

**Teky's Tips**



**Which technology is right for me?**

**Galvanic cells**

- Pros:** No warm-up time; more stable and accurate at low DO levels than polarographic probes
- Cons:** Oxygen is consumed during measurement; requires flowing or stirred samples; periodic probe maintenance and recalibration; cells eventually wear out

**Polarographic cells**

- Pros:** Longer overall lifetime than galvanic cells
- Cons:** Warm-up time prior to measurement; oxygen is consumed during measurement; requires flowing or stirred samples; frequent probe maintenance and recalibration

**Optical**

- Pros:** Better stability; non-consumptive method; infrequent probe maintenance and recalibration
- Cons:** Use of optical technology is still not approved for some applications

**Oakton® Zero Oxygen Solutions**

**Maximize your meter accuracy**

- Ensure accuracy—tested using Winkler method for better results
- Manufactured according to the APHA and ASTM formulation with high-purity, oxygen-free water



Description	Size	Catalog number	Price
Oakton zero oxygen solution	500 mL bottle	<a href="#">GY-00653-00</a>	
Zero oxygen sachets	Pack of 10	<a href="#">GY-53024-53</a>	

**Dissolved Oxygen Test Kit**  
**Don't miss a measurement**

- Inexpensive backup in case of meter failure
- Test samples or calibrate meters using Winkler titration method
- Enough for up to 50 tests
- Eliminate nitrate interference with azide modification



Description	Range	Resolution	Catalog number	Price
Dissolved oxygen test kit	0 to 10 ppm	0.2 ppm	<a href="#">GY-53003-00</a>	
Dissolved oxygen reagent refill			<a href="#">GY-53003-05</a>	

**Oakton® DO 6+ Dissolved Oxygen Meter**  
**High accuracy without a high price**



- No warm-up time required
- No need to hold meter—protective rubber boot is also a stand
- Low-maintenance, galvanic probe
- Choose display—ppm or mg/L

Six simple buttons for freezing measurements, toggling between units and temperature results, setup, calibration, and automatic barometric and salinity compensation. View electrode slope, zero offset, and millivolt values for electrode diagnostics.

**Meter includes:** electrolyte solution, membrane cap, protective rubber boot/stand, and four AAA batteries.

**Kit adds:** two membrane caps, solution bottles, rinse bottle, and hard plastic carrying case.



Protective boot also functions as a stand.



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**Specifications**

Mode	mg/L (ppm)	% O <sub>2</sub> saturation	Temperature (°C)
Range	0.00 to 20.00	0.0 to 200.0	0.0 to 50.0
Resolution	0.01	0.1	0.1
Accuracy	±1.5% full-scale	±1.5% full-scale	±0.5

**Temperature compensation:** automatic from 0 to 50°C

**Salinity compensation:** Manual input, automatic correction  
Range: 0.0 to 50.0 ppt  
Resolution: 0.1 ppt

**Barometric pressure compensation:** Manual input, automatic correction

Range: 500 to 1499 mm Hg  
Resolution: 1 mm Hg

**Memory:** none

**Power:** four AAA batteries (included)

Description	Meter		Precalibrated meter	
	Catalog number	Price	Catalog number	Price
DO 6+ meter only	<a href="#">GY-35643-10</a>		<a href="#">GY-35643-11</a>	
DO 6+ meter with probe 35642-50	<a href="#">GY-35643-12</a>		<a href="#">GY-35643-13</a>	
DO 6+ meter kit	<a href="#">GY-35643-14</a>		<a href="#">GY-35643-15</a>	

[GY-35642-50](#) Replacement DO probe with 3-ft (0.9-m) cable

[GY-35642-52](#) DO probe with 10-ft (3-m) cable

[GY-35642-54](#) DO probe with 30-ft (9-m) cable

[GY-35642-55](#) Replacement DO probe maintenance kit includes one membrane cap and 10 mL of electrolyte solution

[GY-09376-00](#) Replacement batteries; AAA. Pack of 12

**Save time, save money!**

**Choose Precalibrated**

Includes a data-rich, ISO 17025 certificate—no additional charge!

Precalibrated by **INNOCAL**®  
INNOVATIVE CALIBRATION SOLUTIONS

# Oxygen

## Oakton® Waterproof DO and pH/DO 450 Meters Eliminate maintenance time and costs

- Rugged, waterproof and dustproof with an IP67 rating for use in any environment
- No costly, tiresome membranes or solutions with optical RDO technology
- More accurate readings with barometric pressure and salinity correction
- Download and analyze data easily with USB and RS-232 output for up to 500 data sets
- Take it with you—500 hours battery life or optional universal power adapter

Get fast response times and long-term stability with minimal maintenance with optical measurement technology. Ensure measurement accuracy with automatic temperature compensation (ATC), barometric pressure compensation, and salinity correction. View % saturation or mg/L (ppm) simultaneously with temperature on the large LCD screen. Waterproof, IP67-rated housing is ideal for the even the harshest environments.

