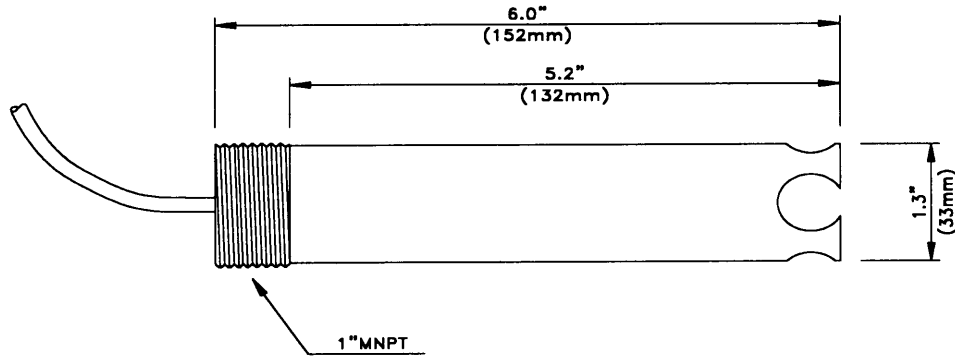




Innovative Sensors, Inc.

ISI SOLUTIONS - Specialty Sensors for Difficult Applications

Model 14 - Solid State pH Sensor for Brine Applications



The Model 14 is recommended for use in severe applications where conventional electrode technology fails. **SOLUTION: Model 14.**

The pH glass electrode uses a special high temperature alkaline resistant pH glass formulation, ensuring accurate pH measurement. The Brine Sensor utilizes a solid state reference half cell containing multiple chloride ion sensors. There is no KCl/AgCl, or any other liquid electrolyte employed in our novel design. The reference half-cell employs constant constituents in the measurement process to complete the cell.

Measurement Principle

The following equation describes how constant or semi-constant process constituents are utilized in the reference half-cell. The Nernst Equation describes the potential (voltage) developed by the reference cell:

$$E = E_0 - 0.059 \log [C]$$

- E = Potential of the reference cell in volts.
- E₀ = Standard potential of the reference element, i.e. Ag/AgCl.
- C = Concentration of the reference ion to be monitored in moles/liter.

If the concentration of the reference ion is changing, then the error induced in the measurement is described by the second part of the Nernst Equation:

$$E_1 - E_2 = 0.059 \log (C_1/C_2)$$

Applications

The Model 14 is a unique sensor specifically designed for continuous service in concentrated brine solutions, typified by chlorine generating cells. The device has had extensive use in chlorine manufacturing processes since its inception in 1979.

Specifications

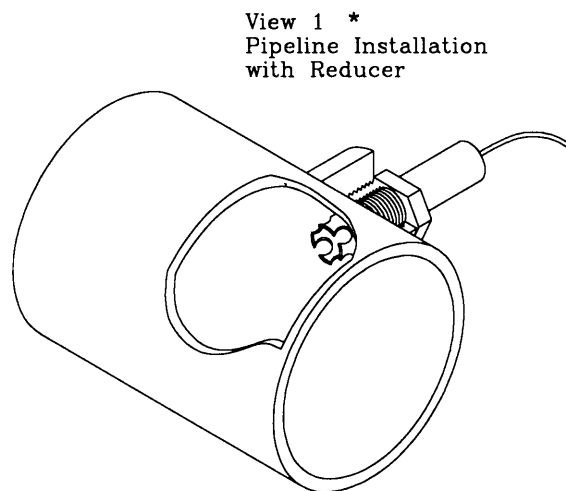
Body Material	ABS or Teflon®
pH Range	0 to 14 pH
Temperature Range	+25°C to +80°C ABS +25°C to +100°C Teflon®
Pressure Range	100psig @ 100°C
Accuracy	±1.0% over full range
Impedance	600Mohm @ 25°C
Reference Cell	Solid State
Zero Potential	7.0 pH ±0.2 pH in a 4.0 Molar Chloride Brine
pH Response	59mV / pH unit @ 25°C
Wetted Materials	ABS, Teflon®, Viton®, Glass

Available Options

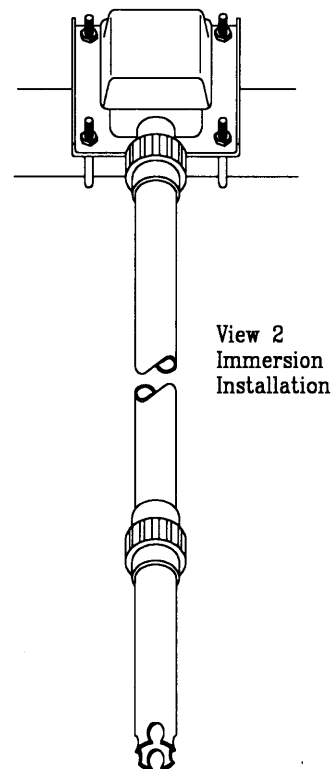
M-14	ABS body with 1" MNPT rear facing thread for submersion mounting.
M-14-I	ABS body with 1½" MNPT front facing threads. (View 1)
M-14-01	Internal temperature compensators [specify type and connector(s)].
M-14-05	Sodium Ion glass for measuring sodium in place of pH.
M-14-08	ORP option. Platinum sensing element.
M-14-12	Glass filled Teflon® outer body. Submersible.
M-14-12I	Glass filled Teflon® outer body with 1½" MNPT threads.

The Model 14 is supplied with a 10 foot TPE high temperature/ultra low noise cable and a BNC connector as standard.

Installation Guide



(* Must order the "I" or "12I" option)



Mounting Tees are available in
PVC, PVDF (Kynar®) and
Stainless Steel

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Kynar® is a registered trademark of Elf Autochem North America.