P14G with NEXUS®
pH Sensor

Industrial Analytical Equipment

ProCon®



- 4-20mA Output
- Temperature Compensated
- Double Salt Bridge
- No Preamp Required
- High Accuracy
- Quick Response Time
- ¾" NPT Connection
- PP or PPS Body Materials
- RS 485 Modbus Communication

The P14G Series pH sensors have a 4-20mA + RS485 direct outputs, thus eliminating the need for costly preamps or smart sensor interfaces.

- Double junction reference extends sensor life and protects against poisoning ions
- Durable crack resistant glass enhances performance and increased reliability
- Maximum chemical resistance provided by a rugged PP or PPS body materials
- Operates in sub-zero temperatures down to 14°F (-10°C).
- Advanced electronic diagnostics
- Superior glass electrode technology result in an industrial sensor with unequalled durability and reliability

Engineered for accuracy, ruggedness and longevity in general process applications

The robust sensor design of the versatile ProCon® P14G confidently offers long-term reliability with fast response times and high accuracy in a wide range of general process applications.

These sensors are have been specifically engineered with a double ceramic reference diaphragms that provide highly responsive pH indication.

The double salt bridge junction coupled with the PTFE reference technology is the foundation for all P14G series electrodes. The inner reference chamber is charged with potassium chloride (KCl) gel.

All measurement functions are combined in one compact body — measuring electrode, temperature sensor and an inner reference chamber.

The 2-wire 4-20mA, 4-wire or 4-20mA + RS485 output options simplify calibration and communication with remote displays and controllers.



Smart Sensor Technology

Advanced electronic circuity stores pH data for automatic sensor recognition and trouble-free calibration when connected to the ProCon® Controller.

Outputs

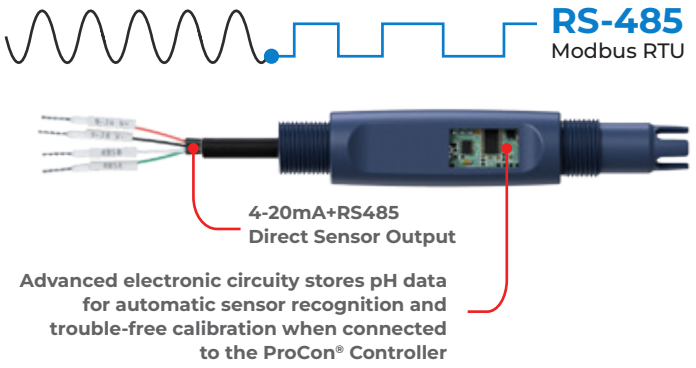
1. 4-20mA 2-Wire
2. 4-20mA + RS485

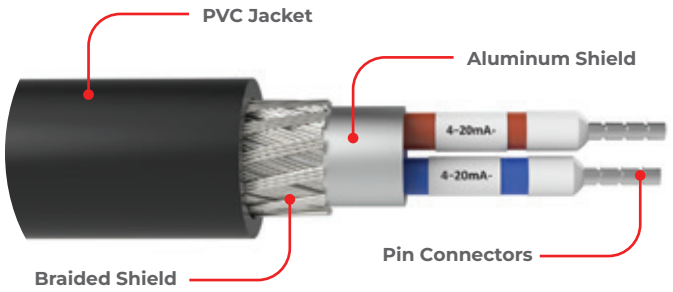
Both the measuring and reference electrodes are encapsulated within the non-porous advanced KCl infused polymer known as Nexus®.

