# Model 70 Differential pH Sensor

## Features



- Differential Electrode Measurement Technique using Three Electrodes
- Replaceable Equitransferant Salt Bridge and Reference Reservoir
- Patented*, Non-fouling, Porous Teflon® Liquid Junction
- Non-metallic Solution Ground for Enhanced Chemical Resistivity
- Detachable Cable with Built-in Encapsulated Preamplifier
- Capillary Temperature Sensor for Quick Response
- TOP68 Connector Allows Easy Sensor Removal
- Glass Reinforced Ryton® Body
- Versatile Body Style with 1-inch NPT Threads on Both Ends.
- Various Mounting Options Available
- For use with Most Manufacturers Analyzers

## Applications

- Water and Wastewater Treatment
- Coagulation and Flocculation
- Process Monitoring and Control
- Acid and Caustic Neutralization
- Plant Effluent
- Pulp Stock Batches
- Ore Separation
- Cooling Towers
- Plating Baths
- Separation Systems
- Boiler Flue Gas Scrubbers
- Textile Dye Processes
- General Industrial Service

## Description

The Model 70 uses the field proven, three-electrode differential measurement technique; the pH and reference electrodes are compared to a ground electrode for excellent measurement accuracy, even in harsh chemical applications. The sensor body is offered in glass-reinforced Ryton for chemical compatibility in most process solutions. The replaceable salt bridge and refillable reference reservoir insures a long service life in applications containing sulfides ($H_2S$) and metals such as lead, mercury, and silver. It will maintain a constant reference cell potential by resisting dilution over time with pressure and temperature changes. The patented porous Teflon® reference junction resists fouling and chemical attack.

The sensor cable has a built-in preamplifier to boost the pH signal while ensuring a quiet and reliable measurement. The transmitter powers the preamplifier. A self-powered preamplifier is also available as an option for use with analyzers which do not have an adequate voltage source. The capillary temperature sensor design places the temperature element within the pH sensitive membrane for fast and accurate temperature measurement and compensation.

The 1-inch NPT versatile body allows mounting into a standard 1-inch pipe tee or onto the end of a pipe for immersion into a vessel. Mounting adapters are available in CPVC or 316 SS for direct replacement of GLI sensors used in 1-½ inch threaded pipe tees. Other materials are available upon request.

## Specifications

| Model 70 | Specifications |
|---|---|
| Body Material | Ryton® |
| O-ring | Viton® |
| Other Wetted Materials | Teflon®, carbon, epoxy |
| Measuring Range | 0-14 pH |
| Operating Temperature Range | -5 to 95°C (23 to 203°F) |
| Temperature Element | 300 ohm NTC; PT100, PT1000, and 3Kohm also available |
| Pressure Range | 100 psi @ 95°C (203°F) |
| Maximum Flow Rate | Not flow sensitive |
| Sensitivity | Less than 0.005 pH |
| Stability | 0.03 pH per 24 hours, non-cumulative |
| Sensor Cable (Detachable from Sensor) | 6 conductor (3 twisted pair each pair shielded with a common drain wire), overall Mylar shield with drain wire, UV enhanced Santoprene jacket; rated to 135C. Encapsulated differential amplifier built into cable. |

*United States Patent No. 4,128,468
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®Ryton is a registered trademark of Phillips 66 Co.

INNOVATIVE SENSORS INC.
REGISTERED TO ISO 9001
CERTIFICATE NO. 00-1011

AYSIX technologies

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## Ordering Information

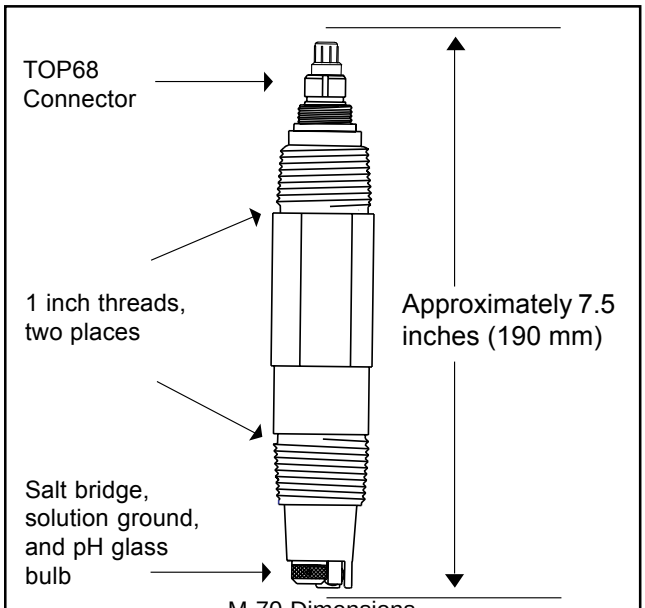
| Ordering Code | Description |
|---|---|
| M-70 | Differential pH sensor with 300 ohm NTC and TOP68 connector. |
| Z7075 | TOP68 Cable with transmitter powered preamplifier, 20 ft (6.0M) (for use with transmitters 6-20V) |
| **Standard Options** | |
| PT100 | PT100 temperature compensation |
| PT1000 | PT1000 temperature compensation |
| ORP | Platinum ORP electrode |
| **Other Available Options** | |
| 3KTC | 3 Kohm temperature compensation (non-capillary design) |

## Accessories

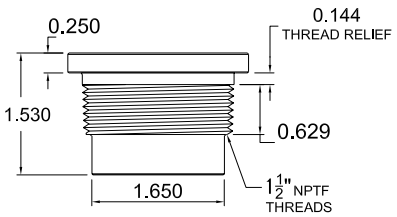
| Part Number | Description |
|---|---|
| Z8160 | CPVC adapter; 1 ½ inch MNPT x 1 inch FNPT |
| Z8161 | 316 SS adapter; 1 ½ inch MNPT x 1 inch FNPT |
| Z6000 | Replacement salt bridge |
| Z7307 | Replacement reference solution, 500 mls |
| Z7076 | TOP68 Cable with transmitter powered preamplifier, 30 ft (9.1M) |
| Z7077 | TOP68 Cable with self-powered preamplifier, 20 ft (6.0M) |
| Z7078 | TOP68 Cable with self-powered preamplifier, 30 ft (9.1M) |

## Wiring Information

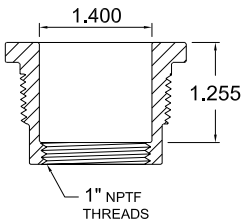
| Measurement | Wire Color |
|---|---|
| pH electrode | Red |
| Reference Electrode | Green |
| Shield (both inner and outer shield) | Clear with Black Band |
| Temperature | Black |
| Temperature | Yellow |
| Supply Power for transmitter powered preamplifiers (+ terminal) -V to +V = 6 to 20V | White |
| Power (- terminal) | Blue |



M-70 Dimensions



SIDE VIEW



SIDE VIEW
CROSS SECTION

PN Z8160 & Z8161 Adapter Dimensions