Additional features include ready (stability) indicator, smart averaging, hold function, calibration alarm, and battery-life indicator. Order optional cables for USB and RS-232 connectivity.

**Meter only includes:** two AA batteries.

**DO 450 Meter Kit adds:** RDO probe (35640-53), sensor cap (35640-51), RDO weight, RDO calibration chamber, sample bottles, and hard carrying case.

**pH/DO 450 Meter kit adds:** items in DO 450 meter kit plus pH probe (59002-75), and calibration solutions.



Description	DO 450 meter only	DO 450 meter kit	PD 450 meter only	PD 450 meter kit
Catalog number	<a href="#">GY-35640-32</a>	<a href="#">GY-35640-90</a>	<a href="#">GY-35632-32</a>	<a href="#">GY-35632-80</a>
Precalibrated catalog number	<a href="#">GY-35640-34</a>	<a href="#">GY-35640-91</a>	<a href="#">GY-35632-34</a>	<a href="#">GY-35632-81</a>
Range				
pH	—	—	—	-2.00 to 16.00
mV	—	—	—	±2000 mV
Dissolved oxygen (ppm)	0 to 20 ppm	0 to 20 ppm	0 to 20 ppm	0 to 20 ppm
Dissolved oxygen (% saturation)	0 to 200%	0 to 200%	0 to 200%	0 to 200%
Temperature	-17.0 to 230.0°F (-10.0 to 110.0°C)	-17.0 to 230.0°F (-10.0 to 110.0°C)	-17.0 to 230.0°F (-10.0 to 110.0°C)	-17.0 to 230.0°F (-10.0 to 110.0°C)
Resolution				
pH	—	—	—	0.01
mV	—	—	—	0.1 (>199.9 mV); 1 mV (beyond)
Dissolved oxygen (ppm)	0.1 ppm	0.1 ppm	0.1 ppm	0.1
Dissolved oxygen (% saturation)	0.10%	0.10%	0.10%	0.1
Temperature	0.1°C/°F	0.1°C/°F	0.1°C/°F	0.1°C
Accuracy				
pH	—	—	—	±0.01
mV	—	—	—	±0.2 (>199.9 mV); ±2 mV (beyond)
Dissolved oxygen (ppm)	±2%	±2%	±2%	±2%
Dissolved oxygen (% saturation)	±2%	±2%	±2%	±2%
Temperature	±0.9°F (±0.5°C)	±0.9°F (±0.5°C)	±0.9°F (±0.5°C)	±0.5°C
Barometric pressure compensation	Manual	Manual	Manual	Manual
Salinity correction	Manual; 0 to 45	Manual; 0 to 45	Manual; 0 to 45	Manual; 0 to 45
Temperature compensation	Automatic or manual from -10 to 110°C	Automatic or manual from -10 to 110°C	Automatic or manual from -10 to 110°C	Automatic or manual from -10 to 110°C
Memory	Stores up to 500 data sets	Stores up to 500 data sets	Stores up to 500 data sets	Stores up to 500 data sets
Output	USB or RS-232	USB or RS-232	USB or RS-232	USB or RS-232
Power	Two AA batteries (included); >500 hours continuous use; AC adapter (optional)	Two AA batteries (included); >500 hours continuous use; AC adapter (optional)	Two AA batteries (included); >500 hours continuous use; AC adapter (optional)	Two AA batteries (included); >500 hours continuous use; AC adapter (optional)
Price				
Precalibrated price				

### Accessories

[GY-35640-51](#) Replacement RDO sensor cap

[GY-35640-53](#) Replacement RDO probe, 10-ft (3-m) cable

[GY-35640-55](#) RDO probe, 20-ft (6-m) cable

[GY-35640-57](#) RDO probe, 50-ft (15-m) cable

[GY-35640-58](#) RDO calibration chamber

[GY-59002-75](#) "All-in-One" pH electrode with built-in ATC. Single-junction; epoxy body; BNC connector

[GY-35618-05](#) ATC probe. Use with any standard pH electrode for temperature compensation

[GY-35640-59](#) RDO weight, screw thread to attach to probe

[GY-35630-53](#) Data cable for USB connectivity

[GY-35420-01](#) Data cable for RS-232 connectivity

[GY-35420-72](#) Optional AC adapter, 110/220 VAC

[GY-09376-01](#) Replacement batteries. AA. Pack of 4

[GY-17106-04](#) NIST-traceable calibration with data for DO meters

[GY-17106-20](#) NIST-traceable calibration with data for pH meter

## Waterproof Field Dissolved Oxygen Meters

Fast, easy measurements—operate with one hand

- Polyethylene membrane reduces stirring requirements and improves response time
- Save time and money with field-replaceable electrode modules
- Waterproof, impact-resistant case—IP67 rated
- Built-in calibration chamber
- Provides simultaneous readings of oxygen and temperature

Includes large backlit display, automatic push-button calibration, and a weighted, quick-sinking probe. Low-battery indicator. Salinity, temperature and altitude compensations eliminate the need for correlation chart.



