

# 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 | ★ |

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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  | ★ |

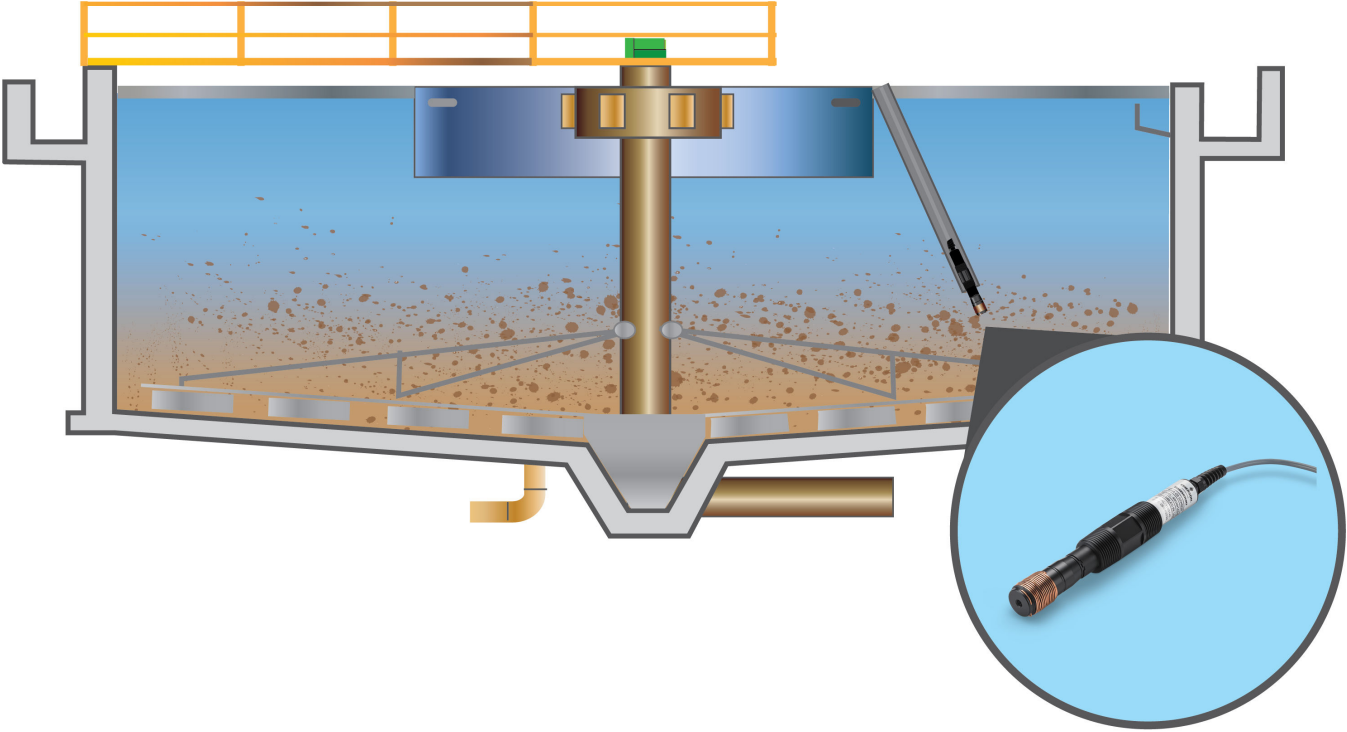
