



pH/CON 10 Meter

Measure pH, conductivity, and temperature with just one meter and probe!

Toggle between pH/°C and conductivity/°C readings with one button press

▼ For the convenience of three meters in one!

Includes multi-sensor submersible probe with 10-ft submersible cable

▼ There's no need to switch probes when you switch measurement modes!

Optional ground water down-well probes available

▼ 1.7" diameter probe fits into a 2" well head

Dual display shows measured parameter plus °C simultaneously

▼ Mode annunciators clearly indicate status of readings

Easy push-button pH and conductivity calibration

▼ Calibrate pH at up to three points and conductivity at up to four points for high accuracy over the entire measuring range

Auto-buffer recognition for pH calibration

Auto ranging for conductivity measurements

▼ For fast response over a wide range

Automatic temperature compensation (ATC)

▼ Keeps your measurements accurate even in solutions with varying temperatures

Hold, Ready indicator, Automatic shutoff functions

Meter kit available

▼ Contains everything you need for calibration and measurement packaged in a hard carrying case

Right: Waterproof pH/CON 10 with multi-sensor probe.



Top: Down-well probes fit easily into 2" well heads.

Bottom: pH/CON 10 kit includes everything you need for calibration and measurement.



ISO 9001:2000 CERTIFIED SUPPLIER

CE 3 year warranty meter only

Specifications

Mode	pH	Conductivity	Temperature
Range	0.00 to 14.00 pH	0 to 19.99 μ S, 0 to 199.9 μ S, 0 to 1999 μ S, 0 to 19.99 mS	0.0 to 100.0°C
Resolution	0.01 pH	0.01 μ S, 0.1 μ S, 1 μ S, 0.01 mS	0.1°C
Accuracy	\pm 0.01 pH	\pm 1% full scale or \pm 1 digit	\pm 0.5°C
Calibration	Up to three points (pH 4.01, 7.00, 10.00)	Up to four points (one point per range)	Offset in 0.1°C increments

Temperature compensation: automatic from 0 to 50°C

Operating temp: 0 to 50°C

Conductivity cell constant (K): fixed at 1.0

Temperature coefficient: fixed at 2.00% per °C

Power: four 1.5 V AAA batteries (included), >50 hours continuous use

Dimensions

Meter: 7.5"L x 3.75"W x 2.25"H (19 x 9.5 x 5.7 cm)

Boxed: 9.2"L x 9.2"W x 2.75"H (23 x 23 x 7 cm)

Probe: 6.8"L x 1.3" dia (173 mm L x 33 mm dia) with 10-ft (3-m) cable

Weight

Meter: 1.0 lb (0.45 kg); Boxed: 2.0 lb (0.9 kg)

Ordering Information

Catalog number	Description	Included
WD-35630-03	pH/CON 10 meter only	Meter and batteries
WD-35630-02	pH/CON 10 meter	Meter, pH/conductivity/°C probe 35630-50, and batteries
WD-35630-62	pH/CON 10 meter kit	Meter, pH/conductivity/°C probe 35630-50, "Singles" calibration solution pouches (three each of pH 4.01, 7.00, 10.00; and two each of conductivity 447 μ S, 1413 μ S, 2764 μ S, 15,000 μ S), three rinse water pouches, sample bottle, batteries, and hard carrying case

WD-35630-50 Replacement pH/conductivity/°C probe, 10-ft submersible cable

WD-09376-00 Replacement batteries, 1.5 V AAA. Pack of 12

WD-35630-69 Calibration kit includes "Singles" calibration solution pouches (three each of pH 4.01, 7.00, 10.01, rinse water; and two each of conductivity 447 μ S, 1413 μ S, 2764 μ S, 15,000 μ S), squeeze bottle, and hard carrying case. (Meter not included)

Down-Well Probes

These pH/conductivity/temperature probes were specially engineered with a slim design so you can use the pH/CON 10 meter to test ground water. Probes measure only 1.7" dia and easily fit into 2" well heads.

WD-35630-52 Down-well probe, pH/conductivity/temperature; 10-ft cable

WD-35630-54 Down-well probe, pH/conductivity/temperature; 25-ft cable

WD-35630-56 Down-well probe, pH/conductivity/temperature; 100-ft cable

pH/CON 300 Meter

A waterproof meter that does it all—measures pH, conductivity, TDS, and temperature!

Waterproof and dustproof with IP67 rating—it FLOATS!

Toggle between pH, conductivity, and TDS readings

Dual display shows measured parameter plus temperature (°C/°F)

▼ Read two parameters at a glance

Advanced setup mode

▼ Recalls previous calibration points, pH electrode slope and offset, conductivity/TDS effective cell constants per range, and more

Easy push-button calibration

▼ Five-point calibration for pH and either conductivity or TDS; temperature offset calibration

pH auto buffer recognition

▼ Fast, easy pH calibration

Auto ranging for conductivity and TDS measurements

▼ Fast response and best resolution over a wide range

Selectable manual or automatic temperature compensation (ATC)

▼ The highest accuracy in any situation

Selectable automatic endpoint

▼ Automatically freezes reading when stable for five seconds

Separate pH and conductivity/TDS probes

▼ Lets you use specialty probes for different applications

Hold function, Ready indicator, Automatic shutoff

Right: pH/CON 300 meter with pH electrode (included).

Far right top: Waterproof, IP67-rated housing floats!

Far right bottom: pH/CON 300 meter kit



ISO9001:2000 CERTIFIED SUPPLIER CE 3 year warranty meter only

Specifications

Mode	pH	Conductivity	TDS	Temperature
Range	-2.00 to 16.00 pH	0 to 19.99 μ S, 0 to 199.9 μ S, 0 to 1999 μ S, 0 to 19.99 mS, 0 to 199.9 mS	0.00 to 9.99 ppm, 10.0 to 99.9 ppm, 100 to 999 ppm, 1.00 to 9.99 ppt, 10.0 to 99.9 ppt, 100 to 200 ppt	0.0 to 100.0°C; 32.0 to 212.0°F
Resolution	0.01 pH	0.01 μ S, 0.1 μ S, 1 μ S, 0.01 mS, 0.1 mS	0.01, 0.1, 1 ppm, 0.01, 0.1, 1 ppt	0.1°C; 0.1°F
Accuracy	\pm 0.01 pH	\pm 1% full-scale	\pm 1% full-scale	\pm 0.5°C; \pm 0.5°F
Calibration	Up to five points (1.68, 4.01, 7.00, 10.00, 12.45)	Up to five points (one per range)	Up to five points (one per range)	Offset 0.1° increments

Temperature compensation: automatic or manual (selectable) from 0 to 100°C (32 to 122°F)

Operating temperature: 0 to 50°C (32 to 122°F)

Temperature coefficient: adjustable from 0.0 to 10.0% per °C or °F

Conductivity-to-TDS factor: adjustable from 0.4 to 1

Normalization temperature: adjustable from 15 to 30°C (59 to 86°F)

Power: four 1.5 V AAA batteries (included), >200 hours continuous use

Dimensions

Meter: 7.5"L x 3.5"W x 1.75"H (19 x 9 x 4.5 cm)
Boxed: 9.2"L x 9.2"W x 2.75"H (23 x 23 x 7 cm)

Weight

Meter: 1.0 lb (0.45 kg); Boxed: 2.0 lb (0.9 kg)

Ordering Information

Cat. no.	Description	Included
WD-35631-00	pH/CON 300 meter	Meter, pH electrode 35641-51, combination conductivity/TDS/temperature probe 35608-50, and batteries
WD-35631-60	pH/CON 300 meter kit	Meter, pH electrode 35641-51, combination conductivity/TDS/temperature probe 35608-50, calibration solution pouches (three each of pH 4.01, 7.00, 10.00, and rinse water; and one each of 447 μ S, 1413 μ S, 2764 μ S, 15,000 μ S, and rinse water), one rinse bottle, three sample bottles, batteries, and hard carrying case.

Probes

WD-35641-51 Replacement pH electrode, double-junction, sealed, polygel fill, 3-ft cable

WD-35608-50 Replacement combination conductivity/TDS/temperature probe, K = 1.0, 3-ft cable

WD-35618-05 Temperature probe. Provides ATC for pH when used with pH electrodes without ATC.



pH/DO 300 Meter

Measure pH, dissolved oxygen, and temperature with one waterproof, dustproof meter that FLOATS!

Waterproof and dustproof with IP67 rating

Toggle between pH/temperature and DO/temperature

▼ For the convenience of three meters in one!

