

Thermo Scientific AquaSensors DataStick

pH measurement system

Thermo Scientific™ AquaSensors DataStick measurement system for universal plug & play.

Markets/Applications

- Wastewater treatment
- Neutralization of effluent
 - Steel
 - Pulp and paper
 - Food
 - Chemical
 - Pharmaceutical
- Metal finishing (chrome/cyanide destruct)
- High purity water
- Odor scrubbers
- Pharmaceutical
- Chemical & petrochemical
- Reverse osmosis
- Cooling tower control
- Food processing
 - Carbon dioxide control
 - Cleaning
 - Canning



Thermo Scientific™ AquaSensors pH DataStick™

- Differential pH measurement
- Pre-calibrated (no field calibration required)
- Plug & play sensor heads
- Replaceable quad junction salt bridges
- Electrode protection options
- Offered in a variety of materials
- Direct data reporting (24-bit)
- Plug & play industrial communications adapters

Connect this pH 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.

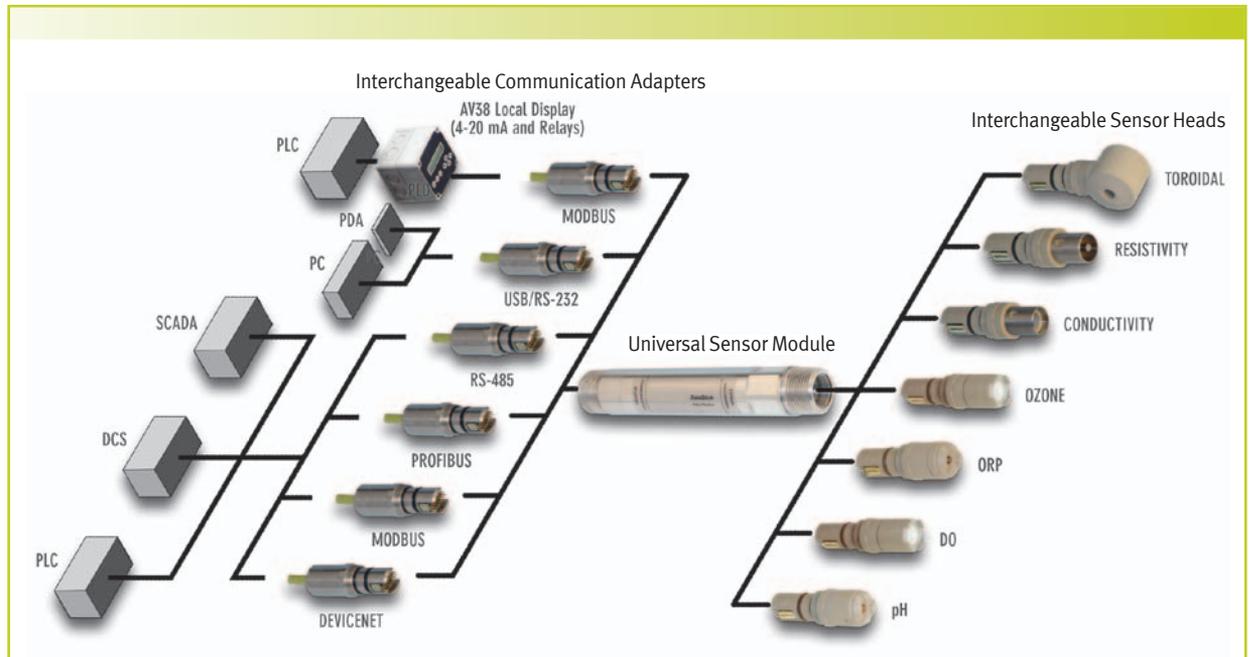


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Engineering Specifications

- The pH sensor shall be of Differential Electrode Technique design using two electrodes to compare the process value to a stable internal reference standard buffer solution. The standard electrode shall have non-flowing and fouling-resistant characteristics.
- 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.
- The sensor shall have interchangeable, pre-calibrated plug-in sensor heads and communications adapters that can be installed without powering down the system.
- 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.
- The built-in electronics of the sensor shall be completely encapsulated and O-ring sealed for protection from moisture and humidity.
- 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.
- The sensor shall have an integral temperature sensor to automatically compensate measured values for changes in process temperature.
- The sensor shall include a titanium ground electrode (standard) to eliminate ground loop currents in the measuring electrode.
- The sensor shall be Thermo Scientific AquaSensors pH DataStick.

