

## 3/4-inch Combination pH and ORP Sensors (flow-through, immersion, insertion, and sanitary mounting)



### Common Features

#### ■ Low Price -- High Performance.

These combination sensors are designed for specialty applications for immersion or in-line mounting. The reference cell features a double-junction design for extended service life, and a built-in solution ground. The body is molded from chemically-resistant Ryton® or PVDF, and the reference junction is coaxial porous teflon. All sensors are rated 0-105°C up to 100 psig, and have integral 15 ft. (4.5 m) cables with tinned leads. The PC-series (for pH) and RC-series (for ORP) combination sensors are ideal for measuring mild and aggressive media.

#### ■ Special Electrode Configurations.

Sensors with rugged dome electrodes, "easy-to-clean" flat glass electrodes, and even HF (hydrofluoric acid) resistant glass electrodes are available for a wide variety of process solutions.

#### ■ Temperature Compensation Element Option.

The PC-series combination pH sensors are available with or without a Pt 1000 ohm RTD temperature element. The RC-series combination ORP sensors are supplied without a temperature element.

### Convertible Style Sensor

The convertible style sensor has a Ryton® body that features 3/4-inch NPT threads on both ends.

The sensor can be directly mounted into a standard 3/4-inch pipe tee or fastened onto the end of a pipe for immersion mounting. The convertible style sensor enables inventory consolidation, thereby reducing associated costs. Mounting tees and immersion mounting hardware are offered in a variety of materials to suit application requirements.

### Insertion Style Sensor

Insertion style sensors feature a longer, non-threaded PVDF body with two Viton O-rings, providing a seal when used with the optional GLI insertion mount hardware assembly. This ball valve hardware enables sensor insertion and retraction from a pipe or vessel without having to stop the process flow.

### Sanitary Style Sensor

The sanitary style sensor, offered for pH measurement, has a 316 stainless steel-sleeved PVDF body with a 2-inch flange. The sensor mates to a standard 2-inch Tri-Clover fitting. The optional GLI sanitary mounting hardware includes a standard 2-inch sanitary tee, sanitary clamp, and Viton sanitary gasket.

# Specifications

## Combination pH Sensors

Wetted Materials .....	Convertible style: Ryton® body (glass filled) Insertion style: PVDF body (Kynar) Sanitary style: 316 stainless steel sleeved PVDF body
	Common materials for all sensor styles include PTFE Teflon double junction, glass process electrode, and Viton O-rings
Measuring Range .....	0-14 pH (see Note 1 below)
Temperature Range .....	32-221°F (0-105°C)
Pressure Range .....	0-100 psig at 212°F (0-6.9 bar at 100°C)
Flow Range .....	0-6.6 ft./sec. (0-2 m/sec.); non-abrasive
Accuracy .....	Less than 0.1 pH under reference conditions
Sensor Cable.....	Integral coaxial cable (plus two conductors for temperature compensator option); 15 ft./4.5 m long; terminated with stripped and tinned wires
Signal Transmission.....	15 ft. (4.5 m); up to 100 ft. (30.5 m) when used with GLI
Distance	Model 63, 53, or 33 analyzers and appropriate interconnect cable

## Combination ORP Sensors

Wetted Materials .....	Convertible style: Ryton® body (glass filled) Insertion style: PVDF body (Kynar)
	Common materials for all sensor styles include PTFE Teflon double junction, glass with platinum process electrode, and Viton O-rings
Measuring Range .....	-2000 to +2000 millivolts
Temperature Range .....	32-221°F (0-105°C)
Pressure Range .....	0-100 psig at 212°F (0-6.9 bar at 100°C)
Flow Range .....	0-6.6 ft./sec. (0-2 m/sec.); non-abrasive
Accuracy .....	Limited to calibration solution accuracy (±20 mV)
Sensor Cable.....	Integral coaxial cable; 15 ft./4.5 m long; terminated with stripped and tinned wires
Signal Transmission.....	15 ft. (4.5 m); up to 100 ft. (30.5 m) when used with GLI
Distance	Model 63, 53, or 33 analyzers and appropriate interconnect cable

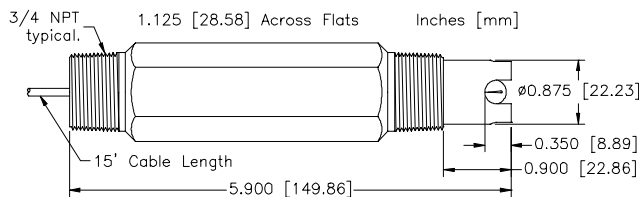
NOTE 1: Most pH applications fall in the 2.5-12.5 pH range. General purpose pH glass electrodes perform well in this range. Some industrial applications require accurate measurements and control at pH values below 2 or above 12. Consult GLI for details on these applications.