Backlit display

▼ With adjustable brightness—ideal for viewing readings in dark areas

Automatic temperature compensation (ATC)

Display probe diagnostics

▼ View slope, offset and millivolt values for both pH and DO

°C/°F selectable

pH features:

Push-button pH calibration at five points with automatic buffer recognition

DO features:

No meter warm-up required

▼ Galvanic DO probe design lets you take measurements immediately without the typical 15-minute to 4-hour wait!

Easy-to-service, low-maintenance DO probe

▼ Replaceable membrane cap assembly makes DO probe maintenance hassle-free

Salinity and pressure compensation

▼ Key in values and meter automatically compensates for increased accuracy

Independent 100% and zero adjustment calibrations

▼ High accuracy over the full meter range

Offset adjustment capabilities

▼ Calibrate your meter to a known work standard or titrimetrically determined value



Right: pH/DO 300 meter with pH and DO electrodes.

Far right top: Adjustable backlit display is ideal for taking readings in dark areas.

Far right bottom: Waterproof, IP67-rated housing floats!

ISO9001:2000 CERTIFIED SUPPLIER 3 year warranty meter only

Specifications

Mode	pH	DO in mg/L (ppm)	DO in % saturation	Temperature
Range	-2.00 to 16.00 pH	0.00 to 20.00 mg/L	0.0 to 200.0%	0.0 to 50.0°C; 32.0 to 22.0°F
Resolution	0.01 pH	0.01 mg/L (ppm)	0.1%	0.1°C; 0.1°F
Accuracy	±0.01 pH	±1.5% full-scale	±1.5% full-scale	±0.3°C; ±0.5°F
Calibration	Up to 5 points: pH 1.68; 4.01, 7.00, 10.01, 12.45	One or two points (100% and 0% saturation); plus separate mg/L (ppm) offset		Offset up to ±5°C or °F

Temperature compensation: automatic from 0 to 50°C

Operating temperature: 0 to 50°C (32 to 122°F)

Salinity correction

Range: 0.0 to 50.0 ppt
Resolution: 0.1 ppt
Method: key in manually and automatic

Barometric pressure correction

Range: 500 to 1499 mm Hg, 66.6 to 199.9 kPa
Resolution: 1 mm Hg, 0.1 kPa
Method: key in manually and automatic correction

DO probe type: galvanic

Backlit display: eight levels of brightness

Power: four 1.5 V AAA batteries (included), >100 hours continuous use. Use of backlit display decreases battery life.

Dimensions

Meter: 7.5"L x 3.75"W x 2.25"H (19 x 9.5 x 5.7 cm)
Boxed: 9.2"L x 9.2"W x 2.75"H (23 x 23 x 7 cm)

Weight

Meter: 1.0 lb (0.5 kg); Boxed: 2.0 lb (0.9 kg)

Ordering Information

Cat. no.	Description	Included
WD-35632-02	pH/DO 300 meter only	Meter and batteries
WD-35632-00	pH/DO 300 meter	Meter, pH electrode 35805-23, DO probe 35640-50, with probe 500 mL of electrolyte solution, and batteries
WD-35632-60	pH/DO 300 meter kit	Meter, pH electrode 35805-23, DO probe 35640-50, pH "Singles" pouches, 500 mL of electrolyte solution, rinse bottle, five replacement membranes, membrane replacement tool, batteries, and hard carrying case.

Probes

WD-35805-23 Replacement pH electrode, 10-ft cable

WD-35640-50 Replacement DO probe, 10-ft cable

WD-35641-52 DO probe, 25-ft cable

WD-35641-54 DO probe, 50-ft cable

WD-35641-56 DO probe, 100-ft cable

PC 650 pH/Conductivity Meter

Two most common electrochemistry measurements in one convenient meter!

Durable waterproof and dustproof design with IP67 rating

- ▼ Even with no probes attached and the battery compartment open

Push-button pH calibration up to six points

- ▼ Up to 15 buffer options with auto-buffer recognition of USA, NIST, DIN, and PWB standards

Large backlit graphic display

- ▼ Multi-line display with electrode status indicator, calibration data, and more

User-settable "calibration due" alarm

- ▼ Out-of-date or unperformed calibrations are now things of the past!

Built-in real-time clock

- ▼ Time-and-date stamping meets Good Laboratory Practice (GLP) standards

Store up to 500 data sets

- ▼ Infrared IrDA wireless technology makes PC downloading convenient and easy

Set point alarms

- ▼ Audible warning when readings are outside set points limit

Research-grade accuracy

- ▼ Resolution to 0.001 pH and accuracy to ± 0.002 pH

Electrode status indicator

- ▼ Calibration data provides electrode diagnostic tool

Password protection

- ▼ Security for calibration and setup menus



Left: Software included to interface to your computer.



Right: PC 650 meter

ISO9001:2000 SUPPLIER CERTIFIED CE 3 year warranty

Specifications

	Mode	PC 650 meter
Range	pH	-2.000 to 20.000 pH
	Ion	0.001 to 19,900 ppm, molar, or mg/L
	mV	± 2000 mV
	Conductivity	0 to 500.0 mS
	TDS	0 to 500 ppt
	Salinity	0 to 80 ppt
	Resistivity	0 to 20.00 M Ω
	Temperature	-10.0 to 110.0°C (14.0 to 230.0°F), selectable
Resolution	pH	0.1/0.01/0.001 pH
	Ion	2 or 3 digits
	mV	0.1 mV
	Conductivity	0.05% full-scale
Accuracy	Temperature	0.1°C (0.1°F)
	pH	± 0.002 pH
	Ion	$\pm 0.5\%$ full-scale (monovalent); 1% full-scale (divalent)
	mV	± 0.2 mV
Calibration	Conductivity	1% full-scale
	Temperature	$\pm 0.5^\circ\text{C}$ ($\pm 0.9^\circ\text{F}$)
	pH	Up to 6 buffer values (select from 4 sets): USA: 1.68, 4.01, 7.01, 10.01, 12.45; NIST: 1.68, 4.01, 6.86, 9.18, 12.45; DIN: 1.09, 2.06, 4.65, 6.79, 9.23, 12.75; or custom buffers
	Ion	Up to 6 points
	Conductivity	Manual up to 5 points (1 per range); automatic up to 4 points (84.0 $\mu\text{S}/\text{cm}$, 1413 $\mu\text{S}/\text{cm}$; 12.88 mS/cm, 111.8 mS/cm)
	Temperature	Offset 0.1°C (0.1°F) increments

Memory: up to 500 sets with GLP date and time

Output: infrared, IrDA

Real-time clock: time-and-date stamp on calibration and stored data

Temperature compensation: automatic or manual (selectable), from 0 to 100°C

Ambient operating temperature: 0 to 50°C (32 to 122°F)

Power: four 1.5 V AA batteries (included) or optional universal AC adapter, up to 200 hours continuous use

Dimensions

Meter: 7.25" L x 3.25" W x 2.25" H

Boxed: 9.2" L x 9.2" W x 2.75" H (23 x 23 x 7 cm)

Weight

Meter: 1.0 lb (0.45 kg); Boxed: 2.0 lb (0.9 kg)

Ordering Information

Catalog number	Description	Included
WD-35431-02	PC 650 meter only	Meter and batteries
WD-35431-00	PC 650 meter	Meter, "All-in-One" electrode 35816-77, conductivity cell 35408-57, and batteries
WD-35431-70	PC 650 meter kit	Meter, "All-in-One" electrode 35816-77, conductivity cell 35408-57, calibration standards (60 mL each of pH 4.01, pH 7.00, 1413 $\mu\text{S}/\text{cm}$, 12.88 mS solution), rubber boot, two electrode holders, batteries, and hard carrying case

WD-35816-77 "All-in-One" pH electrode with built-in ATC; double junction, epoxy body, 10-ft cable with BNC connector

WD-35418-05 ATC probe. Use for temperature compensation with any pH electrode without built-in ATC

WD-35408-57 Conductivity cell, 2-electrode, K = 1

WD-35434-85 Multiprobe holder. Holds one each pH, conductivity, DO, and temperature probes

WD-35418-83 Optional adapter, 110/220 VAC

See pages 25–30 for more pH electrodes; page 46 for conductivity cells.



PD 650 pH/ Dissolved Oxygen Meter

Ideal for wastewater and aquaculture!

Durable waterproof and dustproof design with IP67 rating

- ▼ Even with no probes attached and the battery compartment open

Push-button calibration for all parameters

- ▼ 6 points each for pH and conductivity; 3 points for DO

Large backlit graphic display

- ▼ Multi-line display with electrode status indicator, calibration data, and more

User-settable "calibration due" alarm

- ▼ Out-of-date or unperformed calibrations are now things of the past!

