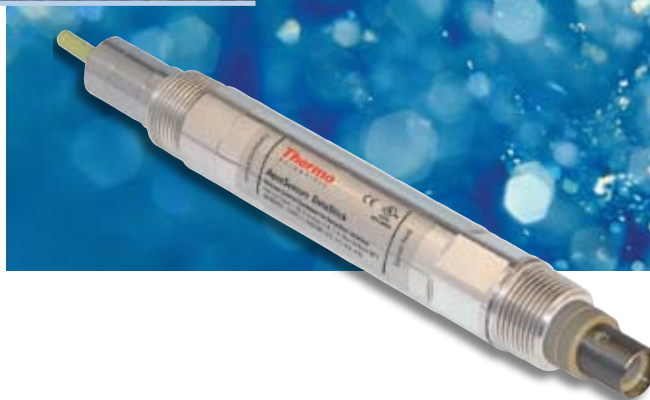


Thermo Scientific AquaSensors
DataStick measurement system
for universal plug & play

Thermo Scientific AquaSensors DataStick

Conductivity/Resistivity Measurement System



Markets/Applications

- Food processing
- Pharmaceutical
- Water production
- Reverse osmosis filters
- Desalination
- Deionization
- Ultrafiltration
- Distilled water
- Semiconductor
- Power generation
 - Steam production
 - Condensate return
 - Boiler blowdown
 - Cooling towers
 - Leak detection in heat exchangers
 - Demineralizers

AquaSensors Conductivity/ Resistivity DataStick™

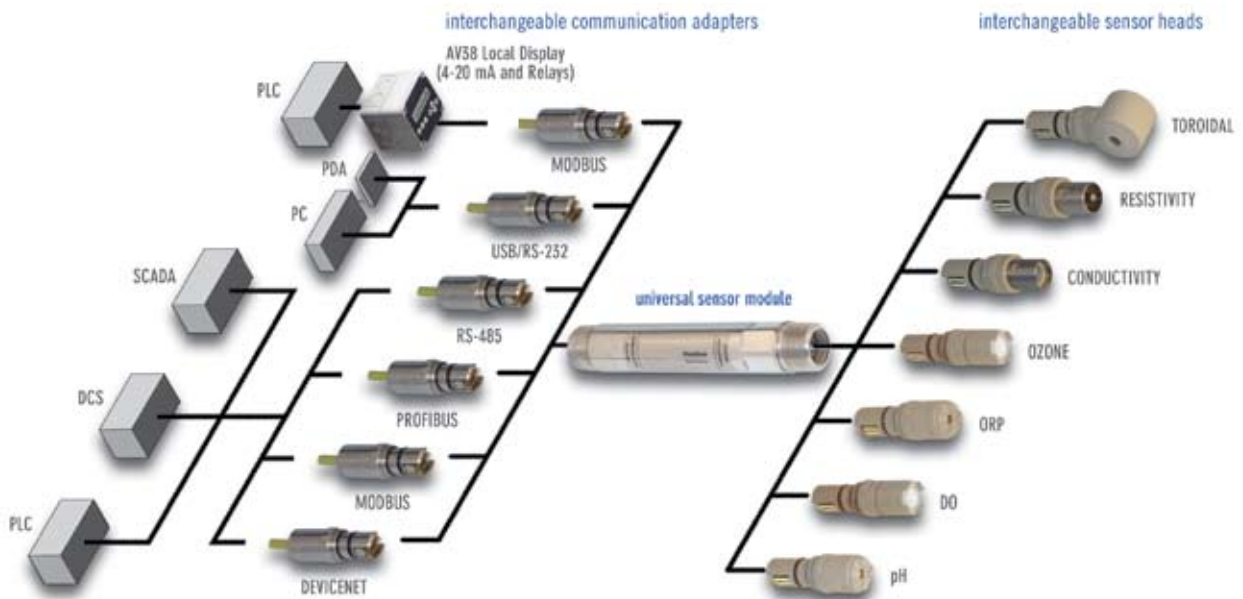
- High performance construction
- Pre-calibrated (no field calibration required)
- Plug & play sensor heads
- Two electrode measurement
- High accuracy temperature compensation
- Offered in a variety of materials
- Direct data reporting (24-bit)
- Plug & play industrial communications adapters

Connect this conductivity sensor directly to a PLC (Programmable Logic Controller) for seamless integration with industrial control systems. Use any computer to display data, calibrate and customize the measurement without an intermediate analyzer electronics box. Sensor heads are pre-calibrated and can be replaced or exchanged with any other type of sensor without taking the system down. Save space, time and money.

