Electrodes for Laboratory and Field Applications

The Application Guide only offers suggestions—contact your Oakton Technical Product Specialist for more specific recommendations or clarification. Shipping dimensions for all electrodes are 10½" x 2⅛" x 4" (26.7 x 5.3 x 10.2 cm). Shipping weight 0.5 lb (0.2 kg) 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	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
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

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 27 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 27 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 27). 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.

Electrode Types

Built-in temp sensor		Use electrode with the following meters
Standard: Most economical electrode; includes BNC connector and cable.		
No		pHTestr BNC, pH 5/6, Ion 6, pH 5+/6+, Ion 6+, pH 10/11/100/110, pH 300/310, pH 500/510, Ion 510, pH 1000/1100/2100/2500, pH 700/2700, Ion 700/2700, PC 700/2700, 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 BNC connector, meter-specific temperature connector, and cable. (See key images below to match your Oakton meter with the correct All-in-One electrode.)		
Yes	A	Original: pH 10/100, pH 500, pH 1000/2500
	B	Phono: pH 5/6, pH 5+/6+, Ion 6, Ion 6+, pH 11/110, pH 510, Ion 510, pH 1100/2100, pH 700/2700, Ion 700/2700, PC 700/2700
	C	Waterproof: pH 300/310, pH/CON 300, pH/CON 510
	D	WP600: pH 600/610/620, PC600, PD600, PCD650
Direct connect: Electrode connects directly to meter; BNC connector and no cable.		
No		pHTestr BNC
ORP: Takes mV readings; includes BNC connector and cable.		
No		pH 5+/6+, pH 6, Ion 5/6, Ion 6+, pH 10/100, pH 300/310, pH 500, pH 510, Ion 510, pH 1000/2100/2500, pH/CON 510, pH 700/2700, Ion 700/2700, PC 700/2700
ISE: Takes ion-selective readings; includes BNC connector and cable. See pages 28-29 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, Ion 700/2700, PC 2700

Electrode Types

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. See Connector Types key at right.

Catalog number	Key	Connector type	Use with the following meters
WD-35615-05	A	Original	pH 10, pH 100, pH 500, pH 1000, and pH 2500
WD-35613-05	B	Phono	pH 5+, pH 6+, Ion 6, pH 11, pH 110, pH 510, Ion 510, pH 1100, pH 2100
WD-35613-13	B	Phono	pH 700/2700, Ion 700/2700, PC 700/2700
WD-35618-05	C	Waterproof	pH 300, pH 310, pH/CON 300, pH/CON 510
WD-35418-05	D	WP600	pH 600/610/620, PC600, PD600, PCD650

Connector Types

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 (1 m)
WD-35801-71	All-in-One Original A	30" (76.2 cm)
WD-35811-71	All-in-One Phono B	30" (76.2 cm)
WD-35808-71	All-in-One Waterproof C	30" (76.2 cm)
WD-35816-71	All-in-One WP600 D	30" (76.2 cm)
WD-35804-00	Direct connect	No cable
High range of 0 to 14 pH		
WD-35805-05	Standard	3 ft (1 m)
WD-35801-76	All in One	30" (76.2 cm)

Double-junction, epoxy-body, refillable pH electrodes

– Features flushable PTFE 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 (1 m)

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 (1 m)
WD-35641-51	Standard, poly-gel	3 ft (1 m)
WD-35801-72	All-in-One Original A	30" (76.2 cm)
WD-35811-72	All-in-One Phono B	30" (76.2 cm)
WD-35808-72	All-in-One Waterproof C	30" (76.2 cm)
WD-35816-72	All-in-One WP600 D	30" (76.2 cm)
WD-35804-02	Direct connect	No cable
High range of 0 to 14 pH		
WD-35805-06	Standard	3 ft (1 m)

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 27.

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 (1 m)
High range of 0 to 14 pH		
WD-35805-08	Standard	3 ft (1 m)
WD-35811-74	All-in-One Phono B	3 ft (1 m)

*See "Electrode Types" on page 24.

Electrodes for Laboratory and Field Applications

Electrode Types

Built-in temp sensor		Use electrode with the following meters
Standard: Most economical electrode; includes BNC connector and cable.		
No		pH 5+/6+, pHTestr BNC, pH 5/6, Ion 6, Ion 6+, pH 10/11/100/110, pH 300/310, pH 500/510, Ion 510, pH 1000/1100/2100/2500, pH 700/2700, Ion 700/2700, PC 700/2700, 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 BNC connector meter specific temperature connector, and cable. (See key image at right.)		
Yes	C	Waterproof: pH 300/310, pH/CON 300, pH/CON 510
Direct connect: Electrode connects directly to meter; BNC connector and no cable.		
No		pHTestr BNC
ORP: Takes mV readings; includes BNC connector and cable.		
No		pH 5+/6+, pH 6, Ion 5/6, Ion 6+, pH 10/100, pH 300/310, pH 500, pH 510, Ion 510, pH 1000/2100/2500, pH/CON 510, pH 700/2700, Ion 700/2700, PC 700/2700

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 tip

Catalog number	Type*	Junction	Cable length
WD-35805-18	Standard	Double	3 ft (1 m)
WD-35804-06	Standard	Single	3 ft (1 m)

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 (3 m)
WD-35801-85	All-in-One Waterproof C	Double	10 ft (3 m)
WD-35805-23	Standard	Single	10 ft (3 m)
WD-35805-25	ORP	Single	10 ft (3 m)

Electrode Types

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 (1 m)
WD-35805-15	Standard	Double	3 ft (1 m)
Gold disk sensor			
WD-35805-27	Standard	Double	3 ft (1 m)

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 page 27.

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 (1 m)
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 electrode, refillable				
WD-35804-05	Direct connect	Double	9 x 100 mm	No cable
Glass-body electrode, refillable				
WD-35805-21	Standard	Double	8 x 325 mm	3 ft (1 m)

*See "Electrode Types" above.

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 below.

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 (1 m)
WD-35804-10	Direct connect	No cable
Glass-body electrode, refillable		
WD-35805-20	Standard	3 ft (1 m)

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 C	Single	3 ft (1 m)
WD-35808-89	All-in-One Waterproof C	Double	3 ft (1 m)

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 C	3 ft (1 m)

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 (1 m)

*See "Electrode Types" on page 26.

00653-04

00653-06

35805-50

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 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

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; ¾" NPT(M), nylon