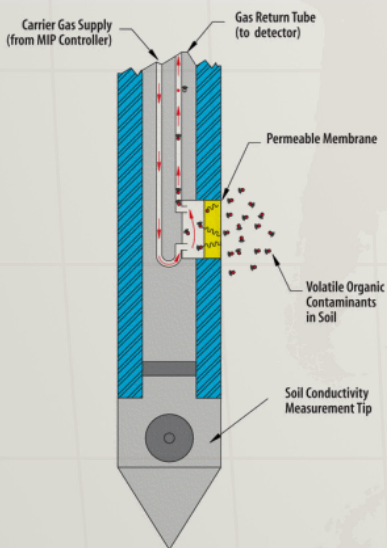


Membrane Interface Probe (MIP)



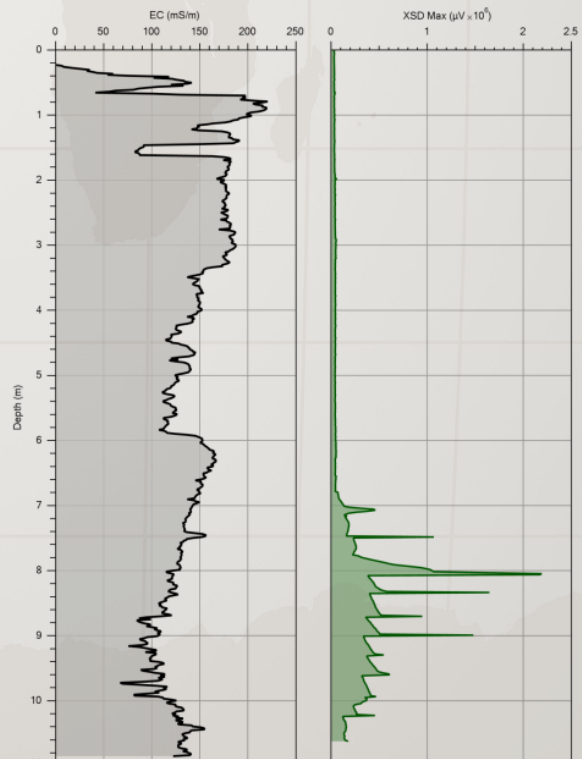
The MIP was developed by Geoprobe Systems® (U.S. Patent No. 5,639,956) and is presently manufactured and sold exclusively by Geoprobe Systems® and its distribution agents. The MIP has been used extensively in the U.S. and Europe for mapping the extent of VOC contamination in the subsurface. As a logging tool, the MIP offers many benefits to site investigators:

- Useful for detecting and logging both chlorinated and non-chlorinated VOC contaminants.
- Able to detect contaminants in both coarse and fine grained soils.
- Works in both saturated and unsaturated soils.
- The MIP can be either pushed or driven to depth.
- Standard tool configurations combine the MIP with other sensors for lithology or permeability logging.
- Real time contaminant screening information is generated, allowing field adjustment of the site investigation.



An MIP log showing an EC soil log (left) with MIP-XSD contaminant log (right).

The MIP Principle of Operation. The downhole, permeable membrane serves as an interface to a detector at the surface. Volatiles in the subsurface diffuse across the membrane and partition into a stream of carrier gas where they can be swept to the detector. The membrane is heated so that travel by VOCs across this thin film is almost instantaneous. MIP acquisition software logs detector signal with depth.

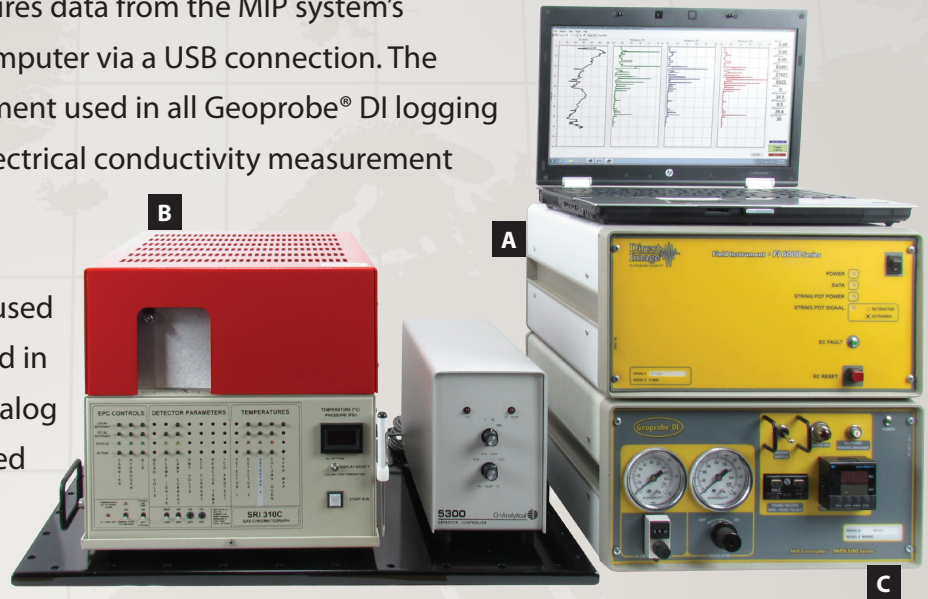


Membrane Interface Probe (MIP)

A) FI6000: Data acquisition instrument, acquires data from the MIP system's detectors and sensors and relays it to the computer via a USB connection. The FI6000 is the general data acquisition instrument used in all Geoprobe® DI logging systems (EC and HPT). It also provides the electrical conductivity measurement system associated with MIP.

B) GC1000: This is the platform of detectors used in the MIP System. Standard detectors offered in this system include the PID, FID, and XSD. Analog data outputs from this instrument are directed to the FI6000.

C) MP6500 Series MIP Controller: This instrument regulates and measures gas pressure and flow to the MIP probe and controls heating of the probe. Data from this controller is sent to the FI6000 via a data cable.



Purchasing an MIP System

The MIP system is available exclusively from Geoprobe Systems® and its authorized distributors. Please contact Geoprobe Systems® (800-436-7762) for a quotation for this equipment. Quotations for MIP equipment will include equipment and services in

the following categories:

- MIP controller and data acquisition system.
- MIP detectors.
- Probes, trunklines, and push hardware.
- Training.

Companies who already operate Geoprobe® EC or HPT systems may already have some of the instrumentation required to operate an MIP system (such as the FI6000 and various probe pushing hardware). Geoprobe Systems® is adamant that all MIP operators receive proper training. This training is designed to teach proper set-up and operation of the MIP system, practice of log Quality Assurance (QA) and Quality Control (QC) procedures, field trouble shooting, and log interpretation. Training is typically designed to include field exercises in MIP logging.