Spare parts and accessories

| 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

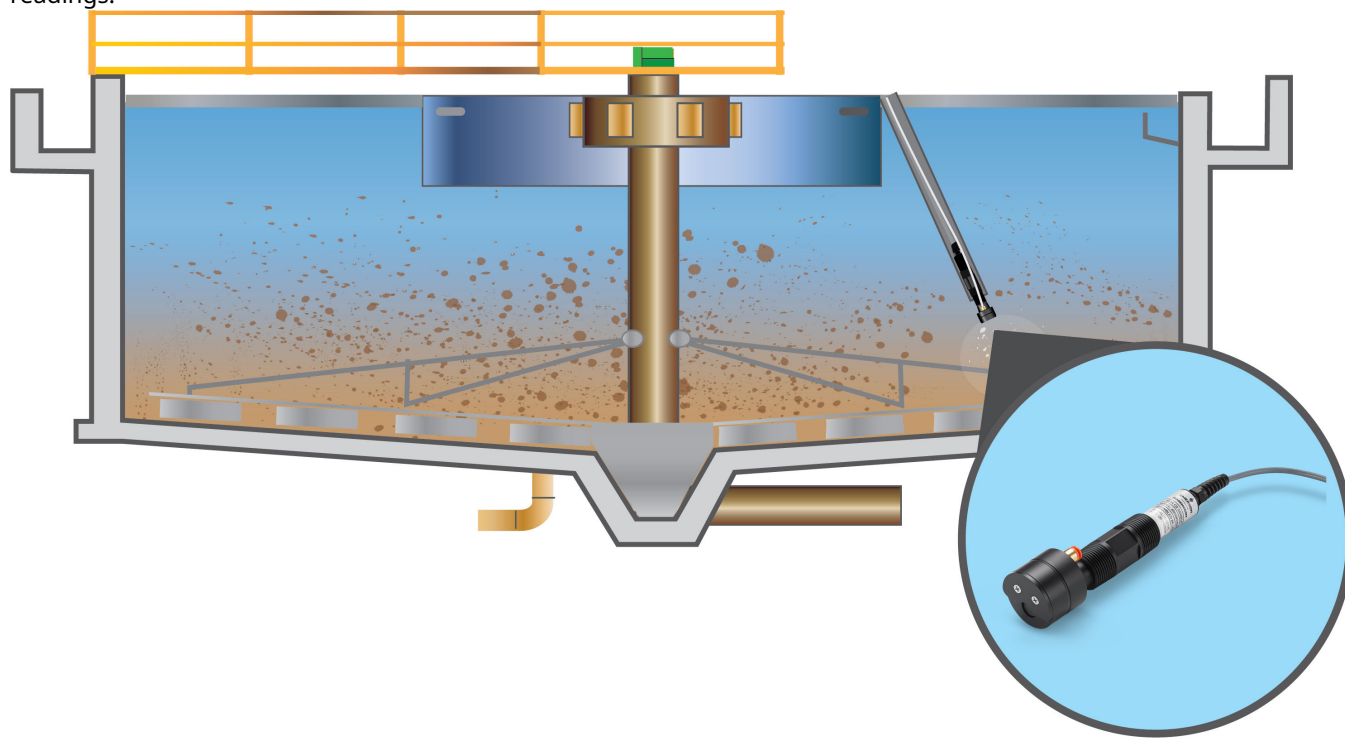
Rosemount 490A Sensor with Anti-fouling Guard

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.

