AquaSensors DataStick pH Measurement System

For universal plug and play

Thermo Scientific AquaSensors DataStick pH Measurement System

The Thermo Scientific™ AquaSensors™ DataStick™ pH Measurement System connects 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.

Markets and 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

Product benefits

- Differential pH measurement
- Pre-calibrated (no field calibration required)
- Plug and play sensor heads
- Replaceable quad junction salt bridges
- Electrode protection options
- Offered in a variety of materials
- Plug and play industrial communications adapters
- Versatile mounting

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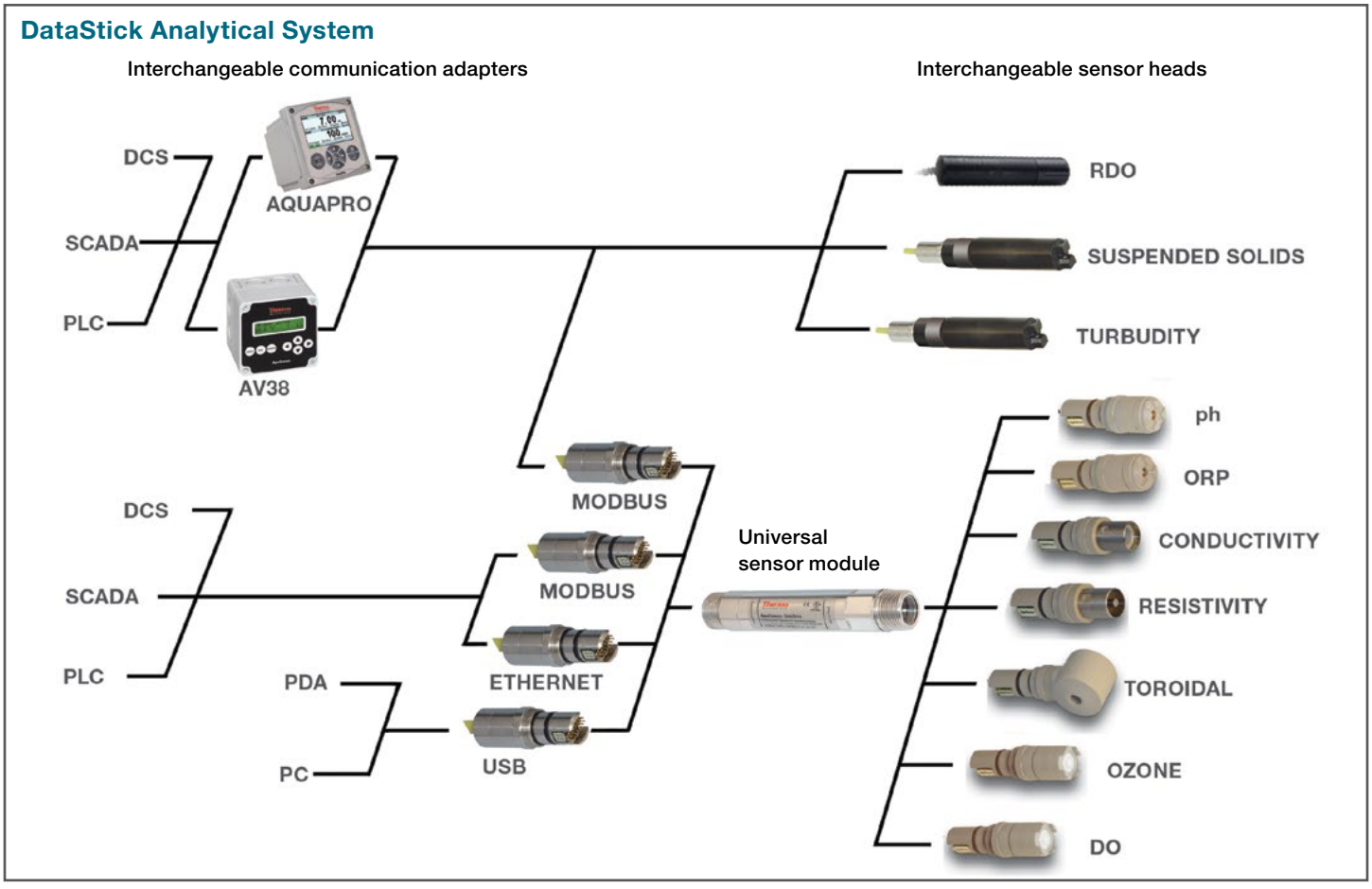
Engineering specifications

