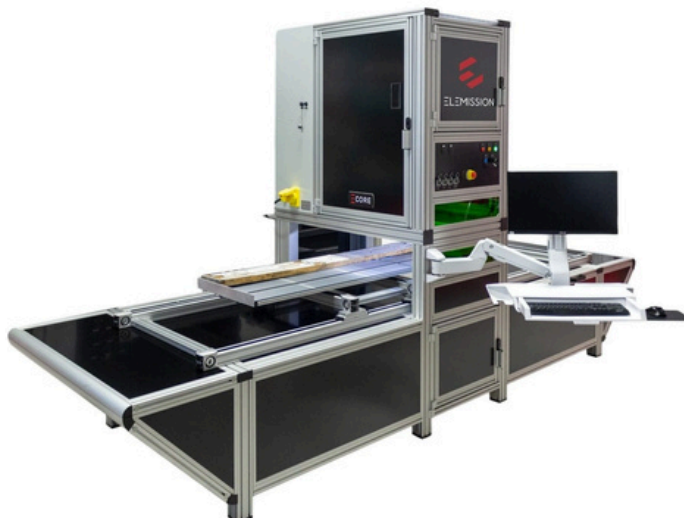


Technologically-Innovative Equipment for Geological & Geophysical Exploration



Absolute Quantum Gravimeter



ECORE - LIBS Core Scanner

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- Ground Penetrating Radar
- Conductivity meters
- Magnetometers
- Magnetotellurics (MT) Systems

Gravimeters

FEATURES

Airborne Gravimeter

- Gravity Range: Full World-Wide Range (20,000 mGals)
- Data and GPS Recording Frequency: 10Hz
- Dynamic Range: +/- 1g
- Static Repeatability: 0.05 mGals
- Sensor Type: Full-feedback Zero-length Spring
- Resolution: 0.01 milliGals (mGals)
- Dynamic Repeatability:
 - 0.25 mGal @ 50,000 mGal horizontal
 - 0.50 mGal @ 100,000 mGal horizontal
 - 0.50 mGal @ 100,000 mGal vertical

Land Gravimeter

- Lightweight rugged detector with fully quartz core
- Operating range: 10,000 mGals
- Repeatability better than 5 μ Gal
- Precise drift and temperature compensation
- Quick leveling system
- Wide range of ambient operation conditions
- Hot-swappable Li-Ion cells (30 hours at 25°C)
- Detachable control unit with colour graphic display
- Easy control system
- Large data memory (8 GB)
- Bluetooth connection, built-in GPS receiver

AIRBORNE GRAVIMETER

The Airborne Gravity Survey System is a rugged, full-feedback, zero-length spring gravimeter designed to operate across the full global gravity range. The latest upgraded systems incorporate full-feedback magnetic damping, redesigned and improved platform control, integrated high-performance temperature-controlled electronics, and a simplified, user-friendly interface for data display and system control.

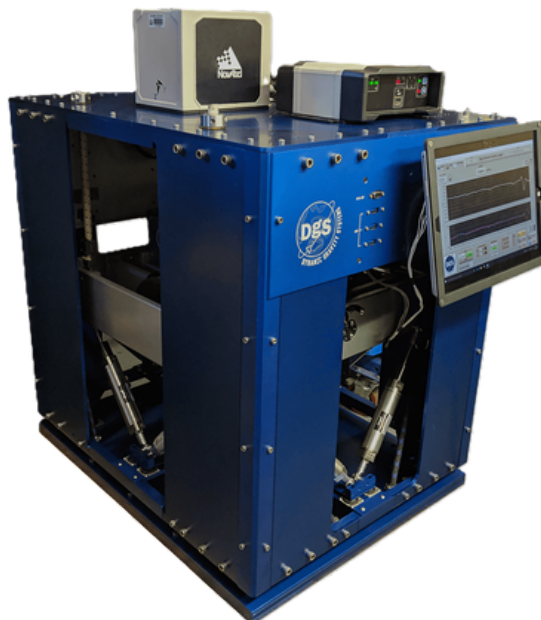
Its full-feedback, magnetically damped sensor locks the beam at the reference (reading) line, reducing sensor-related errors, eliminating mechanical counter-screw errors, and virtually removing cross-coupling effects. As a result, the system delivers improved accuracy and repeatability in rough marine environments or turbulent airborne survey conditions. Because no spring-tension motor or counter screw is required, mechanical failure points are eliminated—enhancing reliability while reducing maintenance and calibration needs.



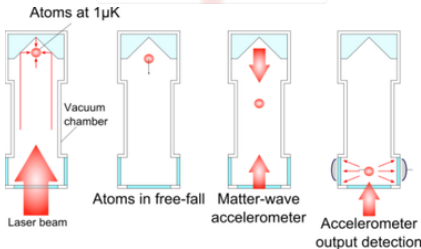
LAND GRAVIMETER

The LG-1 GALILEO is a portable land gravimeter designed for high-precision relative gravity surveying. This is a lightweight, rugged detector built around a fully quartz core, with worldwide measuring range of 10,000 mgal, advanced signal processing, and a detachable control unit for levelling and data-quality monitoring in the field. A “fully quartz core” sensor is shock resistant and temperature balanced, with precise drift and temperature compensation implemented alongside advanced signal processing.

