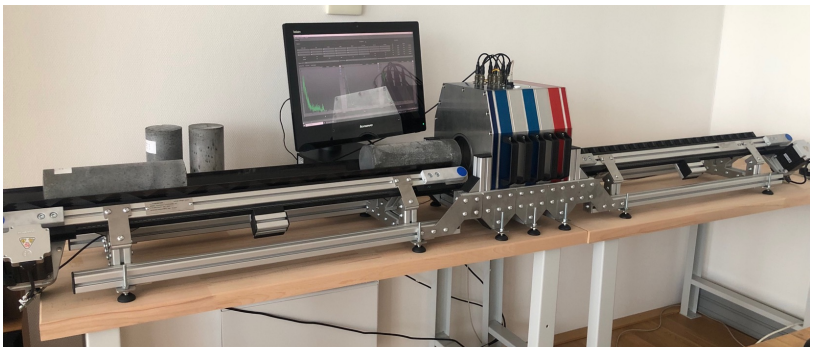
CORELA GRG-01 spectral gamma ray logger

Device for Drilling Core Activity Logging PRODUCT INTRODUCTION



GRG-01 – spectral gamma logger is the state-of-the-art versatile instrument for laboratory or in situ gamma ray and K-U-Th concentration pattern logging. It includes an array of novel compact and high sensitivity radiation detectors embedded in efficient shielding and in close contact with the measured sample (core). Its design minimizes the requirement for shielding size and weight while matching the accuracy and precision of larger conventional setups. The revolutionary modular architecture can combine a series of standardized instrumented segments to perform simultaneous measurements along core samples and provide customizable statistical precision.

Features:

- Next generation scintillation detectors combining benefits of FWHM resolution of NaI(Tl) with density and peak efficiency of BGO;
- Three (3) detectors within each measuring segment and the ability to combine up to seven (7) measuring segments for greater productivity;
- CORVIEW software included with each system for measurement control and spectra evalution;
- Conveyor rail with drivers for various measuring modes (discrete, smooth), ready for automated processing. Includes a tray for incomplete or damaged cores.
- Simultaneous determination of K, U, Th concentrations with selectable units (% and ppm traditional, Bq/kg - SI or W/kg - geothermal);
- Advanced method of automatic gain stabilization using natural background radiation, eliminating the need for a radioactive check source;
- Compact and lightweight compared to larger, conventional setups without sacrificing sensitivity;
- Disassembles to facilitate transportation and field deployment;
- Ruggedized for harsh environments (shock, temperature, humidity, dust);
- Easy maintenance and decontamination; and
- Certified calibrated units with measurement traceability.

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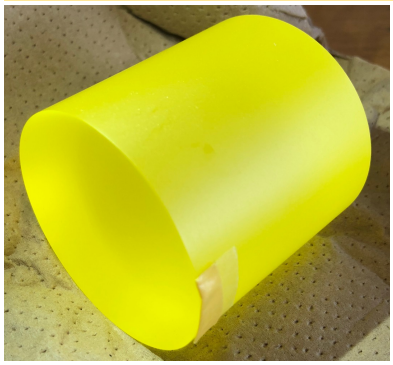
Benefits of unique design of CORELA

Detectors and spectrometers

New modern scintilation detectors with high ratio FWHM resolution and density as a source of well described gamma ray spectra.

Each detector has its own spectrometer and independent BIAS

Goal: In combination with SiPM results in small compact detector easy located as close as possible to a sample and requiring small amount of shielding material



Multisegment feature

Using more **Measuring** segments along core performs measurement in paralell mode. Leads to throughput increase or improvement of sensitivity (MDA).



High efficincy Shielding

Used **TUNGSTEN** for efficient suppression of local BG



Powerfull mathematics and advanced spectra acquisition

Application of least square fitting method and using of all parts of spectra carrying an information togeter with sharing of spectra from other segments (depending on measuring mode) leads to high quality results within reasonable measuring time

Conveyor belt

Discrete or **smooth** operation mode
Active filters for high Log Profile resolution

Enhanced efficiency

- High flexibilty in optimalisation of measuring process – Total time of measurement versus precission and profile resolution of a core
- Minimalization of labor hours and related expenses

Operability

- Automated warm-up procedure for gain stabilisation and core position calibration

Application notes

Modularity of the CORELA enables a combination of M and S segments as LSMCSL (basic) and similar… up to 7 M segments to achieve:

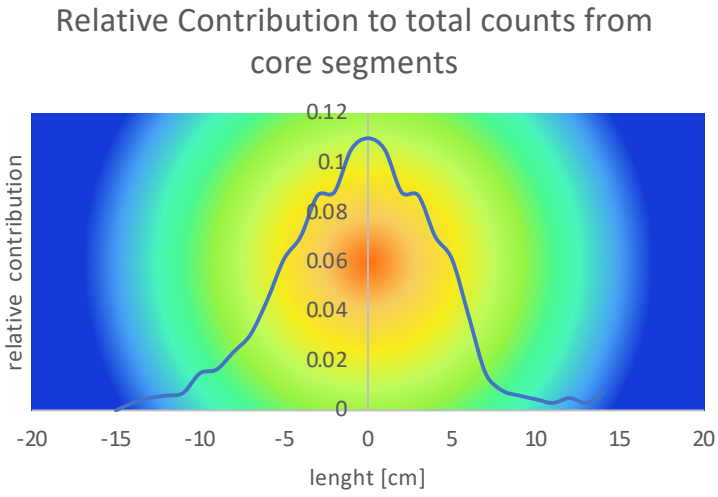
- High throutput … paralel measurement
- High sensitivity … spectra combination from M segments, longer times

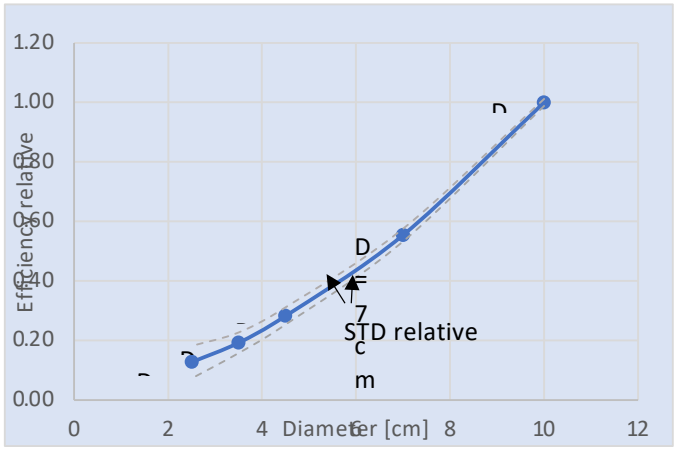
Modularity		Segments: S = Shielding M = Measurement		
Step	[cm]	5	10	15
Configuration		SMS	SMSSMS	SMSSSMS

Expenses per Day vs Performance

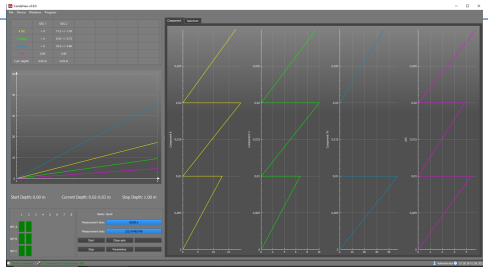
Throughput		Legth of the core: 1 m Acquisition time: 10 min Step 15 cm						
Number of M segments	#	1	2	3	4	5	6	7
Total depth per 8 h shift	[m]	6	12	18	24	30	36	40

Core Diameter Range





MDA vs Diameter and meas time Shielding W/Pb



Specifications

Operating Temperature Range:

- -20°C to +50°C

Storage temperature:

- -20°C to +60°C

Weight (basic unit consists of segments LSSMCSL and base with conveyor) :280 kg

Individual Segments:

- Measuring (M) 42 kg
- Shielding (S) 45 kg
- Communication (C) 45 kg
- Lateral (L) 20 kg

Number of detectors in segment (1 -3)
Distance of measuring modules min 5 cm
Max measuring segments: 7
Total number of detectors: 21
Total number of spectrometers: 21
MCA channels: 1024
Core diameter: min 2 cm max 10 cm (NQ,HQ,PQ).
Protection… IP64
Operating length of the device (path) min 1.5 m
Total length of the device 3 m
Power supply

- USB C or external 24 V DC/ 100W

Data Connection

- LAN Ethernet, min 10Mbit, USB 2.0

Software

- Control (self-diagnostics, autocalibration)
- Data collection, processing and archiving
- Graphic output of the depth profile
- Concentration K, U, Th, Ue, activity index, API
- Tasks manager for automated processing
- Variable measuring modes (static, slow motion)
- Remote control

Standard Accessories

- Conveyor system with tray and driver
- UPS backup
- Calibration standards traceable with IAEA reference materials
- Additional segments M,S,L