

- Patented Axial Ion Path® Reference
- Specialized pH Glass Formulations and ORP Electrodes
- Proprietary Low-Noise, High Temperature Signal Cable
- Sensors are Compatible with Most Major Manufacturer's Analyzers
- Industrial Mounting Options
- Industry Leading Pressure and Temperature Ratings
- Many O-ring and Seal Options: Viton® Extreme™, EPDM & FFKM
- CRN Registration for Canada



Axial Ion Path® Reference

- Patented design increases sensor life, accuracy and reliability
- High resistance to poison: Reduced calibration offset error
- Large surface area reference junction eliminates plugging issues
- Eliminates error due to fluctuating pressure
- No exotic gel or polymer electrolyte which may be incompatible with the process

Specialized Electrode Glass Formulations & Styles

- High accuracy and lifespan in strong acids and bases
- Coating resistant glass electrode reduces fouling
- Silica resistant option to eliminate bonding to glass
- Ruggedized hemispherical and flat glass options resist breaking

Proprietary Sensor Signal Cable

- Designed to eliminate measurement fluctuation due to noise
- Chemical and UV resistant
- Highest temperature rating (130°C)

Compatibility with Most Major Vendor's Electronics

- Proven with major vendors of pH analyzers (Rosemount, ABB, Foxboro, E&H, Mettler Toledo, GLI/Hach, Knick)
- Get higher accuracy and longer life in your application by upgrading the sensor

Industrial Mounting Options

- Mounting fittings for sample line installations
- Ball Valve "Hot Tap" retraction solutions
- Variety of materials for corrosive applications

Highest Pressure & Temperature Ratings

- In-line sensor installation to 150 PSIG (10 BAR)
- Quick Change "Nut Lock" to 286 PSIG (19.7 BAR)
- Retractable "Hot Tap" to 300 PSIG (20 BAR)
- Process temperature to 266°F (130°C)

Performance Series pH/ORP Sensors with CRN Registration

Performance Series

The Barben Analytical Performance Series products are 3rd generation combination pH/ORP electrodes targeted at harsh, industrial measurement applications. High pressures, strong chemicals, and elevated temperatures typically shorten the lifespan of conventional double-junction pH probes. In these applications the Performance Series sensor offers extended sensor lifespan, as well as decreased drift, and longer calibration intervals.

Each sensor is manufactured with our patented Axial Ion Path[®] reference technology, proprietary Low-Noise & High-Temp Signal Cable along with proprietary ruggedized, high temp and coat resistant glass formulations.

A wide selection of sensor body styles and process fittings in a variety of corrosion resistant materials allow direct replacement of short-lived OEM pH/ORP sensors. Barben Performance Series sensors are compatible with all major manufacturers of pH analyzers and transmitters. Upgrade your analytical measurement without the hassle and expense of replacing costly field instruments.

