

# 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 2½" 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 22 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 22 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 22). 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
<b>Standard:</b> 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
<b>All-in-One:</b> 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	<b>A</b> Original: pH 10/100, pH 500, pH 1000/2500
	<b>B</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
	<b>C</b> Waterproof: pH 300/310, pH/CON 300, pH/CON 510
	<b>D</b> WP600: pH 600/610/620, PC600, PD600, PCD650
<b>Direct connect:</b> Electrode connects directly to meter; BNC connector and no cable.	
No	pHTestr BNC
<b>ORP:</b> 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
<b>ISE:</b> 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

## Connector Types



...setting the standard again and again®

# Electrodes — pH/Ion

pH/Ion

## Connector 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-35613-05	<b>B</b>	Phono	pH 5, pH 6, pH 5+, pH 6+, Ion 6, pH 11, pH 110, pH 510, Ion 510, pH 1100, pH 2100
WD-35613-13	<b>B</b>	Phono	pH 700/2700, Ion 700/2700, PC 2700
WD-35618-05	<b>C</b>	Waterproof	pH 150, pH 300, pH 310, pH 450, pH/CON 300, pH/CON 510,
WD-35418-05	<b>D</b>	WP600	pH 600/610/620, PC600, PC700, PD600, PCD650



### 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
<b>Standard range of 0 to 12 pH</b>		
WD-35801-00	Standard	3 ft (1 m)
WD-35801-71	All-in-One Original <b>A</b>	30" (76.2 cm)
WD-35811-71	All-in-One Phono <b>B</b>	30" (76.2 cm)
WD-35808-71	All-in-One Waterproof <b>C</b>	30" (76.2 cm)
WD-35816-71	All-in-One WP600 <b>D</b>	30" (76.2 cm)
WD-35804-00	Direct connect	No cable
<b>High range of 0 to 14 pH</b>		
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
<b>Standard range of 0 to 12 pH</b>		
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 <b>A</b>	30" (76.2 cm)
WD-35811-72	All-in-One Phono <b>B</b>	30" (76.2 cm)
WD-35808-72	All-in-One Waterproof <b>C</b>	30" (76.2 cm)
WD-35816-72	All-in-One WP600 <b>D</b>	30" (76.2 cm)
WD-35804-02	Direct connect	No cable
<b>High range of 0 to 14 pH</b>		
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
<b>Standard range of 0 to 12 pH</b>		
WD-35805-04	Standard	3 ft (1 m)
<b>High range of 0 to 14 pH</b>		
WD-35805-08	Standard	3 ft (1 m)
WD-35801-79	All-in-One, high Na+ <b>A</b>	3 ft (1 m)
WD-35811-74	All-in-One Phono <b>B</b>	3 ft (1 m)

\*See "Electrode Types" on page 24.