Engineering Specifications

1. The conductivity sensor shall have two electrodes manufactured to exacting tolerances using durable metals.
2. The sensor shall have hex-shaped wrench flats to facilitate mounting, and shall be constructed of a material with exceptional chemical resistance and mechanical strength. This material shall enable the sensor to be installed in metal fittings without leakage usually caused by heating and cooling cycles when dissimilar materials are threaded together.
3. The sensor shall have interchangeable, pre-calibrated plug-in sensor heads and communications adapters that can be installed without powering down the system.
4. The sensor shall have 1 inch NPT threads on both ends to mount into a standard 1 inch pipe tee, a 1.5 inch union mounting, or immersion hardware assembly.
5. The built-in electronics of the sensor shall be completely encapsulated and O-ring sealed for protection from moisture and humidity.
6. The sensor shall have a built-in pre-amplifier, universal signal conditioning electronics, universal engineering units conversion, and interactive communications with a host computer or display interface using one of several protocols including Modbus® RTU, DeviceNet, Profibus, USB, CANopen or Ethernet.
7. The sensor shall have an integral temperature sensor to automatically compensate measured values for changes in process temperature.
8. The sensor shall be AquaSensors Conductivity DataStick.

Thermo Scientific DataStick Analytical System



Key Components

DataStick

Provides universal conversion of sensor signals and interactive communications for measurement, calibration, configuration and diagnostics.



Conductivity Sensor Head

Pre-calibrated for conductivity and temperature. Can be plugged into any DataStick to yield accurate 24-bit data.



Communications Adapter

Plugs into the DataStick to provide power and direct interactive communications with control systems.

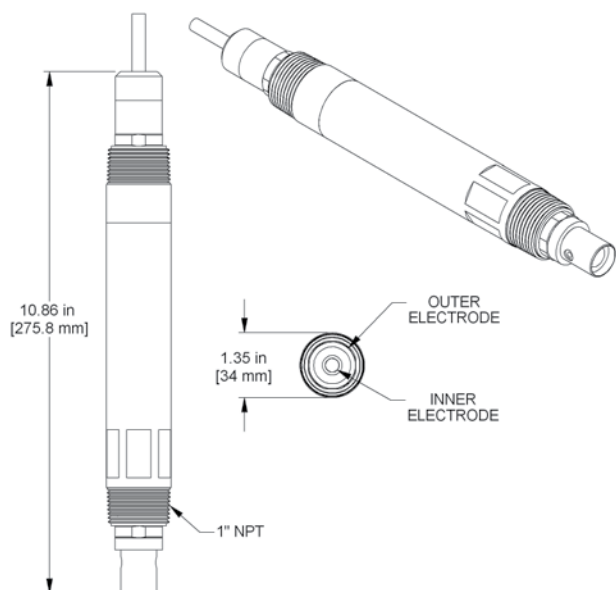


AV38 Local Display/Controller

2 line display and 7 key navigation. Data reporting with up to 2 current outputs. 2 Form C relays. Digital communications.



Thermo Scientific AquaSensors DataStick Conductivity Sensor Data Sheet



Provides universal conversion of sensor signals and interactive communications for measurement, calibration, configuration and diagnostics. Mounting adapters, junction boxes and recharge kits are available.



1 Inch Tee Mounting



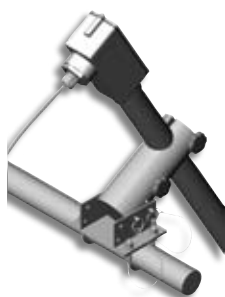
1.5 Inch Union Mounting



1.5 Inch Ball Valve



Sanitary Mount



Hand Rail Mounting Assembly



1 Inch Immersion Mounting with Junction Box
(7 foot extension is standard)

Specifications

Measurement System Performance†	<p>Range</p> <p>0.01 Cell: 18.2 MΩ • cm to 50 μS/cm</p> <p>0.1 Cell: 0 to 500 μS/cm</p> <p>1.0 Cell: 0 to 5000 μS/cm</p> <p>Resolution: 4.5 significant digits</p> <p>Accuracy: 0.1% of reading</p> <p>Step Response Time: 90% in 30 seconds</p>
Operational Environment	<p>PEEK Sensor Head</p> <p>Temperature Range: -5°C to 95 °C</p> <p>Maximum Pressure: 150 psig @ 95 °C</p> <p>Maximum Flow Rate: 10 ft/second</p> <p>CPVC Sensor Head</p> <p>Temperature Range: -5°C to 75 °C</p> <p>Maximum Pressure: 150 psig @ 75 °C</p> <p>Maximum Flow Rate: 10 ft/second</p>
Power Requirements‡	<p>Voltage Range: 10 to 30 VDC</p> <p>Maximum Power: 200 mW</p> <p>Typical Power: 120 mW</p>
Construction††	<p>Cell Constants</p> <p>0.01 for resistivity</p> <p>0.1 and 1.0 for conductivity</p> <p>Electrode Material: Titanium, 316 stainless steel</p> <p>O-rings: Viton® (other materials available)</p> <p>Sensor Head Material: PEEK or CPVC</p> <p>DataStick Material: 316 stainless steel, PEEK or CPVC</p> <p>Weight</p> <p>1.2 lbs (PEEK or CPVC)</p> <p>2.6 lbs (316 stainless steel)</p>
Units of Measure	<p>Measurement Units: μS/cm, TDS, %, MΩ • cm</p> <p>Temperature Units: °C, °F</p>
Calibration‡‡	<p>Zero: In dry air</p> <p>Span: 1 point</p> <p>Temperature: 1 point</p>
Temperature Compensation Options†††	<p>Linear: % per °C</p>
Other Configuration Options	<p>Sensor Filter: 0 to 100 seconds</p> <p>Temperature Filter: 0 to 100 seconds</p> <p>Concentration Table: User 10-point</p>
Approvals and Ratings	<p>Immunity & Emissions: CE Certified 89/336/EEC: CISPER 11, EN61000 (-4-2,-4-3,-4-4,-4-6, 4-8)</p> <p>Safety: cULus Listed; 367G E303570</p> <p>Hazardous Locations: Haz Loc Class 1, Division 2, Groups A, B, C, D. Max Ambient 80 °C</p>

