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AquaSensors DataStick Wide Range Turbidity Measurement System

For universal plug and play

Thermo Scientific AquaSensors DataStick Wide Range Turbidity Measurement System

The Thermo Scientific™ AquaSensors™ DataStick™ Wide Range Turbidity 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.

This wide range turbidity sensor head is pre-calibrated for turbidity and temperature. Can be plugged into any DataStick communications adapter for interactive measurement, calibration, configuration and diagnostics with industrial computers or AquaSensors AV38 Local display.

Markets and applications
- Drinking water

  – Raw water monitoring

  – Back wash monitoring

- Wastewater effluent
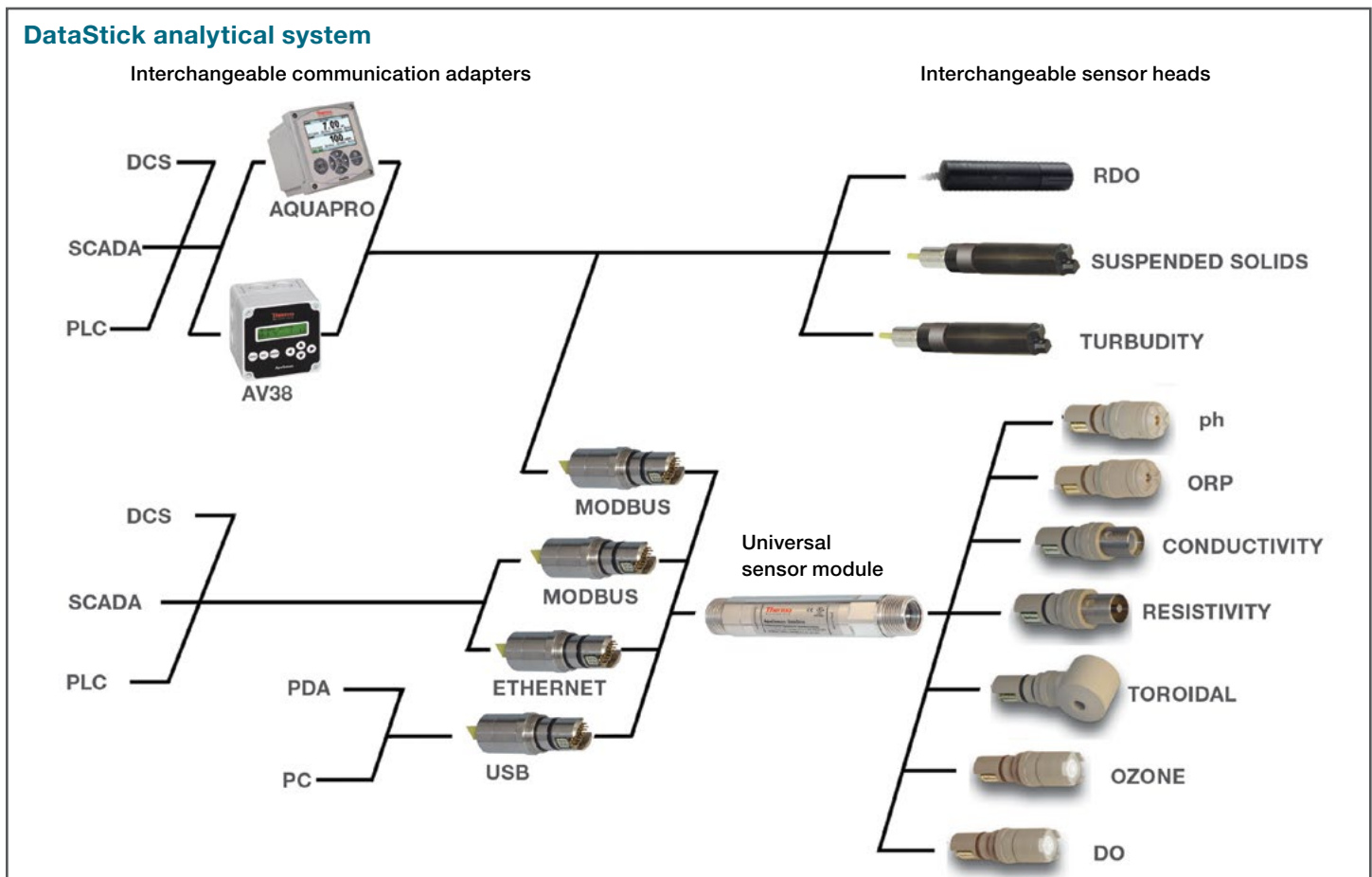
- Process clarity monitoring

Product benefits
- 0 to 4000 NTU measurement range

- Conforms to ISO 7027

- 90 degree and 180 degree light paths

- Rugged, foul resistant construction

- Local and remote configuration and diagnostics

- Temperature measurement included

- Direct data reporting

- Plug and play industrial communications adapters

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S C I E N T I F I C

Engineering specifications

1. The wide range turbidity sensor use the method described in ISO 7027 to measure turbidity. The turbidity measurement range is between 0 to 4000 NTU. Resolution is 0.1 NTU.