Built-in real-time clock

- ▼ Time-and-date stamping meets Good Laboratory Practice (GLP) standards

Store up to 500 data sets

- ▼ Infrared IrDA wireless technology makes PC downloading convenient and easy

Set point alarms

- ▼ Audible warning when readings are outside set points limit

Research-grade accuracy

- ▼ Resolution to 0.001 pH and accuracy to ±0.002 pH

Electrode status indicator

- ▼ Calibration data provides electrode diagnostic tool

Password protection

- ▼ Security for calibration and setup menus



Right: PD 650 meter

Left: Optional rubber boot (included with kit) provides added protection



Specifications

ISO9001:2000 SUPPLIER CERTIFIED CE 3 year warranty

Mode		PD 650 meter
Range	pH	-2.000 to 20.000 pH
	Ion	0.001 to 19,900 ppm, molar, or mg/L
	mV	±2000 mV
	DO	0.00 to 90.00 mg/L (ppm), 0.0 to 600.0%
	Temperature	-10.0 to 110.0°C (14.0 to 230.0°F), selectable
Resolution	pH	0.1/0.01/0.001 pH
	Ion	2 or 3 digits
	mV	0.1 mV
	DO	0.01 mg/L (ppm), 0.1%
	Temperature	0.1°C (0.1°F)
Accuracy	pH	±0.002 pH
	Ion	±0.5% full-scale (monovalent); ±1% full-scale (divalent)
	mV	±0.2 mV
	DO	±0.2 mg/L; ±2.0%
	Temperature	±0.5°C (0.9°F)
Calibration	pH	Up to 6 buffer values (select from 4 sets): USA: 1.68, 4.01, 7.01, 10.01, 12.45; NIST: 1.68, 4.01, 6.86, 9.18, 12.45; DIN: 1.09, 2.06, 4.65, 6.79, 9.23, 12.75; or custom buffers
	Ion	Up to 6 points
	DO	Two points; 100% and 0%
	Temperature	Offset 0.1°C (0.1°F) increments

DO salinity correction

Range: 0.0 to 50.0 ppt; Resolution: 0.1 ppt

DO pressure correction

Range: 500 to 1499 mm Hg, 66.6 to 199.9 kPa; Resolution: 1 mm Hg, 0.1 kPa

Memory: up to 500 sets with GLP date and time

Output: infrared, IrDA

Real-time clock: time-and-date stamp on calibration and stored data

Temperature compensation: automatic or manual (selectable), from 0 to 100°C

Ambient operating temperature: 0 to 50°C (32 to 122°F)

Power: four 1.5 V AA batteries (included) or optional universal AC adapter, up to 200 hours continuous use

Dimensions

Meter: 7.25"L x 3.25"W x 2.25"H

Boxed: 9.2"L x 9.2"W x 2.75"H (23 x 23 x 7 cm)

Weight

Meter: 1.0 lb (0.45 kg); Boxed: 2.0 lb (0.9 kg)

Ordering Information

Catalog number	Description	Included
WD-35432-02	PD 650 meter only	Meter and batteries
WD-35432-00	PD 650 meter	Meter, "All-in-One" electrode 35816-77, DO probe 35640-50, and batteries
WD-35432-70	PD 650 meter kit	Meter, "All-in-One" electrode 35816-77, DO probe 35640-50, calibration standards (60 mL each of pH 4.01, pH 7.00, electrode storage solution, and rinse water), rubber boot, multiprobe holder, batteries, and hard carrying case

WD-35816-77 "All-in-One" pH electrode with built-in ATC; double junction, epoxy body, 10-ft cable with BNC connector

WD-35418-05 ATC probe. Use for temperature compensation with any pH electrode without built-in ATC

WD-35640-50 DO probe with 10-ft cable

WD-35434-85 Multiprobe holder. Holds one each pH, conductivity, DO, and temperature probes

WD-35418-83 Optional adapter, 110/220 VAC

See pages 25–30 for more pH electrodes; page 52 for DO probes.

CD 650 Conductivity/ Dissolved Oxygen Meter

Great for salt water testing!



Right: CD 650 meter

Left: Complete kit available



Durable waterproof and dustproof design with IP67 rating

▼ Even with no probes attached and the battery compartment open

Push-button calibration for all parameters

▼ 6 points for conductivity; 3 points for DO

Large backlit graphic display

▼ Multi-line display with electrode status indicator, calibration data, and more

User-settable "calibration due" alarm

▼ Out-of-date or unperformed calibrations are now things of the past!

Built-in real-time clock

▼ Time-and-date stamping meets Good Laboratory Practice (GLP) standards

Store up to 500 data sets

▼ Infrared IrDA wireless technology makes PC downloading convenient and easy

Set point alarms

▼ Audible warning when readings are outside set points limit

Research-grade accuracy

▼ Resolution to 0.001 pH and accuracy to ±0.002 pH

Electrode status indicator

▼ Calibration data provides electrode diagnostic tool

Password protection

▼ Security for calibration and setup menus

Specifications

	Mode	CD 650 meter
Range	Conductivity	0 to 500.0 mS
	TDS	0 to 500 ppt
	Salinity	0 to 80 ppt
	Resistivity	0 to 20.00 MΩ
	DO	0.00 to 90.00 mg/L (ppm), 0.0 to 600.0%
Resolution	Conductivity	0.05% full-scale
	TDS	0.05% full-scale
	DO	0.01 mg/L (ppm), 0.1%
	Temperature	0.1°C (0.1°F)
Accuracy	Conductivity	±1% full-scale
	TDS	±1% full-scale
	DO	±0.2 mg/L; ±2%
	Temperature	±0.5°C (±0.9°F)
Calibration	Conductivity	Manual up to 5 points (1 per range); automatic up to 4 points (84.0 μS/cm, 1413 μS/cm, 12.88 mS/cm, 111.8 mS/cm)
	DO	Two points; 100% and 0%
	Temperature	Offset 0.1°C (0.1°F) increments

TDS factor: 0.40 to 1.00

Cell constant: 0.100 to 10.000

DO salinity correction

Range: 0.0 to 50.0 ppt
Resolution: 0.1 ppt

DO pressure correction

Range: 500 to 1499 mm Hg, 66.6 to 199.9 kPa
Resolution: 1 mm Hg, 0.1 kPa

Memory: up to 500 sets with GLP date and time

Output: infrared, IrDA

Real-time clock: time-and-date stamp on calibration and stored data

Temperature normalization: 15 or 30 °C

Temperature coefficient: linear or pure

Temperature compensation: automatic or manual (selectable), from 0 to 100°C

Ambient operating temperature: 0 to 50°C (32 to 122°F)

Power: four 1.5 V AA batteries (included) or optional universal AC adapter, up to 200 hours continuous use

Dimensions

Meter: 7.25"L x 3.25"W x 2.25"H

Boxed: 9.2"L x 9.2"W x 2.75"H (23 x 23 x 7 cm)

Weight

Meter: 1.0 lb (0.45 kg); Boxed: 2.0 lb (0.9 kg)

Ordering Information

Catalog number	Description	Included
WD-35433-02	CD 650 meter only	Meter and batteries
WD-35433-00	CD 650 meter	Meter, conductivity cell 35408-57, DO probe 35640-50, and batteries
WD-35433-70	CD 650 meter kit	Meter, conductivity cell 35408-57, DO probe 35640-50, calibration standards (60 mL each of pH 4.01, pH 7.00, 1413 μS/cm, and 12.88 mS solution), rubber boot, multiprobe holder, batteries, and hard carrying case

Accessories

WD-35408-57 Conductivity cell, 2-electrode, K = 1
WD-35640-50 DO probe with 10-ft cable

WD-35434-85 Multiprobe holder. Holds one each pH, conductivity, DO, and temperature probes
WD-35418-83 Optional adapter, 110/220 VAC

See page 46 for more conductivity cells; page 52 for DO probes.



PCD 650 pH/Conductivity/ Dissolved Oxygen Meter

All three parameters, plus temperature, measured and displayed simultaneously!



Left: PCD 650 meter



Right: Multiprobe holder makes it easy to manage probes simultaneously.

Durable waterproof and dustproof design with IP67 rating

- ▼ Even with no probes attached and the battery compartment open

Push-button calibration for all parameters

- ▼ 6 points each for pH and conductivity; 3 points for DO

Large back-light graphic display

- ▼ Multi-line display with electrode status indicator, calibration data, and more

User-settable "calibration due" alarm

- ▼ Out-of-date or unperformed calibrations are now things of the past!