Description	Meter and probe with 12-ft (3.7-m) cable	Meter and probe with 25-ft (7.6-m) cable
<b>Catalog number</b>	<a href="#">GY-53010-30</a>	<a href="#">GY-53010-32</a>
Range	DO	0.0 to 50.0 ppm; 0 to 500%
	Temperature	23 to 113°F (-5 to 45°C)
Resolution	DO	0.01 ppm; 0.1 %
	Temperature	0.1°F (0.1°C)
Accuracy	DO	±0.3 or ±2% of reading, whichever ever is greater; 200 to 500% or 20 to 50 mg/L; ±6% of reading
	Temperature	±0.6°F (±0.3°C)
Temperature compensation	Automatic, -5 to 45°C	
Salinity compensation	Manual input, automatic correction 0 to 70 ppt	
Altitude compensation	Automatic after manual input, 0 to 10,000 ft	
Power	Four C batteries (included)	
<b>Price</b>		

- [GY-53010-50](#) Replacement DO sensor module
- [GY-99852-80](#) Replacement membrane kit contains six 1.25-mil PE membrane caps and bottle of KCl
- [GY-09376-02](#) Replacement batteries; C. Pack of 4
- [GY-17106-04](#) NIST-traceable calibration with data for DO meters

## Field LDO, pH/LDO and Conductivity/LDO Meter Kits

No recalibration needed when changing probes

**NEW**

- Automatic parameter recognition with IntelliCAL™ smart probes
- No more squinting—super-bright LCD with large font for easier readings
- Maintenance-free, LDO technology for dissolved oxygen or BOD measurements
- Be GLP-compliant with storage of up to 500 data sets
- Choose your language in setup mode from 13 options



Versatile HQd meters offer a large backlit display with an intuitive user-interface. The meter prompts you through calibration, setup, and measurements; features single input with multiparameter operation for LDO, pH, conductivity, and temperature.

Log up to 500 measurements with probe serial number, current calibration data, user ID, sample ID, time, and date. Download and analyze data via USB port to PC or flash drive. Precalibrated smart probes store their own calibration data and identification. No need to recalibrate—meter recognizes each probe, so you can easily move between meters.

**LDO kit includes:** Hach HQ30d single-input multiparameter portable meter, LDO rugged probe (59004-59), protective meter boot, four sample bottles, hard carrying case, and four AA batteries. **pH/LDO kit adds to LDO:** pH rugged probe (59004-74) and pH buffers. **pH/CON kit adds to LDO:** conductivity rugged probe (59004-65) and calibration standard.



Model	HQ30d LDO	HQ30d pH/LDO	HQ30d Conductivity/LDO	
<b>Catalog number</b>	<a href="#">GY-59004-40</a>	<a href="#">GY-59004-42</a>	<a href="#">GY-59004-46</a>	
Range	pH	—	2 to 14.00	
	mV	—	±1200.0	
	Conductivity	—	—	0.01 µS to 200 mS
	TDS	—	—	0.0 to 50 g/L
	Salinity	—	—	0.0 to 42 ppt
	DO	0.05 to 20.00 mg/L; 0 to 200%		
Resolution	Temp, °C	0 to 80		
	pH	—	0.001	—
	mV	—	0.1	—
	Conductivity	—	—	0.01
	TDS	—	—	0.1
	Salinity	—	—	0.01
Accuracy	DO	0.01		
	Temp, °C	0.1		
	pH	—	±0.02	—
	mV	—	±0.02	—
	Conductivity	—	—	±0.5% of range
	TDS	—	—	±0.5% ± 1 digit
Salinity	—	—	±0.5% ± 1 digit	
DO	±0.1 to 8 mg/L; ±0.2 mg/L above 8 mg/L			
Temp, °C	±0.3			
Temperature compensation	Automatic or manual			
Data logging capabilities	500			
Output	USB			
Power	Four AA batteries (included) or optional AC adapter			
<b>Price</b>				

- [GY-59004-57](#) Laboratory LDO probe; epoxy body, 3-ft (0.9-m) cable
- [GY-59004-59](#) Rugged LDO probe; stainless steel, 15-ft (5-m) cable
- [GY-59004-73](#) Laboratory pH electrode; epoxy body, sealed, double-junction, 3-ft (0.9-m) cable

## Don't Forget...

### BOD Bottles

Clear glass bottles come with glass stoppers and a white write-on marking space.