Thermo Scientific DataStick Analytical System



Key Components

DataStick

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



Differential pH Sensor Head

Pre-calibrated for pH 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.



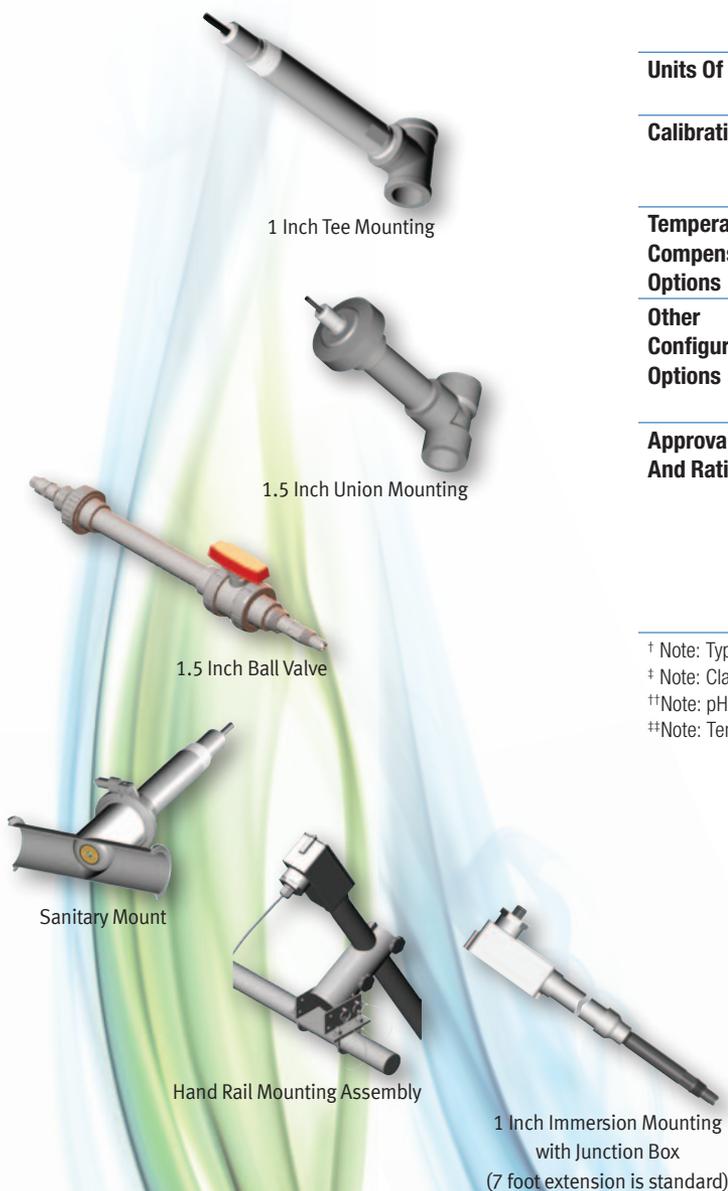
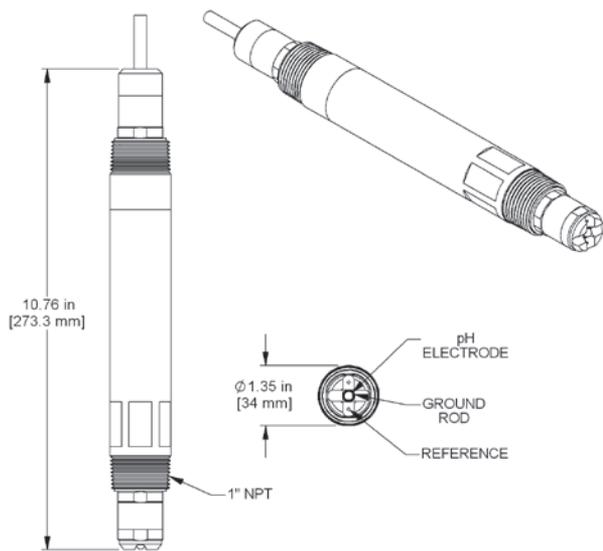
AV38 Local Display/Controller