Built-in real-time clock

- ▼ Time-and-date stamping meets Good Laboratory Practice (GLP) standards

Store up to 500 data sets

- ▼ Infrared IrDA wireless technology makes PC downloading convenient and easy

Set point alarms

- ▼ Audible warning when readings are outside set points limit

Research-grade accuracy

- ▼ Resolution to 0.001 pH and accuracy to ± 0.002 pH

Electrode status indicator

- ▼ Calibration data provides electrode diagnostic tool

Password protection

- ▼ Security for calibration and setup menus

Specifications

Mode	PCD 650 meters	
Range	pH	-2.000 to 20.000 pH
	Ion	0.001 to 19,900 ppm, molar, or mg/L
	mV	± 2000 mV
	Conductivity	0 to 500.0 mS
	TDS	0 to 500 ppt
	Salinity	0 to 80 ppt
	Resistivity	0 to 20.00 M Ω
Resolution	DO	0.00 to 20.00 mg/L (ppm), 0.0 to 200.0%
	Temperature	-10.0 to 110.0°C (14.0 to 230.0°F), selectable
	pH	0.1/0.01/0.001 pH
	Ion	2 or 3 digits
	mV	0.1 mV
	Conductivity	± 0.05 % full-scale
	DO	0.01 mg/L (ppm), 0.1%
Accuracy	Temperature	0.1°C (0.1°F)
	pH	± 0.002 pH
	Ion	± 0.5 % full-scale (monovalent); ± 1 % full scale (divalent)
	mV	± 0.2 mV
	Conductivity	± 1 % full-scale
Calibration	DO	± 0.2 mg/L; ± 2 %
	Temperature	± 0.5 °C (± 0.9 °F)
	pH	Up to 6 buffer values (select from 4 sets): USA 1.68, 4.01, 7.01, 10.01, 12.45; NIST: 1.68, 4.01, 6.86, 9.18, 12.45; DIN: 1.09, 2.06, 4.65, 6.79, 9.23, 12.75, or custom buffers
	Ion	Up to 6 points
	Conductivity	Manual up to 5 points (1 per range); automatic up to 4 points (84.0 μ S/cm; 1413 μ S/cm; 12.88 mS/cm, 111.8 mS/cm)
DO	Two points; 100% and 0%	
Temperature	Offset 0.1°C (0.1°F) increments	

TDS factor: 0.40 to 1.00

Cell constant: 0.100 to 10.000

DO salinity correction

Range: 0.0 to 50.0 ppt

Resolution: 0.1 ppt

DO pressure correction

Range: 500 to 1499 mm Hg, 66.6 to 199.9 kPa

Resolution: 1 mm Hg, 0.1 kPa

Memory: up to 500 sets with GLP date and time

Output: infrared, IrDA

Real-time clock: time-and-date stamp on calibration and stored data

Temperature normalization: 15 or 30 °C

Temperature coefficient: linear or pure

Temperature compensation: automatic or manual (selectable) from 0 to 100°C

Ambient operating temperature: 0 to 50°C (32 to 122°F)

Power: four 1.5 V AA batteries (included) or optional universal AC adapter, up to 200 hours continuous use

Dimensions

Meter: 7.25"L x 3.25"W x 2.25"H

Boxed: 9.2"L x 9.2"W x 2.75"H (23 x 23 x 7 cm)

Weight

Meter: 1.0 lb (0.45 kg); Boxed: 2.0 lb (0.9 kg)

Ordering Information

Catalog number	Description	Included
WD-35434-02	PCD 650 meter only	Meter and batteries
WD-35434-00	PCD 650 meter	Meter, "All-in-One" electrode 35816-77, conductivity cell 35408-57, DO probe 35640-50, and batteries
WD-35434-70	PCD 650 meter kit	Meter, "All-in-One" electrode 35816-77, conductivity cell 35408-57, DO probe 35640-50, calibration standards (60 mL each of pH 4.01, pH 7.00, 1413 μ S/cm, and 12.88 mS solution), rubber boot, multiprobe holder, batteries, and hard carrying case

WD-35816-77 "All-in-One" pH electrode with built-in ATC; double junction, epoxy body, 10-ft cable with BNC connector

WD-35418-05 ATC probe. Use for temperature compensation with any pH electrode without built-in ATC

WD-35408-57 Conductivity cell, 2-electrode, K = 1

WD-35640-50 DO probe with 10-ft cable

WD-35434-85 Multiprobe holder. Holds one each pH, conductivity, DO, and temperature probes

WD-35418-83 Optional adapter, 110/220 VAC

See pages 25–30 for more pH electrodes; page 46 for conductivity cells; page 52 for DO probes.



Electrode Selection Guide

The right electrode

While the basic principles of pH measurement are simple, getting an accurate measurement can often be challenging. There are hundreds of applications for pH measurement and each presents different problems. Selecting the right electrode can make the most difficult samples easy to accurately measure.

Gel-filled vs refillable electrodes

Gel-filled electrodes are convenient and easier to maintain than refillable liquid-filled electrodes. However the liquid-filled electrode will provide a faster response. In addition the user can adjust the fill solution to optimize performance, for example adding glycol for better performance at low temperatures.

Glass vs epoxy body electrodes

Glass body electrodes will typically be able to withstand higher temperatures (100°C as opposed to 80°C for epoxy). In addition, the glass design offers better sealing, fusing glass to glass instead of relying on adhesives. The epoxy body however is less susceptible to breakage. **Note:** Even though the body of an epoxy electrode is plastic, the measuring bulb will still be glass.

Body design

Oakton® offers electrodes in a variety of lengths and diameters. Small diameter probes are ideal for measuring samples in test tubes. Electrodes with wider barrels, greater weight, and longer cable lengths are available for measurements in streams, lakes, or ponds.

Bulb design

Oakton pH electrodes are handblown by experienced craftsmen. The bulb shape can be modified to provide a semi-dome for increased ruggedness, a spear tip for soft penetration applications, or even a flat surface. In addition, the glass formulation can provide increased range.

Reference design

To achieve accurate results, the reference electrode must allow electrolyte solution (or ions, in the case of a gel-filled electrode) to flow into the sample. Depending on the size and material of the junction, this flow rate can be increased or kept to a minimum. Faster flow produces stable readings faster but results in greater service requirements or premature electrode failure.

Reference chemistry

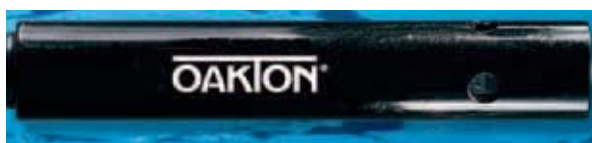
The leading cause of electrode failure is reference contamination. The most popular electrodes use a silver chloride (AgCl) reference solution that can react with heavy metals, sulfides, and organics. If your application has any of these contaminants present, be sure to select either a double-junction or calomel electrode. The double-junction electrode uses a second internal reference junction, restricting the AgCl solution to the upper chamber where it is isolated from the sample. The calomel electrode replaces the AgCl with HgCl.



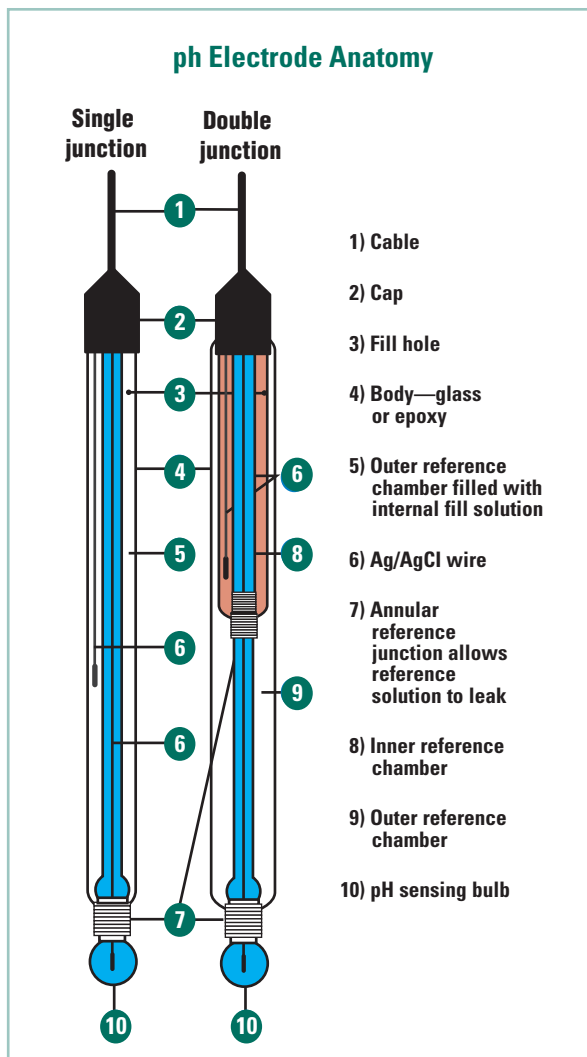
Double-junction, glass-body, refillable pH electrode 35805-04



