

Hydra Probe

- *Measure 21 different parameters*
- *Instantaneous sensor response*
- *Rugged for years of in-soil use*
- *Addressable SDI-12 digital output*
- *Quick iSIC or SDL system integration*

The Stevens **Hydra Probe** soil moisture sensor is an in-situ soil probe that measures 21 different soil parameters simultaneously. The **Hydra Probe** instantly calculates soil moisture, electrical conductivity, salinity, and temperature as well as supplying raw voltages and complex permittivity for research applications. A compact, rugged design with potted internal components makes the **Hydra Probe** easy to deploy and leave in the soil for years with no maintenance.

The **Hydra Probe** design is unique compared to other soil moisture probes because the electrical response of soils can be specified by two parameters - the dielectric constant and the conductivity. The dielectric constant is most indicative of water content, while the conductivity is strongly dependent on soil salinity. Unlike other capacitance type sensors, the **Hydra Probe** measures both of these components simultaneously. The high frequency electrical measurements indicating the capacitive and conductive properties of soil are then directly related to the soil's moisture and salinity content, while a thermistor determines soil temperature.

The sensor includes built-in RS-485 and SDI-12 outputs for interfacing with NexSens **iSIC** and **SDL** data loggers. Sensor cable can be factory-connectorized with NexSens underwater connectors for integration to an SDL submersible data logger sensor port. Data collection options include direct-connect, landline phone, cellular, radio, Ethernet, WI-FI, and satellite telemetry. NexSens **iChart** Software is a Windows-based program for interfacing both locally (direct-connect) and remotely (through telemetry) to a NexSens data logger or network of data loggers.

Hydra Probe

soil moisture sensor

specifications

Dielectric Constant Range	1 to 65 where 1 = Air, 78 = Distilled Water
Dielectric Constant Accuracy	± 1.5% or ± 0.2 whichever is typically greater
Soil Moisture Range	From completely dry to fully saturated
Soil Moisture Accuracy	± 0.03 water fraction by volume in typical soil
Conductivity Range	0-20 dS/m
Conductivity Accuracy	± 2.0% or ± 0.002 dS/m whichever is typically greater
Temperature Range	-10 to +65°C
Temperature Accuracy	+/- 0.6°C
Power Requirement	7-30 VDC
Power Consumption	<1mA idle; 30mA active
Operating Temperature In Soils	Freezing to +65°C
Operating Temperature Range	-10 C to +65°C
Storage Temperature	-40 to +70°C
Water Resistance	Tolerates continuous full immersion
Length	4.9" (12.4cm)
Diameter	1.6" (4.2cm)
Weight	200g not including cable



parts list

Part #	Description
93640-025	Hydra Probe II soil moisture, temperature, & salinity sensor, SDI-12 interface, 25' cable
93640-050	Hydra Probe II soil moisture, temperature, & salinity sensor, SDI-12 interface, 50' cable
93640-100	Hydra Probe II soil moisture, temperature, & salinity sensor, SDI-12 interface, 100' cable
A50	Junction box
3100-MAST	Mast-mounted 3100-iSIC data logging system with cellular modem telemetry
4100-MAST	Mast-mounted 4100-iSIC data logging system with spread spectrum radio telemetry
6100-MAST	Mast-mounted 6100-iSIC data logging system with Iridium satellite telemetry
UW-CON	UW-connectorization of user-supplied sensor cable assembly
SDL500	Submersible data logger
SDL500R	Submersible data logger with spread spectrum radio telemetry
SDL500C	Submersible data logger with cellular modem telemetry
1001	iChart Software for Windows-based computers



937.426.2703
8am to 7pm EST, Monday-Friday

937.426.1125
24 hours a day, every day

NexSens Technology, Inc.
PO Box 151
Alpha, OH 45301-0151

E info@nexsens.com

→ nexsens.com