

# Thermo Scientific Orion RDO® Optical Dissolved Oxygen Probes

## RDO technology meets the requirements of ASTM D888-05 Method C

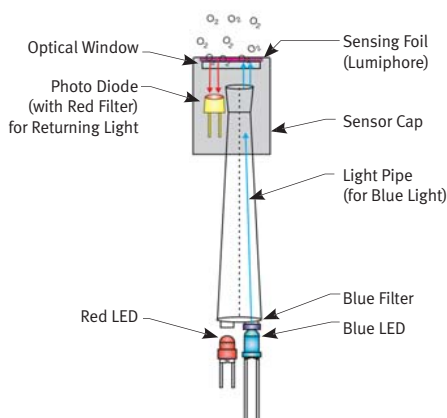
### Measuring dissolved oxygen with a luminescence-based sensor

**Optical dissolved oxygen is a new technology with many advantages that is rapidly gaining acceptance.**

The Thermo Scientific Orion RDO probe provides reliable measurements, no warm up time, no stirring, no maintenance (membranes or solution), no thermal shock and less interferences. The sensor cap requires easy annual replacement. The optical sensor cap is durable, able to withstand harsh environments without degradation or effect on performance. The cap has minimal hydration effects and is not prone to photo bleaching. Calibration information is stored in the sensor cap enhancing the ease of use.

All Thermo Scientific RDO probes come with a stainless steel guard and calibration sleeve and are intended for field use.

#### Optical Sensor/Luminescence-based Dissolved Oxygen Sensor



Optical Probe/Luminescence-based Dissolved Oxygen (LDO) — Newest technology that monitors time to quench an excited lumiphore, which is inversely proportional to the concentration of oxygen

*Rugged, low maintenance field probe*



**NEW**



Cat. No.	Recommended Accessories
087001	Replacement RDO sensor cap
087002	Stainless steel protective guard, for RDO probe
087003	Calibration sleeve for RDO probe

For connector type information, refer to the RDO meter section to determine the correct meter for your application.

**No membranes to change  
Sensor cap replaced annually**

## Specifications

Probe	
<b>Accuracy</b>	+/- 0.1 mg/L from 0 to 8 mg/mL and +/- 0.2 mg/L from 8 to 20 mg/mL
<b>Response Time</b>	T90, 30 seconds and T95, 60 seconds
<b>Operating Range</b>	0 to 20 mg/L and 0 to 200%
<b>Temperature Range</b>	0 to 50 °C

## RDO Probes

Cat. No.	Description
087010MD	Rugged Dissolved Oxygen probe with 3 meter cable
087020MD	Rugged Dissolved Oxygen probe with 6 meter cable
087030MD	Rugged Dissolved Oxygen probe with 10 meter cable
087050MD	Rugged Dissolved Oxygen probe with 15 meter cable
087100MD	Rugged Dissolved Oxygen probe with 30 meter cable



**BEST**



**BETTER**



**GOOD**

# Thermo Scientific Orion Dissolved Oxygen Probe Families

**Durable and accurate DO probes for the lab or field**



- 083005MD <sup>A</sup>
- 083010MD <sup>A</sup>
- 083025MD <sup>A</sup>
- 083060MD <sup>A</sup>
- 083005A <sup>F</sup>
- 083010A <sup>F</sup>
- 083005D <sup>B</sup>

- For lab and field applications
- Cable lengths from 1.5 to 20 meters

**AUTO-STIR™ probe for BOD applications**



- 086030MD <sup>A, C</sup>
- 086020A <sup>G</sup>

- For lab applications
- Self-stirring with One-Touch control

**Reliable DO probes for the lab or field**



- 081010MD <sup>A</sup>
- 081010 <sup>B</sup>

- For lab and field applications
- Rugged epoxy body

**Rugged DO probes plus probe guard**



- 080510MD <sup>A</sup>
- 081010F <sup>B</sup>

- For field applications
- Includes probe guard

**Convert any pH meter into a DO meter**



- 970899WP <sup>1</sup>
- 970800 <sup>3</sup>

- For lab applications
- Works on pH meters with BNC or U.S. Standard connections

A complete line of polarographic dissolved oxygen probes are available for BOD (Biochemical Oxygen Demand) analysis, beer and wine testing, rugged field applications, and water and wastewater analysis. All DO probes feature automatic temperature compensation and convenient screw on membrane caps that reduce probe servicing time and eliminate assembly problems.

The AUTO-STIR probe fits directly into a standard BOD bottle and has a built-in stirrer. This probe offers convenience, quick response, and long life between servicing.

See page 43 for a complete offering of accessories.



### Key Information

- 1). BNC Waterproof connector
- 3.) US Standard connector
- A). MiniDIN connector
- B). 8 Pin DIN connector
- C). 3.5 mm Phono Tip Stirrer Jack connector
- F). 8 Pin Waterproof DIN connector
- G). 13 Pin DIN connector

