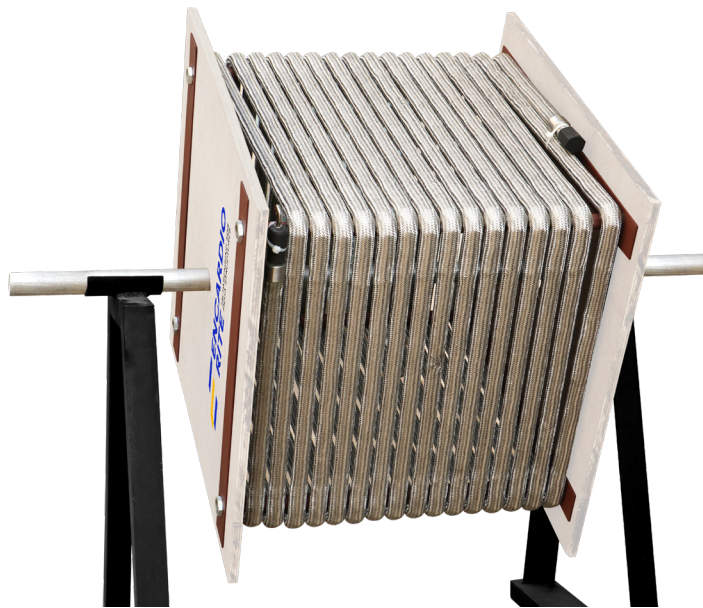


GEOPROFILE

DATASHEET



OVERVIEW

Encardio Rite's GeoProfile is designed for real-time monitoring of lateral movements, 3D deformation, and tilt. Its unique ability to measure subsurface changes due to ground and structural movement, including deformation, settlement, and subsidence, sets it apart. This system provides detailed subsurface movement profiles and is highly durable for long-term monitoring, making it a reliable choice for your monitoring needs.

The GeoProfile consists of rigid 0.5-meter segments connected by flexible joints. These joints allow tilt in any direction while preventing twisting. Each segment houses a triaxial MEMS sensor calibrated to measure tilt, displacement, or velocity. Onboard processors calculate each joint's X, Y, and Z positions relative to its neighbors, forming the overall array profile. The GeoProfile can detect even minor ground movements by comparing readings to an initial baseline.

The GeoProfile can be effortlessly installed vertically, horizontally, or in an arc, adapting to your project's unique requirements. This flexibility makes it suitable for a wide range of applications, including tunnel monitoring, where it can measure lateral deformation, settlement, or convergence without the need for grooved casing, simplifying your installation process. For structural health monitoring, the GeoProfile tracks deformation and settlement in retaining walls, diaphragm walls, and piles and monitors foundation settlement or heave. It also detects underground movements and barriers in landslide-prone areas, making it a valuable tool for geotechnical and structural engineering applications.

FEATURES

- **Real-time monitoring:** Continuous monitoring of lateral ground movements and settlement/heave.
- **3D visualization (X, Y, Z):** This tool provides 3D visualizations of ground movement, which helps users understand deformation patterns clearly.
- **Easy installation and retrieval:** Pre-assembled segments on a drum ensure easy installation within access tubes and have a simplified retrieval process.
- **Compact and durable construction:** Designed to withstand harsh underground environments and fits small-diameter boreholes.
- **Customizable lengths:** These are available in various standard and custom lengths to meet specific monitoring needs.
- **Versatile installation:** Suitable for vertical, horizontal, and arc installations.
- **Flexible data options:** Supports SDI-12 and ModBus output and can connect to various dataloggers.
- **Data transmission options:** Datalogger transfers data wired or wirelessly to a central/cloud server via GSM/GPRS or RF network.
- **Infrastructure data intelligence platform:** Proqio software facilitates data processing, analysis, and real-time visualization and generates instant alarms for critical events to all stakeholders
- **Easy configuration:** Plug and Play sensor installation. Intuitive set up and configuration.

Output

The GeoProfile supports both SDI-12 and ModBus (RS-485) output options, allowing connection to various digital dataloggers. Encardio Rite also offers a range of dataloggers with transmission options via GSM/GPRS and RF networks.

SDI-12 Output

It supports up to 60 sensors in a GeoProfile chain, with a maximum length of 30 meters and a maximum datalogger distance of 200 meters from the gage well. The NexaWave Digilog datalogger can connect up to three chains of 60 sensors each. Consult the factory for configurations exceeding 60 sensors per datalogger.

ModBus Output

It supports up to 32 sensors in a GeoProfile chain, with a maximum length of 16 meters. The maximum datalogger distance is 1.2 km from the gage well. It is compatible with any suitable ModBus datalogger, though sensor limits may vary by model. The NexaWave Digilog datalogger can connect up to seven ModBus tilt sensors with an additional Modbus card if specifically ordered.

These output options ensure the GeoProfile can be seamlessly integrated into various monitoring setups, providing flexibility and scalability for diverse applications.





SPECIFICATIONS

Geoprofile

| | |
|--------------------------|--|
| Measuring range | ± 360° |
| Tilt resolution | ± 2 arc sec. (of a single segment) |
| Segment length | 250 mm / 500 mm (joint center to center) |
| Array accuracy | 1.5 mm |
| Diameter (max. at joint) | 24 mm |
| Maximum joint bend angle | 90° |
| Operating temperature | -20°C to 60°C |
| Cable length | 15 m standard |
| Conduit & Casing (i.d.) | 27 mm , 47 mm – 100 mm |
| Power supply | 12 VDC at 5 mA/segment (nominal) |
| Water ingress protection | IP-68 (100 mwc) |
| Weight | 1 kg/m |

*All specifications are subject to change without prior notice

DATASHEET | 1905-24 R03



Dams



Mining



Tunnels



Transportation



Construction



Bridges



Landslides



Energy



Environmental Monitoring



Pipelines



Structural Health Monitoring



Smart Cities