Automated non-destructive measurements

Any core collected for science or engineering can benefit from detailed non-destructive analysis. Measurements are used by scientists and engineers both intrinsically, for their actual values (e.g. gamma density, P-wave velocity), or as proxies for changes in lithology or formation environment (e.g. magnetic susceptibility).

The Standard: MSCL-S

The use of Multi Sensor Core Logger (MSCL) systems to rapidly obtain high-resolution, down-core data from sediment and rock cores has become a standard procedure over the past 20 years.

The Standard MSCL is the ideal equipment for obtaining these data in an accurate, easy, reliable and efficient manner. This is the most versatile logging system sold, accepting whole and split cores, and is compatible with all Geotek sensors.

Large or small, split or whole, rocks or mud...

The MSCL-S accepts a wide range of core sizes; the powerful ballscrew can easily push three 50 kg 15-cm-diameter sediment core sections. Both whole and split cores can be moved along the track by the core pusher. Lined cores or unlined, competent rock cores ride directly on the plastic rails of the track; fragile rock cores can be placed on trays for their transit through the sensors.

Easy to use

Once the system is set up and calibrated for the particular core size being used, user interaction with the machine consists of placing individual core sections on one end of the track and removing them from the other. Calibration is pragmatic and straightforward. Co-registered data are exported as tab-delimited text for ease of re-importation into analysis programs.

Example MSCL-S data, including line-scan image
All sensors compatible
The MSCL-S is compatible with all sensors that Geotek offers. Sensors that can operate on whole sediment core (plastic-lined) include gamma density, P-wave velocity, magnetic susceptibility (loop sensor), electrical resistivity, and natural gamma spectroscopy. All of these sensors can also operate on split core, but the data quality is generally better when the core is logged whole. Sensors that must operate on split core include line-scan imaging, colour spectrophotometry, magnetic susceptibility (point sensor), and X-ray fluorescence spectroscopy. (See individual data sheets for more information.)

Co-registered data
The MSCL-S collects data from all sensors simultaneously, displaying co-registered data sets in real time. While a single logging run may not complete data collection from a core, as some sensors operate best on whole cores while others require split core surfaces, the precise motion of the core logger enables multiple logging runs to be co-registered with confidence.

Free-standing instrument or custom installation
The MSCL-S is normally supplied as a free-standing instrument that can be erected in any open space. It can also be custom-configured as a bench-mounted system or fully installed in a portable 20-foot laboratory for seagoing or field operations. All systems are field-rugged and come complete with anti-vibration mounting.

MSCL-S Specifications
- **Core accepted:** Length: up to 155 cm; Diameter: up to 15 cm
- **Compatible sensors:** gamma density, P-wave velocity, electrical resistivity, magnetic susceptibility (loop and point sensors), natural gamma spectroscopy, line-scan imaging, colour spectrophotometry, X-ray fluorescence, infrared spectroscopy
- **Core motion:** Fully automated motion. Linear precision: 0.1 mm
- **Data output:** Tab-delimited ASCII files containing all measured parameters vs. depth in section and core
- **Track dimensions:** Length: 4.35 m; Depth: 1.2 m; Height: 1.15 m (1.9 m with camera)
- **Electronics rack dimensions:** Length: 0.55 m; Depth: 0.6 m; Height: 0.6 m; Weight: 65 kg
- **Scan speed:** Typical logging speed 4 m/hr

---

**MSCL-S in split-core configuration**