ELECTRO-CHEMICAL DEVICES

DO90 Trace DO_2 Sensor

The Triton® DO90 Trace Sensor is designed for the continuous measurement of trace levels of dissolved oxygen in aqueous systems. The primary application of the Triton DO90 is in the monitoring of boiler feed water. ECD's ppb dissolved oxygen analyzer features an industrial design with a long life, quick and easy electrode replacement.

Features & Benefits

Large Measurement Range

- 0.001 to 20.00 mg/L

Lead Silver Galvanic Cell

- Long Term Stability

Minimal Maintenance

- Drift < 1% per month

Replaceable Electrode

- No membrane or fill solutions to mess with

Easy Calibration

- Air Calibration and Zero Calibration

Digital Signal

- Noise Free Signal
- Calibration stored in the sensor

Consult our Technical Support staff for additional configuration options at +1-714-695-0051 or email: sales@ecdi.com

Description

The Model DO90 Trace DO_2 is designed for the continuous measurement of trace levels of dissolved oxygen in aqueous systems. The primary application of the Model DO90 trace dissolved oxygen sensor is in the monitoring of boiler feedwater.

Oxygen should only be present in trace quantities, excessive concentrations of oxygen can result in corrosion damage to the components of the Steam Cycle.

Using periodic grab samples to measure the ppb oxygen concentration introduces the risk of significant sampling errors. The Model S80 DO will continuously measure the ppb level of dissolved oxygen directly in the process eliminating grab sampling errors and providing highly reliable information.

The Model DO90 Trace DO_2 is a Lead Silver Galvanic Sensor with a durable PFA Teflon® membrane. Oxygen diffusing through the membrane is reduced at the cathode producing hydroxide ions which react with the lead ions in the electrolyte to form lead hydroxide. The anode dissolves more lead ions into the electrolyte sending electrons to the cathode to reduce any oxygen present.

The current flows from the lead anode, dissolving into the electrolyte to the cathode where electrons react with the oxygen, which reacts with the lead ions in solution.

Under constant conditions, the current is proportional to the oxygen concentration of the medium.

The Model DO90 Trace DO_2 is a digital sensor, all of the signal conditioning, calibration and diagnostic functions are performed inside the sensor. The DO90 sensor has an easily replaceable electrode cartridge eliminating the need for messy electrolyte/membrane replacement kits.

The Model T80 Analyzer is compatible with both the Model DO90 Trace Dissolved Oxygen Sensor and other Model S80 Sensors.

The Model DO90 Flow Cell has been specially designed for use with the Model DO90 Trace Dissolved Oxygen Sensor.

The orientation of the inlet and outlet sample lines automatically purge air from the flow cell. The measurement chamber is optimized for fast response and all wetted parts are 316L Stainless Steel.

Installation of the flow cell is easy, using either the clamp style holders for wall mount or the two 10 x 32 threaded ports on the backside of the flow cell for panel mounting. Simply connect the input and output sample lines to the ¼” tube fittings and insert the sensor into the flow cell.

Tighten it in place with the threaded cap and it is ready to go.

The 316 SS flange fitting allows for easy removal of the Model DO90 sensor from the flow cell for air calibration.

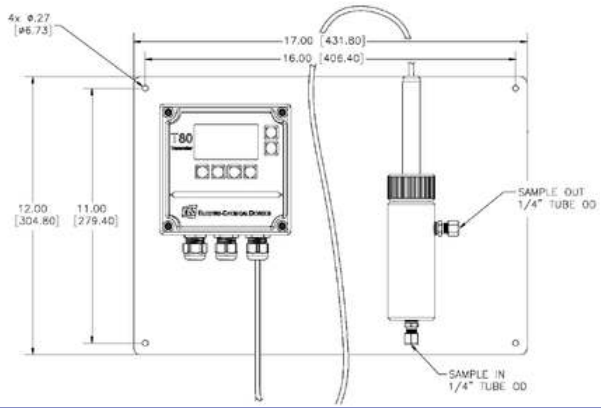
The Model DO90 Trace DO_2 is available as separate components, sensor, fittings, flow cell, Model T80 Transmitter or as a complete panel mounted system.

The panel mounted system is a complete plug and play device.

- Mount the panel (17" x 12" panel)
- Plug 1/4" sample tubing to the tube fittings
- Connect power to the analyzer (Loop or 110/220 VAC)

The system is also available as a complete kit, removing the panel, for easy mounting to an existing water panel.

Specifications

Measuring Principal	• Galvanic • Silver Cathode • Lead Anode • Self Polarizing		
Measured Parameter	Oxygen partial pressure-proportional current signal		
Measuring Range	0.001 - 20.00 mg/L or ppm / ppb (auto-ranging)		
Process Temperature Range	–5 °C - 50 °C	**Process Pressure Range**	0 - 15 psi maximum overpressure Vacuum operation is not permitted
Slope	Approximately: 1.5 nA / ppb O_2 at 20°C and 1013 hPa		
Temperature Compensation	NTC temperature sensor 100 kΩ, 0 - 50°C		
Response Time	**t90:** 30 sec **t99:** 90 sec	**Polarization Time**	< 60 minutes
Minimum Flow Rate	200 ml / min with **Part Number:** 1000008-1 (Flow Cell)		
Drift	with continuous polarization: < 1% / month		
Materials of Construction	**Sensor Body:** • Flanged Stainless Steel (AISI 316 Ti) **Electrode Body:** • PEEK **Membrane:** • PFA Teflon® **Cathode:** • Silver **Anode:** • Lead		
Process Connections	¼" 316 Stainless Steel Tube Fittings		
Electrical Connection (Transmitter Side)	Digital signal on a shielded 4-wire cable		
Membrane:	2 mil thickness (approx.)		
Maximum Total Cable	100 m cable extension		
Shipping Weight	Model DO90 Sensor with 10 ft cable length: 0.7 kg (1.54 lbs) Stainless Steel Flow Cell: 2.0 kg (4.40 lbs)		
Dimensions			