# Ordering Information



## Sensors

### Convertible Styles with Dome Electrode and Built-in Protector



#### ■ Model PC1R1N pH Sensor

Body Material: Ryton (see above drawing)  
pH Electrode: General purpose glass  
Temp. Element: None

#### ■ Model PC1R1A pH Sensor

Body Material: Ryton (see above drawing)  
pH Electrode: General purpose glass  
Temp. Element: Pt 1000 ohm RTD

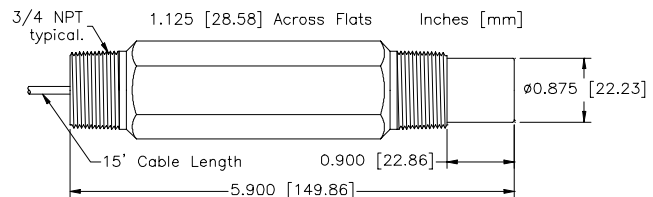
#### ■ Model PC1R3A pH Sensor

Body Material: Ryton (see above drawing)  
pH Electrode: HF-resistant glass (see Note 2)  
Temp. Element: Pt 1000 ohm RTD

#### ■ Model RC1R5N ORP Sensor

Body Material: Ryton (see above drawing)  
ORP Electrode: Platinum  
Temp. Element: None

### Convertible Styles with Flat Electrode



#### ■ Model PC1R2N pH Sensor

Body Material: Ryton (see above drawing)  
pH Electrode: Flat glass, general purpose  
Temp. Element: None

#### ■ Model PC1R2A pH Sensor

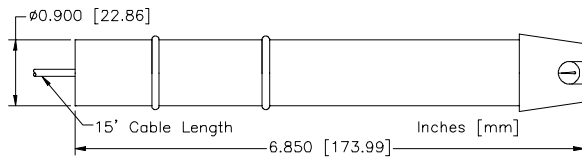
Body Material: Ryton (see above drawing)  
pH Electrode: Flat glass, general purpose  
Temp. Element: Pt 1000 ohm RTD

NOTE 2: The HF (hydrofluoric acid) resistant glass electrode reduces the HF dissolution of the complete glass surface to extend the lifetime of the electrode in acid fluoride solutions. The electrode will last longer than conventional glass pH electrodes. How much longer depends on the HF concentration in the solution.

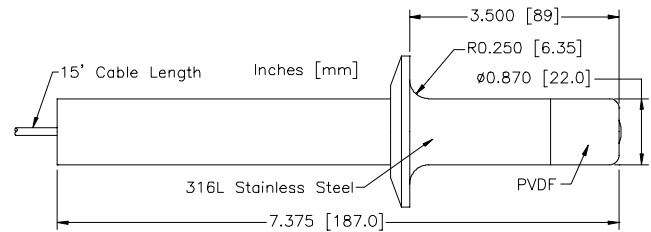
## Ordering Information (continued)

### Sensors -- (continued)

#### Insertion Styles with Protected Dome Electrode



#### Sanitary Style



#### ■ Model PC2K1A pH Sensor

Body Material: PVDF (see drawing above)  
pH Electrode: General purpose glass  
Temp. Element: Pt 1000 ohm RTD

#### ■ Model RC2K5N ORP Sensor

Body Material: PVDF (see drawing above)  
ORP Electrode: Platinum  
Temp. Element: None

#### ■ Model PC3K2A pH Sensor

Body Material: 316SS sleeved PVDF  
(see drawing above)  
pH Electrode: Flat glass, general purpose  
Temp. Element: Pt 1000 ohm RTD

## Mounting Hardware

**Immersion Mount:** CPVC Hardware -- MH432G  
PVDF Hardware -- MH462G

Immersion hardware includes a 1/2-inch diameter by 4 foot long pipe, 1/2 x 3/4-inch NPT coupling, and plastic pipe-mount junction box with terminal strip.

**Flow-through Mount:** 3/4-inch PVC Tee -- MH373N3NZ  
3/4-inch CPVC Tee -- MH333N3NZ  
3/4-inch PVDF Tee -- MH363N3NZ  
3/4-inch 316 SS Tee -- MH313N3NZ

Each standard tee has 3/4-inch NPT threads.