A 10 Hz internal sampling rate paired with 10 s–10 min acquisition windows ensure the instrument collects high-rate internal samples and then outputs a stabilized reading after a user-selected observation time. Longer acquisition time typically improves repeatability in the presence of microseisms, wind, traffic, or soft ground. Typical applications include oil & gas/minerals exploration, geological mapping, water management, civil engineering and geotechnical investigations, cavity detection, and archaeology.



Gravimeters



ABSOLUTE QUANTUM GRAVIMETER

The AQG is an absolute gravimeter based on quantum technologies and atom-light interactions, offering unparalleled accuracy of 10 nm/s². Using laser-cooled atoms as a free-falling test mass in a vacuum, it enables self-referencing. Since 2015, the AQG has been the first commercially available gravimeter utilizing quantum technology.

Built on atom interferometry principles, approved by the International Bureau of Weights and Measures (BIPM), the AQG sets the standard in high-precision traceable gravitational measurements. Its built-in design allows for easy deployment without requiring any knowledge in quantum physics.

The system uses fibered components with no optical alignment required, offering a compact, robust, and vibration-resistant design. It allows the sensor head to be moved within a 15 m radius without relocating the supply rack, ensuring flexible and efficient operation.

MARINE GRAVIMETER

The BGGS Marine Gravimeter is a high-performance system designed for offshore geophysical research. It features a rugged marine-grade enclosure with a gyro-stabilized platform, integrated control electronics, and shock-absorbing mounts for reliable operation in dynamic sea conditions.

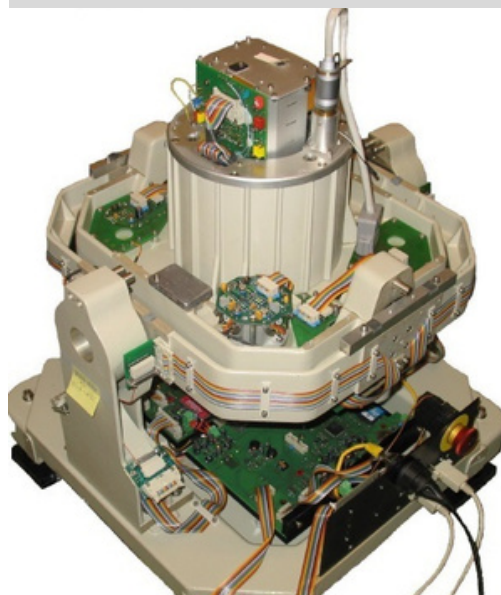
Using straight-line gravimeter technology, precision mechanics, and advanced electronics, the system delivers highly accurate, cross-coupling-free gravity measurements.

The gravimeter supports multiple standard interfaces for seamless integration with ship navigation systems, magnetometers, echo sounders, and other onboard sensors, enabling synchronized data acquisition.

With an accuracy of 0.5 mGal, the instrument offers low drift and maintains linear performance under vertical accelerations of up to 0.23 g.

An automatic safety caging mechanism secures the sensor during power loss or emergency conditions. The system is operated via a standard notebook computer using proprietary control software.

The BGGS Marine Gravimeter is currently in operational use at the National Institute of Oceanography (NIO), Goa.



FEATURES

Absolute Quantum Gravimeter

- Absolute gravity measurement at a level of μGal in terms of sensitivity and stability
- Continuous data acquisition from a few seconds to several years
- Transportable device, easy and fast to operate
- Full remote control and support / monitoring capacity
- Low maintenance (no moving parts, no gasket or belt to replace / no vacuum or mechanical parts to replace)
- Off-power transport and storage possible for several weeks
- Can be deployed at any site in 45 minutes

Marine Gravimeter

- High performance instrument designed for marine geophysical research projects, including oil prospecting and basic research worldwide
- Straight line technology, free from cross-coupling.
- Embedded microprocessors together with sophisticated programmes provide easy handling
- Software offers corrections for free-air and bouguer anomalies. Eotvos and curve compensation applied real time.

Near Surface Geophysics

FEATURES

Ares II Resistivity Meter

- 850 W - 2000 Vp-p, 5A Transmitter with Parallel Power
- Booster Capability for all Multi Electrode and Manual Modes
- 10-channel Receiver with up to 20 Adjustable IP Windows
- 2D/3D Resistivity & IP Tomography VES, RP, SP Measurements Continuous or Timed Survey
- Remote Control Option

Gamma-Ray Spectrometer

- Spectrum & Assay: spectral measurements with determination of concentrations of K, U, Th (% , ppm, ppm)
- Dose Rate: Measurement of natural gamma dose rate (nGy/h or nSv/h)
- Detector: Scintillation Bismuth Germanate Oxide (BGO) detectors and Sodium Iodide NaI(Tl)
- Spectral Analyzer: 2048 channels, 3 MeV linearized energy range.
- Measuring Time: Selectable from 10 s to 2 h according to required accuracy of results and to estimated concentration levels of K, U, Th
- Temperature range: From -10 to +50 °C

ARES II RESISTIVITY METER

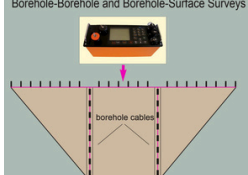
ARES II represents a well-equipped Resistivity & IP imaging system. It's advantages can be applied especially for large 2D and 3D surveys (operating up to 65,000 electrodes), for continuous survey from water level and for programmable monitoring of structures.