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Order Information

	A	B	C	D	E	Sample Order
DO90 -	01	- 00	- 01	- 0	B	DO90-01-0001-0B

- (A) DO90 Digital Sensor, PPB Dissolved Oxygen Measurement, w/ electrode, 2005621.VIT
- (B) Future Use
- (C) DO90 Flow Cell, 316 SS ¼" Tube Fittings
- (D) None (Integral Cable, No Connector)
- (E) 4 ft. Cable

Complete Systems

Dissolved Oxygen Measurement Systems

Part No.	
1200200-1	DO90 Trace DO System Complete: Loop Powered T80 Transmitter, S80 PPB DO Sensor, 316 SS Flow Cell with ¼" Tube Fittings, Panel Mounted, 17" x 12" x ¼" PVC Panel, Plug and Play Ready
1200200-2	DO90 Trace DO System Complete: 110/220 VAC Powered T80 Transmitter with 3 Relays, S80 PPB DO Sensor, 316 SS Flow Cell with ¼" Tube Fittings, Panel Mounted, 17" x 12" x ¼" PVC Panel, Plug and Play Ready

Sensors and Components

A. Measurement Type

Part No.	
00	DO90 Digital Sensor, PPB Dissolved Oxygen Measurement, No Electrode
01	DO90 Digital Sensor, PPB Dissolved Oxygen Measurement, with Electrode (2005621.VIT) **(Standard)**

B. Sensor Style

Part No.	
00	Future Use

C. Flow Cell

Part No.	
0	No Flow Cell
1	DO90 Flow Cell, 316 SS ¼" Tube Fittings (required for initial installation)

D. Detachable Cable Connector

Part No.	
0	None (Integral Cable, No Connector) (Standard)
1	10 ft (3.0 meters)
2	20 ft (6.1 meters)

E. Cable Length

Part No.	
0	No Cable
B	4 ft. Cable **(Standard)**
1	10 ft. Cable
2	20 ft. Cable
3	30 ft. Cable
4	40 ft. Cable
5	50 ft. Cable
A	100 ft. Cable
X	Other Lengths – Please consult factory

Consult our Technical Support staff for additional configuration options at +1-714-695-0051 or email: sales@ecdi.com

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World Headquarters: 1500 North Kellogg Dr. | Anaheim, California, USA 92807
Phone: 714-695-0051 **Fax:** 714-695-0057 **Email:** sales@ecdi.com
www.ecdi.com

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Equipment and Specifications may be updated periodically to enhance performance and reliability.

Order Information

	A	B	C	D	E	Sample Order
DO90 -	01	- 00	- 01	- 0	B	DO90-01-0001-0B

- (A) DO90 Digital Sensor, PPB Dissolved Oxygen Measurement, w/ electrode, 2005621.VIT
- (B) Future Use
- (C) DO90 Flow Cell, 316 SS ¼" Tube Fittings
- (D) None (Integral Cable, No Connector) (E) 4 ft. Cable

Controllers for Triton® DO82 Sensors

Part No.	
T80-10-100-01	T80 Optical Dissolved Oxygen Transmitter, 24 VDC Power, (1) 4-20 mA Output, Universal Mount
T80-1X-XXX-XX	Other Model T80 Versions – See Model T80 Section
X80-1X-XXX-XX	Model X80 Version – see Model X80 Section

Triton® DO90 Accessories and Spare Parts

Part No.	
2005621.VIT	Dissolved Oxygen, PPB, PEEK Body, Galvanic, -10° - 130°C
1000008-1	DO90 Flow Cell, 316 SS ¼" Tube Fittings
3501041-1	Replacement Threaded Cap for DO90 Flow Cell (PVC)
9310051-1	Replacement 316 SS ¼" Tube Fittings for DO90 Flow Cell (Set of 2)
2200150.0C	Detachable Cable, 4 Cond, Straight Connector (4 ft.)
2200150.10	Detachable Cable, 4 Cond, Straight Connector (10 ft.)
2200150.20	Detachable Cable, 4 Cond, Straight Connector (20 ft.)
2200150.30	Detachable Cable, 4 Cond, Straight Connector (30 ft.)
2200150.X	Detachable Cable, 4 Cond, Straight Connector (X = Length in feet)
2200160.0C	Detachable Cable, 4 Cond, Right Angle Connector (4 ft.)
2200160.10	Detachable Cable, 4 Cond, Right Angle Connector (10 ft.)
2200160.20	Detachable Cable, 4 Cond, Right Angle Connector (20 ft.)
2200160.30	Detachable Cable, 4 Cond, Right Angle Connector (30 ft.)
2200160.X	Detachable Cable, 4 Cond, Right Angle Connector (X = Length in feet)

LEGACY - DO9 Sensor Spare Parts

Part No.	
1000259-1	Accessory Kit – Membrane Cartridges, Electrolyte, O-Ring, Polishing
1000402-1	Electrolyte – 10 Ampoules
1000403-1	Membrane Cartridges (2 each)
1000404-1	O-Ring Kit
1000405-1	Polishing Kit

Note: This is a partial list of available configurations. For additional options or customization, please contact Electro-Chemical Devices Support Toll Free at: **(800) 729-1333** or your local ECD representative.

Represented By:

World Headquarters: 1500 North Kellogg Dr. | Anaheim, California, USA 92807
Phone: 714-695-0051 **Fax:** 714-695-0057 **Email:** sales@ecdi.com
www.ecdi.com

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