**Insertion Mount:** 316 SS Hardware -- MH116M3MZ

The insertion hardware includes a 1-1/2 inch ball valve, 1-1/2 inch NPT close nipple for process connection, sensor connection tube, stainless steel extension pipe, and stainless steel compression fitting with washer and lock nut.

**Sanitary Mount:** 2-inch Sanitary Tee -- 9H1310  
2-inch Sanitary Clamp -- 9H1132  
2-inch Sanitary Viton Gasket -- 9H1384

#### Interconnect Cable 1W0979

Extends the distance between sensor and instrument. Specify required length in whole feet.

#### NEMA 4X Junction Box 76A4010-001

This waterproof, surface-mount junction box provides best protection for high impedance connections, especially in high-humidity applications. It has a terminal strip, cord grips, and cover gasket.

#### Junction Box 60A2053 (not NEMA rated)

This surface-mount, aluminum junction box provides basic protection, and is recommended for low-humidity, indoor applications. It includes a terminal strip and cover gasket.

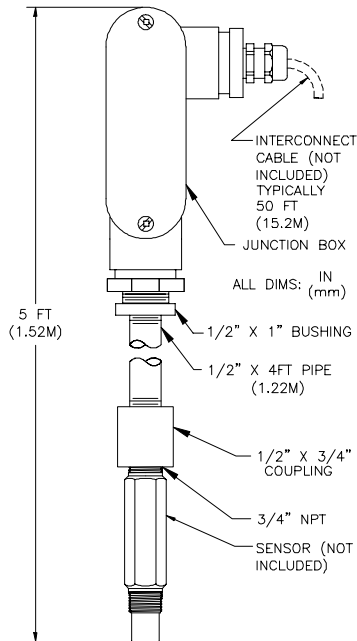
## Engineering Specification

- The pH sensor shall be available in convertible, insertion or sanitary styles. The ORP sensor shall be available in only convertible or insertion styles.
- The convertible style sensor shall have a Ryton® body. The insertion style sensor shall have a PVDF body. The sanitary style sensor shall have a 316 stainless steel sleeved PVDF body. Common materials for all sensor styles shall include a PTFE Teflon double junction, and Viton O-rings. The pH sensor shall have a glass pH electrode. The ORP sensor shall have a platinum ORP electrode.
- The convertible style pH sensor shall be available with or without a built-in Pt 1000 ohm RTD temperature element. Insertion and sanitary style pH sensors shall have a built-in Pt 1000 ohm RTD temperature element. Convertible and insertion style ORP sensors shall not have a built-in temperature element.
- The sensor shall be GLI International, Inc. Model PC-series for pH measurement or RC-series for ORP measurement.

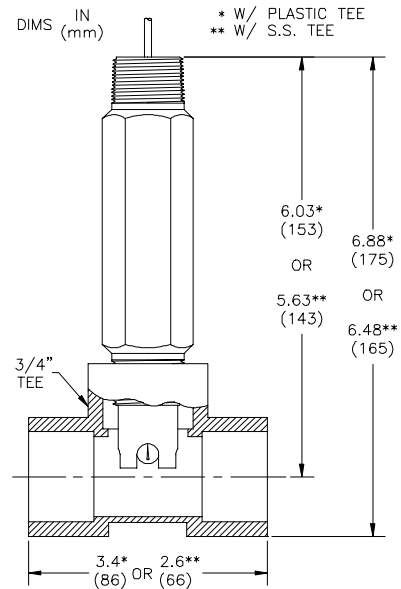
# Dimensions

Inches (mm)

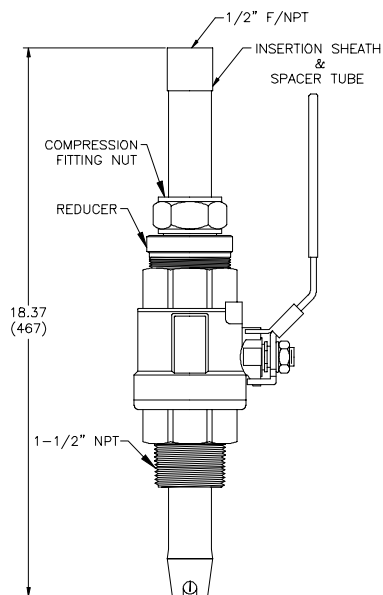
## Immersion Mounting



## Flow-through Mounting



## Insertion Mounting



## Sanitary Mounting