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# Oxygen

Handheld Meters

## Professional Series DO Meters Configurable to your needs


- Combine meter, probes, and cable lengths to meet your needs
- Handheld meters offer menu-driven software for added convenience
- Read your measurements easily in any light with backlit graphic display and keypad

The Professional series provides plug-and-play capabilities to give you a meter with as much functionality as needed. Don't buy unnecessary accessories, simply build your own system by ordering the meter, probe(s), and cables(s) you need.

Easy-to-use meters feature graphic display with detailed messages and instructions that translate to less time reading manuals. Display and keypad are backlit, making them ideal for low-light situations. Rugged rubber over-molded case protects meters during use. Meters are IP67 rated and waterproof, even without the battery lid.

These DO meters accept either classic polarographic or "instant-on" galvanic DO sensors with screw-on membrane caps for ease of maintenance. These meters also feature selectable two-point DO calibration and automatic barometric compensation for greater accuracy.

**NEW**  
Model

 **REQUIRED System Components**

- 1) Meter
- 2) Probe(s)
- 3) Cable(s)



 **ISO 9001:2008**  
CERTIFIED SUPPLIER

 **IP 67**

 **USA**  
Meter only

### 1. Professional Series Meters

Model	Pro20	Pro1020	Pro2030	
Catalog number	<a href="#">GY-59352-04</a>	<a href="#">GY-59352-10</a>	<a href="#">GY-59352-14</a>	
Range	Dissolved oxygen	0 to 50 mg/L		
	Barometric pressure	Automatic correction, 500 to 800 mm Hg		
	pH	—	0 to 14.00 pH	—
	mV	—	±1999 mV	—
	Conductivity	—	—	0 to 200 mS
	TDS	—	—	0 to 100 g/L
	Salinity	Manual input, automatic correction	—	0 to 70 ppt
	Temperature	-5 to 55°C		
Accuracy	Dissolved oxygen	±2% of reading or ±0.2 mg/L, whichever is greater (6% above 20 mg/L)		
	Barometric pressure	±3 mm Hg within 15°C from calibration point		
	pH	—	±0.2 pH	—
	mV	—	±20 mV	—
	Conductivity	—	—	±0.5% of reading or ±0.001 mS/cm, whichever is greater
	TDS	—	—	±1% of reading
	Salinity	—	—	±1% of reading or ±0.1 ppt, whichever is greater
	Temperature	±0.2		
Temperature compensation	Automatic, -5 to 55°C			
Display	Four-line backlit, graphic LCD			
Power	Two C batteries (included)			
Dimensions (L x W x H)	8½" x 3¼" x 2¼" (21.6 x 8.3 x 5.7 cm)			
Price				

### 2. DO Probes for Professional Series

Description	Catalog number	Price
Galvanic DO	<a href="#">GY-59352-32</a>	
Polarographic DO	<a href="#">GY-59352-34</a>	
BOD probe	<a href="#">GY-59352-35</a>	
pH probe	<a href="#">GY-59352-20</a>	
ORP probe	<a href="#">GY-59352-22</a>	

#### Accessories

- [GY-99852-80](#) DO membrane kit; polyethylene, 1.25 mil. Pack of 6
- [GY-05519-61](#) DO membrane kit; PTFE, 1.0 mil. Pack of 6

### 3. Cables for Professional Series

All cables include a temperature probe. Cables for Pro2030 meters also include a conductivity probe.

Compatible with meter	Pro20		Pro1020		Pro2030	
	Catalog number	Price	Catalog number	Price	Catalog number	Price
3 ft (1 m)	<a href="#">GY-59352-43</a>		<a href="#">GY-59352-63</a>		<a href="#">GY-59352-79</a>	
13 ft (4 m)	<a href="#">GY-59352-44</a>		<a href="#">GY-59352-64</a>		<a href="#">GY-59352-80</a>	
33 ft (10 m)	<a href="#">GY-59352-46</a>		<a href="#">GY-59352-66</a>		<a href="#">GY-59352-82</a>	

Note: Additional cable lengths available.

# Optical Dissolved Oxygen Meter

## Stop cleaning electrodes and changing solutions

- Optical technology reduces probe maintenance and calibration costs for long-term savings
- Expanded range of 0 to 500% saturation for high-level oxygen readings
- Waterproof IP67-rated case and connections
- No stirring with nonconsumptive luminescent method

**REQUIRED System Components**

- 1) Meter
- 2) Probe(s)

The ProODO meter uses optical technology for increased DO stability, accuracy, and response times. Additional benefits include no warm-up period and no probe fouling. Meter stores up to 2000 data sets for long-term field use. Output readings to desktop software via USB connection.

“Smart” digital sensors store calibration data allowing probes to be interchanged to different meters without recalibration. Calibrations hold up to one year.