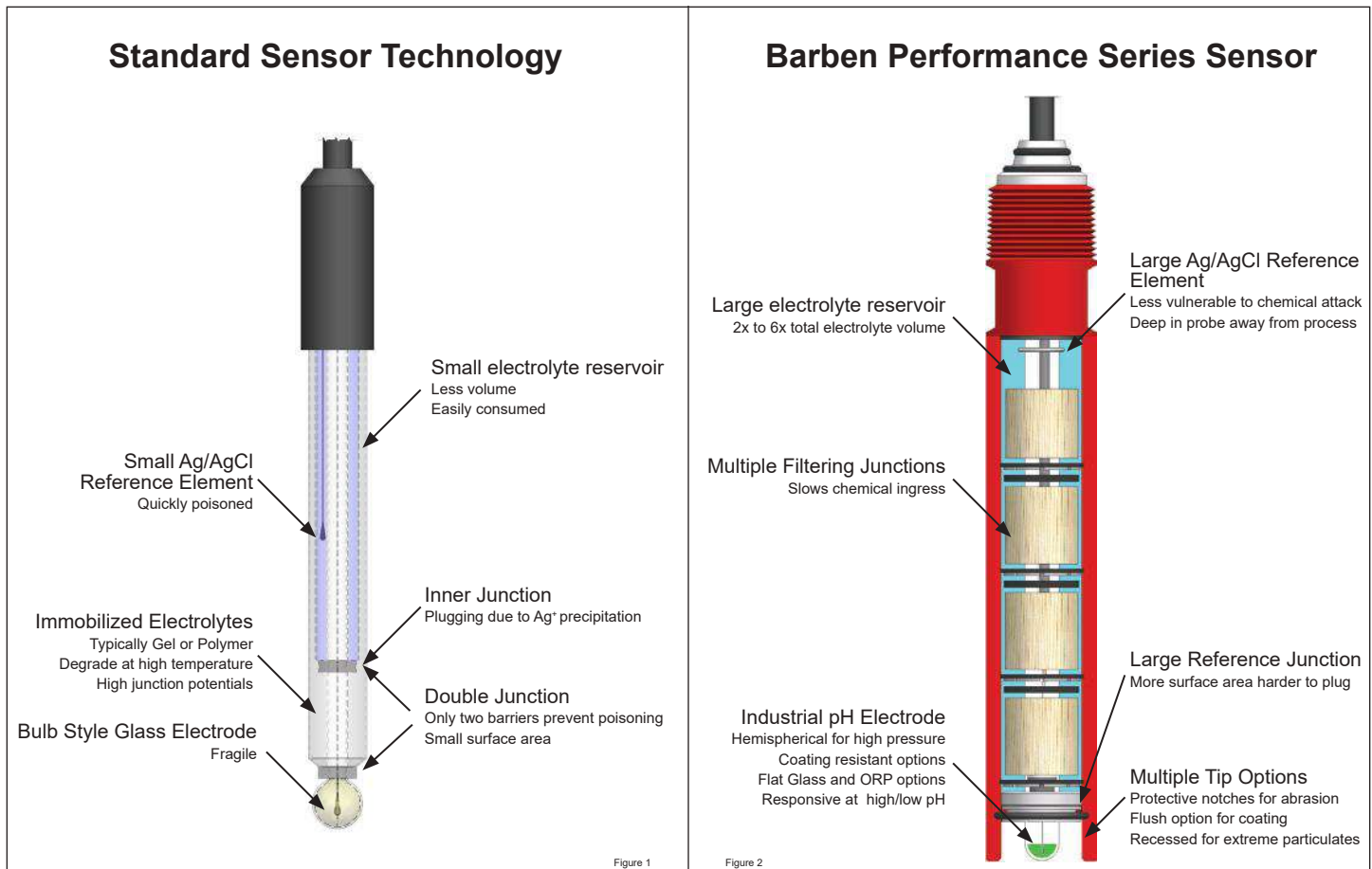
Typical Process Applications

Many industrial processes shorten pH/ORP sensor lifespan. Barben Performance Series sensors excel in applications that may have the following characteristics:

- **H₂S (Sulfides)¹**
- **High Ion-Strength Solutions**
- **Ammonia**
- **Heavy Metals [Ag, Pb, Hg]²**
- **Strong Caustics**
- **Strong Acids**
- **High Cyclic Pressures**
- **High Temperature**
- **Proteins¹**
- **Organics**
- **Mercaptans¹**
- **Cyanides¹**
- **Iodides¹**
- **Bromines**

NOTES

1. Chemicals that react with Ag⁺ (Silver) and restrict traditional reference junction designs
2. Heavy metals which react with Cl⁻ (Chloride) and reduce the voltage potential of the sensor.