Single-junction, epoxy-body, gel-filled pH electrode 35808-71



Submersible pH electrode 35805-24



Electrodes for Laboratory and Field Applications



All Oakton® electrodes have a BNC-connected combination reference cell and measuring cell in one housing for easy use

Oakton offers a variety of electrodes for your general-purpose and specialty laboratory applications. The "Application Guide" below provides information to help you find the electrode that best fits your application. Carefully choose the electrode best suited for your application to ensure accurate pH measurements. The guide only offers suggestions—contact your Oakton Technical Product Specialist for more specific recommendations or clarification. Shipping dimensions for all electrodes are 9.25" x 1.75" x 2.75". Shipping weight 0.5 lb each.

Application Guide

Application	Suggested electrode
Drinking water	Standard Ag/AgCl with single junction
Wastewater, solutions with heavy metals	Double junction solutions
Biological samples, proteins, and Tris buffers	Calomel or double junction
Pharmaceuticals	
Low ionic strength samples	Flushable or sleeve-type refillable electrode
Boiler feed water and distilled water	
Soil samples	Soil electrode, double junction
Moist flat surfaces, concrete, cheese, agar, paper, and skin	Flat-surface, calomel
Semisolid samples, food, fruits, cheese, and meat	Spear tip
Nonaqueous samples, solvents, alcohols, viscous samples, slurries, suspended solids, sludges, emulsions and oils, paints, and inks	Sleeve-type, flushable, or double junction electrode and fill with electrolyte containing methanol
Environmental, surface water, neutralization tanks	Double junction submersible

Electrode Types

Built-in temp sensor	Use electrode with the following meters
Standard: Most economical electrode; includes cable.	
No	pHTestr BNC, pH 5/6, Ion 6, pH 10/11/100/110, pH 300/310, pH 500/510, Ion 510, pH 1000/1100/2100/2500, pH/DO 300, pH/CON 300, pH/CON 510, pH 600/610/620, PC600, PD600, PDC650, and non-Oakton meters with BNC pH electrodes
All-in-One: Combination pH electrode/temperature sensor; includes cable.	
Yes	Standard: pH 10/100, pH 500, pH 1000/2500
	Acorn®: pH 5/6, Ion 6, pH 11/110, pH 510, Ion 510, pH 1100/2100
	Waterproof: pH 300/310, pH/CON 300, pH/CON 510
	WP600: pH 600/610/620, PC600, PD600, PCD650
Direct connect: Electrode connects directly to meter; no cable.	
No	pHTestr BNC
ORP: Takes mV readings; includes cable.	
No	Ion 5/6, pH 6, pH 10/100, pH 300/310, pH 500, pH 510, Ion 510, pH 1000/2100/2500, pH/CON 510
ISE: Takes ion-selective readings; includes cable. See pages 40-41 for ISEs	
No	Ion 5/6, pH 10/100, pH 300/310, pH 500, pH/CON 510; pH 510, Ion 510, pH 1000/1100/2100/2500

Use and Care of Electrodes

Handling—Electrodes should be rinsed between samples with distilled or deionized water. Never wipe an electrode—wiping can cause erroneous readings due to static charges. Gently blot the end of the electrode with lint-free paper to remove excess water.

Refillable Electrodes—see page 32 for reference solutions.

The filling solution in refillable electrodes should be filled up to, but not past, the refill hole. Make sure the refill hole is left open when measuring to ensure that the fill solution flows properly through the reference junction.

Storage—see page 29 for storage products.

Always keep your pH electrode moist. We recommend that you store your electrode in an electrode storage solution of 4 M KCl (see page 29). If 4 M KCl is not available, use a pH 4 or 7 buffer solution. **DO NOT** store electrode in distilled or deionized water—this will cause ions to leach out of the glass bulb and reference electrolyte, rendering your electrode useless.

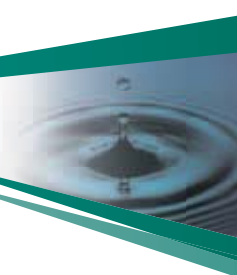
Oakton electrodes are shipped with a protective electrode storage bottle to help prevent cracking or scratching, and to keep the bulb moist. Remove the electrode storage bottle before using your electrode. Keep your electrode in the bottle for long-term storage—just fill the bottle with enough 4 M KCl solution to cover the glass bulb and replenish as needed.



Temperature Probes

Order a temperature probe if you have an electrode without a built-in temperature sensor and you want to take readings with Automatic Temperature Compensation (ATC). Separate temperature probes offer faster temperature response and lower pH electrode replacement cost.

Catalog number	Use with
WD-35615-05	pH 10, pH 100, pH 500, pH 1000, and pH 2500 meters
WD-35613-05	pH 5, pH 6, and Ion 6 Acorn® meters; pH 11, pH 110, pH 510, Ion 510, pH 1100, and pH 2100 benchtop meters
WD-35618-05	pH 300, pH 310, and pH/CON 300 waterproof meters; pH/CON 510 benchtop meter
WD-35418-05	pH 600/610/620, PC600, PD600, PCD650 meters



Electrode storage bottle

All 12-mm dia electrodes come with one electrode storage bottle and solution. Order additional storage bottles as needed.
WD-35805-50 Electrode storage bottle



Double junction, glass-body, refillable pH electrodes

▼ Use for high-grade laboratory applications

These laboratory-grade electrodes are ideal for testing dirty water and solutions with heavy metals or organics. Annular-type junction provides faster electrode response. Order replacement electrode fill solution on page 29.

Specifications & Ordering Information

Max temperature: 100°C Diameter: 12 mm

Catalog number	Type*	Cable length
Standard range of 0 to 12 pH		
WD-35805-04	Standard	3 ft
WD-35801-74	All-in-One Standard	3 ft
High range of 0 to 14 pH		
WD-35805-08	Standard	3 ft
WD-35801-79	All-in-One Standard	3 ft
WD-35811-74	All-in-One Acorn	3 ft

Single junction, epoxy-body, gel-filled pH electrodes

▼ Our most economical electrodes!

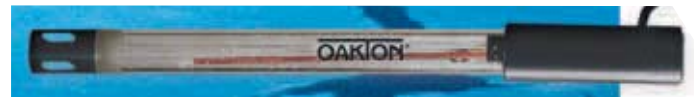
▼ 0 to 14 pH models available—use for high sodium/high pH solutions

These economical electrodes are ideal for field, clean water, and general-purpose applications. They feature a rugged epoxy housing. Pin-type junction provides low electrolyte flow for long life.

Specifications & Ordering Information

Max temperature: 80°C (except 35801-00: 70°C)
 Diameter: 12 mm (except 35804-50: 12.5 mm)

Catalog number	Type*	Cable length
Standard range of 0 to 12 pH		
WD-35801-00	Standard	3 ft
WD-35801-71	All-in-One Standard	30"
WD-35811-71	All-in-One Acorn®	30"
WD-35808-71	All-in-One Waterproof	30"
WD-35816-71	All-in-One WP600	30"
WD-35804-00	Direct connect	No cable
High range of 0 to 14 pH		
WD-35805-05	Standard	3 ft
WD-35801-76	All in One	30"



Double junction, epoxy-body, refillable pH electrodes

▼ Features flushable Teflon® junction—use with substances that ordinarily clog standard electrodes

Ideal for testing dirty water, slurries, oils, paints, pastes, low ionic strength solutions, and solutions with heavy metals or organics. Flushable annular junction lets you refresh junction by pressing electrode cap—cleans clogs instantly.

Specifications & Ordering Information

Range: 0 to 12 pH Max temperature: 80°C Diameter: 12 mm

Catalog number	Type*	Cable length
WD-35805-09	Standard	3 ft
WD-35801-80	All-in-One Standard	3 ft

Double junction, epoxy-body, gel-filled pH electrodes

▼ Use to test dirty water and for other rugged field applications

▼ 0 to 14 pH models available—use for high sodium/high pH solutions

Ideal for most applications, including dirty field water and solutions with heavy metals or organics. Pin-type junction provides low electrolyte flow for long life.