One ruggedized weatherproof unit integrates a powerful 850W - 2000 Vp-p, 5A transmitter and a sensitive receiver completed with a rich support for a variety of measuring methods like 2D/3D/4D Resistivity & IP Tomography, VES, RP, SP Measurements, Continuous or Timed Survey.

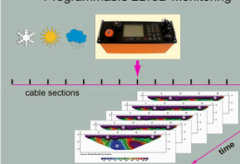
It also has an easy control unit with high resolution LCD and easy real time horizontal and vertical data consistency checking. The system can be equipped with Active Multi-Electrode Cables, Passive Cables with Switch Box Roll-Along Possibility.



Borehole-Borehole and Borehole-Surface Surveys



Programmable 2D/3D Monitoring



GAMMA-RAY SPECTROMETER

The 2048-channel Geophysical Gamma Ray Spectrometer is a highly versatile and advanced instrument designed for a wide range of applications, including field, borehole, and carborne surveys. It is fully equipped with all essential features and accessories required for accurate potassium (K), uranium (U), and thorium (Th) assays, as well as dose rate measurements.

The system features an intuitive control unit paired with a compact, wirelessly connected probe, ensuring convenient operation and flexibility in the field. This design enables the creation of a cost-effective setup without compromising on the accuracy, precision, or speed of data acquisition.

One of its key capabilities is the option to operate using either natural or artificial isotope spectrum stabilization, which significantly enhances the stability and reliability of results-particularly when performing measurements in areas with very low gamma activity levels.

Electromagnetic (EM) and Resistivity/Induced Polarization

RESISTIVITY / INDUCED POLARIZATION (IP) TRANSMITTER, MODEL TX4

Resistivity/Induced Polarization(IP) Transmitter of 5000W-2400V-20A was developed using the latest technology. The digital Tx4 can now reach 20A, is more ergonomic and will allow you to save time and money.

Reliable and robust, the GDD IP Transmitters are used over the world for Resistivity and Time-Domain Induced Polarization (IP) surveys for a wide range of applications. 10,000W-4800V Master/Slave option allows faster readings and increases productivity.

More precise and stable current reading
Improved current display (1 mA resolution)
Simplified voltage selection
Last voltage kept in memory
Master/Slave mode 10,000W-4800V-20A.

Increased safety Possibility of connecting up to four Tx4 in series to reach 20,000W.



RESISTIVITY/INDUCED POLARIZATION (IP) GDD RECEIVERS

These Receivers are compact and low power consumption designed for Resistivity and Induced Polarization (IP) surveys. They are rugged and can be used under any field conditions. Our receivers include an optimized noise reduction algorithm. You can also visualize your pseudo section in real time!

Offering enhanced efficiency through new hotkeys that speed up data entry (Allegro2).

It provides live pseudosections of apparent resistivity and chargeability during survey acquisition, enabling real-time data interpretation.

The instrument is suitable for a wide range of applications, including mining exploration, groundwater investigation, geotechnical studies, and other related fields. Additionally, it supports full-wave data acquisition, and all IP receivers are equipped with the GDD Post-Process Software for comprehensive data analysis.

FEATURES

Resistivity / Induced Polarization (IP) Transmitter, Model Tx4

- Highest voltage (up to 4800V) available in the industry
- Resistivity and Time-Domain IP surveys
- User friendly and robust
- Shock resistant and environmentally sealed
- Protection against short-circuits even at zero (0) Ohms
- Re-programmable on site if needed via USB
- Fuses located on front panel

Resistivity/Induced Polarization (IP) GDD Receivers

- Operating Temperature: -40°C to 60°C / -40°F to 160°F
- Automatic synchronization on ground signal or GPS, drift compensation, gain setting and stacking
- ADC: 24-bit; • Gain: From 1 to 1,000,000,000 (10⁹)
- Twenty programmable chargeability windows: Arithmetic, logarithmic, semi-logarithmic, Cole and User defined
- Noise Reduction: Automatic stacking number
- Main values read : V_p, apparent resistivity, chargeability, standard deviation, % of symmetrical V_p, etc.



Electromagnetics Systems

FEATURES

Hybrid Airborne Electromagnetics

- Tensor-M offers a complete hardware-software solution for drone-based electromagnetics.
- The recorder is ultra-lightweight (1.9 kg) and includes an INS module and GNSS antenna for precise positioning during flight.
- Designed for deeper sounding using natural or controlled sources.
- Equipped with three magnetic coils and 24-bit ADC resolution.
- A versatile transmitter with a wide frequency range (0.1 Hz to 1 MHz).