Performance Series pH/ORP Sensors with CRN Registration

Industry Leading Reference Technology Axial Ion Path®

In 90% of industrial applications the reference cell is the cause of sensor failure. The typical industry standard “double junction” pH sensor (fig. 1) uses reference technology designed to minimize mixing of internal electrolyte and process liquid. This simplistic design is achieved by dividing the reference cell into two chambers, each protected with a porous junction. Once process liquid penetrates each junction, poisoning of the sensor may occur or the measurement signal may be impeded by plugging of the porous junction.

The Barben sensor (fig. 2) has a unique, patented reference cell design which combats these common problems.

Performance Series sensor’s reference technology utilizes multiple innovations within the reference cell to greatly extend sensor life.

- Multiple annular wood filtering junctions
- Axial Ion Path® Communication Disks
- Large volume of electrolyte
- Large surface area Ag/AgCl reference element
- Teflon junction

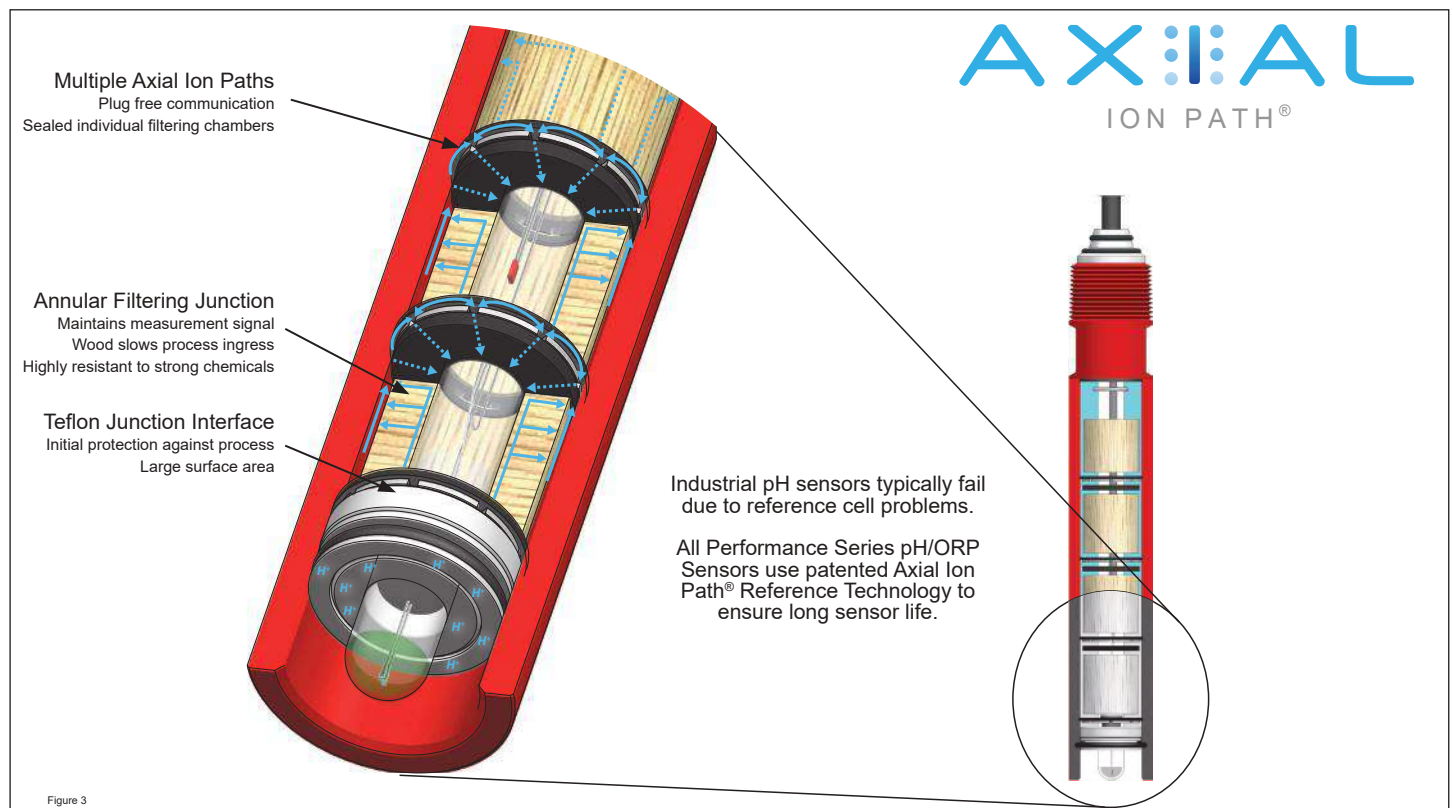
Each sensor uses multiple “solid-state” annular wood

