

Colloidal Borescope

Geotech Colloidal Borescope

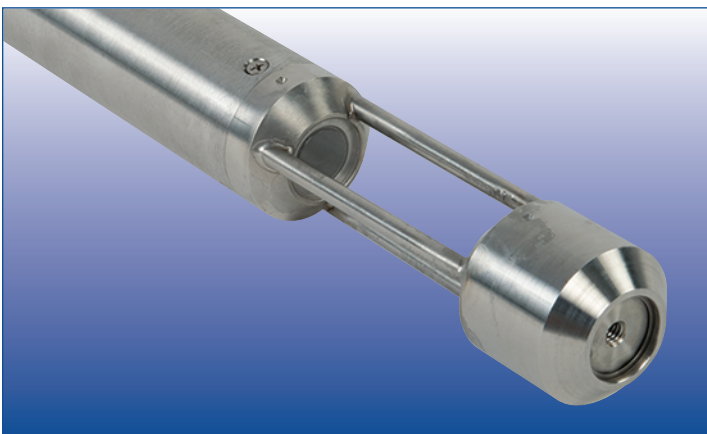
The Geotech Colloidal Borescope accurately measures groundwater velocity and direction in real-time. Using proprietary technology, the Colloidal Borescope incorporates a down-well sensor set to depth-specific intervals and a live-view AquaLITE software that captures and records thousands of data points per minute yielding statistically assured preferential flow data.

BENEFITS

- Observes flow at a pore scale for measuring velocities ranging from 0 to 30 mm/sec
- Generate flow and velocity models using existing wells – avoiding added costs associated with installing additional wells or piezometers
- Identify flow direction and velocity in real-time
- Capture statistical summary report that includes well number, date, vector analysis and more

APPLICATIONS

- Assessing groundwater capture zones
- Planning locations for monitoring recovery wells, and injection wells
- Accurately calibrating groundwater models
- Excellent alternative to slug tests and pump tests
- Tidal influences
- Industrial hydrology
- Gathering evidence for groundwater contamination litigations
- Evaluate “cross-hole” hydraulic connections



Standard Unit
Requires Laptop with Express Card Slot (~54mm)

colloidal_borescope.qxp 10/11/19

COLLOIDAL BORESCOPE SYSTEM INCLUDES:

- **Borescope Probe** – fully integrated colloidal view video microscope with magneto-resistive digital compass enclosed in a protective 300 series stainless steel housing.
- **Bulkhead Down Well Cable** – reinforced composite video underwater camera cable incorporating Kevlar longitudinal strain relief and polyurethane outer jacketing. Down well cable lengths are available from 100' (30m) to 1000' (305m).
- **Geotech Portable Reel** – transporting and storing the down well cable and Borescope probe.
- **Camera Control Unit** – featuring camera and lighting power supplies, serial data connection for digital compass via USB, and transmission of live down well video using a 54mm express card.
- **Extension Cable** – connects camera control unit to the portable hand reel, used with systems that include 200 feet or more of down well cable.
- **AquaLITE Software** – allows user to live-view water flow direction, velocity or combined graphs, and statistical summary reporting. AquaLITE also features fully configurable video signal quality, ground water quality, and other aquifer characteristics.
- **Operation Manual** – detailing full instructions on how to operate the instrument.

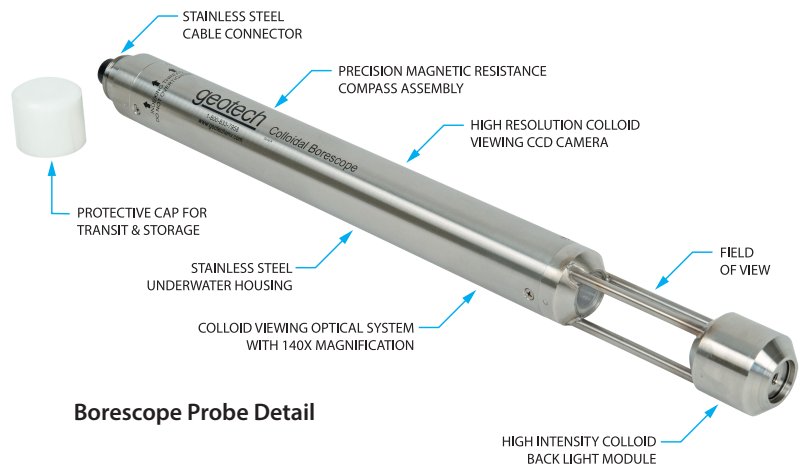
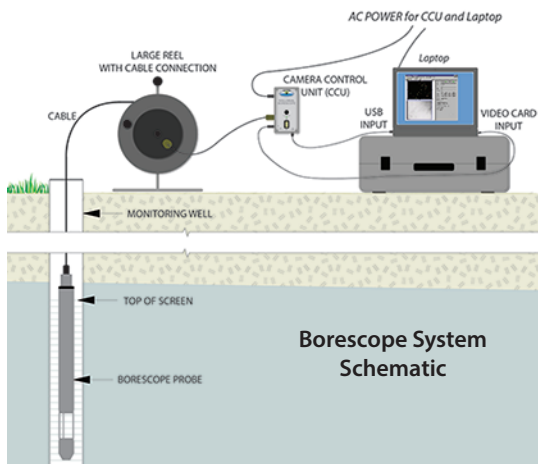
OPTIONAL ACCESSORIES INCLUDE:

- Laptop with 54mm express card and USB ports
- Centering Device for Borescope

SPECIFICATIONS

Applications	2" (5.8cm) or larger well diameter
Maximum Operating Depth & Submergence	1000' (305 m)
AC Power Requirements*	90-240V AC, 47 to 63 Hz. 7 Watts Service requirement <1 amp
DC Power Requirements*	10 to 16V DC @ <1 amp
Probe Size	21.25" L x 1.75" OD (54 cm L x 4.5 cm OD)
Probe Weight	5 lbs. (2.5 kg)
Probe Housing Material	300 series stainless steel
Window Material	Sapphire
Camera Control Unit Size	3.98" W x 7.89" L x 3.16" H (10 cm W x 20 cm L x 8 cm H)
Camera Control Unit Weight	2 lbs. (.9 kg)
Cable Size	.32" OD (81 cm) Customer specified length from 100' to 1000' (30.5 m to 305 m)
Cable Jacket Material	Urethane (composite cable material ROHS compliant)
Electrical Component Material	Non-ROHS compliant (dispose of properly)
Operating Temperature Range	14°F -113°F (-10°C to 45°C)
Camera Field of View	2.5 mm x 2 mm
Depth of Focus	.2 mm
Minimum Groundwater Velocity	0 mm/s
Maximum Groundwater Velocity	30 mm/s
Minimum Particle Size	10µm
Maximum Particle Size	Within camera field of view
Heading Accuracy	1.0°RMS typical
Heading Resolution Output Data	0.1°
Heading Hysteresis Output Data (1s)	±0.3°
Cable Lift Capacity	426 pounds (193 kg)
Compass Resolution	1°
Compass Accuracy	±1°

*Not including laptop or PC



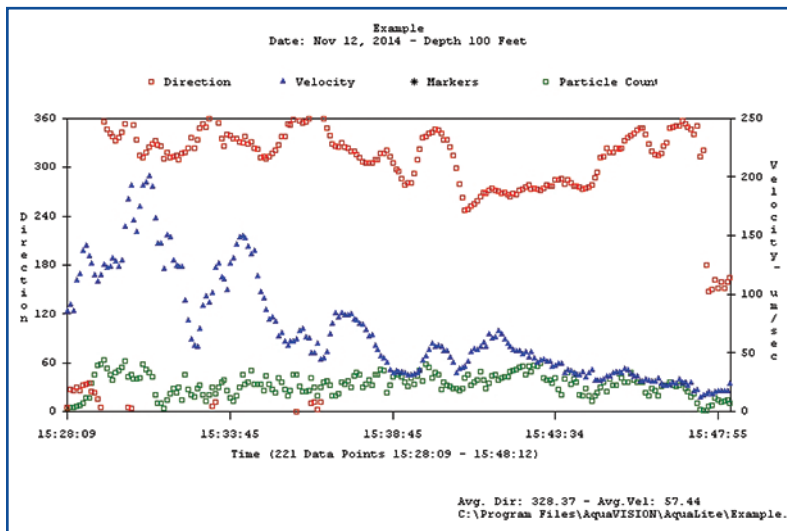
AQUALITE SOFTWARE

The Colloidal Borescope System powered by AquaLITE enables environmental scientists to fully understand the complexity of site hydrology. The Colloidal Borescope can measure groundwater direction and velocity in real-time at depth specific intervals.

Geotech's AquaLITE software allows the user to view both the live video signal from the borescope and a symbolic representation of particle movements at the same time. The software is fully configurable, to allow for changes in video signal quality, groundwater clarity, and other aquifer characteristics.

The software also allows the user to view the sampled data in directional, velocity or combined graphs, all in real-time. The graphs are fully customizable. The graph images, as well as the sampled data can be exported for use in other applications and/or presentations.

The software offers a statistical summary report for the user and includes well number, date and data information, general statistical analysis, and a vector analysis. The summary report may be exported for use other applications and/or presentations.



Example of graph, showing velocity, direction, and particle count

