HPR Resistivity Tool

High-Precision Resistivity System

Bench Tree®
Complete Solutions for MWD - LWD

Product Sheet

Bench Tree's HPR high-precision resistivity tool is a dual-frequency, propagating-wave system that offers operators reliable and accurate data in even the harshest LWD environments, while consuming minimal power to stay downhole longer.

The robust HPR tool collar includes Bench Tree's proven high-temperature electronics, providing accurate measurements over a wide operating range. Efficient power consumption allows an eight-cell battery pack to run Bench Tree's real-time mud pulse MWD system and HPR tool for 300 hours. Less time tripping to change batteries means more time downhole and an increased bottomline.

Easily Upgrade from MWD to MWD–LWD

The HPR system easily interfaces with Bench Tree's and third-party equipment, allowing customers to upgrade from directional and directional-gamma services to LWD. Crossover subs connect MWD to the resistivity tool.

Enhanced Performance

Bench Tree's HPR solution uses a centrally located, symmetrical transmitter-receiver design to provide eight borehole-compensated measurements. This can cancel variations in the receiver channels; thus, improving accuracy. In addition, it provides real-time compensation and removes invasion effects from measurement delays.

The HPR system operates in virtually all well and mud types, including salt-saturated and oil-based muds. It provides real-time resistivity information, and data stored in downhole memory can be retrieved and processed during trips.

Bench Tree also provides a standard surface software package for borehole corrections and applications, and a dipping bed model for geosteering.

To improve decision making and stay in the hole longer, contact the Bench Tree sales team for assistance.

Applications

MWD: mud-pulse decoding

LWD: geosteering

Geothermal

Benefits

- Improves decision-making with accurate borehole-compensated measurements and stability across a broad temperature range
- Increases flexibility since it operates in real-time or memory mode
- Decreases trips with a long-lasting single battery pack
- Removes invasion effects from measurement delays

Features

- 400kHz, 2MHz, 8 curves
- High-operating temperature: 175°C (347°F)
- Operates in all mud types
- No electronic hatch covers or bolton antenna covers to repair
- Easily integrates into MWD systems

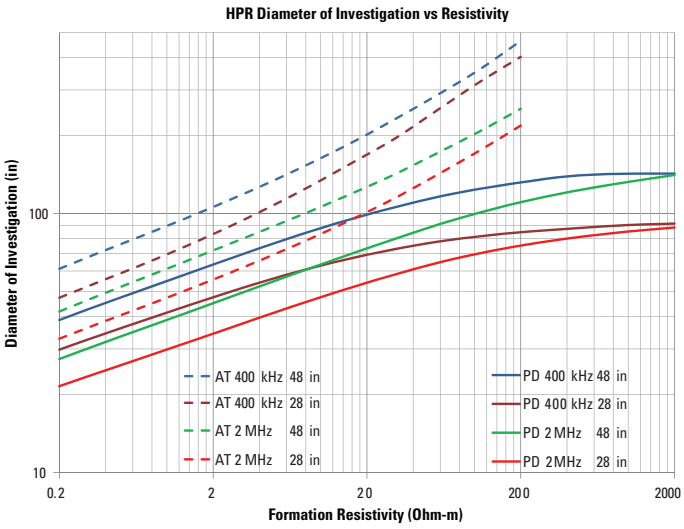
HPR RESISTIVITY TOOL SPECIFICATIONS

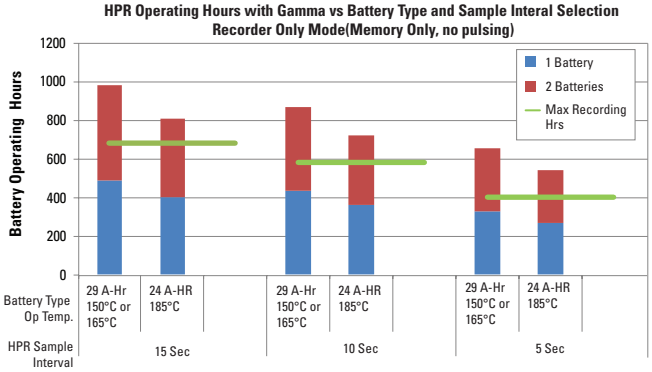
SIZES (IN.)

	4¾	6½	8.0
Collar length (ft)	18.7	20.1	20.1
Dogleg, max rotating °/100'	14	12	10
Dogleg, max sliding °/100'	28	24	20
Pressure, max[1] kpsi	15 | 25	15 | 25	15 | 25
Range: phase/attenuation	0.1 to 4000 Ω·m / 0.1 to 700 Ω·m		
Accuracy: phase/attenuation	±0.25 mS/m / ±0.50 mS/m		
Temperature, in spec	25°C to 175°C (77°F to 347°F)		
Temperature, survival	0°C to 185°C (32°F to 365°F)		

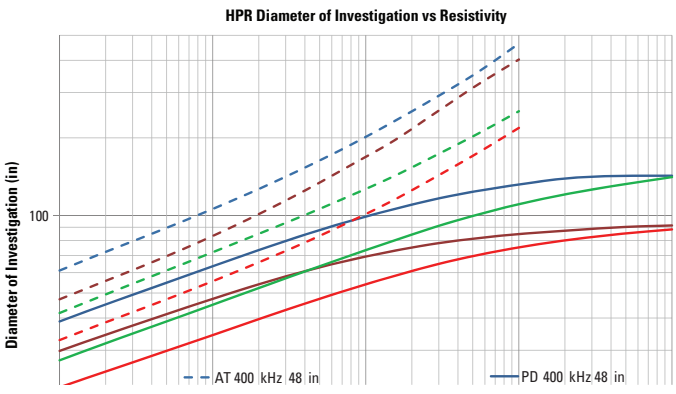
HPR POWER REQUIREMENTS

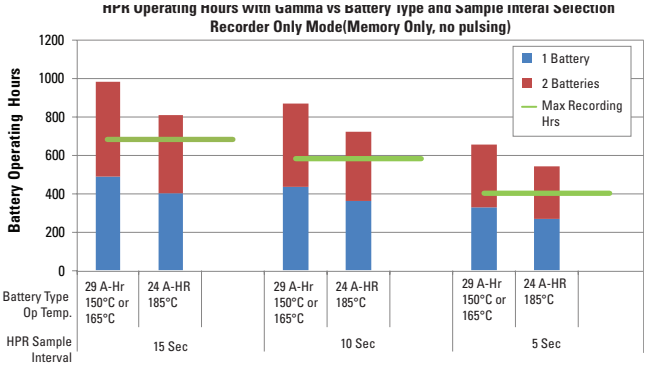
Operating voltage	17 to 36VDC
Power @ 28V, 10-sec sample interval	1.2W
Battery life (2 x 8 DD cells, 29Ahr) @ 10-sec sample	1,200 hrs





Actual Resistivity Log





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