



Borehole Profile Sensor

MEMS
TILT & INCLINATION
SERIES

rst
INSTRUMENTS

PROMAT
Your Solution To Testing Instruments

specifications

CHARACTERISTIC	TYPICAL
Heading Range	0-359.9°
Heading Resolution	0.1°
Heading Hysteresis	0.2°
Heading Accuracy (+25° pitch)	1.0°
Heading Accuracy (full pitch range)	3.0°
Roll Range	+/-60°
Roll Accuracy (nulled)	0.5°
Pitch Range	-5° to +55°
Pitch Accuracy	0.05°
Probe Size Ring	1.90 in.
Probe Ring Spacing	24.0 in.
Probe Length Overall	36.4 in.
Probe Mass	4.65 lb.
Operating Temperature	-20° to 60° C
Insertion Rod Pitch	6.00 ft.
Insertion Rod Mass	2.4 lb.

ordering info

ITEM	PART #
Borehole Profile Sensor	IC32208
Ultra-Rugged Field PC (readout)	IC32000-14803

Standard borehole inclinometers are designed to measure borehole shape accurately in boreholes within a few degrees of vertical. Horizontal inclinometers measure profile in a vertical plane, with no information in the horizontal plane. In each case, grooved casing and wheels are used for azimuth and centering control.

Drainholes are commonly raked significantly above horizontal and may contain small diameter un-grooved plastic casing. For quality control reasons, it may be desirable to ensure that drainholes are built to design, especially to avoid large gaps in drain coverage due to inaccurate drilling. This is a one-time, single pass measurement, unlike most inclinometer measurements which are made repeatedly to detect ongoing movement.

The Borehole Profile Sensor is designed to provide mapping of boreholes raked above horizontal. It does not have wheels nor does it use grooved casing. The sensor is inserted into the borehole using rigid rods, and measured at intervals set by cable marks, typically 24" or 0.5m. The heading or azimuth is measured relative to terrestrial magnetism via a 3D magnetostrictive sensor, a 3D MEMS accelerometer and proprietary software. Roll of the sensor in the axis of the borehole is measured by the 3D MEMS accelerometer, and manually nulled by rotating the insertion rods. The pitch or rise of the borehole is measured by a precision MEMS inclinometer.

The data is collected with RST's Ultra-Rugged Field PC and is downloaded via Activesync to a comma separated text file (.CSV) for analysis in Microsoft Excel™ or similar software.

This concept can be built for profiling other boreholes, with different diameter, sensor length and nominal plunge.

applications

To provide mapping of boreholes raked above horizontal.

For profiling other boreholes, with different diameter, sensor length and nominal plunge.

features

Collect data via RST's (Bluetooth) wireless readout, the Ultra-Rugged Field PC.

Collected data can be easily analyzed in .csv format in Microsoft Excel or similar format.

Uses standard inclinometer reel.

MEMS technology.



Close up of tip showing top (centre) reference markings which are used for proper orientation during operation.