

MODEL 751AZ

AZIMUTHAL GAMMA SENSOR

FEATURES

- Continuous gamma and vibration data while rotating or stopped
- Operational to 150°C azimuthal data collection
- Digital serial input/output
- High sensitivity crystal with Photomultiplier tube design
- Rugged design for use in high shock and vibration environments
- Axial and transverse 50 Gee accelerometers for vibration monitoring

APPLICATIONS

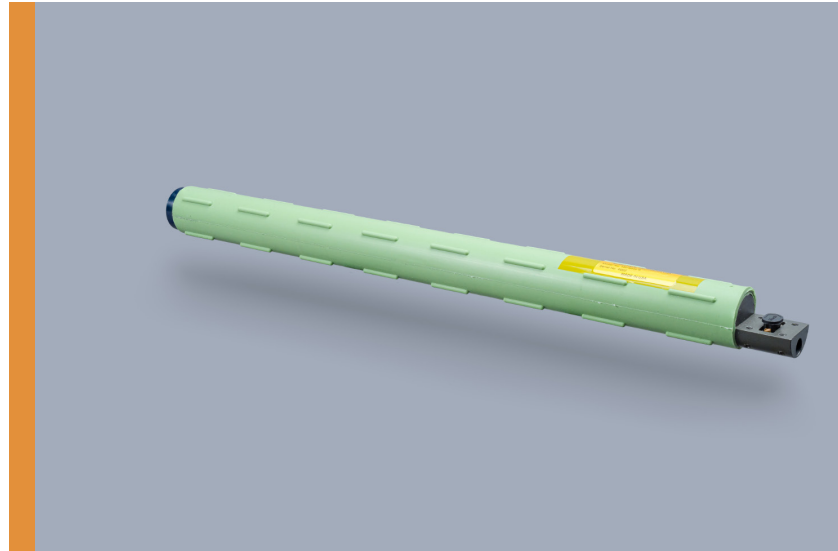
- Geo-Steering in narrow/thin zones
- Evaluation of downhole strata in drilling and logging applications
- Evaluation of downhole vibration and shock magnitudes

The Model 751AZ Azimuthal Natural Gamma Sensor is designed to measure and provide continuous gamma radiation data occurring in well bores in order to detect the presence of porous petroleum reservoirs.

The sensor utilizes a scintillation crystal and tungsten shield design, which shields part of the formation from radiation, allowing operators to “look” in a particular direction into the downhole formation in order to differentiate sands from shales.

The sensors are temperature calibrated to ensure that it is accurate throughout the range.

The sensor does this by utilizing an on board magnetometer sensor which collects data (while rotating or motionless) and allocates this to one of eight bins or quadrants in order to provide real-time continuous gamma data as the sensor is rotating. This allows the downhole lithology to be determined without having to stop or orient the drill string, allowing the well path to be accurately placed inside the producing (sand) zone.



The Model 751AZ sensor can be used as either a standalone system or in conjunction with the Applied Physics Model 750 or Model 760 directional sensors. Communication with the Model 751AZ is by means of a bi-directional TTL serial port. To achieve high gamma sensitivity, a scintillation crystal is used to detect gamma rays.

The Model 751AZ sensor has a two-axis 50 gee vibration sensor to monitor drilling induced vibration and shock. The vibration sensor is oriented to measure axial and lateral shock and vibration.

Related Products (others available)

Model 751 Standard

Model 751F Focused Gamma Sensor with Vibration and Shock Detection

Model 751AZ Azimuthal Gamma Sensor with Vibration and Shock Detection

Model 851 Narrow Diameter Gamma Sensor with Vibration and Shock Detection

ELECTRICAL

Input Voltage Range	+15 V to +30 V
Current Draw	90 mA @ 15 V 45 mA @ 30 V
Power Requirement	1.5 W (max)
Logic Level	TTL
Baud Rate	User Programmable up to 9600 baud
Protocol	User Selectable: ASCII or binary

ENVIRONMENTAL

Operating Temperature Range	0°C to +150°C
Storage Temperature Range	-55°C to +160°C
Shock	1000 G 1 ms half sine wave
Vibration	10 G RMS random 50Hz to 250 Hz

PERFORMANCE

Accuracy	±5°
Thin Bed Resolution	6" (152.4 mm) in an 8" (203.2 mm) diameter hole
Vibration and Shock Detection	2 axis ± 50 gee 400 Hz

PHYSICAL

Outside Diameter (OD)	1.25" (31.75 mm)
Length	19.8" (502.92 mm) with standard connectors
Weight	4 lb (1.8 kg)
Scintillation Crystal	1" diameter (25.4 mm) x 5.3" long (134.62 mm) in a stainless steel case
Photomultiplier Tube	Hamamatsu Model R1288
Main Connector	MDM9
Mating Connector	MDM9

OPERATIONAL GUIDANCE**SHOCK AND VIBRATION LEVELS**

LEVEL	SHOCK	VIBRATION
GREEN	< 17 g	< 4 g
YELLOW	17 to <26 g	4 to <6 g
ORANGE	26 to <36 g	6 to <5 g
RED	+35 g	+ 8 g

Specifications are subject to change without notice.