The ProODO does not need a flowing sample making it well-suited for applications where stirring is undesirable such as deep-water profiling, and reducing the possibility of operator error.

**What's included:** batteries, communications saddle, USB cable, and data manager software.



Handheld Meters

### 1. ProODO Meter



Model		ProODO
Catalog number		GY-59353-00
Range	Dissolved oxygen	0 to 500%; 0 to 50 mg/L
	Barometric pressure	375 to 825 mm Hg
	Temperature	-5 to 70°C
Resolution	Dissolved oxygen	0.1% air saturation; 0.01 or 0.1 mg/L (auto-scaling)
	Barometric pressure	0.1 mm Hg
	Temperature	0.01°C
Accuracy	Dissolved oxygen	±1% of reading from 0 to 200%, ±15% of reading from 200 to 500%; ±0.1mg or 1% of reading from 0 to 20 mg/L whichever is larger, ±15% of reading from 20 to 50 mg/L
	Barometric pressure	±1.5 mm Hg from 0 to 50°C
	Temperature	±0.2°C
Salinity correction		0 to 70 ppt; manual input
Temperature compensation		Automatic
Calibration		DO: one or two point; barometer: one point
Data storage		2000 data sets
Output		USB 2.0 (cable and software included)
Power		Two C batteries (included)
Price		

### 2. Probes for ProODO Meter

Cable length	Catalog number	Price
3 ft (1 m)	<a href="#">GY-59353-02</a>	
13 ft (4 m)	<a href="#">GY-59353-03</a>	
33 ft (10 m)	<a href="#">GY-59353-04</a>	
66 ft (20 m)	<a href="#">GY-59353-05</a>	
100 ft (30 m)	<a href="#">GY-59353-06</a>	
133 ft (40 m)	<a href="#">GY-59353-07</a>	
166 ft (50 m)	<a href="#">GY-59353-08</a>	
200 ft (60 m)	<a href="#">GY-59353-09</a>	
330 ft (100 m)	<a href="#">GY-59353-10</a>	

- [GY-59353-01](#) Replacement sensing element
- [GY-59353-30](#) ProOBOD probe, US/Japanese version
- [GY-59353-31](#) ProOBOD probe, International version
- [GY-59352-91](#) Belt clip attaches meter to belt loop holder
- [GY-59352-92](#) Carrying case, soft-sided
- [GY-59352-93](#) Carrying case, hard-sided
- [GY-59352-94](#) Weights; stackable, for optical DO probe. 4.2 oz
- [GY-17106-04](#) NIST-traceable calibration with data for DO meters

## Wheaton BOD Bottles

### Easily identify samples

- Clear glass BOD bottles come with glass stoppers and a white write-on marking space

For more BOD bottles see pages 82-83.

#### Specifications

Capacity: 300 mL



Description	Number sequence	Catalog number	Qty/ cs	Price/ cs
Penny head stopper BOD bottles, clear	Unnumbered	<a href="#">GY-03660-14</a>	24	
Robotic stopper BOD bottles, clear	Unnumbered	<a href="#">GY-03660-15</a>	24	
Robotic stopper BOD bottles, clear	1-24	<a href="#">GY-03660-16</a>	24	

## Cole-Parmer® BOD Microbe Capsules

### Ensure accurate BOD testing

These convenient capsules contain dehydrated microbial culture, allowing you to inexpensively and quickly obtain an acclimate blend of bacteria. One capsule provides enough seed for up to 250 BOD tests daily. Each bottle contains 50 capsules.



Description	Catalog number	Price
BOD microbe capsules; bottle of 50	<a href="#">GY-05466-00</a>	

# Oxygen

## Oakton® DO 700 and DO 2700 Benchtop Dissolved Oxygen Meters

### Don't waste valuable bench space

- Space-saving design takes up less bench space
- No more squinting—large display allows for reading across the room
- Store up to 500 readings for later retrieval

Oakton DO 700 meter measures dissolved oxygen in mg/L, ppm, or % saturation with simultaneous temperature display in °F or °C. Large LCD features annunciators to aid in meter use and troubleshooting.

