

# AquaSensors DataStick AquaTrace Dissolved Oxygen Measurement System

For universal plug and play

## Thermo Scientific AquaSensors DataStick AquaTrace ppb Dissolved Oxygen Measurement System

The Thermo Scientific™ DataStick™ system, part of the Thermo Scientific AquaSensors™ product line, Thermo Scientific AquaTrace™ ppb Dissolved Oxygen Sensor will measure accurately in pure water processes. Monitoring at trace oxygen levels in critical processes will allow quick response and minimize costly downtime. Best performance is achieved when used in applications where process temperature, flow and pressure are stable.

When used with the Thermo Scientific AquaSensors AV38 Local Digital Monitor and Controller, selecting a system to meet your requirements is easy. The controller displays data and you can select from several protocols to transfer information for record keeping.

### Markets and applications

- Process water
  - Production and distribution
  - Collect quality control data
- Food and beverage
  - Monitor process water quality
- Pure water
  - Accurate trace DO measurements and minimal drift



### Product benefits

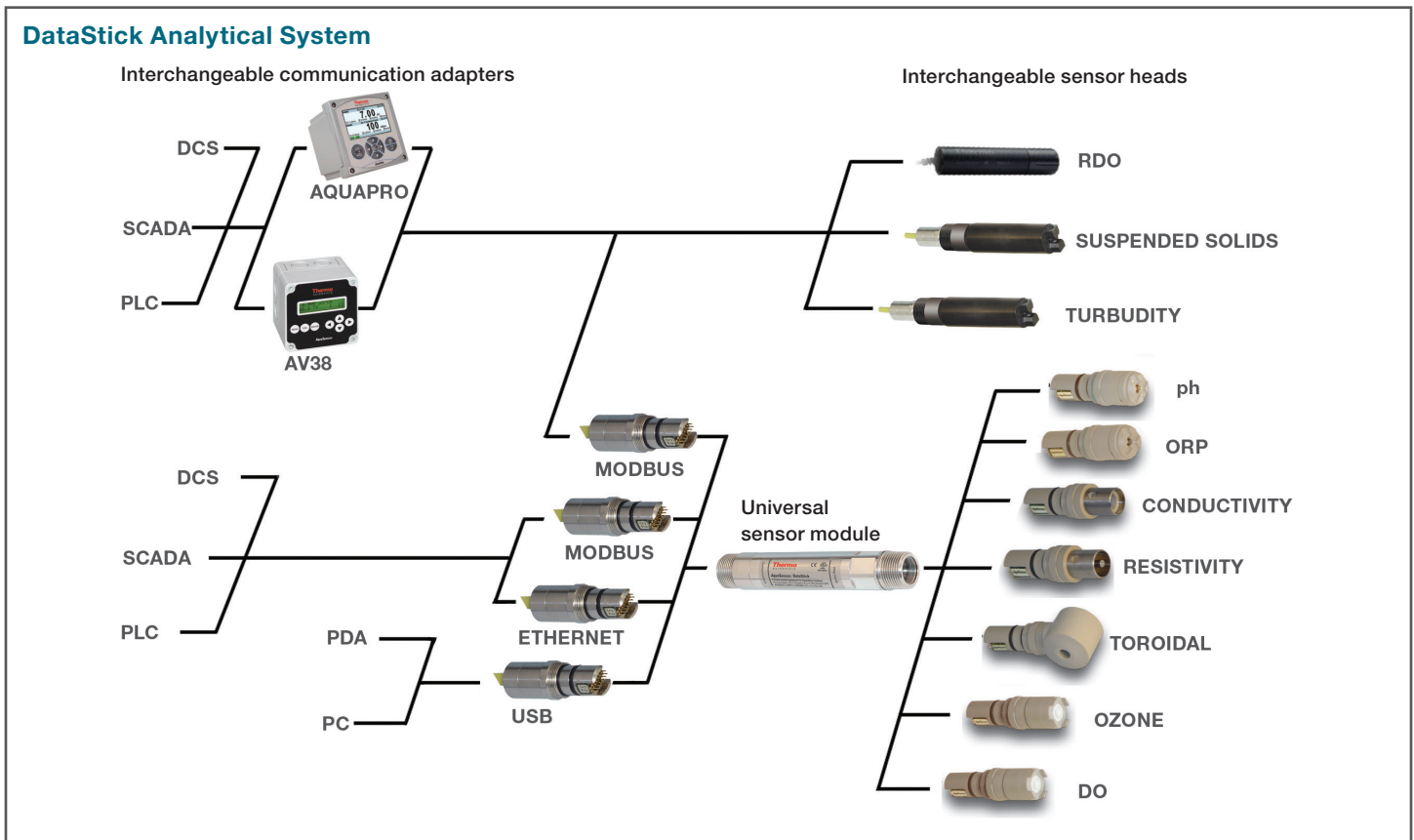
- Reagent-free amperometric design
- Trace DO system consists of the Trace DO DataStick, flow cell, AV38 local display and is assembled on the panel for simple installation
- Temperature compensated
- Pre-calibrated, plug and play sensors
- Rugged FEP membrane in replaceable sensor cap
- Remote measurement, calibration, configuration and diagnostics
- Convenient turn-key AquaTrace DO monitoring system offers reliable low DO measurements with a small footprint