filtering junctions. Wood’s natural cellular makeup greatly slows the ingress of process liquid into the sensor. Each wood filtering junction chamber is separated by patented Axial Ion Path® communication disks. The communication disk seals each chamber while providing multiple electrolyte paths thus ensuring a reliable measurement signal.

Barben Performance Series sensors contain a much higher volume of KCl electrolyte than typically found in double junction sensors. More electrolyte provides on-going insurance against the leaching effects of fluctuating process pressure and temperature.

An oversized Ag/AgCl reference element is located near the rear of the sensor. This innovation serves two purposes. Distancing the reference element far from the sensor tip keeps it away from process chemicals. Over time, if chemicals such as sulfides were to penetrate within the sensor, then the large reference element is capable of withstanding long-term poisoning while maintaining a stable measurement.

As a final preventative measure, a porous Teflon insert placed at the tip of the sensor provides a large surface area to prevent plugging. Teflon also serves as a great initial barrier to chemical attack. All of these features combine to make the Performance Series sensors the best choice for industrial measurement applications.



Performance Series pH/ORP Sensors with CRN Registration

Low Noise, High Temperature Cable

Since Performance Series sensors are often mounted directly into the process, all products are manufactured with proprietary low-noise, high temperature cable. Competitive designs may use low-temperature cable to reduce signal noise (thus de-rating the sensor). Alternately, when high temperature cable is improperly specified, triboelectric noise can cause signal error. Barben Analytical has developed a proprietary cable that can withstand 130°C (266°F) process temperatures while providing stable pH measurement.

Specialized Glass Formulations and Configurations

Barben glass pH measurement electrodes are designed with unique formulations to prevent coating and scaling. Additional coating resistant options further improve lifespan in strong caustic (NaOH) and silica applications. These specialty glass formulations are manufactured to precision impedance ranges to ensure the best balance between high strength signal, speed of response, structural integrity under high pressure, long life in high temperatures and extreme acid and caustic pH conditions. Unique billet style ORP electrodes completely eliminate glass from the process thus further eliminating potential breakage.

Industrial Grade Mounting Options and Accessories

Barben Analytical provides a comprehensive offering of CRN rated accessories to ensure convenient, safe and economical installation into your applications. In-line, submersible and hot tap (retractable through a isolation ball valve) are all standard options. In-line sensors with quick change “Nut Lock” adapters, rated to 286 psig, allow for easy access for calibration or maintenance in an isolated sample stream. Hot-Tap or ball-valve retraction systems, rated to 300 psig allow for direct use into process without the need for sample or bypass lines. We offer CRN stamped hardware in 316 Stainless, Titanium and Hastelloy C-276, Sensor bodies in Kynar (PVDF) with elastomer seal options in Viton® Extreme™, EPDM, and FFKM (Kalrez) to meet the specific demands of your process.