1. The pH sensor is of Differential Electrode Technique design, using two electrodes to compare the process value to a stable internal reference standard buffer solution. The standard electrode has non-flowing and fouling-resistant characteristics.
2. Hex-shaped wrench flats facilitate mounting, and are constructed of a material that exhibits exceptional chemical resistance and mechanical strength. This material enables 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 has interchangeable, pre-calibrated plug-in sensor heads and communications adapters that can be installed without powering down the system.
4. The sensor has 1 inch NPT threads to mount into a standard 1 inch pipe tee, a 1.5 inch union mounting, or immersion hardware.
5. The built-in electronics of the sensor are completely encapsulated and O-ring sealed for protection from moisture and humidity.
6. The sensor has 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, Ethernet or USB.
7. The sensor has an integral temperature sensor to automatically compensate measured values for changes in process temperature.
8. The sensor includes a titanium ground electrode (standard) to eliminate ground loop currents in the measuring electrode.

DataStick Analytical System



AquaSensors DataStick analytical system

Key components

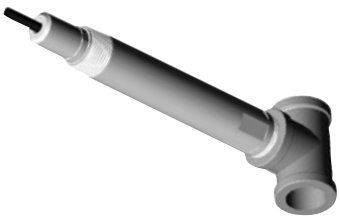
DataStick
Provides universal conversion of sensor signals and interactive communications for measurement, calibration, configuration and diagnostics.

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

Differential pH sensor head
Pre-calibrated for pH and temperature. Can be plugged into any DataStick to yield accurate 24-bit data.

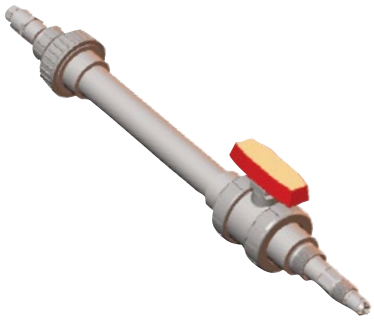
AV38 Local display/controller
2 line display and 7 key navigation. Data reporting with up to 2 current loops. 2 Form C relays. Digital communications.

