

Rosemount™ 490A

Optical Dissolved Oxygen Sensor



A low maintenance sensor for easily measuring dissolved oxygen

The Rosemount 490A Optical Dissolved Oxygen Sensor is ideal for use in waste water aeration basins and ponds. The sensor has a low maintenance sensing cap that measures dissolved oxygen using the Environmental Protection Agency (EPA)-approved luminescence-quenching method.

Easy to use and maintain

- accurately measures in both liquid and gas without requiring separate calibrations
- reads accurately within 90 seconds of going from dry to wet conditions
- chemical and abrasion resistant
- easy to configure Modbus® interface
- extended life of sensor and sensor cap
- low maintenance sensing cap only requires replacement every two years

Ordering information

A calibration cup for air calibration is included with the sensor. Sensors are available as a digital sensor with an M12 connector.

Online product configurator

Many products are configurable using Emerson's product configurator.

With this tool's built-in logic and continuous validation, you can configure your products more quickly and accurately.

Specifications and options

The purchaser of the equipment must specify and select the product materials, options, and components.

Optimizing lead time

The starred offerings (★) represent the most common options and should be selected for the fastest delivery. The non-starred offerings are subject to additional delivery lead time.

Required model components

Rosemount model

Code	Description	
490A	Optical Dissolved Oxygen Sensor	★

Mounting style

Code	Description	
N1	NPT: 1 in.	★

Body material

Code	Description	
A	Unfilled acetyl copolymer	★

Contents

Ordering information.....	2
Specifications.....	6
Dimensional drawings.....	8

Sensor output and sensor connections

Code	Description	
D00	Digital, M12 connector with 0.5 ft. (0.15 m) integral cable	
D10	Digital, M12 connector with 32.8 ft. (10 m) integral cable	★