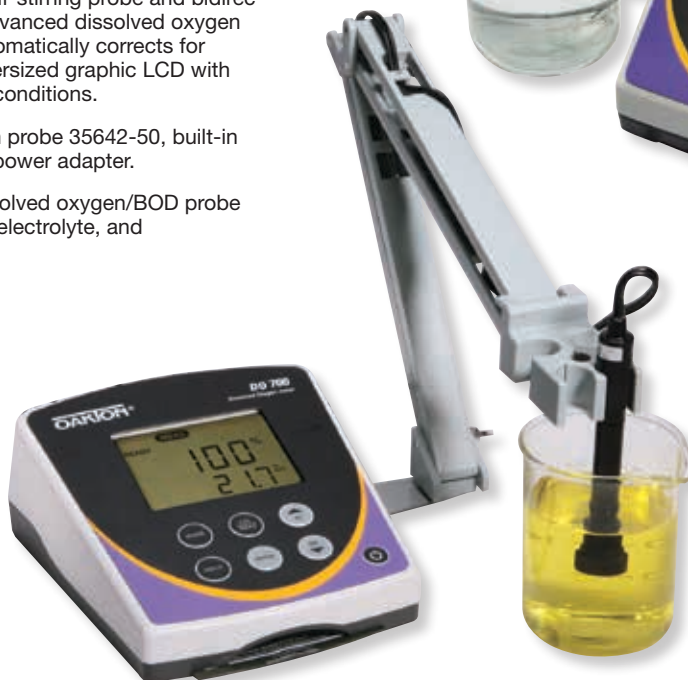
Oakton DO 2700 meter offers a more advanced user interface and measurement capabilities than the 700-series meter. Meter meets GLP requirements—all calibration and measurement data is stored with a time/date stamp. Bundled self-stirring probe and bidirectional RS-232 for BOD and other advanced dissolved oxygen applications. Built-in barometer automatically corrects for atmospheric pressure changes. Oversized graphic LCD with backlight allows readings under all conditions.

**DO 700 includes:** dissolved oxygen probe 35642-50, built-in electrode stand, and 100/240 VAC power adapter.

**DO 2700 includes:** self-stirring dissolved oxygen/BOD probe 35420-82, six membrane caps and electrolyte, and 100/240 VAC power adapter.



Water-resistant keypad and convenient pullout reference guide



**Save time, save money!**

**Choose Precalibrated**

Includes a data-rich, ISO 17025 certificate—no additional charge!

Precalibrated by **INNOCAL**  
INNOVATIVE CALIBRATION SOLUTIONS



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Description		DO 700 meter	Precalibrated DO 700 meter	DO 2700 meter	Precalibrated DO 2700 meter
Catalog number		<a href="#">GY-35415-00</a>	<a href="#">GY-35415-01</a>	<a href="#">GY-35416-00</a>	<a href="#">GY-35416-01</a>
Range	Dissolved oxygen	0 to 30 mg/L		0 to 19.99 mg/L; 50.0 mg/L	
	% saturation	0 to 199.9%; 300%		0 to 600.0%	
	Temperature	32 to 122°F (0 to 50°C)		32 to 122°F (0 to 50°C)	
Resolution	Dissolved oxygen	0.01		0.01, 0.1	
	% saturation	0.1%		0.1%	
	Temperature	0.1°F (0.1°C)		0.1°F (0.1°C)	
Accuracy	Dissolved oxygen	±0.5% full scale		±0.5% full scale	
	% saturation	±0.5% full scale		±0.5% full scale	
	Temperature	±0.9°F (±0.5°C)		±0.5°F (±0.3°C)	
Temperature compensation		Manual or automatic from 32 to 122°F (0 to 50°C)		Manual or automatic from 32 to 122°F (0 to 50°C)	
Salinity compensation		Manual input, automatic correction from 0 to 50 ppt		Manual input, automatic correction from 0 to 50.0 ppt	
Data logging		100 data sets		500 data sets	
Output		—		RS-232	
Power		100/240 VAC universal adapter (included)		100/240 VAC universal adapter (included)	
Price					

**Accessories**

[GY-35642-50](#) Replacement DO probe with 3-ft (0.9-m) cable for DO 700 meter

[GY-35642-55](#) DO probe maintenance kit for 35642-50 includes one membrane cap and 10 mL of electrolyte solution

[GY-35820-64](#) In-line fitting for DO 700 probe 35642-50

[GY-35420-82](#) Replacement self-stirring DO/BOD probe with 3-ft (0.9-m) cable for DO 2700 meter

[GY-53109-55](#) DO probe maintenance kit for 35420-82 includes six membrane caps and 30 mL of electrolyte solution

[GY-35420-01](#) RS-232 cable for 2700-series meter

[GY-35630-53](#) USB cable for 2700-series meter

[GY-17106-04](#) NIST-traceable calibration with data for DO meters

## Dissolved Oxygen, BOD, and Oxygen Uptake Benchtop Meters

### Maintain compliance

- Meet US EPA approved methods for dissolved oxygen, BOD, and OUR/SOUR
- Large LCD is easy to read even from 10 feet (3 meters) away
- Menu-driven operation makes setup simple
- Reduce errors with audible confirmations when depressing buttons
- Auto-calibration with corrections for temperature, pressure, and salinity
- Store up to 100 data sets with ccc time stamp and down-load via RS-232 port
- Operate on AC power or batteries