Specifications & Ordering Information

Max temperature: 80°C Diameter: 12 mm

Catalog number	Type*	Cable length
Standard range of 0 to 12 pH		
WD-35805-01	Standard	3 ft
WD-35641-51	Standard, poly-gel	3 ft
WD-35801-72	All-in-One Standard	30"
WD-35811-72	All-in-One Acorn	30"
WD-35808-72	All-in-One Waterproof	30"
WD-35816-72	All-in-One WP600	30"
WD-35804-02	Direct connect	No cable
High range of 0 to 14 pH		
WD-35805-06	Standard	3 ft
WD-35801-77	All-in-One Standard	30"



Glass-body, spear-tip pH electrodes

▼ Test gels, semisolids, and plant or animal materials

Spear tip feature is ideal for testing semisolids. Choose single or double junction electrodes; both have an annular-type junction for faster electrode response.

Specifications & Ordering Information

Range: 0 to 12 pH Max temperature: 100°C Diameter: 12 mm OD, 8 mm ID

Catalog number	Type*	Junction	Cable length
WD-35805-18	Standard	Double	3 ft
WD-35804-06	Standard	Single	3 ft

*See "Electrode Types" chart on facing page.

Electrodes for Laboratory and Field Applications



Submersible pH electrodes

▼ Completely submersible up to 9 feet

These ABS plastic electrodes are ideal for field applications. Use double junction for testing dirty water and solutions with heavy metals or organics. Completely submersible—including the extra-long 10-ft cable. Annular junction provides fast response and resists pressure effects of submersion.

Specifications & Ordering Information

Range: 0 to 12 pH Max temperature: 80°C Diameter: 25 mm

Catalog number	Type*	Junction	Cable length
WD-35805-24	Standard	Double	10 ft
WD-35801-85	All-in-One	Double	10 ft
WD-35805-23	Standard	Single	10 ft
WD-35805-25	ORP	Single	10 ft



Epoxy-body ORP electrodes

▼ Use to take mV readings

Choose a single-junction electrode for field, clean water, and general-purpose applications; choose a double junction electrode for most applications including field, dirty water, heavy metals, and organics. Both models have a pin-type junction that provides low electrolyte leakage. Use the gold disk sensor for ozone applications.

Specifications & Ordering Information

Range: ±2000 mV Max temperature: 80°C (except 35805-13: 70°C) Diameter: 12 mm

Catalog number	Type*	Junction	Cable length
Platinum band sensor			
WD-35805-13	Standard	Single	3 ft
WD-35805-15	Standard	Double	3 ft
Gold disk sensor			
WD-35805-27	Standard	Double	3 ft

Electrode storage bottle

All 12-mm dia electrodes come with one electrode storage bottle and solution. Order additional storage bottles as needed.

WD-35805-50 Electrode storage bottle



Small-diameter pH electrodes

▼ Ideal for measurements in test tubes, NMR tubes, and other applications where space is limited

These electrodes feature a diameter from 6 to 9 mm—ideal for test tube applications. Replacement electrode fill solution for refillable electrodes is available on facing page.

Specifications & Ordering Information

Range: 0 to 12 pH Max temperature: 80°C epoxy body or 100°C glass body

Catalog number	Type*	Junction	Dia x L	Cable length
Epoxy-body electrodes, sealed				
WD-35805-22	Standard	Single	6 x 220 mm	3 ft
WD-35804-01	Direct connect	Single	9 x 100 mm	No cable
WD-35804-03	Direct connect	Double	9 x 100 mm	No cable
Epoxy-body electrodes, refillable				
WD-35804-05	Direct connect	Double	9 x 100 mm	No cable
Glass-body electrodes, refillable				
WD-35805-21	Standard	Double	8 x 325 mm	3 ft



Calomel pH electrodes

▼ Calomel reference solution is ideal for biotechnology applications with organics, proteins, Tris buffers, or metals

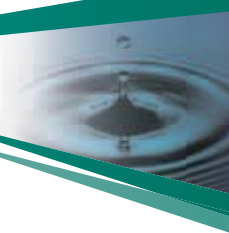
These electrodes use a Hg/Cl reference to withstand solutions that react with the silver typically used in pH reference electrodes. Ideal for solutions containing organics. Choose from pin or annular junction. Pin-type junction provides low electrolyte flow for long life. Annular-type junction provides faster electrode response. Replacement electrode fill solution for refillable electrodes is available on facing page.

Specifications & Ordering Information

Range: 0 to 12 pH Max temperature: 70°C Diameter: 12 mm

Catalog number	Type*	Cable length
Epoxy-body electrodes, gel-filled, pin junction		
WD-35805-10	Standard	3 ft
WD-35801-81	All-in-One Standard	3 ft
WD-35804-09	Direct connect	No cable
Glass-body electrode, gel-filled, annular junction		
WD-35805-11	Standard	3 ft
Glass-body electrodes, liquid-filled, refillable, annular junction		
WD-35805-12	Standard	3 ft
WD-35801-82	All-in-One Standard	3 ft
WD-35804-69	Direct connect	3 ft

*See "Electrode types" chart on page 28.



Flat surface, single-junction pH electrodes

▼ Ideal for flat surface measurements such as paper or skin
 These single-junction electrodes are available with sealed epoxy body, or refillable glass body. Replacement electrode fill solution for refillable electrode is available on facing page.

Specifications & Ordering Information

Range: 0 to 12 pH
 Max temperature: 80°C epoxy body or 100°C glass body Diameter: 12 mm

Catalog number	Type*	Cable length
Epoxy-body electrodes, sealed		
WD-35805-19	Standard	3 ft
WD-35804-10	Direct connect	No cable
Glass-body electrode, refillable		
WD-35805-20	Standard	3 ft



Sleeve-type, single-junction, refillable pH electrode

▼ Ideal for viscous liquids and low ionic strength samples
 Sleeve design gives high electrolyte flow. Unique reference design and fill solution minimize drift and give excellent performance at high temperatures.

Specifications & Ordering Information

Range: 0 to 12 pH Max temperature: 100°C Diameter: 12 mm

Catalog number	Type*	Cable length
WD-35805-26	Standard	3 ft

*See "Electrode Types" chart on page 28.



Semi-dome, epoxy-body, gel-filled pH electrodes

▼ Rugged semi-dome bulb design
 Special close-knit ceramic junction prevents back diffusion problems and resists clogging. Vortexing junction design enhances electrolyte flow and self-cleans in flowing applications. Epoxy body; polymer gel reference fill won't break down over time, enhancing electrode performance and longevity.

Specifications & Ordering Information

Range: 0 to 13 pH Max temperature: 100°C Diameter: 12 mm

Catalog number	Type*	Junction	Cable length
WD-35808-88	All-in-One Waterproof	Single	3 ft
WD-35808-89	All-in-One Waterproof	Double	3 ft



Polymer gel, single-junction pH electrode

▼ Polymer gel reference fill won't break down over time, enhancing electrode performance and longevity

Specifications & Ordering Information

Range: 0 to 13 pH Max temperature: 100°C Diameter: 12 mm

Catalog number	Type*	Cable length
WD-35808-90	All-in-One Waterproof	3 ft

Oakton® Electrode Care

- ▼ Extend the life of your electrode, increase speed of response, and get accurate readings
- ▼ Solutions to clean, store, and fill electrodes

WD-00653-04 pH electrode storage solution, one pint. Use with saver bottles; keep bulb moist for quicker, more accurate pH readings

WD-00653-06 pH/ORP electrode cleaning solution, one pint. Removes build-up from electrodes to maintain bulb sensitivity

WD-35805-50 Replacement pH electrode saver bottle. For pH electrodes up to 12 mm dia. 44.5 mm H x 25.4 mm dia

WD-35803-73 Reference fill solution for single junction pH electrodes. 4 M KCl, 125 mL saturated with AgCl, 125 mL

WD-35803-74 Reference fill solution for double junction or calomel reference refillable pH electrodes. 4 M KCl, 125 mL

WD-35803-83 Reference fill solution, lithium chloride (LiCl)/methanol, for double junction refillable pH electrodes. Use where organics are present. 125 mL

WD-35803-84 Reference fill solution, KCl with glycerol, for double junction refillable pH electrodes. Use for low-temperature samples. 125 mL



00653-04



00653-06



35805-50

Accessories

WD-35820-64 In-line threaded housing. Use to install any 12-mm diameter electrode into pipe for in-line use or submersible monitoring; 3/4" NPT(M), nylon

Ion-Selective Electrodes and Solution Kits

Ion-Selective Electrodes

Oakton® has a large selection of ion-selective electrodes (ISEs) to suit a wide variety of applications. Each electrode has a typical response time of 20 to 30 seconds but will vary with solution concentration. Oakton offers four electrode types: membrane, solid-state, gas sensing, and glass bulb. Gas sensing electrodes also include replacement membranes.