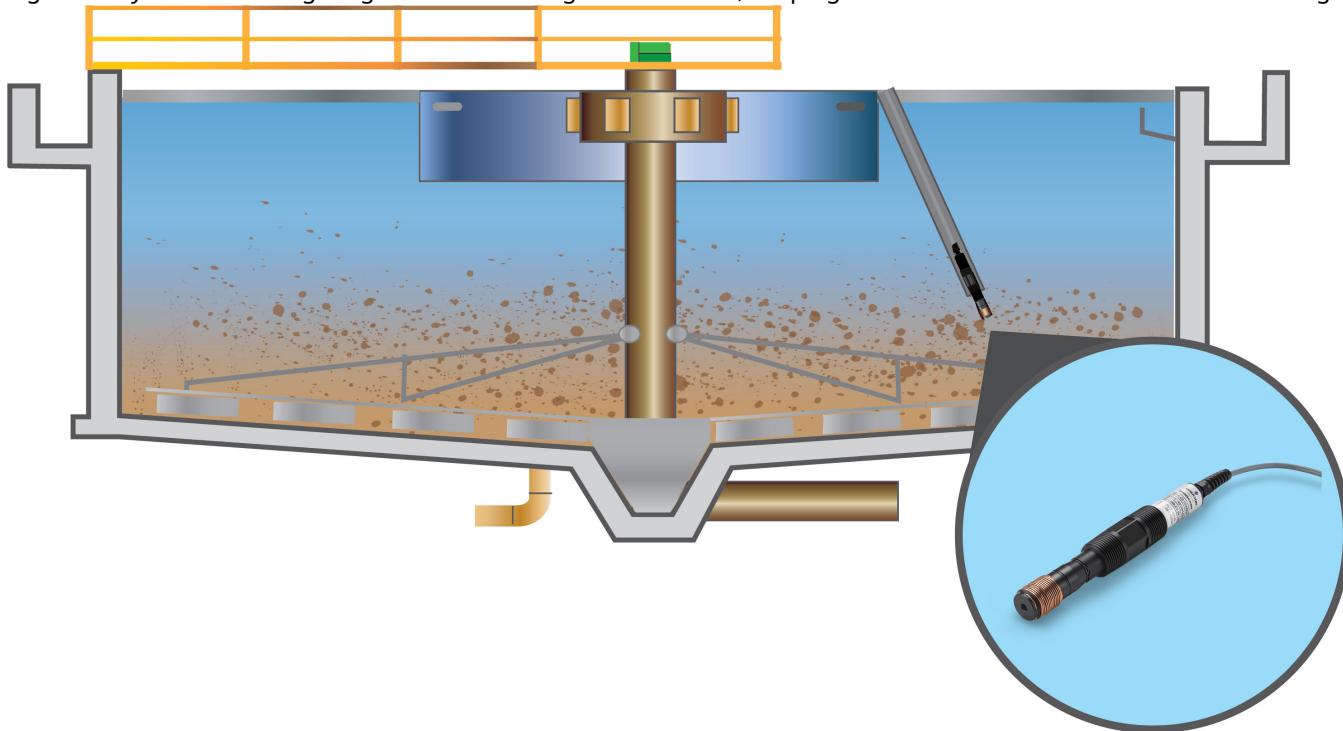
Spare parts and accessories

Part number	Description
R0084230X	Sensor cap replacement kit
00490-1002-0001	Antifouling guard
00490-1003-0001	Air-blast guard
00490-1004-0001	Weighted guard

Spare part details

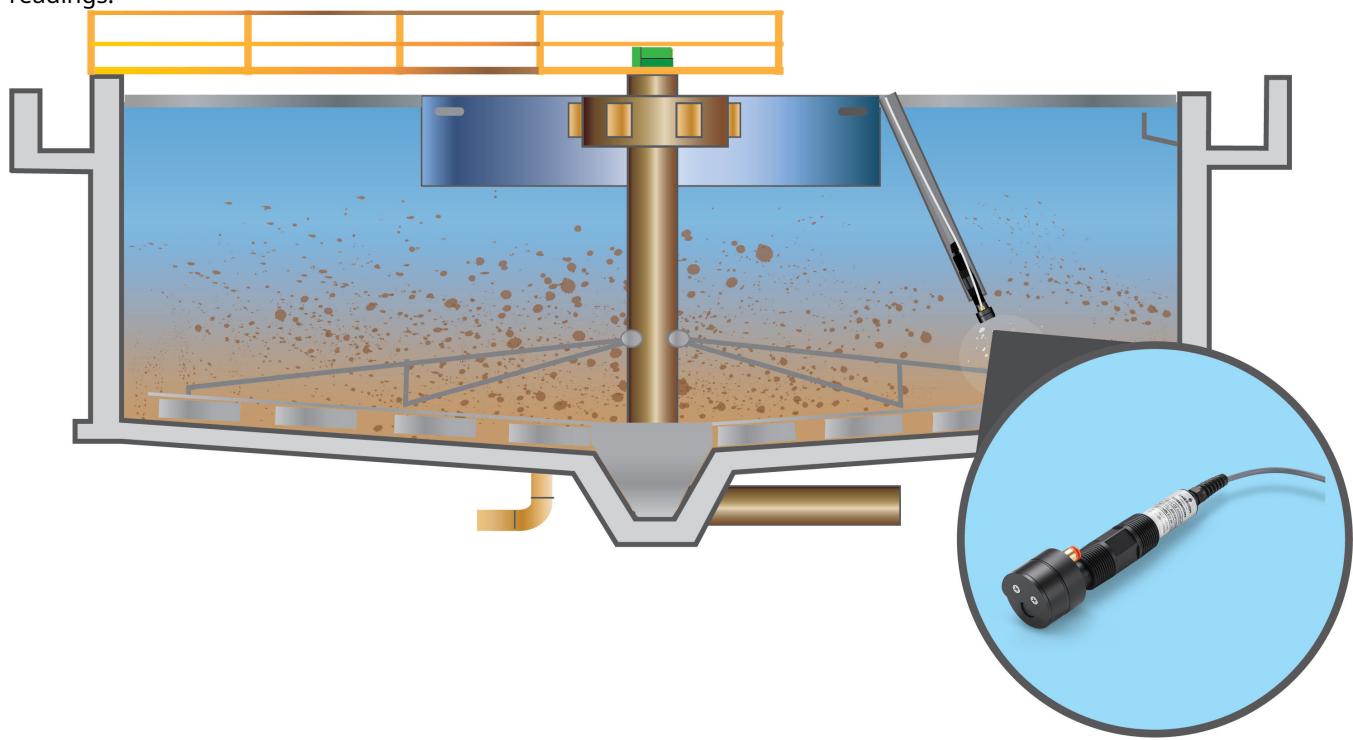
Rosemount 490A Sensor with Anti-fouling Guard

Significantly reduces biological growth and fouling on the sensor, keeping it clear with less maintenance and cleaning.



490A Sensor with Air-Blast Guard

Allows for active clearing of the sensor tip using air or water, reducing build-up on the sensor and providing accurate readings.