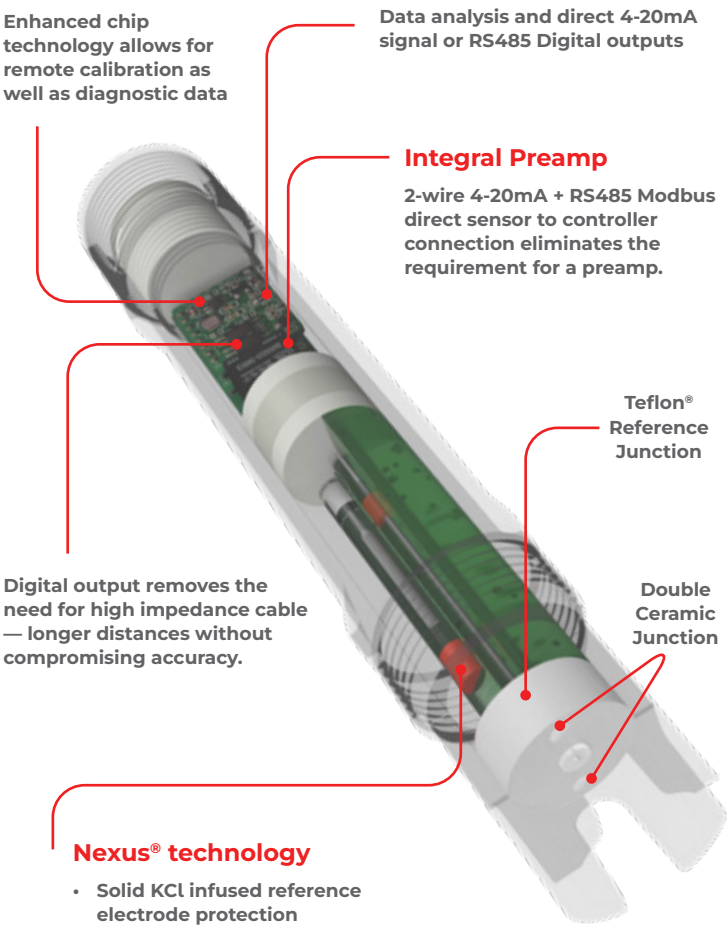
Faster Response-Longer Lasting

The P14G series has a double-junction which provides a barrier that allows H+ ions to pass freely between the reference and sensing membrane. This completes the electrical circuit. The double-junction protects the sensor from premature reference contamination, also referred to as poisoning, thus increasing the sensor life.

- No Costly Preamps Required
- Direct 4-20mA & RS485 Outputs

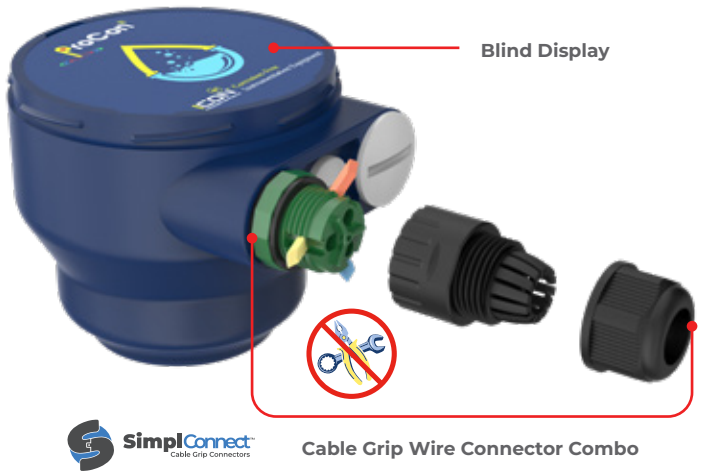






Nexus® technology

- Solid KCl infused reference electrode protection
- Minimizes reference poisoning/leaching
- Extended life expectancy