Choose from single-junction or double-junction electrodes. Single-junction electrodes are ideal for clean water applications. Use double-junction electrodes for testing dirty water and solutions with heavy metals or organics. All electrodes are refillable and include 15 mL of electrolyte and a filling pipette. Solid-state electrodes also include polishing strips.

Use these ion-selective electrodes (ISEs) with:

Ion 510 benchtop meter (see page 20)

pH/Ion 2100 benchtop meter (see page 22)

Acorn® Ion handheld meters (see page 12)

Or use with any other ion meter, or with any meter with 0.1-mV resolution.

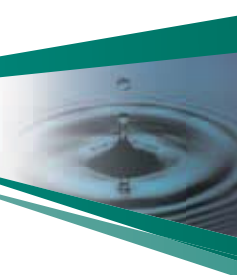


Epoxy-body, double-junction fluoride electrode 35812-18

Ordering Information

Ion	Electrodes			Solution Kits [†]			
	Epoxy body, single junction	Epoxy body, double junction	Glass body, double junction	Single-junction solution kit	Double-junction solution kit	Replacement calibration standard	Replacement ISA
Ammonia NH₃ High-purity power station water, fish tanks, sea water, wastewater, plating baths, air/stack gases, and biological samples. Range: 17,000 to 0.01 ppm Type: gas sensing	WD-35802-00	—	—	WD-35802-50*	—	WD-35803-01	—
Ammonium NH₄⁺ Boiler feed water, natural water and fertilizers. User must supply calibration standard. Range: 18,000 to 0.1 ppm Type: polymer membrane	WD-35802-02	WD-35812-02	WD-35802-03	WD-35802-52	WD-35802-53	—	WD-35803-53
Bromide Br⁻ Water, wine, soil, plant tissue, blood electrolytes, and clinical analysis. Range: 79,000 to 0.4 ppm Type: solid-state	WD-35802-04	WD-35812-04	WD-35802-05	WD-35802-54	WD-35802-55	WD-35803-03	WD-35803-51
Cadmium Cd⁺² Plating baths. User must supply calibration standard. Range: 11,200 to 0.01 ppm Type: solid-state	WD-35802-06	WD-35812-06	WD-35802-07	WD-35802-56	WD-35802-57	—	WD-35803-51
Calcium Ca⁺² Water softening systems, boiler feed water, drinking/mineral water, blood electrolytes, clinical analysis, and food applications. Range: 40,000 to 0.2 ppm Type: polymer membrane	WD-35802-08	WD-35812-08	WD-35802-09	WD-35802-58	WD-35802-59	WD-35803-05	WD-35803-52
Carbon Dioxide CO₂ and Carbonate CO₃⁻² Soft drinks/carbonated beverages, wine, beer, fermentation processes, bacterial cultures. Range: 440 to 4.4 ppm Type: gas sensing	WD-35802-10	—	—	WD-35802-60	—	WD-35803-07	WD-35803-55
Chloride Cl⁻ River/tap water, plant tissue, soils, boiler feed water, blood electrolytes, clinical analysis, sweat, urine, cement, plating baths, and food samples. Range: 35,500 to 1.8 ppm Type: solid-state	WD-35802-12	WD-35812-12	WD-35802-13	WD-35802-62	WD-35802-63	WD-35803-09	WD-35803-51
Copper Cu⁺² Plating baths and water Range: 6350 to 6.4 x 10 ⁻⁴ ppm Type: solid-state	WD-35802-14	WD-35812-14	WD-35802-15	WD-35802-64	WD-35802-65	WD-35803-11	WD-35803-51
Cyanide CN⁻ Plating baths, wastewater and plant tissue. User must supply calibration standard. Range: 260 to 0.13 ppm Type: solid-state	WD-35802-16	WD-35812-16	WD-35802-17	—	—	—	WD-35803-50
Fluoride F⁻ Drinking/natural water, wastewater, air/stack gases, acids, sea water minerals, soils, food, biological fluids, toothpaste/mouthwash, coal, carbonated beverages, and bone. Range: saturated to 0.02 ppm Type: solid-state	WD-35802-18	WD-35812-18	WD-35802-19	WD-35802-68	WD-35802-69	WD-35803-13	WD-35803-58

*Ammonia solution kit does not include ISA. [†]Contact your authorized Oakton Distributor for replacement electrolyte solutions.



Solution Kits

Be sure to select both the electrode and solution kit to complete your measurement system. Solution kits contain the solutions and accessories needed for calibration, sample preparation, and measurement of ion concentration and activity. All solutions are supplied with MSDS (Material Safety Data Sheet) and have a value of 1000 ppm. Make serial dilutions for lower values using the ISE labware kit 35613-60 (at right). Solution kits include replacement reference electrolyte, ISA (ionic strength adjuster)*, calibration standard, and filling pipette. Solution kits for solid-state electrodes also include polishing strips. Solution kits for gas sensing electrodes also include replacement membranes.



ISE Labware Kit



Kit contains beakers, volumetric flask, pipette, and pipette bulb needed for serial dilution of ISE standards and ISA additions.

WD-35613-60 ISE labware kit

Ordering Information

Ion	Electrodes			Solutions [†]			
	Epoxy body, single junction	Epoxy body, double junction	Glass body, double junction	Single-junction solution kit	Double-junction solution kit	Replacement calibration standard	Replacement ISA
Fluoroborate BF₄⁻ Plating baths (boron analysis) Range: 10,800 to 0.1 ppm Type: polymer membrane	WD-35802-20	WD-35812-20	WD-35802-21	WD-35802-70	WD-35802-71	WD-35803-15	WD-35803-60
Iodide I⁻ Milk, feeds, plants and pharmaceuticals. Range: 127,000 to 6 x 10 ⁻³ ppm Type: solid-state	WD-35802-22	WD-35812-22	WD-35802-23	WD-35802-72	WD-35802-73	WD-35803-17	WD-35803-51
Lead Pb⁺² Plating baths and organic compounds. Range: 20,700 to 0.2 ppm Type: solid-state	WD-35802-24	WD-35812-24	WD-35802-25	WD-35802-74	WD-35802-75	WD-35803-20	WD-35803-56
Nitrate NO₃⁻ Surface/drinking water, sewage effluent, soil extracts, fertilizers, plant tissue, meat, potatoes, spinach, beets, baby food. Range: 62,000 to 0.5 ppm Type: polymer membrane	WD-35802-30	WD-35812-30	WD-35802-31	WD-35802-78	WD-35802-79	WD-35803-24	WD-35803-60
Nitrogen Oxide NO_x Air and stack gases. Range: 220 to 0.2 ppm Type: gas sensing	WD-35802-32	—	—	WD-35802-82	—	WD-35803-26	WD-35803-57
Perchlorate ClO₄⁻ Explosives and solid propellants. Range: 98,000 to 0.7 ppm Type: polymer membrane	WD-35802-34	WD-35812-34	WD-35802-35	WD-35802-84	WD-35802-85	WD-35803-28	WD-35803-60
Potassium K⁺ Wastewater, river/tap water, blood electrolytes, clinical analysis, saliva, serum, fertilizers, soils, and wines. Range: 39,000 to 0.04 ppm Type: polymer membrane	WD-35802-38	WD-35812-38	WD-35802-39	WD-35802-88	WD-35802-89	WD-35803-30	WD-35803-53
Silver/Sulfide Ag⁺/S⁻² Sewage effluent, soils, sediments, plating baths and photographic fixing solution. User must supply solutions for sulfide. Range: 107,900 to 0.01 ppm Type: solid-state	WD-35802-40	WD-35812-40	WD-35802-41	WD-35802-90	WD-35802-91	WD-35803-32	WD-35803-51
Sodium Na⁺ Steam condensates in power plants, blood electrolytes, clinical analysis, serum, foods, wine, glass, sea water, swimming pools, fish farms and aquariums. Range: 23,000 to 0.2 ppm Type: glass bulb	WD-35802-42	WD-35812-42	WD-35802-43	WD-35802-92	WD-35802-93	WD-35803-34	WD-35803-54
Surfactant X⁺, X⁻ Detergents, dishwashing liquids, cleaning supplies, and food products. For titration only. Range: 12,000 to 1.0 ppm Type: polymer membrane	WD-35802-44	WD-35812-44	WD-35802-45	WD-35802-94	WD-35802-95	WD-35803-35	WD-35803-59
Water hardness Ca⁺², Mg⁺² Water softening systems, boiler feed water, drinking/mineral water, blood electrolytes, clinical analysis, and food applications. Range: 40,000 to 0.4 ppm Type: polymer membrane	WD-35802-48	WD-35812-48	WD-35802-49	WD-35802-98	WD-35802-99	WD-35803-05	WD-35803-52

*Ammonia solution kit does not include ISA. [†]Contact your authorized Oakton Distributor for replacement electrolyte solutions.