490A Sensor with Weighted Guard

Keeps sensor in vertical orientation in applications with high flow or mixing conditions to optimize readings.

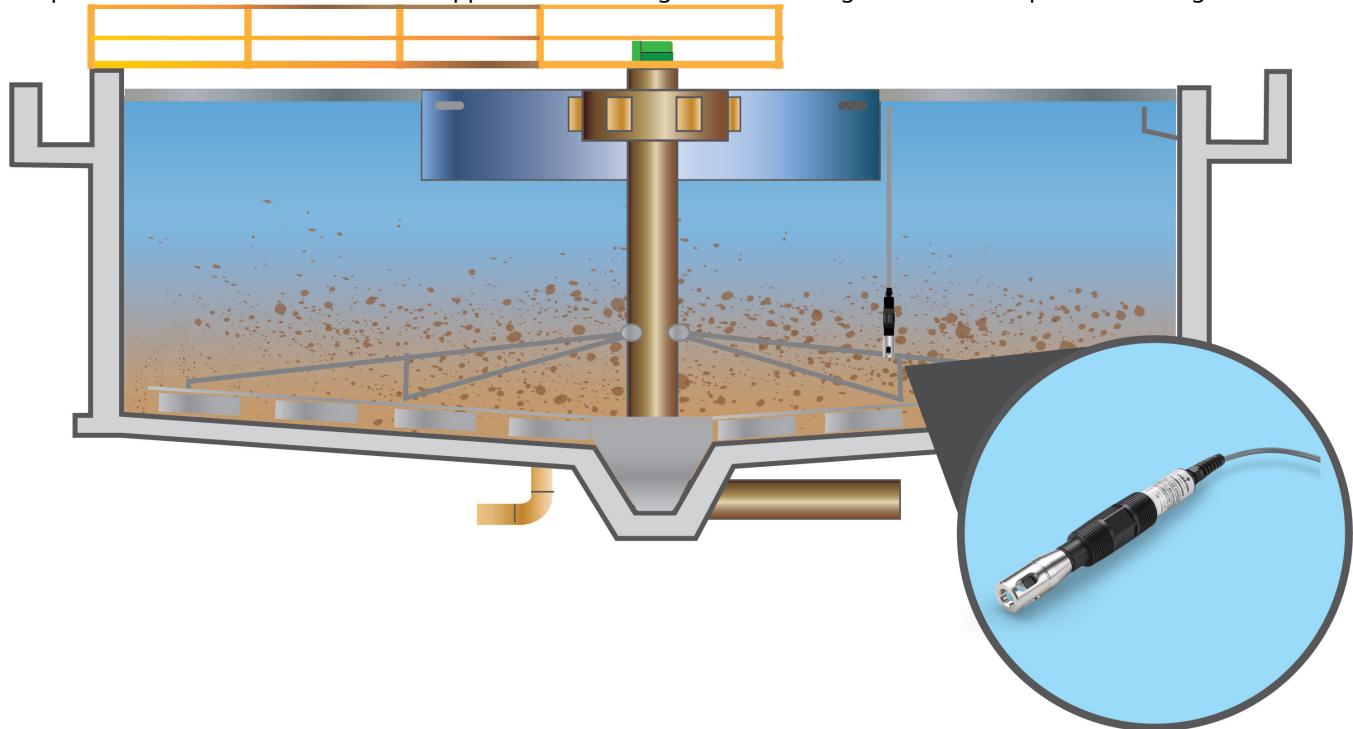
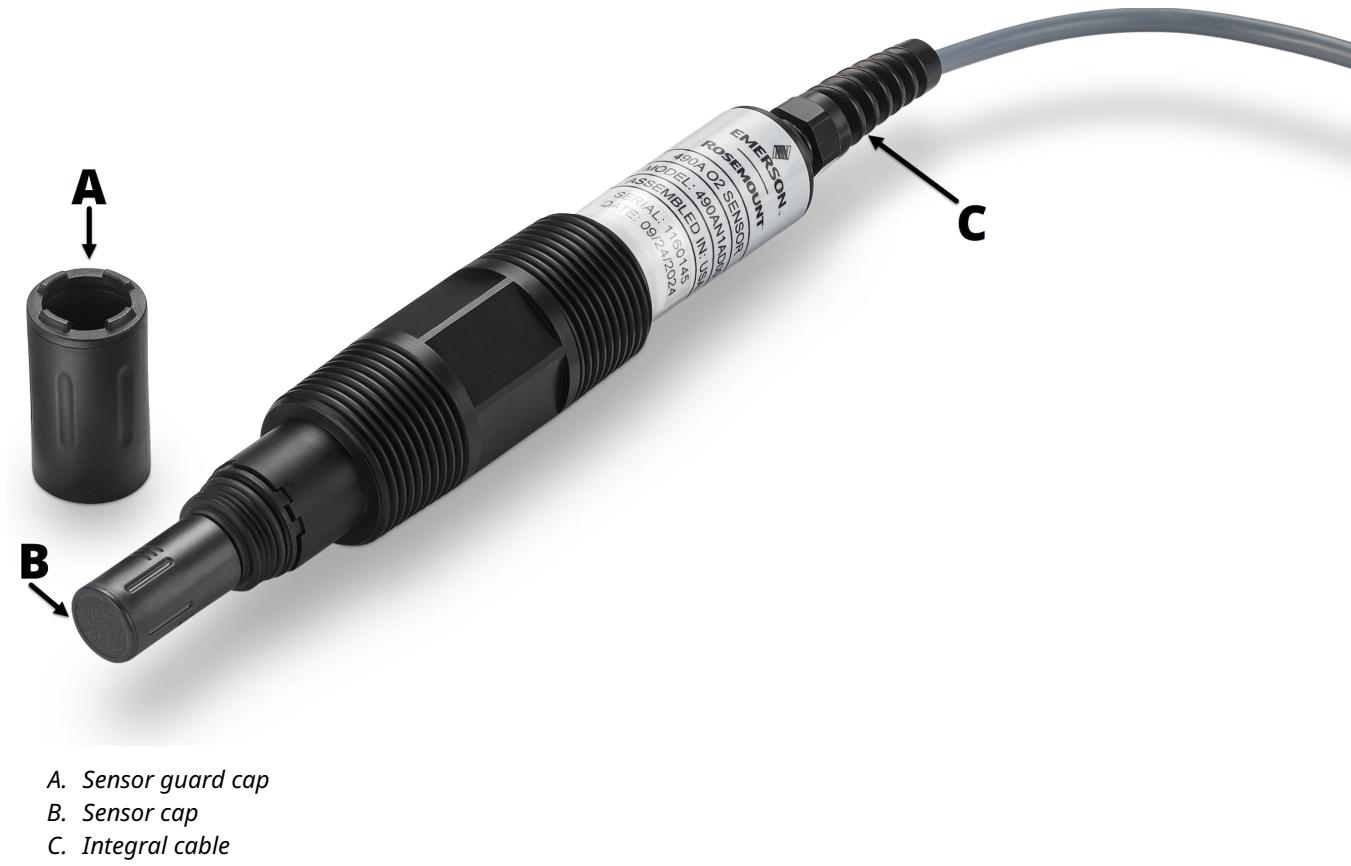


