



Ideal transport case



Optical connectors



Antenna elements



Tripod, digital or mechanical

1. Fiber optic cable

2. Connectors

3. Antenna Elements

4. Antennas for deep and standard mode



MALÅ Borehole Antennas

The MALÅ Borehole Antenna series are a powerful tool, often used to obtain information at greater depths than is obtainable with surface GPR. MALÅ Geoscience manufactures the only commercially available borehole GPR system that can perform surveys deeper than 30 meters, due to the use of fiber optic cables for communication. In fact, the MALÅ Borehole Systems have been used successfully to depths in excess of 2500 m.

Common measurement methods include single-hole reflection mode, cross-hole mode (tomography) and surface-to-borehole mode.

The area of investigation is a cylinder shaped volume around the borehole with a radius of 10 - 100 m (dependent on electrical properties of the media under investigation).

In reflection mode the transmitter and receiver are deployed in the same borehole. The antennas are dipoles and radiate and receive reflected signals omni-directionally. Data is displayed in real time using the MALÅ GroundVision software. To determine the exact distance and bearing of the reflector in this mode requires scans in at least three boreholes.

Brief Description & Technical Specification

A typical system set-up comprises a MALÅ ProEx control unit, MALÅ XV Monitor or a laptop PC, a tripod with depth encoder (mechanical or digital) and then also the antenna. For deeper investigations, cable winches are also available. Today, MALÅ Geoscience offers two different borehole antennas, each with different features;

100MHz Slimhole Borehole Antenna

The MALÅ Borehole 100MHz Slimhole Antenna is the lowest frequency available. It is used for medium to low resolution investigations.

Dimensions :

Tx: Length: 189 cm (including batteries) – Diameter: 40 mm - Weight: 3.3 kg

Rx: Length: 176 cm (including batteries) – Diameter: 40 mm - Weight: 3.6 kg



250MHz Borehole Antenna

The MALÅ Borehole 250 MHz Antenna is a general purpose antenna, generally used for investigations that require medium resolution.

Dimensions :

Tx/Rx: Length: 129 cm (including batteries) – Diameter: 48 mm - Weight: 4.75 kg



Applications

The MALÅ Borehole Antenna System is recommended for applications including fracture characterization, foundation engineering/ studies, karst imaging, cavity and void detection, flow path analysis, localization of "lost" boreholes, delineation of ores, earth dam investigations, contamination transportation and more.

Accessories

A number of accessories are available for the MALÅ Borehole Antennas, including :

- Antenna separators
- Tripods
- Mechanical / digital depth encoders
- Electrical winches

See our webpage for latest information