05510-22

ISO9001:2008 CERTIFIED SUPPLIER CE Meter only

Model	Model 5000		Model 5100	
Catalog number	GY-05510-20	GY-05510-25	GY-05510-22	GY-05510-27
Parameters	DO/BOD		DO/BOD/OUR/SOUR	
Range	Dissolved oxygen, mg/L (ppm)	0.0 to 60.0	0.0 to 60.0	
	Dissolved oxygen (% saturation)	0 to 600.0%	0 to 600.0%	
	Barometric pressure	0 to 1500 mbar	0 to 1500 mbar	
	Temperature	-5 to 50°C	-5 to 50°C	
Resolution	Dissolved oxygen, mg/L (ppm)	0.01	0.01	
	Dissolved oxygen (% saturation)	0.10%	0.10%	
	Barometric pressure	1 mbar	1 mbar	
	Temperature	0.01°C	0.01°C	
Accuracy	Dissolved oxygen, mg/L (ppm)	±0.1% of reading	±0.1% of reading	
	Dissolved oxygen (% saturation)	±0.1% of reading	±0.1% of reading	
	Barometric pressure	±0.1% of reading	±0.1% of reading	
	Temperature	±0.10°C	±0.10°C	
Temperature compensation	Automatic		Automatic	
Salinity compensation	Manual		Manual	
Barometric pressure compensation	Manual		Automatic	
Data logging	100 data sets		100 data sets	
Output	RS-232		Bidirectional RS-232	
Power (included)	115 VAC or four C batteries	230 VAC or four C batteries	115 VAC or four C batteries	230 VAC or four C batteries
Price				

**Model 5100** calculates oxygen uptake and specific oxygen uptake rates (OUR/SOUR) via built-in software. Built-in barometer automatically compensates barometric pressure readings.

**What's included:** AC power adapter and four C batteries. Order probe and accessories separately below.

#### Accessories

**GY-05510-60 Self-stirring BOD bottle probe.** Includes membrane cap kit 05519-61

**GY-05519-61 Membrane cap kit.** Includes six membranes, sanding disc, and KCl crystals

**GY-17106-04 NIST-traceable calibration** with data for DO meters

## Dissolved Oxygen Pocket Meter

### Get readings in percent saturation or concentration

- Adjustable altitude and salinity compensation

Features include data hold, auto power off, low-battery indicator, and analog bar graph that indicates trends. Order optional extension cable with probe weight to keep probe submerged and protected.

**Meter includes:** DO electrode, protective sensor cap, spare membrane cap, electrolyte, neckstrap, and four 1.5 V batteries. **Kit adds:** six replacement membranes with caps, 16-ft (5-m) extension cable, probe weight guard, and hard carrying case.



CE IP 67

#### Specifications

Mode	mg/L (ppm)	% saturation	Temperature
Range	0 to 20.00	0 to 200.0	32 to 122°F (0 to 50°C)
Resolution	0.01	0.1	0.1°
Accuracy	0.4	±2% FS	±1.8°F (1°C)

**Temp compensation:** automatic

**Memory:** 25 data sets

**Salinity compensation:** 0 to 50 ppt

**Power:** four 1.5 V batteries

**Barometric pressure compensation:** 0 to 20,000 ft (0 to 6000 m)

Description	Catalog number	Price
Waterproof DO meter	<a href="#">GY-53026-20</a>	
Waterproof DO meter kit	<a href="#">GY-53026-21</a>	

## Economical Dissolved Oxygen Meter

### Save money—advanced features

- Toggle switch for dissolved oxygen reading expressed in mg/L or % oxygen in air

Meter features a simultaneous display of oxygen and temperature readings, min/max/average readings, data hold, and a 1 3/8" (3.6 cm) H LCD with manual contrast adjustment. Use optional data acquisition software to set alarms, time intervals, or to store data to your PC.

**Meter includes:** DO probe with 3.7-ft (1.1-m) cable, ten membranes, KCl solution, rubber holster, 9 V battery, and carrying case.



CE Meter only

#### Specifications

Mode	mg/L (ppm)	% saturation	Temperature
Range	0 to 19.9	0 to 100%	32 to 140°F (0 to 60°C)
Resolution	0.1	0.1%	0.1/1°F/°C
Accuracy	±0.4	±0.7%	±1.5°F (±0.8°C)

#### Compensation

Barometric pressure: manual, 0 to 3900 meters  
Salinity: manual, 0 to 39% salt  
Temperature: automatic, 0 to 50°C

**Output:** RS-232

**Power:** one 9V battery (incl)

Description	DO probe cable length	Cat. no.	Price
Economical DO meter kit	4-ft (1.2-m) cable	<a href="#">GY-53026-00</a>	

[GY-53026-02 Replacement DO probe](#)