Conductivity meter

- Apparent conductivity: 1000 mS/m, resolution 0.1 mS/m.
- Inphase ratio: ± 80 ppt, resolution 10 ppm
- Measurement accuracy: $\pm 4\%$ at 50 mS/m.
- Temperature stability: better than 0.1 mS/m / $^{\circ}\text{C}$ at slow temp. changes.
- Maximum sampling rate: 10 Hz.
- Full and half depth range (vertical and horizontal orientation of dipoles).
- Power supply: rechargeable Li-Ion battery lasts 2-3 working days (except. CMD-DUO transmitter).
- Operating temperature: -10°C to $+50^{\circ}\text{C}$.

HYBRID AIRBORNE ELECTROMAGNETICS

Hybrid Airborne Electromagnetics is lightweight magnetometer and EM sensor packages designed to be used from small drones. These are suited for semi-airborne surveys — intermediate between ground and full airborne (manned aircraft) surveys. Sensors such as tri-axial magnetic sensors measure magnetic field components and electromagnetic responses while being suspended or mounted beneath a UAV.

During operations, a geophysical survey flight is carried out along predefined flight lines, with magnetic data recorded together with precise GNSS/INS positional information to accurately identify and locate subsurface anomalies.

These systems are widely used in mineral exploration, environmental mapping, near-surface geological investigations, and other geophysical applications where high-resolution magnetic data is required, particularly in challenging or remote areas.

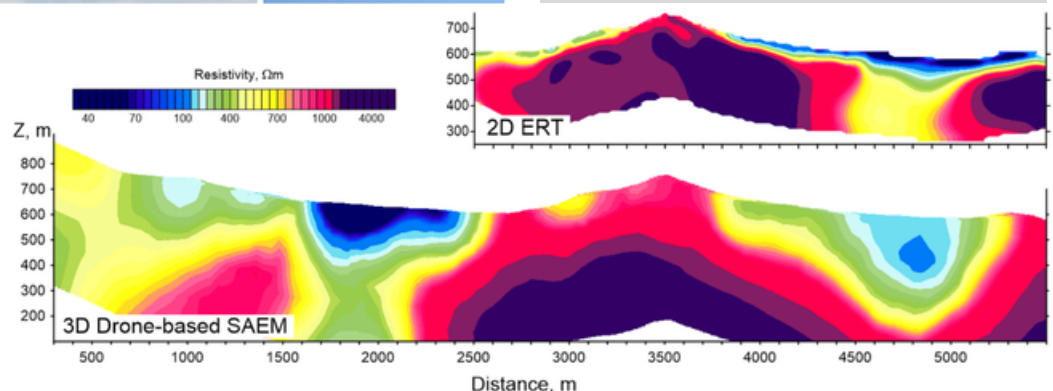


CONDUCTIVITY METER

CCMD is an electromagnetic conductivity (EC) meter—an EMI instrument operating in the low-induction-number regime—that delivers calibrated apparent conductivity (ECa) values along with the in-phase response, measured over a defined depth range.

The CMD family spans a wide set of survey configurations, supporting effective investigation depths from ~0.15 m up to ~60 m. Its non-contact (contactless) measurement principle enables rapid acquisition of both conductivity and in-phase data across diverse field conditions, including very dry or frozen/icy ground where galvanic-contact methods can be impractical.

Depending on the model, probes integrate 1, 3, or 6 receiver coils engineered for high thermal stability, enabling high-resolution, depth-discriminated mapping and section imaging. This makes CMD systems well-suited for both walked surveys and vehicle/towed deployments where consistent, repeatable spatial coverage is critical.



Proton Magnetometer and Ground Penetrating Radar

PROTON MAGNETOMETER

It is a new generation, light weight and portable proton magnetometer. It uses a thermostatic crystal oscillator(OCXO) with high accuracy and stability to make it more stable.

It supports Standard GPS, GNSS, Beidou and GLONASS systems, which provides location and accurate time synchronization. The time synchronization accuracy reaches 30 ms, which is more convenient to use.

It supports mobile, walk or base station mode. It is mainly applied in minerals exploration (such as iron ore, lead-zinc ore, copper ore, etc.), geophysical exploration in geological structures, archaeology, earthquake, volcanic activity research and long-term geomagnetic measurement stations.



GROUND PENETRATING RADAR

The system uses Noise-Modulated Ground Penetrating Radar (NM-GPR). This technology typically offers higher dynamic range and better resistance to interference than traditional pulsed GPR systems.

Lynx, an advanced surface and subsurface mapping system by CodedRADAR. Lynx seamlessly integrates 3D Ground Penetrating Radar (GPR) with synchronized surface imaging, providing a comprehensive snapshot of features both above and below the ground across sites of any size.

Tailored for scanning diverse areas like sidewalks, parks, pavements, carparks, and concrete slabs, Lynx excels in identifying a range of subsurface targets, including utilities, voids, tree roots, pavement layers, and rebars.

Its 3D capabilities simplify asset identification, allowing easy differentiation between targets of interest and irrelevant reflectors like rocks—a substantial improvement over 2D GPR. TerraVerse™ software further streamlines the process by effortlessly combining GPR and surface imagery from multiple scans into large, geospatially-corrected data mosaics.