Figure 1: Rosemount 490A Sensor Parts



Specifications

Sensor

Range, dissolved oxygen (DO)	0 to 60 mg/L or 0 to 600 percent saturation
Accuracy, DO	±0.1 mg/L (0 to 20 mg/L), ±2 percent (20 to 60 mg/L)
Resolution, DO	0.01 mg/L
Response time	< 45 seconds to 90 percent of final value, < 60 seconds to 95 percent of final value
Temperature range	+23 to +122 °F (-5 to +50 °C)
Accuracy over temperature	±0.1 °C
Operating life of sensor cap	Two years from first reading

Environmental ratings

Pressure	150 psi (10.3 bar) from +32 to +122 °F (0 to +50 °C)
Depth	689 ft. (210 m) at 77 °F (25 °C)

Operating temperature (non-freezing)	+23 to +122 °F (-5 to +50 °C)
Storage temperature	-40 to +149 °F (-40 to +65 °C)
Compliance	EMC 2014/30/EU, IEC 61000-6-2: 2005, EN 55011: 2009
Ingress protection (IP) rating	IP 67 with sensor cap off, IP 68 with sensor cap installed

Chemical ratings

Interferences

Alcohols	> 5 percent
Hydrogen peroxide	> 3 percent
Sodium hypochlorite (commercial bleach)	> 3 percent
Gaseous sulfur dioxide, gaseous chlorine	

NOTICE

Do not use in organic solvents (such as acetone, chloroform, methylene chloride, etc.), which may swell the sensing element (foil matrix) and destroy it.