# Thermo Scientific Orion Dissolved Oxygen Probe Selection Guide

## Polarographic Dissolved Oxygen Probes

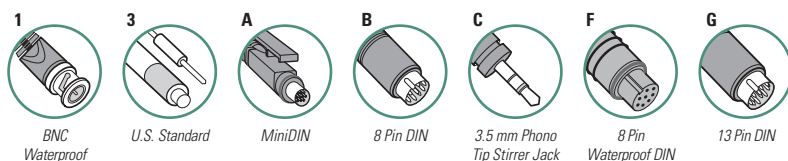
Cat. No.	Cable Length	Meter Compatibility	Application	Response Time	Minimum Sample Flow	Oxygen Consumption	Maximum Allowed Overpressure	Sample Temperature
<b>083005A<sup>F</sup></b>	1.5 m	830A, 835A, 862A	Laboratory / Field	90% of final value in 10 seconds; 95% of final value in 15 seconds; 99% of final value in 60 seconds	10 cm/sec	0.008 µg/h (mg/L) <sup>-1</sup> at 20 °C	6 BAR	0 to 50 °C
<b>083010A<sup>F</sup></b>	3 m	830A, 835A, 862A						
<b>083005D<sup>B</sup></b>	1.5 m	810Aplus, 850Aplus						
<b>083005MD<sup>A</sup></b>	1.5 m	Star Series						
<b>083010MD<sup>A</sup></b>	3 m	Star Series						
<b>083025MD<sup>A</sup></b>	10 m	Star Series						
<b>083060MD<sup>A</sup></b>	20 m	Star Series						
<b>086020A<sup>G</sup></b>	2 m	862A	Laboratory	90% of final value in 10 seconds; 95% of final value in 15 seconds; 99% of final value in 60 seconds	10 cm/sec	0.008 µg/h (mg/L) <sup>-1</sup> at 20 °C	6 BAR	0 to 50 °C
<b>086030MD<sup>A,C</sup></b>	2 m	Star Series, Benchtop Models						
<b>081010<sup>B</sup></b>	3 m	805Aplus, 810Aplus, 850 Aplus	Laboratory / Field	90% of final value in 10 seconds; 95% of final value in 16 seconds; 99% of final value in 60 seconds	20 cm/sec	-	-	0 to 50 °C
<b>081010MD<sup>A</sup></b>	3 m	Star Series						
<b>081010F<sup>B</sup></b>	3 m	810Aplus, 850Aplus	Field	90% of final value in 10 seconds; 95% of final value in 18 seconds; 99% of final value in 60 seconds	10 cm/sec	0.008 µg/h (mg/L) <sup>-1</sup> at 20 °C	10 BAR	0 to 50 °C
<b>080510MD<sup>A</sup></b>	3 m	Star Series						
<b>970800<sup>3*</sup></b>	1 m	pH meters with US Standard connector	Laboratory	96% response in less than 30 seconds between oxygen-free and air saturated water at 22 °C	-	0.1 mg/hr	-	0 to 45 °C
<b>970899WP<sup>1*</sup></b>	1 m	pH meters with BNC connector						

## Polarographic Dissolved Oxygen Solutions and Accessories

Temperature Sensor	Drift	Electrolyte lifetime	Storage Temperature	Membrane Cap and Solution	Maintenance Kit
Dual, thermally separated	Approximately 0.1% per day	180 days	-5 to 50 °C	Membrane Cap- 080515  Solution- 080514	080513
Dual, thermally separated	Approximately 0.1% per day	180 days	- 5 to 50 °C	Membrane Cap- 080515  Solution- 080514	080513
Single thermally separated	< 1% per day	180 days	- 5 to 50 °C	Membrane Cap- 081003  Solution- 080514	080113
Dual, thermally separated (080510MD has a single temperature sensor)	Approximately 0.1% per day	180 days	- 5 to 50 °C	Membrane Cap for 080510MD- 081003  Membrane Cap for 081010F & 083010F- 080515  Solution- 080514	Kit for 080510MD- 080113  Kit for 081010F & 083010F- 080513
Dual, thermally separated	-	-	-	Pre-Filled Membrane Cap- 970801	-

Cat. No.	Description
<b>080513</b>	Maintenance Kit, Includes Electrolyte Solution, Polishing Disk and 2 Membrane Caps for 083005MD, 083010MD, 083025MD, 083060MD, 086030MD, 083005A, 083010A, 083005D, 086020A, 081010F
<b>080113</b>	Maintenance Kit, Includes Electrolyte Solution, Polishing Disk and 2 Membrane Caps for 080510MD, 081010MD, 081010
<b>080515</b>	1 Membrane Cap for 083005MD, 083010MD, 083025MD, 083060MD, 086030MD, 083005A, 083010A, 083005D, 086020A, 081010F
<b>081003</b>	3 Membrane Caps for 080510MD, 081010MD, 081010
<b>970801</b>	1 Pre-Filled Membrane Cap for 970899WP, 970800
<b>080514</b>	Polarographic Electrolyte Solution for 083005MD, 083010MD, 083025MD, 083060MD, 086030MD, 083005A, 083010A, 083005D, 086020A, 081010F, 080510MD, 081010MD, 081010
<b>080017</b>	Calibration Sleeve for All DO Probes Excluding AUTO-STIR Probes and RDO Probe
<b>086021A</b>	Calibration Chamber/Stand for 086020A, 086030MD AUTO-STIR Probes
<b>080360</b>	BOD Adapter for 083005MD, 083010MD, 083025MD, 083060MD, 083005A, 083010A, 083005D
<b>080160</b>	BOD Adapter for 081010MD, 081010
<b>970802</b>	BOD Stir Funnel for 970899WP, 970800
<b>970803</b>	2 Batteries for 970899WP, 970800
<b>013045</b>	Stainless Steel Protective Probe Guard for 080510MD, 083005MD, 083010MD, 083025MD, 083060MD, 083005A, 083005D, 083010A
<b>080045</b>	Stainless Steel and Plastic Protective Probe Guard for 080510MD, 083005MD, 083010MD, 083025MD, 083060MD, 083005A, 083005D, 083010A
<b>081045</b>	Plastic Protective Probe Guard for 080510MD, 083005MD, 083010MD, 083025MD, 083060MD, 083005A, 083005D, 083010A

\* **Accuracy**- ± 0.05 ppm or 2% of reading, whichever is greater  
**Battery Life**- One year based on 4 hours/day operation



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