FEATURES

Proton Magnetometer

- Sensitivity: 0.05nT
- Dynamic range: 20,000-120,000nT
- Absolute accuracy: + - 0.01 nT
- Resolution: 0.01 nT
- Samples: 3s ~ 60s @Mobile Mode; 3~3600s @Base Mode
- Gradient: Tolerance: >5000nT/m
- Remote Control: optional remote control via RS-232 interface
- Input/Output: RS-232 via 10 pin weatherproof connector with USB adapter
- Internal Memory: 32MB (209715 readings in Manual Mode, 699050 readings in Base Mode)
- Sensors: 140mm(L)x70mm(D); 1kg
- Operating Temperature: -40°C to +55°C

Ground Penetrating Radar

Noise-Modulated GPR (NM-GPR) , technology for superior subsurface data resolution & penetration

Synchronized 3D GPR & continuous surface imagery capture for direct surface-subsurface comparisons.

Dual-Polarization: Uses both V-V and H-H antennas to detect pipes/targets regardless of their orientation.

Combine multiple scans to analyze vast areas quickly & easily using TerraVerse™ analysis software

Travel-Friendly: Foldable cart design with airline-compliant battery options for easy transport.



Advanced Rock Testing Systems

FEATURES

High Pressure - High Temperature Rock Triaxial System

- Type of load frame: Servo-hydraulic
- Axial load: Up to 5,000 KN
- Tension load capacity: Up to 2,500 KN
- Confining pressure: Up to 210 MPa
- Pore pressure: Up to 210 MPa
- Working temperature: Up to +250 °C
- Frame stiffness: Up to 10,000 kN/mm, $>10 \times 10^9$ N/m
- Stroke: 50 mm (optional up to 150 mm)
- Hardness: 55 HRC /customised
- Sample sizes: Up to Ø 100 mm (height ratio 2:1)

Polyaxial Rock Testing Systems

- Max Static Load: Up to 2000kN
- Min. Velocity: 0.01mm/min
- Max. Velocity: 90 mm/min
- Piston Stroke: 100 mm (+/-50 mm)
- Force Accuracy: 0.1% F.S
- Sample Sizes:
300x300x300mm
200x200x200mm
100x100x100mm or smaller

HIGH PRESSURE - HIGH TEMPERATURE ROCK TRIAXIAL SYSTEM

These High pressure High Temperature rock testing systems enable us to meet all test requirements in rock research testing per as ASTM standard or ISRM method.

This modular system can be configured with a variety of hydraulic cylinders, power packs, different jigs and attachments in order to perform uniaxial compressive strength, triaxial strength, post failure, bending, indirect tensile, direct tensile, fracture toughness, permeability, hydro-fracturing and creep tests for rock testing systems.

The systems are able to test a range of materials from soft rock (e.g. sandstone) to hard rock for different applications in rock mechanics research e.g. Exploration and production of fossil fuels, Mining and construction, Tunneling and Geothermal energy development.

It features an expandable real-time, high-resolution data acquisition and closed-loop control system with up to 20-bit accuracy, supporting an unlimited number of control axis and sensor channels.



POLYAXIAL ROCK TESTING SYSTEM

This unique experimental testing system is a customized solution used to study the behaviour of rock under various dimensional and compressive stress regimes ($\sigma_1 \neq \sigma_2 \neq \sigma_3$).

This fits to the research goals of geothermal energy researchers, hydrologists, petroleum reservoir engineers and researchers in the mining, geophysics and geotechnical sectors.

The sample chamber can house cubic samples up to 300 mm and has the option to be equipped with a temperature control up to +200 °C as well as a pore pressure device and the ability to have continuous acoustic emission recording, Ultrasonic tests, Hydrofracturing and permeability (transient or steady state) measurements.

Polyaxial rock testing systems are designed to induce stress on cubic samples via three independent controlled principal axes ($\sigma_1 \neq \sigma_2 \neq \sigma_3$) up to 1200kN or higher stresses on request.



Core Scanning Systems

MULTI-SENSOR HYPERSENSPECTRAL CORE SCANNER

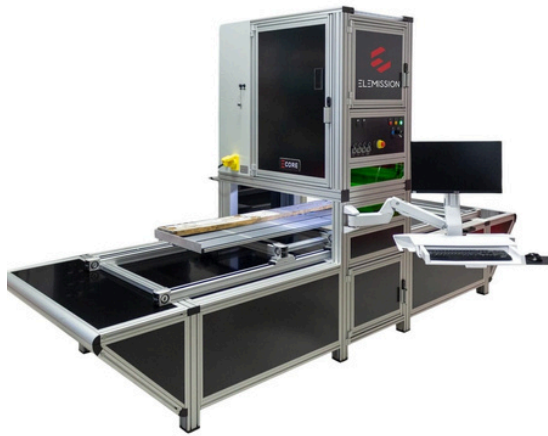
This is a fully autonomous multi-sensor scanning platform designed for continuous drill core scanning and handling.