Calibration Solutions and Accessories

Conductivity/TDS Cells

Choose from three cell constants

All cells feature built-in temperature compensation. A 1.0 cell constant (K) is ideal for midrange conductivity measurements. For high conductivity measurements (near or above 20 mS) order a cell with K = 10.0; for low conductivity measurements (near or below 20 µS), order a cell with K = 0.1.



A B C

Ordering Information

Catalog number	Body/sensor material	Cell constant	Temperature range	Cable length	Probe style
Cells for use with CON 6, TDS 6, and SALT 6					
WD-35606-53	Ultem	K = 0.1	0 to 80°C	3 ft	C
WD-35606-55	Ultem	K = 1.0	0 to 80°C	3 ft	C
WD-35606-57	Ultem	K = 10	0 to 80°C	10 ft	C
Cells for use with CON 400, CON 410, TDS 400, CON 510, pH/CON 300, pH/CON 510, CON 11, and CON 110					
WD-35608-50	Ultem	K = 1.0	0 to 80°C	3 ft	C
WD-35608-57	Ultem	K = 1.0	0 to 80°C	10 ft	C
WD-35608-51	Epoxy	K = 10	0 to 80°C	3 ft	A
WD-35608-52	Glass	K = 1.0	0 to 100°C	3 ft	B
WD-35608-55	Epoxy	K = 0.1	0 to 80°C	3 ft	A
Cells for use with CON 600, CON 610, PC 650, CD 650, and PCD 650					
WD-35408-50	Epoxy	K = 0.1	0 to 80°C	3 ft	A
WD-35408-52	Ultem	K = 1.0	0 to 80°C	3 ft	C
WD-35408-57	Ultem	K = 1.0	0 to 80°C	10 ft	C
WD-35408-54	Epoxy	K = 10	0 to 80°C	3 ft	A
WD-35408-56	Epoxy, 4-cell	K = 0.3	0 to 80°C	3 ft	A
WD-35408-58	Epoxy	K = 0.01	0 to 80°C	3 ft	A

Conductivity/TDS Calibration Solutions

NIST-traceable; ±1% accuracy at 25°C

Conductivity/TDS calibration solutions are cross checked using different test methods, premixed, and ready to use. Each one-pint bottle is labeled with the name and CAS number for all ingredients to conform with "Right-to-Know" requirements.



Ordering Information

Catalog number	Conductivity value	Conductivity-to-TDS calibration values		
		ppm KCl	ppm NaCl	ppm 442
WD-00653-23	23 µS	11.6	10.7	14.74
WD-00653-16	84 µS	40.38	38.04	50.50
WD-00653-47	447 µS	225.6	215.5	300.0
WD-00653-18	1413 µS	744.7	702.1	1000
WD-00653-15	1500 µS	757.1	737.1	1050
WD-00653-27	2070 µS	1045	1041	1500
WD-00653-20	2764 µS	1382	1414.8	2062.7
WD-00653-89	8974 µS	5101	4487	7608
WD-00606-10	12,880 µS	7447	7230	11,367
WD-00653-50	15,000 µS	8759	8532	13,455
WD-00653-32	80 mS	52,168	48,384	79,688

Conductivity/TDS "Singles" Calibration Pouches

NIST traceable for high accuracy; ±1% accuracy at 25°C

Conductivity/TDS "Singles" are convenient, individually sealed pouches that contain high-precision calibration standards. Ideal for field calibration; just select the pouches you need and carry them to your test site for on-the-spot calibration and verification. Pouches are labeled with equivalent values for KCl, NaCl, and 442 and conductivity values at 25°C and CAS numbers for "Right-to-Know" requirements. Each box contains twenty 20-mL pouches.



Ordering Information

Catalog number	Conductivity value	Conductivity-to-TDS calibration values		
		ppm KCl	ppm NaCl	ppm 442
WD-35653-09	10 µS	4.7	4.8	7.0
WD-35653-10	447 µS	225.6	215.5	300.0
WD-35653-11	1413 µS	744.7	702.1	1000
WD-35653-12	2764 µS	1382	1414.8	2062.7
WD-35653-13	15,000 µS	8759	8532	13,455
WD-35653-15	5,650 µS	3240	3000	—

WD-35653-00 "Singles" deionized rinse water pouches, 20 pouches/box

Portable Printer

Use with the CON 110 portable meter (pg 42)

Create permanent records of your data from Oakton® meters with RS-232 output! This printer's compact size and rechargeable battery pack make it the perfect printer for both field use and crowded benchtop space. Pre-configured setup selections match the exact parameters of your meter. Accepts standard-sized adding machine rolls and printer ribbons.



Ordering Information

Catalog number	Description	Power
WD-35622-00	Portable printer	110 VAC
WD-35622-05	Portable printer	220 VAC

WD-35622-59 Printer cable, connects printer to your CON 110 meter (or other meters with RS-232 output)

WD-35622-60 Replacement ribbon cartridge

WD-35622-62 Replacement paper, one roll

DO Probes and Accessories

Probes

Oakton® probes use galvanic technology to provide rapid results, without any warm-up requirements.

Probes for Acorn® DO 6 meter

Includes 50 mL of electrolyte solution and one replacement membrane cap.
Probe dimensions:
5" L x 0.5" dia (11.5 cm L x 1.2 cm dia)



Catalog number	Description
WD-35642-50	Replacement DO probe with 3-ft cable
WD-35642-52	DO probe with 10-ft cable
WD-35642-54	DO probe with 30-ft cable

Probes for DO 110, DO 300, and DO 600 meters

Includes 50 mL of electrolyte solution and two replacement membrane caps.
Probe dimensions:
6.8" L x 1.3" dia (17.3 cm L x 3.2 cm dia)

Catalog number	Description
WD-35640-50	Replacement DO probe with 10-ft cable
WD-35640-52	DO probe with 25-ft cable
WD-35640-54	DO probe with 50-ft cable
WD-35640-56	DO probe with 100-ft cable

Solutions

Ensure accurate readings by using Oakton solutions with your DO meter. Zero oxygen solution lets you calibrate for accurate low-end readings. Replacement electrolyte should be used whenever you replace the membrane or membrane cap.



Catalog number	Description
WD-00653-00	Zero oxygen calibration solution, 500 mL
WD-35640-71	Replacement electrolyte solution, premixed 500 mL
WD-35640-70	Replacement electrolyte powder, 58.5 g. Mix your own electrolyte solution—makes 400 mL. Has longer shelf life in unmixed form.

Probe Maintenance

Catalog number	Description
Membrane assembly for Acorn® DO 6 meter	
WD-35642-55	Replacement membrane assembly consists of a preassembled membrane and cap. Simply screw replacement membrane assembly onto the probe you already have. Includes 50 mL of electrolyte solution.
Membrane assembly for DO 110, DO 300, and DO 600 meters	
WD-35640-80	Maintenance kit. Includes two complete membrane cap assemblies and 50 mL of fill solution.
WD-35640-72	Replacement membrane assembly consists of a preassembled membrane, membrane lock, O-ring, and cap. Simply screw replacement membrane assembly onto your probe.
WD-35640-79	Membrane installation tool lets you remove and replace membrane in the lab or field
WD-35640-74	Replacement HDPE membranes. Pack of 5
WD-35640-75	Replacement HDPE membranes. Pack of 25



Easy-to-use replacement membrane assembly—simply fill with electrolyte solution and screw onto probe.

DO Meter Kit

for DO 110, DO 300, and DO 600 meters

Bring everything you need for accurate DO measurement with you when you work in the field. Includes 50 mL of electrolyte solution, two replacement membrane caps, three rinse bottles, and hard carrying case with space for your meter and probe. (Meter not included.)

Catalog number	Description
WD-35640-60	DO meter kit (meter not included)



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