† Note: Typical at 25°C Performance unaffected by cable length

‡ Note: Class II DC power supply required

†† Note: Conductivity and temperature are pre-calibrated at the factory

‡‡ Note: Temperature can be entered manually

Thermo Scientific AquaSensors Conductivity/Resistivity DataStick

- Global support — with experience that comes from supporting our customers for over 35 years throughout the world, our water quality specialists and customer support teams offer a quick, thorough and professional response to any problem encountered.
- Focus on user benefits — we work closely with you to define your needs, and ensure you are using the monitor in a way that improves your bottom line. For more information, contact your local water quality specialists, or visit www.thermo.com/processwater.

Conductivity/Resistivity Ordering Information

Part No.	Description
DS-b-t	DataStick
Body Material (b)	1 = 316 Stainless Steel 2 = CPVC 3 = PEEK
Mounting (t)	1 = NPT front/back 2 = 1 inch NPT front only 3 = 1.5 inch Ball Valve Insertion 4 = 2 inch Tri-clamp 5 = 2.5 inch Tri-clamp
CC-b-c-x-z	Conductivity Sensor Head
Body Material (b)	2 = CPVC 3 = PEEK
Electrode type (c)	1 = Titanium 2 = 316 Stainless Steel
Sensor (x)	A = 0.01 Cell (Resistivity) B = 0.1 Cell (Conductivity) C = 1.0 Cell (Conductivity)
CA-b-nw-x-y	Communications Adapter
Body Material (b)	1 = 316 Stainless Steel 2 = CPVC 3 = PEEK
Communications (nw)	1A = RS232 ASCII 7R = Ethernet 2B = Modbus® RTU 5R = DeviceNet 2A = Modbus RS232 8R = USB 4B = CANopen
Cable Length (x)	1 = 10 feet 2 = 20 feet 3 = 30 feet
Cable Termination (y)	A = Stripped Wires

Accessories Ordering Information

Part No.	Description
Local Display/Controller Interface	
AV38	1/4 DIN, Outputs, Relays, Digital Communications Options
Mounting Hardware	
MH3022	1 inch Tee Mounting, CPVC
MH3011	1 inch Tee Mounting, 316 Stainless Steel
MH1042-COND	1.5 inch Union Mounting, CPVC
MH1041-COND	1.5 inch Union Mounting, 316 Stainless Steel
MH1112	1.5 Inch Ball Valve, CPVC, Low Pressure
MH1111	1.5 Inch Ball Valve, 316 SS, Low Pressure
MH1122	1.5 Inch Ball Valve, CPVC, High Pressure
MH1121	1.5 Inch Ball Valve, 316 SS, High Pressure
MH1242	Hand Rail Mounting Assembly, Swivel/Immersion, PVC
MH3083	1 Inch Immersion Mounting with Junction Box, PVC (7 foot extension is standard)

Consult factory for other sensor mounting options.

©2008 Thermo Fisher Scientific Inc. All rights reserved. Viton is a registered trademark of E. I. Du Pont De Nemours & Company. Modbus is a registered trademark of Schneider Automation, Inc. All other trademarks are the property of Thermo Fisher Scientific Inc. and its subsidiaries.



S-ASDSCOND-E 1108 RevA

Environmental Instruments
Water Analysis Instruments

North America
166 Cummings Center
Beverly, MA 01915 USA
Toll Free: 1-800-225-1480
Tel: 1-978-232-6000
Dom. Fax: 1-978-232-6015
Int'l Fax: 978-232-6031

Europe
P.O. Box 254, 3860 AG Nijkerk
Wallerstraat 125K, 3862 BN
Nijkerk, Netherlands
Tel: (31) 033-2463887
Fax: (31) 033-2460832

Asia Pacific
Blk 55, Ayer Rajah Crescent
#04-16/24, Singapore 139949
Tel: 65-6778-6876
Fax: 65-6773-0836

www.thermo.com/water