Developed in close collaboration with professional geoscientists and based on the latest imaging technologies, it produces high-quality imagery data in a user-friendly format that can be readily imported into subsurface modeling programs.

Built with our proprietary state-of-the-art hyperspectral imagers, the system can deliver exceptional performance directly on site or in a laboratory with a variety of different modular configurations readily available.

It allows for the integration of up to 7 optical sensors, offering the most comprehensive set of imaging tools and providing an extensive map of the mineralogical landscape with unparalleled accuracy.

Three modular system options are available: Compact, U-Shaped and Container to accommodate all mining industry needs.



ECORE- LIBS CORE SCANNER

The Ecore machine, powered by advanced Laser-Induced Breakdown Spectroscopy (LIBS) technology, is a cutting-edge solution for rapid, accurate, and non-destructive elemental analysis.

It delivers multi-elemental results within seconds with exceptional sensitivity, detecting trace elements at ppm to sub-ppm levels across the full periodic table, from hydrogen (H) to uranium (U).

Designed for versatility, the Ecore machine requires minimal sample preparation and can directly analyze solids, powders, liquids, and gases. Its portable and field-deployable design makes it ideal for applications in mining, geology, metallurgy, and environmental monitoring. Consuming only micrograms of material per analysis, it ensures reliable results while preserving valuable samples.

The Ecore machine is eco-friendly and economical, operating without chemicals or consumables. Extensively proven in mineral exploration and critical mineral analysis, it delivers quick, accurate, and dependable real-time results.



FEATURES

Multi-Sensor Hyperspectral Core Scanner

- Up to 7 optical sensors and a bar core reader
- Fast scanning rate over 1200 m of core per 8-hour shift
- No sample preparation needed
- Range from 400 nm to 11.5 micron of scanning
- Modular systems

Ecore- LIBS Core Scanner

- Spatial Resolution: Factory set ~ 50 micrometers
- Acquisition Rate: 2000 measurements per second (2000 Hz)
- Spectral Range: 220 nm to 930 nm
- Surface Sampling: High speed all optical scanning of the surface 40 mm x 40 mm @ 2000 Hz
- Scan Speed: 1 cm² at 50 micron resolution in less than 30 seconds
- Scan Axes: Z-stage for focus adjustment, XY-Stage for drill core scanning
- Sampling Visualisation: 532 nm green laser pointer for scanning area preview up to 4 cm x 4 cm
- Plasma Emission Spectra: Achromatic High transmission fiber optics for maximum plasma emission light collection

Micro CT and Synchro CT

FEATURES

Micro CT

- Max. temporal resolution: < 10 seconds
- Max. spatial resolution: (line pair) 3 μm
- X-ray source: 30 – 180 kV or 30 – 230 kV 300 W
- Type: Open / Reflection
- X-ray detector: Large amorphous Si flat panel detector
- 2856 \times 2856 pixels Up to 100 fps read-out modes
- Max. sample size ($\varnothing \times h$): 600 mm \times 1150 mm
- Max. CT FOV ($\varnothing \times h$): 300 mm \times 1000 mm
- Max. sample weight: 45 Kg

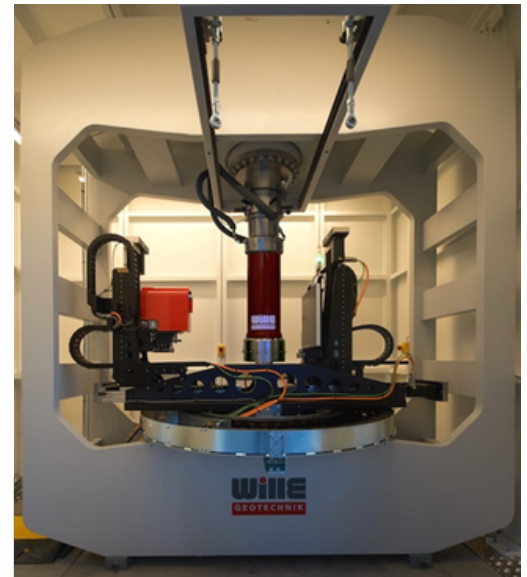
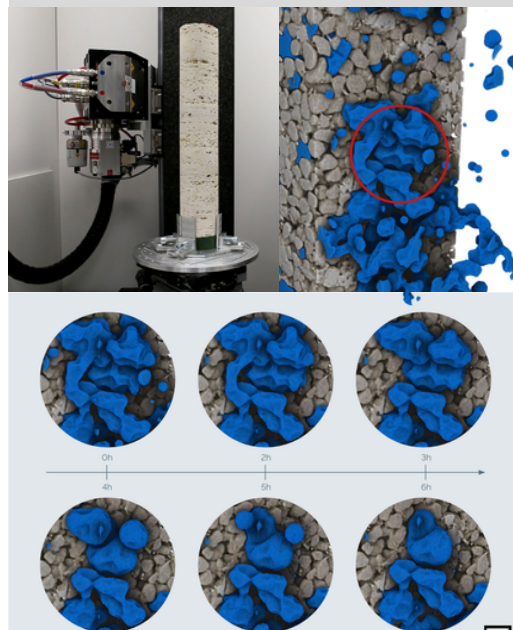
Synchro CT

