

## Density Sondes

GeoVista density logging sondes detect gamma rays emitted by a  $^{137}\text{Cs}$  source mounted on the sonde. Gamma radiation is attenuated and scattered by Compton Scattering through the formation and then counted at detectors located at set distances. The intensity of the detected gamma rays is proportional to the formation bulk density, with denser materials attenuating more gamma rays and resulting in lower gamma ray intensity at the detectors.

The sondes are designed to suit different data and operational requirements. In geological environments where very high density (>3 g/cc) formations are expected, a higher energy  $^{60}\text{Co}$  source can be used instead.

### Sidewall Density Sonde

The Sidewall Density Sonde provides quantitative, calibrated bulk density measurements. There are three versions of this sonde. The basic (FDSB) version

produces a bulk density log, and a caliper (borehole diameter) log. An LL3 resistivity detector can be added to the basic sonde to provide extra utility. Finally, the FDSB can be altered to collect PEF (photoelectric factor) information in addition to density measure-

#### FDSB KEY FEATURES

- Combinable digital probes
- Three sonde configurations

### 2-PI Density Sondes

The 2-PI density sonde also known as Trisonde, provides uncalibrated (qualitative) density logs, using a lower activity source. There are two versions of this sonde, a basic version which can only be run at the bottom of a sonde stack, and an in-line version can be placed anywhere in a sonde stack.

#### APPLICATIONS

- Mineral exploration
- Coal exploration
- Geotechnical investigations

#### TRISONDE KEY FEATURES

- Combinable digital probe
- Two sonde configurations

#### SPECIFICATIONS

	FDSB	FDSB LL3	FDSB PEF	2-PI	2-PI In-line
Length (m):	2.06	2.59	2.14	1.65	1.44
Diameter (mm):	54	54	60	38	45
Weight (kg) :	26	29	31	5	5
Detector spacing (cm):	47, 25, Opt. 14	47, 25, Opt. 14	29, 15	46, 24	46, 24
Source Type:	$^{137}\text{Cs}$ or $^{60}\text{Co}$	$^{137}\text{Cs}$ or $^{60}\text{Co}$	$^{137}\text{Cs}$	$^{137}\text{Cs}$	$^{137}\text{Cs}$
Source activity (mCi)	80 to 100	80 to 100	250	10	10
Density range (g/cc):	1 to 3-4	1 to 3-4	1 to 4	N/A	N/A
Caliper range (mm):	60 to 350	60 to 350	60 to 350	N/A	N/A
Max. Pressure (MPa):	20/35	20	20	20	20
Max. Temperature (°C):	80 °C/125 °C	80 °C	80 °C	80 °C	80 °C
Calibration bloc:	Al/Mg	Al/Mg	Al/Mg	N/A	N/A