AquaSensors ph DataStick accessories

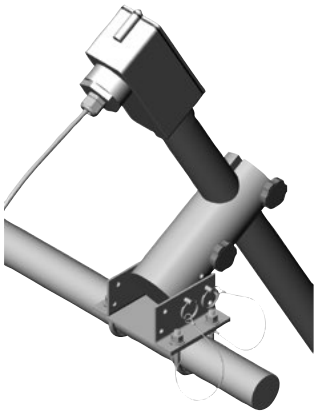


1 Inch Tee Mounting

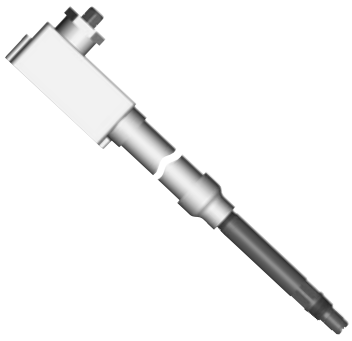
1.5 Inch Union Mounting



1.5 Inch Ball Valve



Hand Rail Mounting Assembly

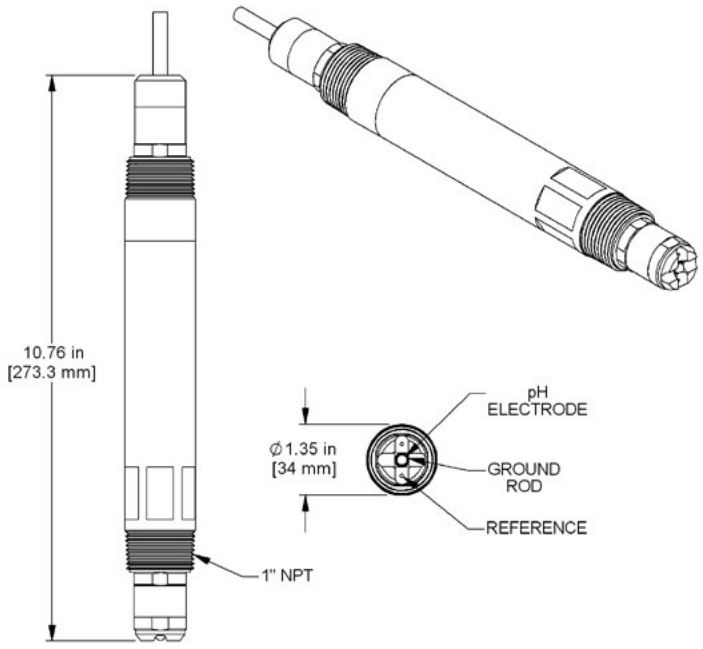


1 Inch Immersion Mounting with Junction Box
(7 foot extension is standard)

Specifications

AquaSensor DataStick	
Measurement system performance*	Range: 0 to 14 pH
	Resolution: 0.01 pH
	Accuracy: 0.1% of reading
	Step response time: 90% in 30 sec.
Operational equipment	**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 fow 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”
	Ground Rod: Titanium
	O-rings: Viton™ (other materials available)
	Sensor head material: PEEK™ or CPVC
	DataStick material: 316 stainless stee, 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: ºC, ºF
Calibration***	Automatic buffer: 1 and 2 point
	Sample: 1 and 2 point
	Temperature: 1 point
Temperature compensation options******	Linear: 0% per ºC
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 and 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 50ºC

*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
****Temperature can be entered manually



Engineering drawing

AquaSensors 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: **thermofisher.com/water**

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Ordering information

AquaSensors DataStick Communications Adapter			
Description			**Cat. No.**
Communications adapter			**CA-b-nw-x-y**
Body material (b)	1	=	316 stainless steel
	2	=	CPVC
	3	=	PEEK
Communications (nw)	2B	=	Modbus RTU
	7R	=	Ethernet
Cable length x)	1	=	10 feet
	3	=	30 feet
Cable termination (y)	A	=	Stripped wires

Specifications

AquaSensors DataStick			
Description			**Cat. No.**
DataStick measurement system			**DS-b-t-WA**
Body material (b)	1	=	316 Stainless steel
	2	=	CPVC
	3	=	PEEK
Mounting (t)	1	=	1 inch NPT front/back
Differential pH sensor head			**PH-b-t-x-y-z-r**
Body material (b)	2	=	CPVC
	3	=	PEEK
Electrode type (t)	1	=	Standard glass
	2	=	HF glass
Sensor tip (x)	A	=	Protected
Filling solution (y)	1	=	Standard
Salt bridge (z)	A	=	Standard
Ground rod (r)	2	=	Titanium

Ordering information

AquaSensors DataStick accessories	
Description	**Cat. No.**
Salt bridge replacements	
PEEK protected	SBS01–1
CPVC protected	SBS03-1
Storage cap with sponge	SBC01
pH solutions	
pH storage solution, 60 mL bottle	RCS03
Standard cell solution, 60 mL bottle	RCS01
Standard cell solution, 500 mL bottle	RCS01-500
4 pH buffer, 475 mL bottle	910104
7 pH buffer, 475 mL bottle	910107
10 pH buffer, 475 mL bottle	910110
Mounting hardware	
1 Inch tee mounting, CPVC	MH3022
1 Inch tee mounting, 316 SS	MH3011
1.5 Inch union mounting, CPVC	MH1042
1.5 Inch union mounting, 316 SS	MH1041
1.5 Inch ball valve, CPVC, low pressure	MH1112
1.5 Inch ball valve, 316 SS, low pressure	MH1111
1.5 Inch ball valve, CPVC, high pressure	MH1122
1.5 Inch ball valve, 316 SS, high ressure	MH1121
Hand rail mounting assembly, swivel/immersion, PVC	MH1242
1 inch immersion mounting with junction box, PVC (7 foot extension is standard)	MH3083

Consult factory for additional configurations and accessories

Find out more at **thermofisher.com/water**

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