- SCT-ready load frame design with a large range of sample sizes (w \times h: 5 up to 500 mm / 5 - 1000 mm)
- High potential for upgrades (visualization systems e.g. μ -CT, AE, ERT, direct shear rigs, custom made environmental chambers, steel-triaxial cells and CT-transparent triaxial cells etc.)
- Axial loads up to 50 / 100 / 200 / 500 / 1500 and 2500 kN
- Option: X-ray transparent pressure vessels up to 100 MPa confining or higher
- Different environmental temperature ranges are available (e.g. -20 up to and 200° C)

MULTI-RESOLUTION MICRO-CT SYSTEM OPTIMIZED FOR GEOSCIENCE APPLICATIONS

The TESCAN CoreTOM is specially designed to handle a wide range of geological samples from full size cores up to 1 meter in length down to plugs, drill cuttings and miniplugs. The TESCAN CoreTOM lets you quickly obtain 3D overview scans of layers, heterogeneities and other large-scale features inside full cores, and to obtain high resolution scans to visualize the pore space in plugs and cuttings.

TESCAN CoreTOM equipped with a high-powered micro focus X-ray source, the TESCAN CoreTOM enables high sample throughput and fast dynamic imaging with temporal resolutions below 10 seconds for a full 3D acquisition.

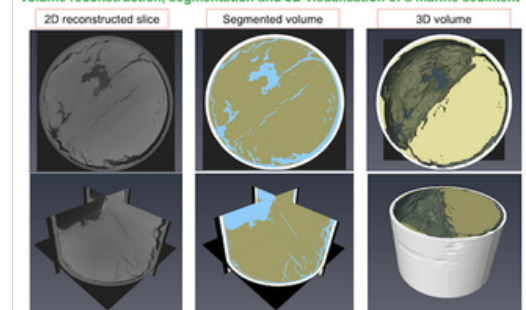


“SYNCHRO CT” TRIAXIAL TESTING SYSTEM

The unique frame design with an optional X-ray computed tomography system opens a new world of possibilities for dynamic and static test procedures in geotechnics. Sample, porosity, crystallization and dissolution, exchange of pore fluids, pre- and post-failure geometry or even crack propagation can be now monitored in-situ during testing, also in time resolved manner.

CT module is based on the principle of an X ray Source-Detector pair rotating around the static target (samples in compatible triaxial cells on in uniaxial setups, ex-situ samples etc.). The system provides information on investigated systems through 2D radiographs and full 3D computed reconstructions, also in a time resolved manner. The CT- module can be delivered together with a load frame as well as can be subsequently added to an existing CT-compatible system.

Volume reconstruction, segmentation and 3D visualisation of a marine sediment



Borehole Loggers and Packers

BOREHOLE LOGGERS

Geophysical logs provide petrophysical property information important to exploration geophysicists, geologists, mine managers, and multi-disciplinary professionals involved in exploration, mine-site production and development, mine de-watering, and many other mining industry demands. Mount Sopris geophysical logging tools have been demonstrated in a wide variety of geologic environments often found in an exploration setting and have proven useful in geologic interpretations and in-situ mineral evaluation.

Our slimline probes and easy-to-use portable geophysical logging systems are ideally suited for shallow, near surface environmental applications.

Today our environmental geophysical logging systems are used for a variety of new environmental challenges, including contaminant hydrogeology and hydro stratigraphic lithology delineation, ground water and vadose zone characterization, map and characterize subsurface infrastructure, subsurface migration of hazardous wastes etc. Its applications in mining, geotechnical, environmental, energy, and research fields support site characterization and borehole analysis.



BOREHOLE PACKERS

IPI is the global market leader in the provision of inflatable packers for rock burst mitigation, block caving, hydro fracturing, remote or deep permeability testing, rock-stress testing, pressure grouting, well construction and repair, ISR mining, ASR injection, solution mining, and custom-made solutions.

Designed specifically to suit pre-conditioning for rock burst mitigation and for block caving via very high pressure hydraulic fracturing. IPI packers deflate faster and recover to their original diameter better than any packers on the market, enabling them to be run with lower annular clearances.

Applications

- Well Intervention
- Plug & Abandonment
- Hydraulic Testing
- Well Construction
- Production
- Hydraulic Fracturing
- Aquifer testing
- Rock stress testing
- Grouting
- Permeability testing
- Well Completion & Rehabilitation