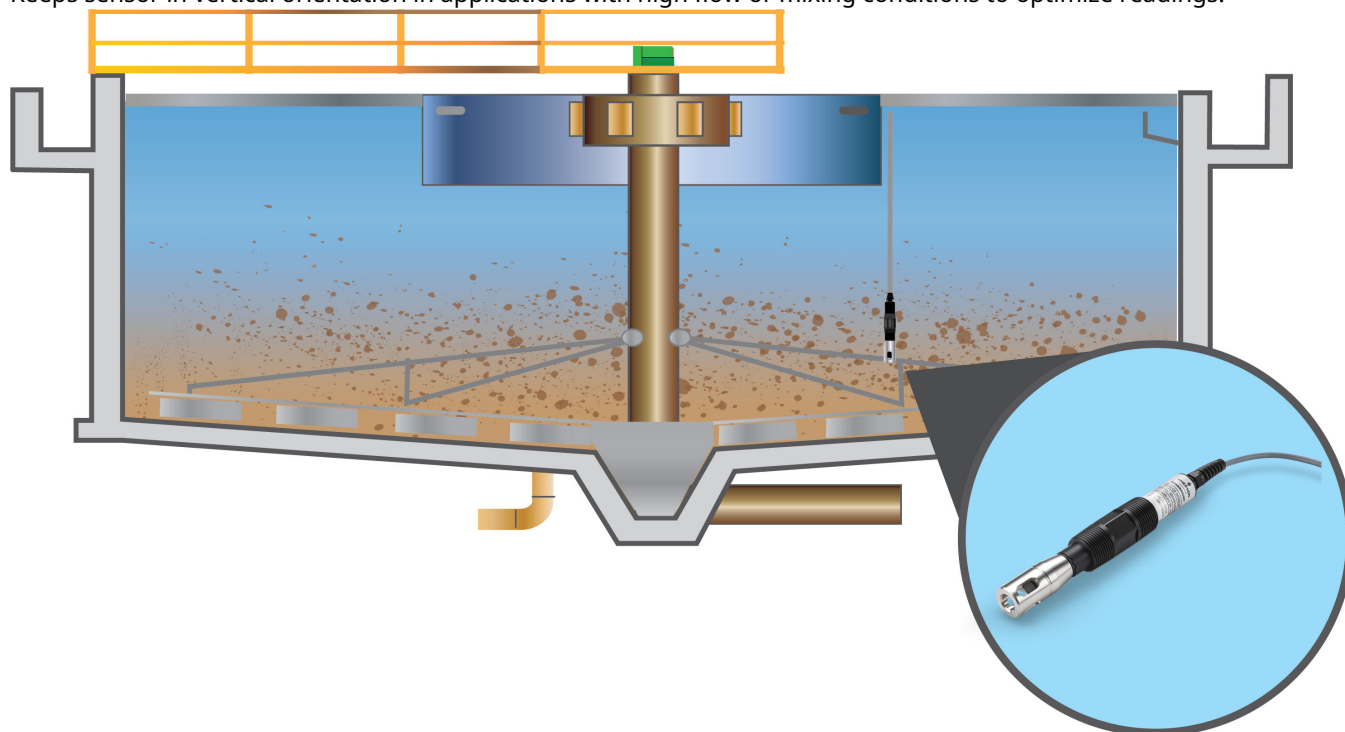
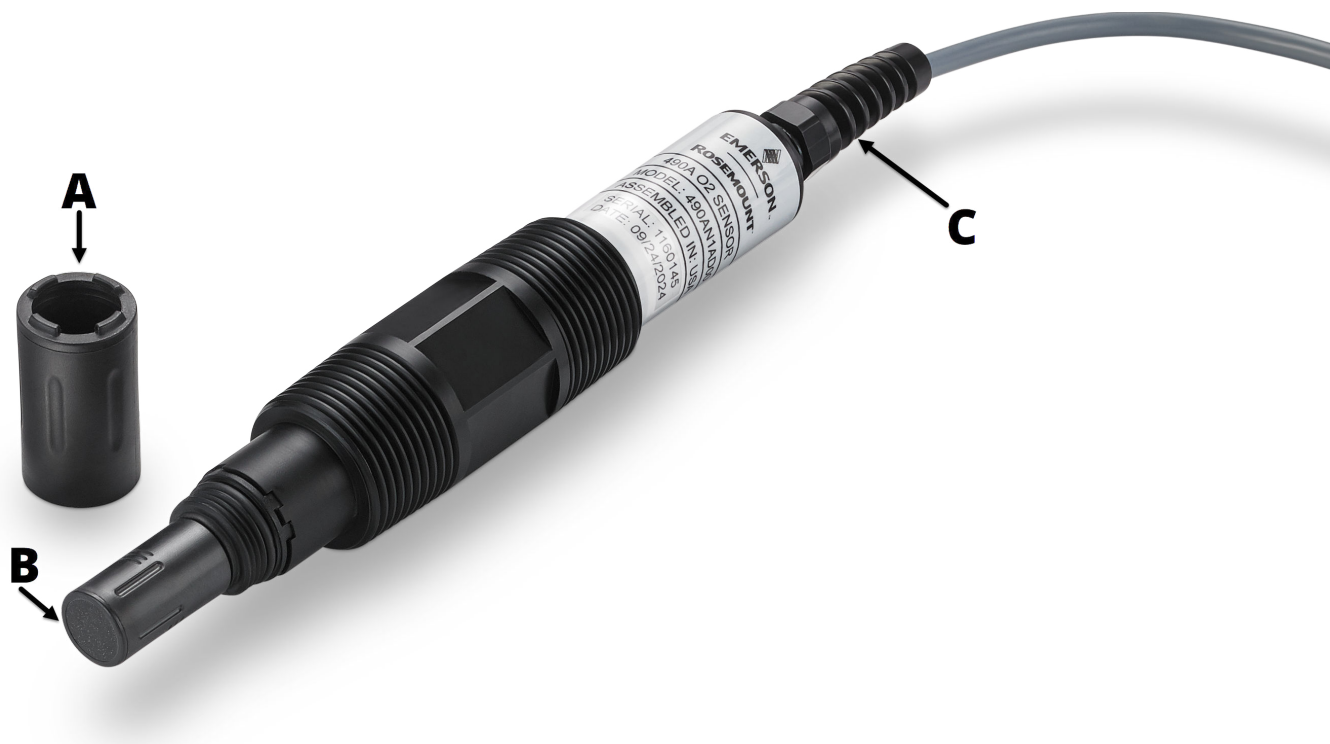