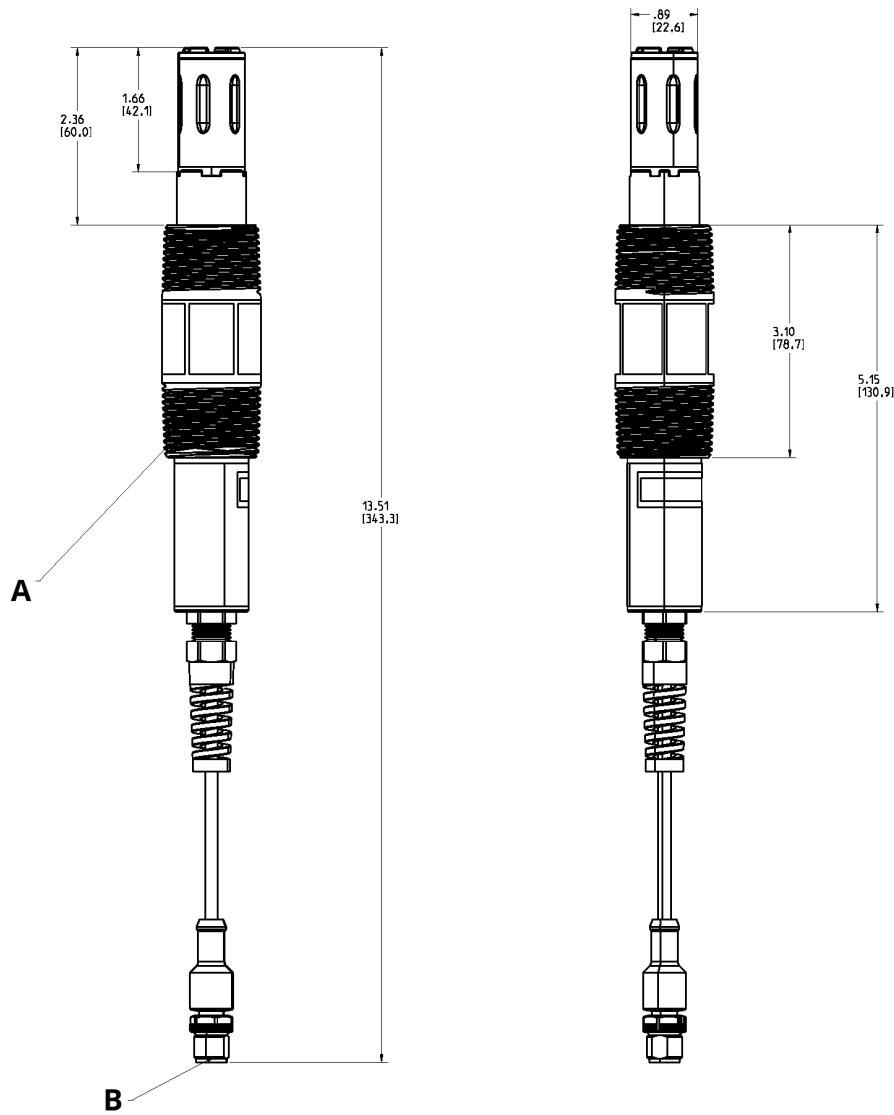
General ratings

Dimensions	Length: 8.1 in. (20.6 cm) Diameter: 1.3 in. (3.3 cm)
Weight	1.52 oz. (43 g)
Communication output	Modbus®/RS-485
Power consumption	Maximum measurement: 20 mA at 8 Vdc

Wetted materials

Housing, guard	Polyphenylene sulfide (PPS)
Sensor nose	Polycarbonate/acrylonitrile butadiene styrene (PC/ABS) blend
RDO cap	Polycarbonate/polymethylmethacrylate (PC/PPMA) blend
O-rings	Acrylonitrile butadiene rubber (NBR) FKM fluorelastomer
Body	Unfilled acetyl copolymer

Dimensional drawings



Dimensions are in inches [millimeters].

- A. 1-inch NPT threads
- B. Cable connector

For more information: Emerson.com/global

©2025 Emerson. All rights reserved.

Emerson Terms and Conditions of Sale are available upon request. The Emerson logo is a trademark and service mark of Emerson Electric Co. Rosemount is a mark of one of the Emerson family of companies. All other marks are the property of their respective owners.

ROSEMOUNT™

 **EMERSON™**