



Borehole Deviation

BORETRAK®360°

Lightweight Uphole Survey System



The Boretrak360 is a lightweight variant of the industry-standard Boretrak hole deviation measurement system, developed for underground applications where boreholes are drilled upwards or horizontally. Boretrak probes have been used in mining and quarrying operations for more than four decades, providing a proven method for measuring borehole deviation.

Uphole Use

To reduce handling effort during uphole or inclined deployments, the Boretrak360 features a hard-anodized aluminum body weighing 1.5 kg (3.3 lb), nearly 2 kg (4.4 lb) lighter than the steel-bodied Boretrak3 probe. This weight reduction makes pushing the probe up vertical or inclined holes significantly easier. A threaded titanium nose cone provides a lightweight, impact-resistant leading surface during repeated deployments.

For uphole and horizontal use, the probe must be equipped with centralizers sized to the borehole diameter. Three centralizers are required on each end, with bow-out options from 10–40 mm. Proper centering prevents the probe from resting against the borehole wall, ensuring accurate measurements and reducing wear to the aluminum body. Deployment is carried out using standard Boretrak push rods, hinged Boretrak rods, or wire cable systems.



Rugged Construction

The probe contains an inertial measurement unit (IMU) with a triaxial accelerometer, magnetometer, and gyro, capturing inclination and heading at fixed intervals along the hole. Data is stored internally using timestamps from the probe's real-time clock, allowing the full borehole path to be reconstructed after retrieval.



The body of the 360° is made of hard-anodized aluminum with a titanium battery cover designed to withstand impacts during deployment. O-rings seal the probe to maintain water resistance, giving the Boretrak360 an environmental protection rating of IP66. The probe is built to be robust, but should always be handled carefully to protect the calibrated IMU sensors inside the housing.

Alignment & Operation

Before deployment, the probe is aligned using the supplied jig to establish the initial heading, which corresponds to the direction of the nose cone. LEDs indicate alignment state, logging state, and battery condition. During deployment, readings are recorded at one-second intervals and stored internally, with timestamps captured for matching during download.



SAME PRECISION.

BORETRAK®360°

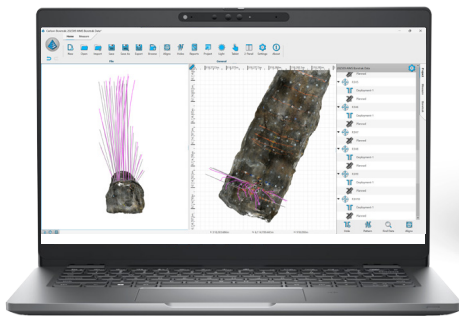
HALF THE WEIGHT.

3D Borehole Reconstruction

After retrieval, the probe reconnects via Bluetooth to download all stored IMU data. Carlson Boretrak software matches the probe timestamps with those recorded by the operator, then applies the initial alignment heading and collar position to generate the borehole trace. The completed trace can be compared against design holes or earlier surveys.



Software Workflow



Carlson Boretrak software runs on Windows tablets, Android devices, or desktop PCs. It manages project setup, alignment entry, timestamp logging, data download, and final visualization. Borehole data can be reviewed immediately after deployment, exported, and used to generate reports showing deviation from the design.

Support

Carlson provides dedicated technical assistance and clear access to system documentation to keep equipment operating reliably. Operators can reference the probe serial number when contacting support, and service needs can be handled by Carlson or an approved support center.

Specifications

Probe Dimensions

710mm x 40mm
Battery cover is 42 mm dia.

Weight

1.5 kg

Sensors

IMU with 3-axis gyro, accelerometer & magnetometer
Full 360° Range
Max configurable gyro rate 1920°/s

Power

4 x 1.5 V "D" cells (LR20)

Environmental

IP66

Accuracy

Final position to within 1% of hole depth

Operating Temperature (probe)

-10 °C to +60 °C

Storage Temperature (probe)

-20 °C to +70°C