2. The wide range turbidity sensor is capable of measuring 180 degree light to compensate 90 degree measurements.

3. The sensor is constructed of a material with 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.

4. The sensor has interchangeable, pre-calibrated plug-in sensor heads and communications adapters that can be installed without powering down the system.

5. The sensor has 1 inch NPT threads to mount into a standard 2 inch union mounting, or immersion-mounting hardware.

6. The built-in electronics of the sensor completely encapsulated and O-ring sealed for protection from moisture and humidity.

7. 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.

8. An integral temperature sensor measures temperature independently.

DataStick analytical system

Interchangeable communication adapters   Interchangeable sensor heads

AquaSensors DataStick Wide Range Turbidimeter

Key components

Wide-range turbidity sensor head
Pre-calibrated for turbidity and temperature. Can be plugged into any DataStick communications adapter for interactive measurement, calibration, configuration and diagnostics with industrial computers or AquaSensors AV38 local display.

Communications adapter
Plugs into the DataStick body to provide power and direct interactive communications with control systems.
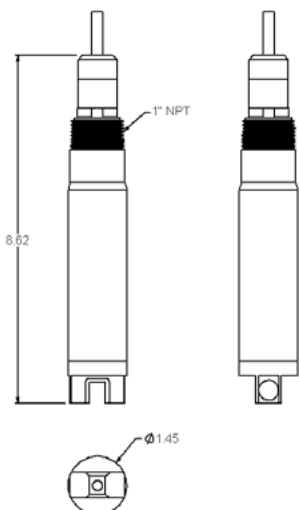
Wash head
In applications where the sensor head is quickly fouled with sediment, a wash head assembly can be attached. The head slips on the body of the sensor and the wash nozzle is aligned with the sensor fingers. Actuation is controlled by an AV38 wash relay that is programmed with a wash interval and duration.

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.

Engineering drawing AquaSensor suspended solids DataStick

AquaSensor DataStick specifications

Measurement system performance*	Range: 0 to 0 to 4000 NTU
	Resolution: 0.1 NTU
	Accuracy: 1% of reading
	Step response time: 90% in 15 seconds
Operational environment	Temperature range: -5°C to 50°C
	Maximum pressure: 65 psig @ 50°C
	Maximum flow rate: 10 ft/second
Power requirements**	Voltage range: 10 to 30 VDC
	Maximum power: 200 mW
	Typical power: 120 mW
Construction	Windows: Quartz
	Optical topology: 1 cm path lengths for measurement and reference. Detectors at 90 degrees and 180 degrees to source
	O-rings: Viton™ (other materials available)
	Sensor head material: Polycarbonate
	Weight: 1.2lbs
Units of measure	Turbidity mode: NTU
	Temperature units: °C, °F
Calibration*	Sample: 1 and 2 point
	Zero: 1 point
	Temperature: 1 point
Measurement modes	Turbidity: 90 degree and 180 degree, narrow beam, IR light
	Temperature: Automatic from -5°C to 50°C
Other configuration options	Sensor filter: 0 to 100 seconds
	Temperature filter: 0 to 100 seconds
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. T5 Max ambient 50 °C

*Note: Typical at 25°C performance unaffected by cable length

**Note: Class II DC power supply required

***Note: Turbidity and temperature are pre-calibrated at the factory

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AquaSensors Wide Range Turbidity 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**
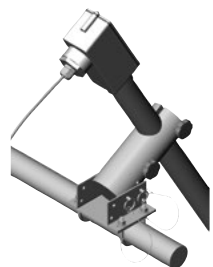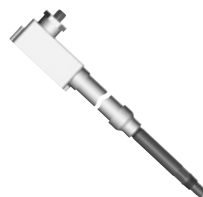

2 Inch Ball Valve

1.5 Inch Union Mounting

Ball Float Assembly

Hand Rail Mounting Assembly

Hand Rail Mounting Assembly
1 Inch Immersion
1 inch Immersion Mounting with Junction Box
(7 foot extension is standard)

Ordering information

AquaSensor Wide Range Turbidity DataStick			
Description			**Cat. No.**
DataStick and Communications			RT-b-x-y-z
Measurement mode (b)	1	=	Turbidity
Back-body and communications material (x)	1	=	CPVC
	2	=	316 Stainless steel
Communications (y)	4	=	Modbus RTU
	7	=	Ethernet
Relays (y)	C	=	Two
Cable length (x)	1	=	10 feet
	3	=	30 feet
USB communications option			RT1181 RT1281

Accessory ordering information

Formazin calibration solutions and accessories	
Description	**Cat. No.**
4000 NTU stock, 500 mL bottle	AC45FZ
Wash head assembly	MH1222
Mounting hardware	
1.5 inch union mounting, CPVC	MH1042-RT
1.5 inch union mounting, 316 SS	MH1041-RT
Hand rail mounting assembly, swivel/immersion, PVC	MH1242
Hand rail mounting assembly, swivel/immersion with ball float	MH1252
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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