AquaSensors DataStick AquaTrace  
DO Sensor Head

## Engineering specifications

1. The Trace Dissolved Oxygen measurement system employs the amperometric measurement technique, using a gold cathode and silver anode.
2. The sensor is constructed of a polycarbonate material with exceptional chemical resistance and mechanical strength, enabling 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 trace DO sensor and packaged monitoring system are able to send data signal to external collection location for data documentation.
4. The sensor continuously samples at a user regulated flow rate between 50 and 400 mL per minute.
5. The system is a reagent-free design, requiring no additional buffers or indicators for trace dissolved oxygen measurement.
6. The system displays from 0-20 ppm on a LCD display with backlighting.
7. The minimum detection limit for trace dissolved sealed system is 0.1 ppb.
8. An integral temperature sensor measures temperature independently and that may be calibrated.
9. The analyzer automatically compensates for sample temperature and entered pressure that is between 5°C and 50°C.
10. The calibration method for the trace DO sensor or system is with an approved laboratory method.
11. The local display/controller enclosure is rated at NEMA 4X.
12. 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, or Ethernet IP.
13. The system has two isolated 4-20 mA analog outputs that can represent the measured trace dissolved oxygen as well as measured temperature in °C or °F.
14. The system may have two available relays that can be selected to operate as a control, alarm, or timer relay.
15. The AquaTrace DO System is AquaSensors Model AQD-series with Trace ppb Dissolved Oxygen DataStick.



## Thermo Scientific 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 body to provide power and direct interactive communications with control systems.



#### AquaSensors AV38 Local Digital Monitor and Controller

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



#### AquaTrace ppb DO System

With Trace DO ppb DataStick and flow cell installed.



#### AquaTrace ppb Dissolved Oxygen Sensor Head

Pre-calibrated for ppb level dissolved oxygen and temperature. Can be plugged into any DataStick to yield accurate 24-bit data.