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



Thermo Scientific AquaSensors pH DataStick

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



Specifications

Measurement System Performance[†]	Range: 0 to 14 pH Resolution: 0.01 pH Accuracy: 0.1 % of reading Step Response Time: 90 % in 30 seconds
Operational Environment	PEEK Sensor Head Temperature Range: -5 °C to 95 °C Maximum Pressure: 100 psig @ 95 °C Maximum Flow Rate: 10 ft/second CPVC Sensor Head Temperature Range: -5 °C to 75 °C Maximum Pressure: 85 psig @ 75 °C Maximum Flow Rate: 10 ft/second
Power Requirements[‡]	Voltage Range: 10 to 30 VDC Maximum Power: 200 mW Typical Power: 120 mW
Construction	Process Electrode: "G", "HF", low temperature, pure water, or high temperature glass Ground Rod: Titanium, 316 stainless steel or Hastelloy [®] C O-rings: Viton [®] (other materials available) Sensor Head Material: PEEK or CPVC DataStick Material: 316 stainless steel, PEEK, or CPVC Weight: 1.2 lbs (PEEK or CPVC) ; 2.6 lbs (316 stainless steel)
Units Of Measure	Measurement Units: pH, mV Temperature Units: °C, °F
Calibration^{††}	Automatic Buffer: 1 and 2 point Sample: 1 and 2 point Temperature: 1 point
Temperature Compensation Options	Linear: % per °C Built-in tables: Ammonia or Morpholine
Other Configuration Options	Sensor Filter: 0 to 100 seconds Temperature Filter: 0 to 100 seconds Auto Calibration Buffer Standards: (4, 7, 10) and DIN 19267
Approvals And Ratings	Immunity & Emissions: CE certified 89/336/EEC: CISPER 11, EN61000 (-4-2, -4-3, -4-4, -4-6, 4-8) Safety: cULus listed; 367G E303570 Hazardous Locations: Haz Loc Class 1, Division 2, Groups A, B, C, D. Max ambient 50 °C

[†] Note: Typical at 25 °C performance unaffected by cable length

[‡] Note: Class II DC power supply required

^{††}Note: pH and temperature are pre-calibrated at the factory

^{†††}Note: Temperature can be entered manually

Thermo Scientific AquaSensors pH 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.thermoscientific.com/processwater.

pH DataStick Ordering Information

Part No.	Description
DS-b-t	DataStick
Body Material (b)	1 = 316 stainless steel 2 = CPVC 3 = PEEK
Mounting (t)	1 = 1 inch NPT front/back 2 = 1 inch NPT front only 3 = 1.5 inch ball valve 4 = 2 inch tri-clamp (sanitary) 5 = 2.5 inch tri-clamp (sanitary)
PH-b-t-x-y-z-r	Differential pH Sensor Head
Body Material (b)	2 = CPVC 3 = PEEK
Electrode Type (t)	1 = Standard glass 2 = HF glass 3 = Low temperature 4 = Pure water 5 = High temperature
Sensor Tip (x)	A = Protected B = Process flat C = Face seal (for flow chamber mounting)
Filling Solution (y)	1 = Standard
Salt Bridge (z)	A = Standard
Ground Rod (r)	1 = 316 stainless steel 2 = Titanium 3 = Hastelloy C

CA-b-nw-x-y	Communications Adapter
Body Material (b)	1 = 316 stainless steel 2 = CPVC 3 = PEEK
Communications (nw)	1A = RS232 ASCII 2B = Modbus RTU 2A = Modbus RS232 4B = CANopen 7R = Ethernet 5R = DeviceNet 8R = USB
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 Interface	
AV38	¼ DIN, outputs, relays, digital communications options
Salt Bridge Replacements	
SBS01	PEEK protected
SBS02	PEEK process flat
SBS03	CPVC protected
SBS04	CPVC process flat
SBC01	Storage cap with sponge
pH Solutions	
RCS03	pH storage solution, 60 mL bottle
RCS01	Standard cell solution, 60 mL bottle
910104	4 pH buffer, 500 mL bottle
910107	7 pH buffer, 500 mL bottle
910110	10 pH buffer, 500 mL bottle
Mounting Hardware	
MH3022	1 inch tee mounting, CPVC
MH3011	1 inch tee mounting, 316 SS
MH1042	1.5 inch tee mounting, CPVC
MH1041	1.5 inch tee mounting, 316 SS
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 available sensor mounting options.



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