

# Vertex AziG+

## // Azimuthal Gamma Ray, Inclination, Pressure & Downhole Drilling Dynamics

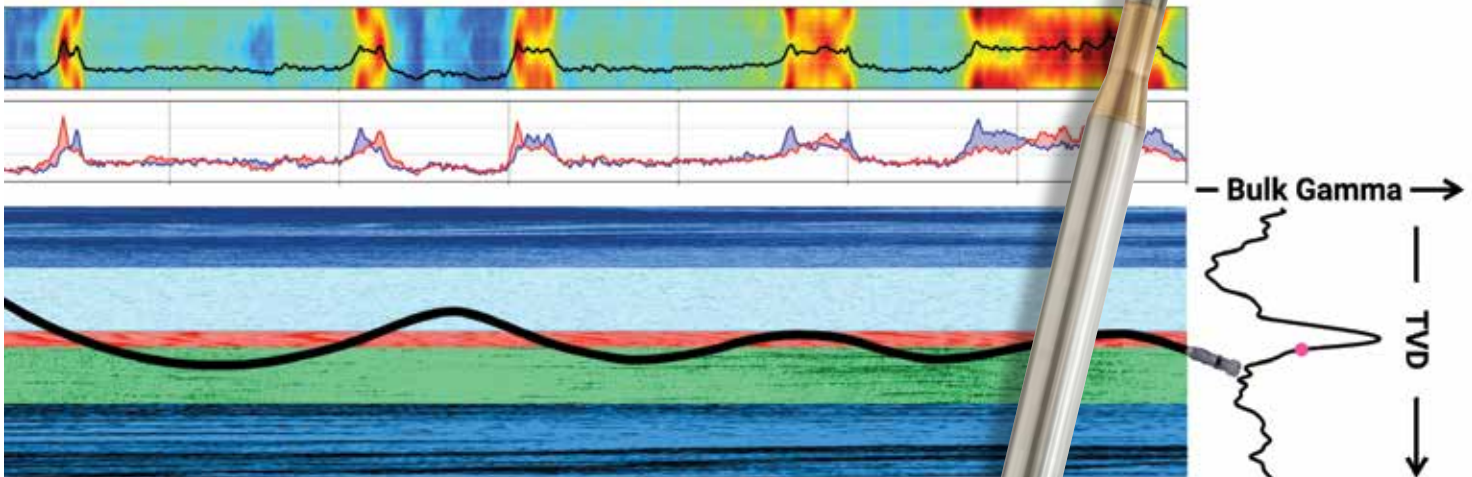
Highest Sensitivity Probe Based Azimuthal Gamma Ray  
in the Industry – 4X More Sensitive!

The Vertex AziG+ is the most advanced, highest resolution probe based tool to provide superior gamma ray well-bore imaging. It is the geosteering solution for optimal well placement in real-time; easily distinguishes between formation layers when drilling in dipping beds, identifies faults and optimizes sliding.

### The Highest Contrast Retrievable Sensor Available // 44:1 Front to Back

With the highest sensitivity, the AziG+ can distinguish parallel bed resolutions as low as 20 API difference, compared to the 40 API difference offered by the leading competitors.

- Binned Gamma and Total Gamma data are available.
- Real time 4 sector with 16 sector recorded in memory.



### Easy to Use

Vertex software supports real time, and memory imaging as well as scales the gamma ray readings to API, correction for Borehole, Mud weight, and KCl. Data can be exported in standard log formats such as WITS, LAS and ASCII.

### Low Power Consumption // Low Cost to Operate

*Softride* provides the highest level of shock and vibration mitigation. Providing highest ROP in the target zone, because of sensitivity and Vertex's leading data rates (4x resolution supports 4x ROP).

### Additional Benefits

- Sampling rates up to 1,000 Hz.
- 1 GB of memory. Capacity of 20 days at 100 Hz.
- Calibration frequency 1,000 circulating hours or once a year.
- Service intervals same as any probe module.

**VERTEX**  
DOWNHOLE

## Sensor Specifications

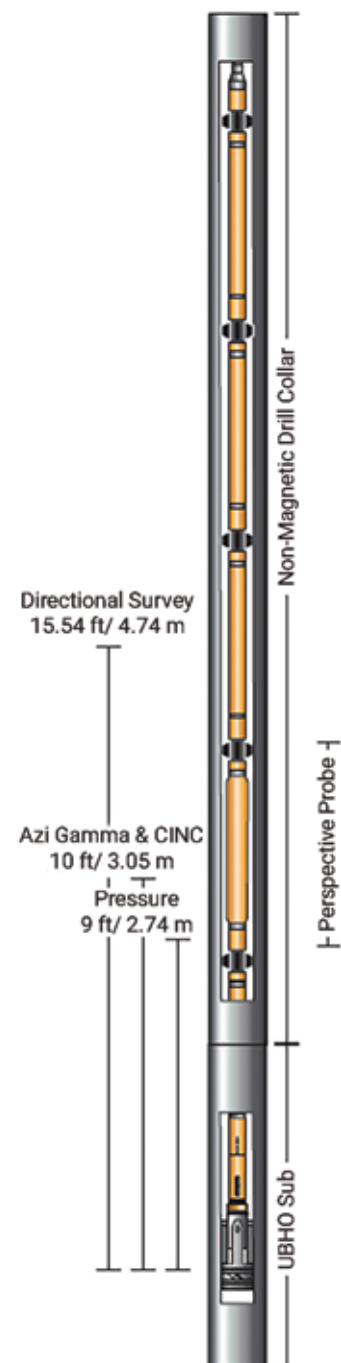
Natural Gamma Ray	Range	0 - 900 API
	Accuracy	0°C - 150°C: 2% 150°C - 175°C: 5%
	Bed Resolution, Vertical Hole	6 in @ 180ft/hr
		12 in @ 360 ft/hr
Azimuthal Gamma Ray	Imaging Sectors	Real Time: 4
		Memory: 16
	Bed Resolution, Lateral Hole	20 API
	Resolution of Dip Angle	0.1°
	Max Stick-Slip Tolerance	3 SSI
	Max Rotary Speed	360 RPM
Continuous Inclination	Range	0 - 180°
		60° - 120°: ± 0.10° 30° - 60°: ± 0.15° 10° - 30°: ± 0.30°
	Accuracy	
		0.05°

## Operational Limits

Environment	Flow Rate	4.75" tool: 375 GPM	Max
		6.75" tool: 750 GPM	Max
		8.25" tool: 1,200 GPM	Max
	Sand Content	2%	Max
	Pressure	20,000 psi	Max
	Shock	500 g, 0.5 ms pulse width	Max
	Vibration	20 grms, 5 - 500 Hz	Max
	Temperature	-40°C - 185°C	Survival Range
		0°C - 175°C	Operating Range
Electrical	Voltage	17 - 36 VDC	Operating Range
	Current	35 mA @ 175°C	Max
	Logging Memory	500 hrs	Max

## Pressure Sensors

Operating Range 0 - 1500 bar (21,756 psi)		
Accuracy	.15% FS	100-1100 Bar (1450-18000 psi)
	.25% FS	Over remaining operating range
Resolution	1 psi	Programmable
Repeatability	.1% FS	Dynamic response > 10 KHz



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