Figure 1: Rosemount 490A Sensor Parts



- A. Sensor guard cap
- B. Sensor cap
- C. Integral cable

## Specifications

### Sensor

|                              |                                                                                      |
|------------------------------|--------------------------------------------------------------------------------------|
| Range, dissolved oxygen (DO) | 0 to 60 mg/L or 0 to 600 percent saturation                                          |
| Accuracy, DO                 | $\pm 0.1$ mg/L (0 to 20 mg/L), $\pm 2$ 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    | $\pm 0.1$ °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)                     |

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

## Chemical ratings

### Interferences

|                                                |             |
|------------------------------------------------|-------------|
| <b>Alcohols</b>                                | > 5 percent |
| <b>Hydrogen peroxide</b>                       | > 3 percent |
| <b>Sodium hypochlorite (commercial bleach)</b> | > 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.

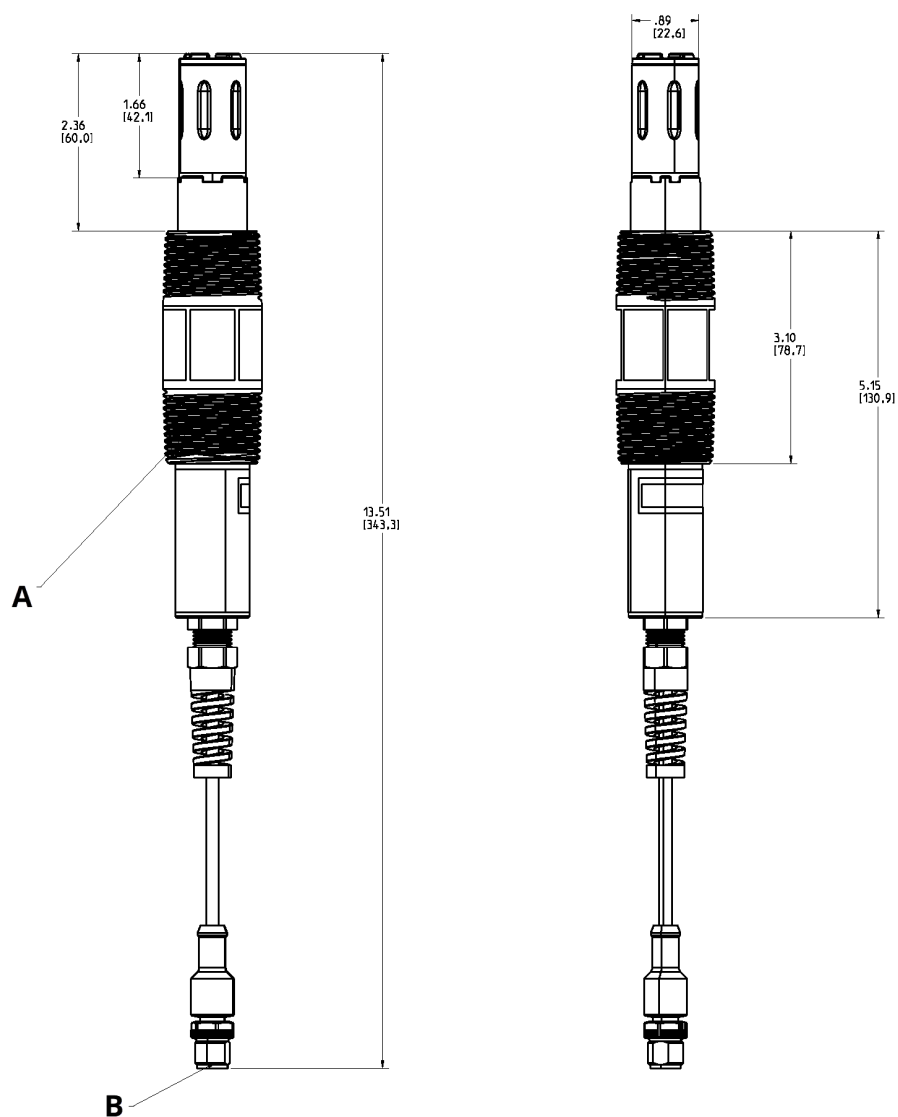
## General ratings

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

### Wetted materials

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

## Dimensional drawings



Dimensions are in inches [millimeters].

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







For more information: [Emerson.com/global](https://emerson.com/global)

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