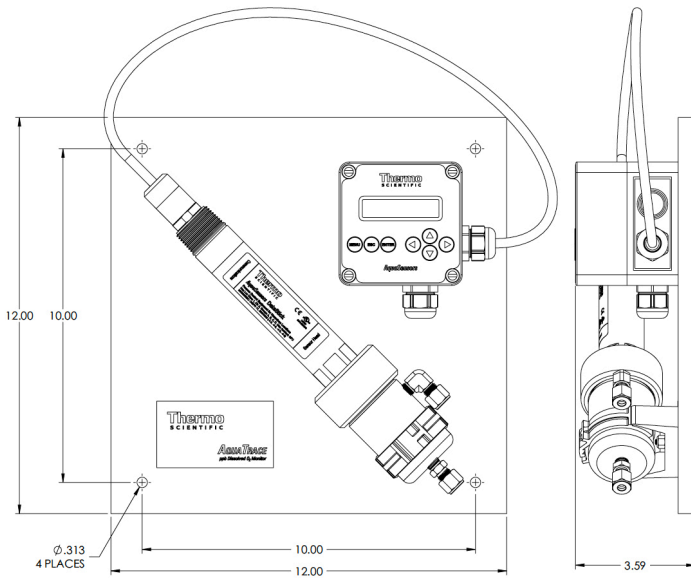


### Product specifications

AquaTrace ppb DO DataStick Dimensions



## AquaSensors ppd AquaTrace DO DataStick



Engineering drawing AquaSensor ppd AquaTrace DO DataStick

## Specifications

### AquaSensors AquaTrace DO System

#### Measurement system performance

DO measurement range: 0.1 ppb to 20 ppm

Low range (below 20 ppb) DO measurement accuracy:  $\pm 1$  ppb or  $\pm 2$  % of reading (whichever is greater)

High range DO measurement accuracy:  $\pm 5$  % of reading

DO measurement response: < 2 hours to 10 ppb

DO measurement drift: 4% max over 60 days

Temperature element: PT1000 RTD

Temp measurement resolution: 0.1 °C

Temperature measurement repeatability:  $\pm 0.5$ °C

Electrolyte Life: 2 months (approximate)

Shelf Life: 6 months (may require electrolyte replacement after extended storage)

#### Environmental

Service pressure: 0 - 60 psig

Service temperature: 5 °C - 50 °C

Storage temperature: 0°C - 60°C

System process flow rate: 50 - 400 mL/min

#### Features

Sensor mounting threads: 1" NPT threads at back of sensor  
1" NPT threads at front of sensor

Process connections: 1/4" tube fittings for process inlet and outlet

Sensor wetted materials: 316 SS, PEEK™, Viton™, FEP

Flow chamber wetted parts: Acrylic, 316 SS, Viton

Sensor serviceability: Field replaceable membrane;  
Field replaceable reference fill

Sensor head electronics: Integral pre-amplifier

Display mounting: Integral or remote (with 20 foot cable)

Available communication protocols: Modbus RTU,  
Ethernet

#### Regulatory

Material regulations: RoHS compliant assembly

## AquaSensors suspended solids 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](http://thermofisher.com/water)

### Ordering information

#### Recommended AquaTrace DO systems

Description	Cat. No.
Below are examples of part numbers for configuring a typical ppb level dissolved oxygen measurement system.	
AquaTrace DO System, Integral AV38 with two current outputs, two relays, flow chamber, 100 - 240 VAC	AQD1C0
AquaTrace DO System, Integral Aquapro with two current outputs, two relays, flow chamber, 100 - 240 VAC	AQD34AP8XXXK

Consult factory for additional configurations and accessories

### Ordering information

#### AquaSensors Suspended Solids DataStick

Description	Cat. No.
AquaTrace Dissolved Oxygen Systems	AQD-d-x-y
Trace level dissolved oxygen measurement system with precalibrated ppb range dissolved oxygen sensor heads, integrated temperature compensation with DataStick module, low flow sample chamber, mounting plate and local display/controller.	
Display configuration (d)	1 = Integral mount
AV38 display configurations (x)	B = 2 current, 2 relays; 24 VDC power
	C = 2 current, 2 relays; 100 to 240 VAC power
AV38 Host Communications (y)	0 = None
	4 = Modbus RTU (RS-485)
	7 = Ethernet, IP, Modbus/TCP, TCP/IP

### Accessory ordering information

#### AquaSensors AquaTrace Accessories

Description	Cat. No.
<b>ppb Trace DO electrolyte</b>	
ppb DO electrolyte, 60 mL bottle	080514
<b>Membrane caps</b>	
ppb Trace DO membrane cap	DMR18
Storage cap With sponge	SBC01
<b>Replacement sensor head</b>	
Replacement sensor head, factory calibrated	TDO31B2A

Consult factory for additional configurations and accessories

**Australia:** (613) 9757-4300 **In Australia:** (1300) 735-295 **China:** (86) 21-6865-4588  
**Germany:** (49) 6184-90-6321 **India:** (91) 22-4157-8800 **Japan:** (81) 045-453-9175  
**North America:** 1-978-232-6000 Toll Free: 1-800-225-1480 **Singapore:** (65) 6778-6876

Find out more at [thermofisher.com/water](http://thermofisher.com/water)