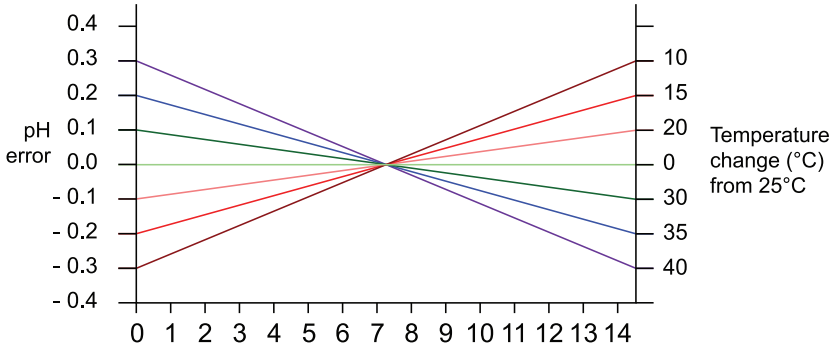




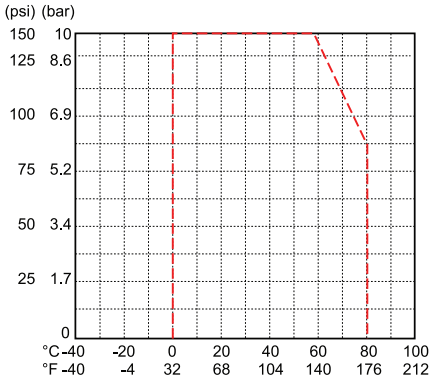
Specifications

Measurement Range	
pH	0 – 14
Output Signal — No Preamp Required	
2 Wire Loop Powered | 4-20mA + RS 485 Direct Sensor Output	
Accuracy	
7.00 ± 0.25	
Operating Temperature	
14 to 176°F | -10 to 80°C | Automatic Temperature Compensation	
Maximum Pressure	
150 Psi at 140°F (60°C) — See Pressure vs. Temp Graph	
Design	
Sensor body	PP Polypropylene (std) | Ryton® | PPS
Reference System	Ag / AgCl / KCl Double Salt Bridge
pH electrode	Blue Glass | Flat | Bulb
Reference	Porous Ceramic + PTFE Teflon®
Connection	3/4” NPT
Measuring Electrode Resistance	< 600 MΩ
Impedance Range	102 – 675 MΩ
Temperature Compensation/Output- 4-20 + RS485 Model	
Pt-1000 (Std)	
Pt-100	