FEATURES

Borehole Loggers

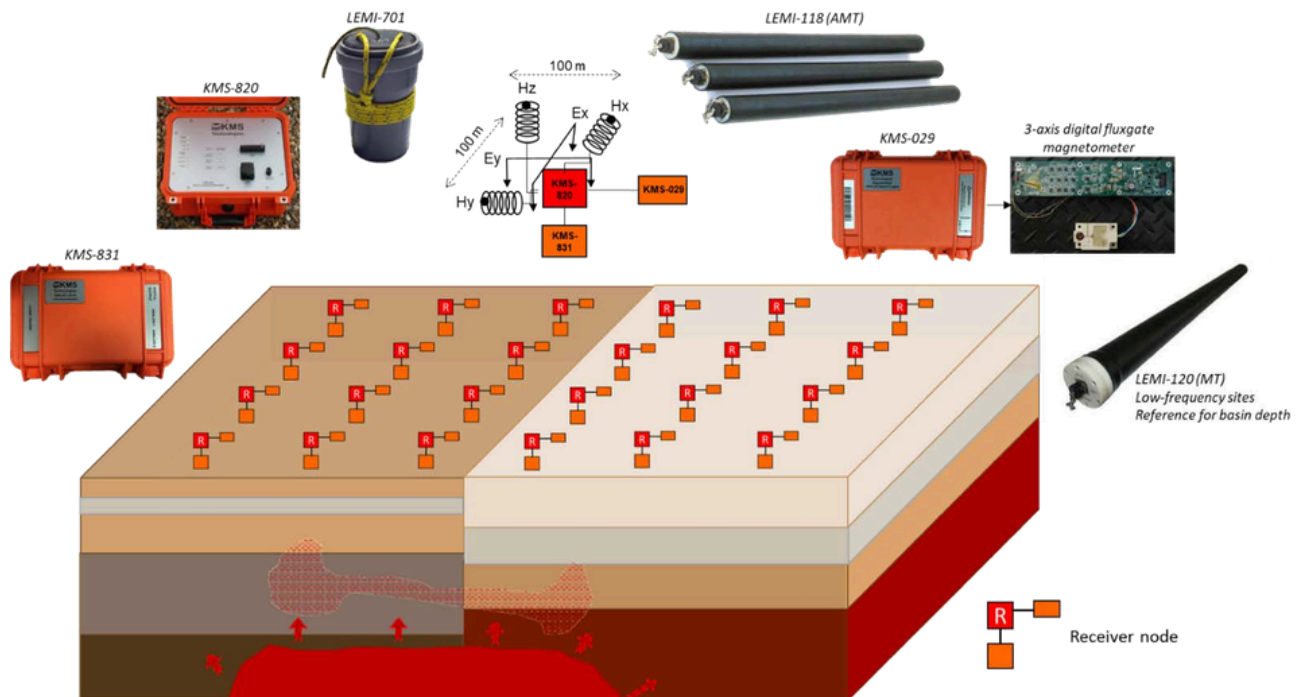
- Imaging: Optical and Acoustic Televiewers (QL40-OBI and QL40-ABI) provide high-resolution 360-degree images of the borehole wall.
- Lithology & Porosity: Natural Gamma, Neutron, and Density probes.
- Fluid Properties: Fluid temperature, conductivity, and flow meters.
- Formation Properties: Induction, Resistivity (IP), and Sonic probes for measuring mechanical and electrical properties of the surrounding rock and soil.

Borehole Packers

- Inflatable sealing element
- Hydro-mechanical actuation
- High expansion ratio: Capable of expanding up to ~300% of its run-in diameter
- Excellent zonal isolation
- Multi-cycle capability
- Custom and standard sizes
- Straddle and single configurations
- Versatility across Industries: Permeability testing, hydraulic fracturing, injection/grouting, zonal isolation, well completion, remediation, and sampling
- Adaptable to challenging boreholes: Performs in irregular, washed-out, or ovalized boreholes better than many mechanical packers due to conforming seals



Magnetotellurics (MT) Systems



FEATURES

LEMI-424 X MT system

- Low power consumption < 3 W
- Broad frequency band DC - 1,000 Hz
- One 3-component fluxgate
- Crustal investigation; used by US MT array

Mini-MT system

- Low power consumption < 5 W
- Frequency band DC - 1,000 Hz
- Crustal investigation, MT, CSEM
- MT system in a suitcase < 30 kg

NEW standard MT system

- Low power < 5 W
- Frequency band 0.0001 – 20,000 Hz
- Crustal investigation, MT, AMT, CSEM

CSEM system

- High power transmitter 100/150/200 kVA
- Time/Frequency domain CSEM
- Ideal for deep EM geophysical applications
- Include IP, TFEM, FSEM, CSAMT, etc

Magnetotellurics (MT) and Audio MT (AMT) target different depths of investigation, natural MT signals come from a variety of induced currents caused by thunderstorms and the ionosphere. The frequency ranges of MT data spans from 0.0001 Hz to 1,000 Hz and for AMT from 10 Hz to 20 kHz.

MT is usually used to map conductive zones such as geothermal zones or sediment packages. For geothermal application, one often requires the high frequencies and only limited low frequencies. For this we developed a combination between an array with sub-acquisition nodes and low frequency fluxgate receivers (KMS-820 MT Mini package).

We are adopting the concept of 3D bin-based MT acquisition which uses limited magnetic field but denser electric field data.

Controlled-Source Electromagnetics (CSEM) complements MT/AMT by actively injecting low-frequency current (e.g., a grounded dipole) and measuring the induced responses. It is especially sensitive to resistive targets, helps reduce MT ambiguity, and can reuse the same electrode layouts with compatible magnetometers. Frequencies and waveforms are selected to match target depth and site conditions.



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