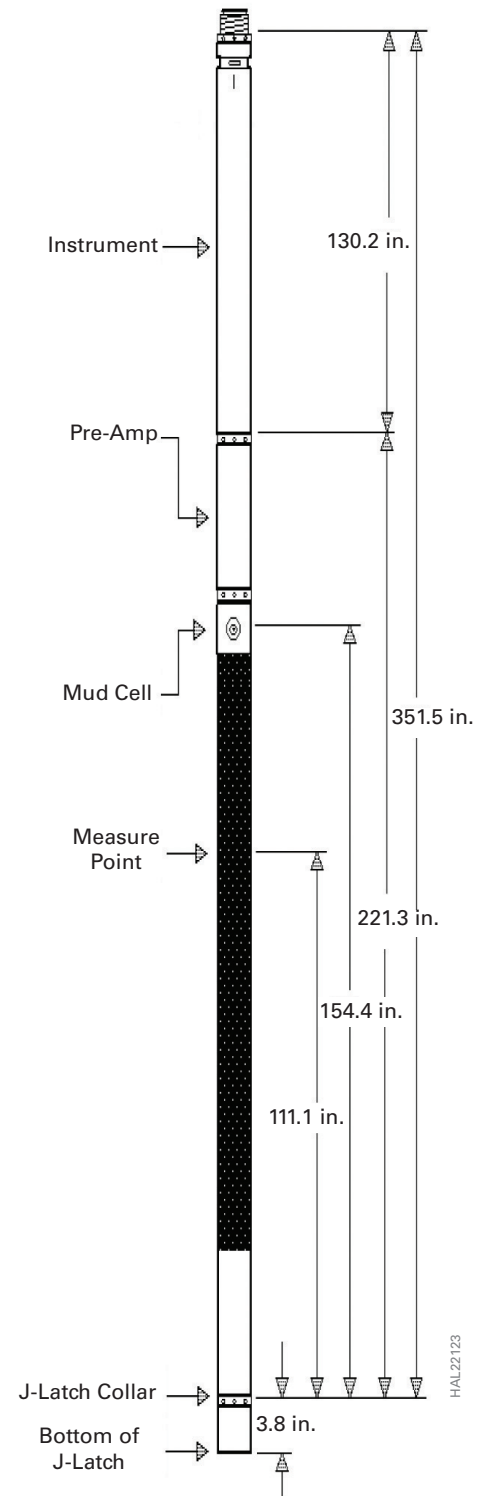
LOGIQ® ACRt™ log data is processed via 2D software focusing, with radial resistivity curves computed in real time at focal depths of 10, 20, 30, 60, and 90 in.

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ACRt™ System Specifications

		DeepSuite™
Maximum Logging Speed	6,000 ft/hr (1,830 m/hr)	6,000 ft/hr (1,830 m/hr)
Operating Temperature Rating	350°F (177°C)	350°F (177°C)
Operating Pressure Rating	20,000 psi (1,400 bar)	35,000 psi (2,413 bar)
Minimum Borehole Diameter	4.75 in. (121 mm)	5.55 in. (140 mm)
Maximum Borehole Diameter	12.25 in. (311 mm)	Related to (Rt/Rm)***
Length	19.5 ft (5.9 m)	19.5 ft (5.9 m)
Outside Diameter	3.62 (9.21 cm)	4.44 in. (11.3 cm)
Weight	308 lb (140 kg)	425 lb (192.7 kg)

*** The maximum borehole size of the ACRt response relates to the Rt/Rm contrast. The preferred operation range will be able to provide the contours of tool response accuracy and the preferred operation range guideline in different borehole conditions.



For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

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