Temperature Control

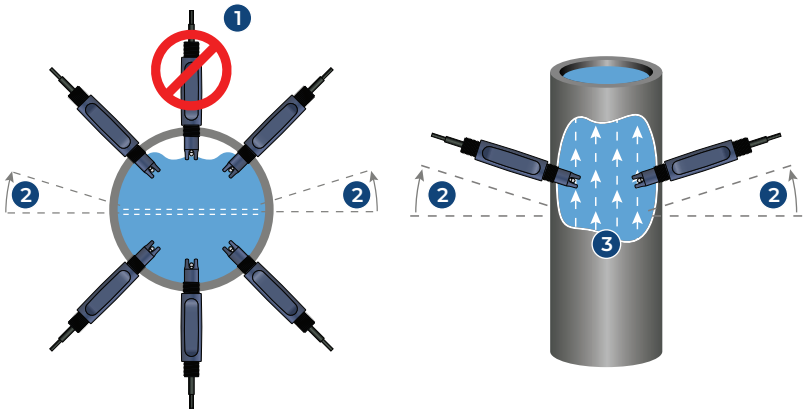


Temperature vs. Pressure

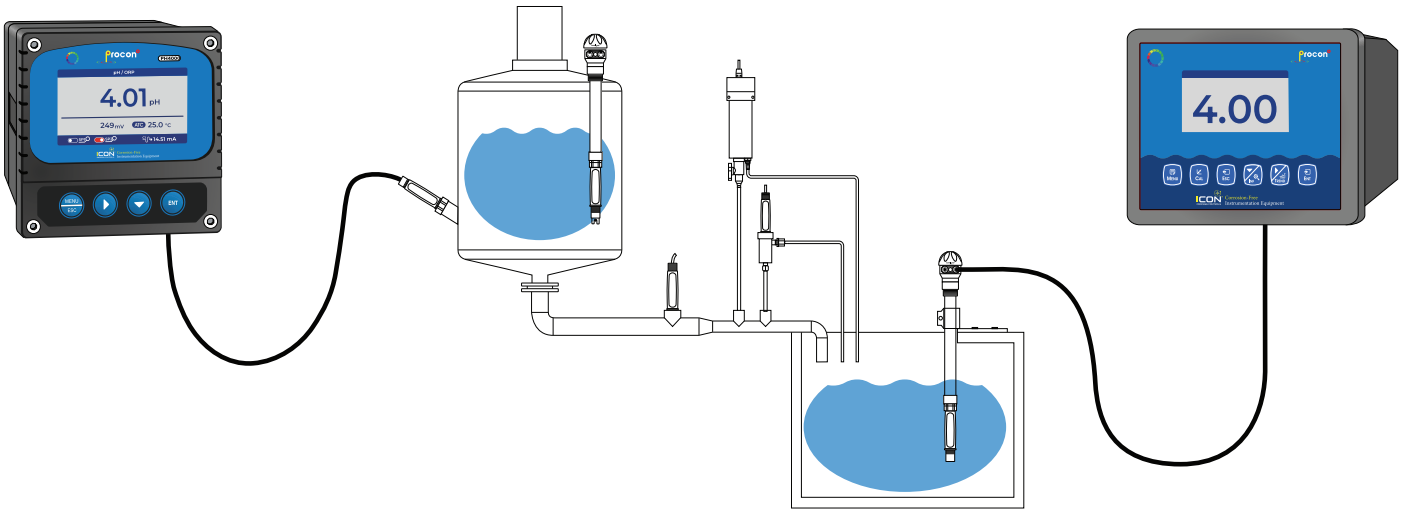


In-line Mounting

1. If air is present, avoid vertical installation (okay if pipe is full).
2. Optimum installation 15° above horizontal.
3. Process liquid should flow upward. (for downward flow ensure backpressure is present in order to avoid air within pipe)



Typical Application



Cable Options

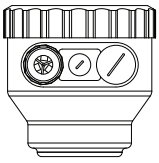
The ProCon® series offer complete flexibility of cabling options throughout the range. All cables are shielded against spurious EMF and are potted inside the sensor ensuring environmental protection.

The standard cable length for most sensors is 5m (15 ft). However, cables can be supplied as any continuous size up to 20m (66 ft).

Standard accessories include junction boxes and submersion couplers, typically used with extension cables for direct connection to the ProCon® Controllers.

Extension cables also permit distances between sensor and instrument of up to 30 m (100 ft.) without external preamplifier.


Pin leads

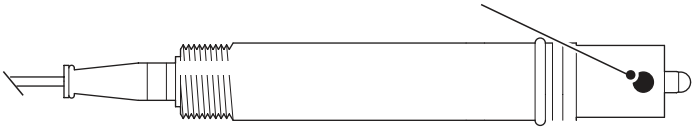

J-Box

Temperature compensation

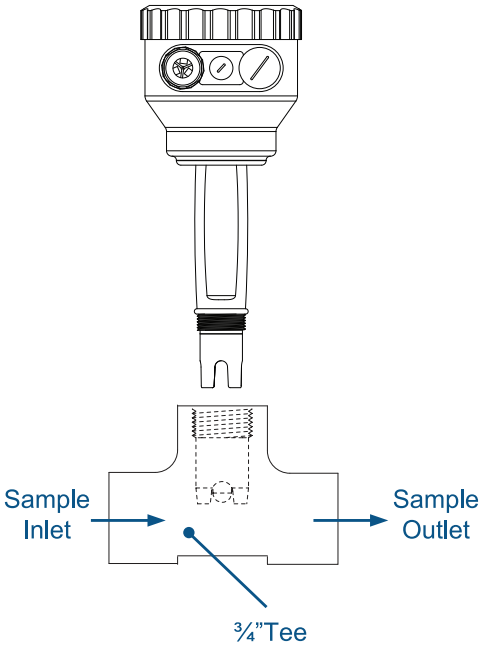
The temperature compensator enables sensor to adjust for temperature effects on the glass pH electrode output.

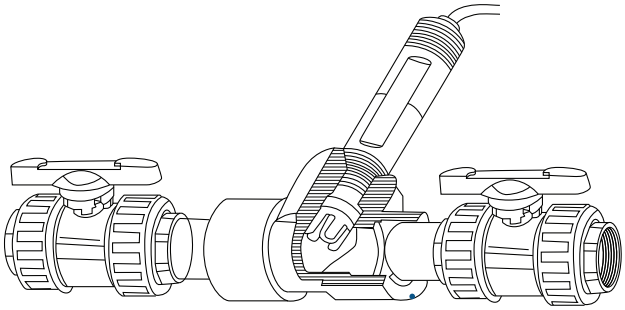
The sensor can also use this measurement to compensate for solution pH temperature effects.