[GY-10200-10 Data acquisition software](#) with cable

# Oxygen

## Precision Dissolved Oxygen Respirometer

### Don't settle for inaccurate readings

- Interfaces with your PC for accurate recording and analysis of dissolved oxygen and respirometry
- Accurately measure respiration rates of mitochondria, cell suspensions, and oxidative enzyme preparation



#### REQUIRED System Components

- 1) Meter
- 2) Electrode(s)
- 3) Respirometer cell(s)

### 1. Dissolved Oxygen Meters

These meters are ideal for the measurement and monitoring of dissolved oxygen and respiration rates. The large LCD shows dissolved oxygen values: either PO<sub>2</sub> (torr, mm Hg, kPa) or concentration (mg/L, ppm, µg/L, µmol/L, mg/L, % saturation). Meters interface to the user-friendly respirometry software for DO monitoring, closed-cell, and flow-cell respirometry. Resulting data stream to computer via a USB connection. The software allows complete control of the experiment on screen. It offers setup mode to enter the experimental parameters and calibrations; recording mode to display traces of oxygen uptake; and analyze mode to recall saved files for automatic calculation of rates from selected parts of traces.

**Dual-Channel Meter** operates as a stand-alone meter or as an interface to the computer. Inputs for up to two oxygen electrodes.

**Six-Channel Meter** operates only with interface to a computer. Inputs for up to six oxygen electrodes.

**What's included:** respirometry software and universal power cords.

**1.**  
Six-channel meter  
53002-21



**2.**  
Microcathode electrode 53002-50



**3.**  
Mitocell respirometer 53002-26

### 3. Respirometer Cells

Respirometer cells have a glass water jacket for connecting to your pumped source of constant temperature water.

**Mitocell** miniature respirometer cell is used for mitochondria or small volume cell suspensions. Use with 0.3, 0.5, or 1.0 mL sample size. Seal the central glass respiration chamber by inserting a polycarbonate plunger with central capillary; use to inject substrates and inhibitors. Includes fixed-speed magnetic stirrer and spinbars.

**Respiration Cell** has variable chamber volume. Glass respiration chamber has an acetal electrode holder (included) with a capillary bore for injection of solutions into the cell, using a hypodermic needle (included). Place the cell on a magnetic stirrer—see our "Stirrers" section on pages 884-896. Cell includes PTFE-covered spinbar.

**Flowcell** is for monitoring or connecting to a flow-through respirometer chamber. Flowcell features an acetal electrode holder and acrylic chamber with stainless steel inlet and outlet tubes. Acrylic chamber must be immersed in a constant temperature bath.

Description	Sample chamber volume	Catalog number	Price
Mitocell	0.3, 0.5, or 1.0 mL	<a href="#">GY-53002-26</a>	
Respiration cell, 16-mm dia	1.0 to 3.0 mL	<a href="#">GY-53002-14</a>	
Flowcell	—	<a href="#">GY-53002-16</a>	

#### Accessories

[GY-53002-66](#) Replacement top and plunger for mitocell 53002-26

[GY-53002-18](#) Electrode holder can be used with any customized respiration chamber. Acetal holder allows only the tip of the electrode to be exposed. Acrylic collar with integral O-ring allows you to secure electrode to the respiration chamber. Measures 85 mm H x 13 mm dia



#### Specifications

**Resolution:** 0.1%      **Accuracy:** ±0.2%  
**Repeatability:** ±0.02

Number of channels	Power	Catalog number	Price
2	115/230 VAC, 50/60 Hz	<a href="#">GY-53002-03</a>	
6	115/230 VAC, 50/60 Hz	<a href="#">GY-53002-21</a>	

### 2. Microcathode Electrode

Microcathode Clark-type electrode is supplied with PP membranes. Electrode jacket contains buffered KCl electrolyte solution. May be used in unstirred media if required. Membrane response time is 18 seconds for 90% of change. For fast responses (six seconds for 90% of change), use FEP membranes 53002-55 with electrode jacket 53002-58 sold below.

Description	Catalog number	Price
Microcathode oxygen electrode	<a href="#">GY-53002-50</a>	

#### Accessories

[GY-53002-52](#) Electrode service kit includes electrolyte solution, PP membranes, O-rings, membrane applicator, and abrasive film for cathode cleaning

[GY-53002-56](#) Replacement electrode jacket for PP membranes

[GY-53002-53](#) Replacement electrolyte solution, 125 mL

[GY-53002-54](#) Replacement PP membranes. Box of 15

[GY-53002-60](#) Replacement O-rings. Box of 15

[GY-53002-55](#) FEP membranes for rapidly respiring preparations. Fast-responding membranes (six seconds for 90% of change) require rapid stirring of the medium. Requires electrode jacket 53002-58; order separately below. Box of 15

[GY-53002-58](#) Electrode jacket for FEP membranes