

Spectral Gamma

Probe Head



1.72m
(67.7")

Detector

Spectral Gamma Probe

The Spectral Gamma probe analyses the energy spectrum of gamma radiation from naturally occurring or man-made isotopes in the formation surrounding a borehole.

The probe corrects for temperature drift in real-time by matching the acquired spectrum to the base spectra of the main natural emitters (potassium, uranium and thorium) determined during the tool master calibration. Available outputs are full-spectrum (static mode only) and continuous log measurements of elemental concentrations. Borehole corrections are available for casing thickness, borehole diameter, formation density and mud/fluid radioactivity for both centralized and side-walled tool positions.

Principle of Measurement:

Gamma photons produced by the decay of naturally occurring potassium, uranium, thorium and/or unstable man-made isotopes in the formation are detected by a large-volume gamma scintillation counter and converted to electrical pulses. The amplitude of the pulses depends on the photon energy. An analyzer within the probe separates the pulses into channels according to their amplitudes. Count-rates from groups of channels are converted in real-time by the surface software to concentrations of the originating elements using predetermined algorithms.

SPECIFICATION:

Features

- Large-volume scintillation detector for high sensitivity
- Temperature compensation ensures freedom from drift

Measurements

- Uranium (ppm)
- Thorium (ppm)
- Potassium (%)
- Gross Gamma
- Full spectrum display 100keV – 3MeV

Applications

Minerals / Water / Engineering

- Shale/Clay typing
- Correlation in complex situations
- Mineral detection
- Radioactive waste pollution measurement
- Lithology determination

Operating Conditions

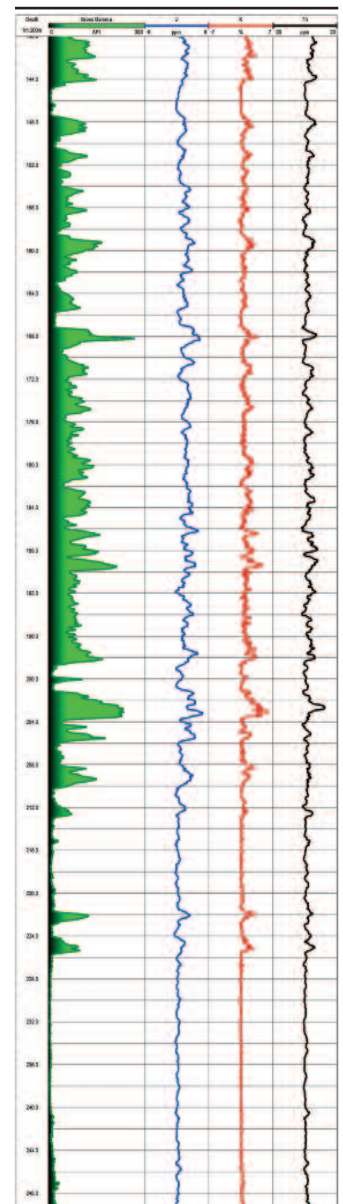
- Borehole type: open/cased, water/air filled
- Recommended Logging Speed: 1m/min

Specifications

- Diameter: 48mm or 60mm
- Length: 1.72m (for both types)
- Weight: 7kg (60mm version)
- Temperature: 0-70°C
- Max. pressure: 20MPa
- Detector: NaI(Tl) scintillator
- Detector Size: 38mm x 150mm
- Energy range: 100keV to 3MeV

Part Numbers

- I017478 Spectral Gamma probe



Example of logging data