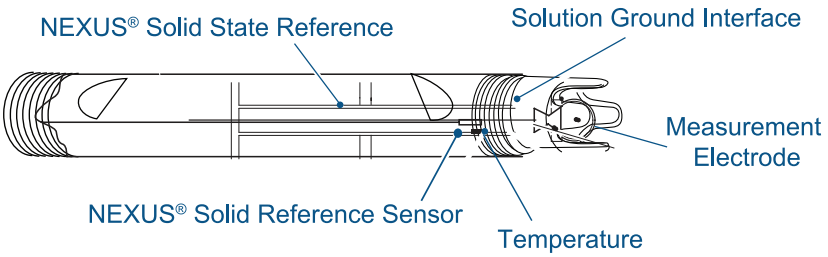
Sensors can be ordered with integral temperature sensors. The integral temperature compensator is available in two outputs — Pt 1000 (std) and Pt 100.



Typical Installations







Wiring

4-20mA 2-wire

❶ Blue: mA-
❷ Brown: mA+

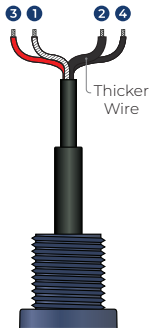


4-20mA 4-wire

❶ Transparent: 4-20mA
❷ Black (thick): Ref
❸ Red: Temperature
❹ Black: Temperature

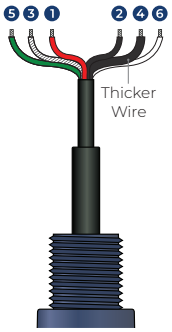
Connects directly to ProCon® controller



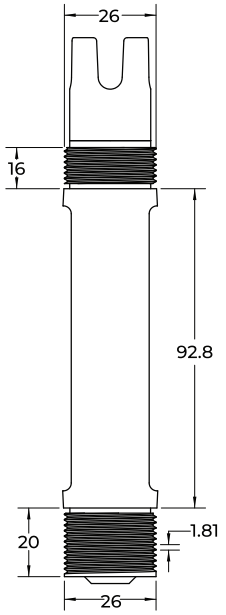


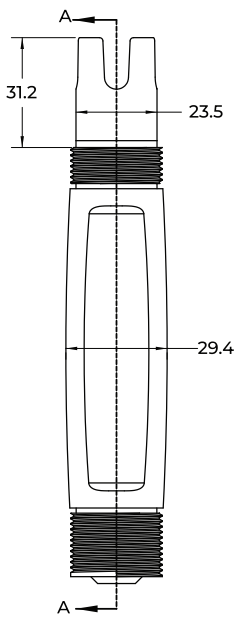
4-20mA + RS485 Output

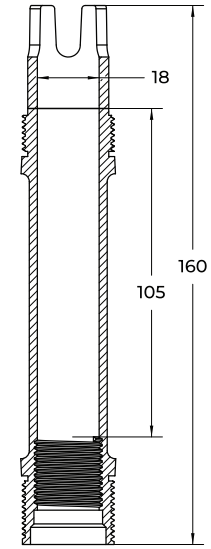
❶ Red: 9-24VDC +
❷ Black: 9-24VDC -
❸ Transparent: 4-20mA
❹ Black (thick): Ref
❺ Green: RS 485 A
❻ White : RS 485 B



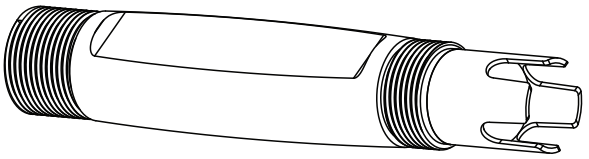
Dimension

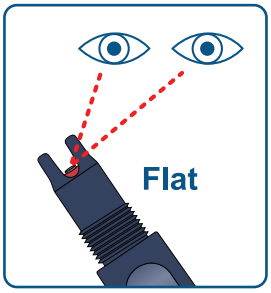


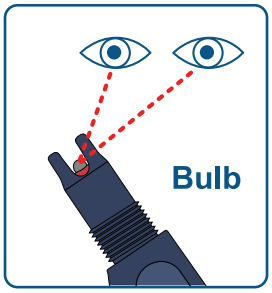




(dimensions are in mm)







Model Selection

P14G - P - M - 1 - F - J

Material	Output	Electrode	Sensor Type	Connection
P: PP (std) **R:** Ryton®	**M:** 4-20mA (2-wire) **D:** 4-wire (for ProCon® display) **S:** RS485 + 4-20mA	**1:** PT1000 (std) **2:** PT100	**F:** Flat (std) **B:** Bulb	**J:** J-Box **F:** Flying Lead