

Penetrologger PRO

Reliable soil penetration resistance measurements

- Precise and fast internal GPS
- Touchscreen designed for demanding field conditions
- Rechargeable battery: up to 48h of operation
- Charging via USB-C port
- Visual and audio penetration speed feedback
- Quick-switch between measuring units
- Wi-Fi ready
- Future-proof design with update capabilities



Penetration resistance testing is more than a measurement; it's a decision-making tool that reduces liability, increases safety, and improves performance.

The Penetrologger PRO is a robust and precise instrument for measuring soil penetration resistance in the upper 80 cm of the soil profile. It is designed to be future-proof, with the capability to connect to Wi-Fi.

Designed for professionals who need fast, accurate, and actionable insights, it helps to eliminate guesswork in soil compaction testing.

- Make confident decisions in the field
- Reduce project delays
- Improve long-term outcomes



Feature Overview

The Penetrologger PRO is ergonomically designed, lightweight and easy to use. The housing has a protection rate of IP54.

Key features include:

- Digital data logging with GPS location
- Optional soil moisture sensor
- Measurement in megapascals (MPa), Newtons (N), PSI, and California Bearing Ratio (CBR)*
- Durable, maintenance-free design for field reliability
- Seamless data integration into existing workflows using the PenetroPROviewer application

GPS

The Penetrologger PRO is equipped with an accurate internal GPS-system to determine the measuring point with an accuracy better than 2.5 m CEP.

Touchscreen

The 5 inch high quality colour LCD screen can be operated with gloves and is readable in demanding outside conditions.

Soil moisture sensor compatibility

Optionally, a soil moisture sensor set (art. no. D0043272) can be connected to make a one point measurement and record the soil moisture percentage at the measuring point (applying the Frequency Domain technique).

User-friendly and modern user interface

The easy-to-use interface allows you to create and edit projects on site, with the option to define a preset project with fixed measurements. It provides a visual penetration speed indication and alarm, as well as a review of previous measurements from device memory.

Display

The display shows status icons for location fix, USB connection, and charging.

PenetroPROviewer PC application

Special software has been developed for the Penetrologger PRO that allows you to download data from the Penetrologger to a Windows-operated computer, show the data and export this data to several file formats.

* Our CBR value is an indication. It needs to be validated through an external CBR test.

PenetroPROviewer features:

- Upload data from the Penetrologger PRO
- Review data per site
- Review average per site
- Save data to CSV format and more
- Update penetrollogger firmware

Applications

- Civil engineering – evaluation of foundation suitability, infrastructure and work platform stability
- Agriculture – monitoring soil compaction and workability
- Sports fields and public green spaces – ensuring optimal maintenance and usability
- Mining & dike monitoring - soil measurements for risk assessments of dikes and tailings dams

The Penetrologger PRO supports Cone Index (CI) measurements, which are used in the Unified Soil Classification System (USCS) to assess terrain accessibility for vehicles and machinery. This makes it a valuable tool for both soil profiling and operational planning.

Penetrologger PRO set

Contents

Case Set Penetrologger PRO

Penetrologger PRO

Cone, base area 1 cm², 60 °

Cone, base area 2 cm², 60 °

Cone, base area 3 1/3 cm², 60 °

Cone, 5 cm², 60 °

Probing rod (cone 1 cm²) Ø 8 mm

Probing rod (cones 2 cm² - 5 cm²) Ø 10 mm

Inspection jig for cones

Depth reference plate

Penetrologger PRO tool kit

USB-C to USB-C cable, 1 m

Penetrologger PRO User manual



Optional

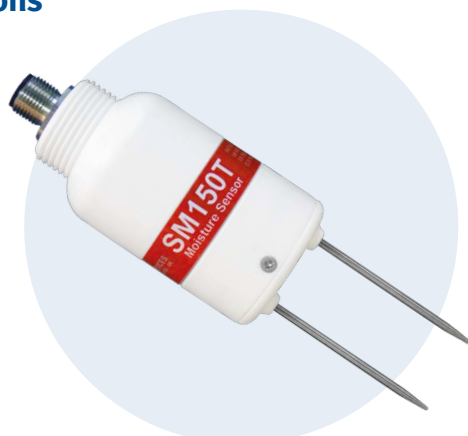
Soil moisture sensor set

CBR Cone kit

Extension depth kit up to 3.2 m

Optional Soil Moisture Sensor - technical specifications

| | |
|----------------------------|-----------------|
| Measuring range accuracy | 0-70% 3% |
| | 0-100% 5% |
| Resolution | 1% |
| Output signal | 0-1 Vdc |
| Measuring pens material | stainless steel |
| Length measuring pens (2) | 51 mm |
| Diameter measuring pens | 2.5 mm |
| Force resolution | 1 N |



| Penetrologger PRO - technical specifications | |
|--|--------------------------------------|
| General technical specs | |
| Operating temperature | 0 ... +50 °C |
| Water resistance | IP54 |
| Housing Penetrologger | Aluminium, steel, plastic |
| Dimensions (excl. rod): | LxWxD: 61.77 x 49.53 x 22.50 cm |
| Weight (excl. rods and cone) | Approx. 3,250 g |
| Total length measuring rod (excl. cone) | 97 cm |
| Measurement storage size | 1500 |
| Selectable cones | 1, 2, 3, 4, 7, 8 and CBR |
| Selectable units | MPa, PSI, Newton, CBR* |
| Transport case | |
| Materials | Impact resistant plastic, foam inlay |
| Main dimensions | (LxWxD): 61.77 x 49.53 x 22.50 cm |
| Penetrologger PRO set weight | Approx. 11.5 kg |
| Force measurement | |
| Maximum penetration force | 1,000 N |
| Load cell resolution | 1 N |
| Accuracy | Better than 1 N |
| Depth measurement | |
| Depth registration | max. 80 cm |
| Depth resolution | better than 1 cm accuracy |
| GNSS location using multiple satellite | |
| GPS accuracy | accuracy better than 2.5 m CEP |
| GPS | including GPS, GLONASS and Galileo |
| Soil moisture measurement | |
| Compatibility sensor | SM150T |
| Range | 0-70% ... 0-100% |
| Accuracy | 3% ... 5% |
| Rechargeable battery | |
| USB-C connector | Charging cable included |
| Battery status indication | 4 level indication or charging |
| Battery lifetime | Up to 48 hours of operation |

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