

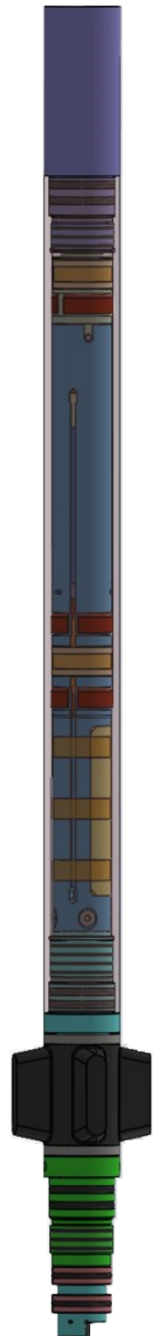
MWD GAMMA RAY MODULE

The MWD Gamma Ray Module is designed to meet the extreme challenges of today's drilling market. The ruggedized sodium iodide (NaI) scintillation detector and photo-multiplier tube were designed to precisely measure natural gamma rays from the formation. Packaged for operation at 175°C, the module can be customized to meet client requirements.

- Gamma ray counts are passed to controller module for real-time transmission and memory storage.
- Measurement is corrected for borehole diameter, mud weight, and potassium content.
- Better measurement accuracy and statistical precision than current measurements.
- Designed for efficient and cost-effective maintainability.
- Can be fitted with oriented sleeve for focused azimuthal gamma measurement.
- Module can be implemented in various BHA sizes, from 4 ¾" and above.
- Operates with standard 24V batteries.
- Real-time and recorded memory data available.
- Logging memory capacity is dependent upon controller's GR memory allocation; up to 14 days (336 hr) at the maximum data acquisition rate with IDS controller.
- High speed memory download time is dependent upon controller interface; up to 400 kbps with IDS controller.

APPLICATIONS

- Lithology identification in conventional and unconventional reservoirs
- Shale vs. non-shale determination
- Depth confirmation and correlation between wells
- Formation top identification for picking casing and coring points
- Geosteering and well placement
- Shale volume estimation



GENERAL SPECIFICATIONS

Electrical	
Input Voltage	+17V to +28V
Current	<30mA @ 24V 77°F (25°C), <40mA @ 24V 347°F (175°C)
Output Signal	Fixed, 5μs - Negative going - +5V to ground
Connectors	KTK (Kintec) HT/HP, 10-pin
Communications	High-speed communications via CAN or RS485 bus
Performance	
Dimensions	28.92" length x 1.875" OD
Sensitivity	1.5 CPS / API (mounted in 1.875" OD Nitronics 50 pressure housing)
Range	0 to 1200 API in real-time, no limit in recorded memory
Accuracy	+/-3% Count rate change: 14 to 347°F (-10 to 175°C)
Resolution	6.8" (in 8" diameter borehole)
Environmental	
Operating Temperature	14 to 347°F (-10 to 175°C)
Survival Temperature	347°F (175°C)
Max Pressure	20,000 psi (137.9 MPa)
Vibration	20G, 50 to 500Hz random
Shock	500G at 2μs pulse width
Other	
Input	+/- Input voltage
Output	Pulses
Ground	Yes