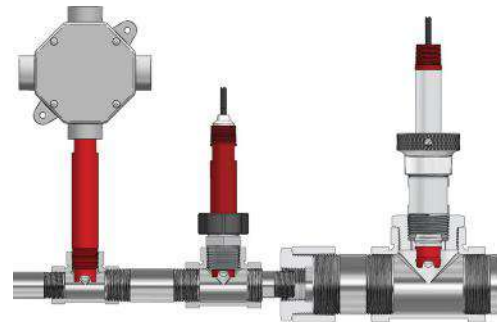
Interconnection with Existing pH and ORP Analyzers

Performance Series sensors are compatible with all major manufacturer’s pH analyzers with voltage input. Temperature compensation options for PT100, PT1000, 3kΩ (Balco), and 8550Ω (Honeywell) ensure full compatibility with existing analyzers. Now you can upgrade your process without replacing your field instrument. Wiring diagrams for many analyzers can be found at BarbenAnalytical.com.

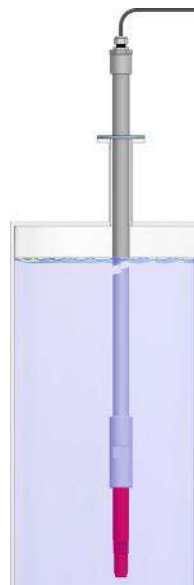
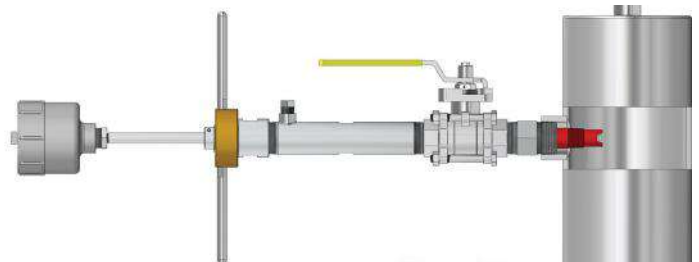
Sensor Selection: Mounting

The first consideration when selecting a pH sensor is how will it be mounted into the process. Examples of various process mounting configurations are provided below.

In-line Sensor Mounting: In-line installations are common on sample streams off the main process. Isolation valves should be upstream / downstream of sensor for removal.



Hot Tap Sensor Mounting: Hot Tap refers to the ability to remove the sensor from the process while under pressure. A ball valve is used to isolate the sensor for removal.




Submersible Sensor Mounting: Submersible mounting installations are required when the measurement is needed directly into a tank, reactor vessel or open channel. Typically the sensor must be mounted on a “dip tube” which is the hardware to submerge the sensor in the application.

Performance Series pH/ORP Sensors with CRN Registration

Sensor Selection: Electrode Options

Code	Glass Type	Suggested Applications	Recommended Measurement Range	Recommended Temp Range	Maximum Temp Range
R CR	Industrial High Temp (Hemi) Industrial High Temp Coat Resist (Hemi)	Best choice for hi/low pH & high pressure. Coat resistant excels in NaOH. Hemispherical glass.	0 to 14 pH	15 to 100°C 59 to 212°F	15 to 130°C 59 to 266°F
FG CF	Flat Industrial Glass Flat Industrial Glass Coat Resist	Best choice for in-line slurries. Consult if rapid pressure changes are present.	0 to 14 pH	20 to 85°C 68 to 185°F	20 to 130°C 68 to 266°F
PX	Redox (ORP)	Flat Platinum (Pt) Billet. Non-glass. Easy to clean.	0 to ±1500mV	0 to 130°C 32 to 266°F	0 to 130°C 32 to 266°F
E CE	General Purpose General Purpose Coating Resist	Light to medium duty pH electrode for low temperature applications. Not for high pH.	2 to 11 pH	-10 to 40°C 14 to 104°F	-20 to 50°C -4 to 122°F
FR	Fluoride / HF Acid (Hemi)	Resistant to etching by HF and other strong acids. Hemispherical pH glass.	1 to 14 pH	15 to 100°C 59 to 212°F	15 to 130°C 59 to 266°F
HR	Silica Resistant High Temp (Hemi)	Best choice for extreme pH where silica may coat traditional electrodes. Hemispherical glass.	1 to 14 pH	15 to 100°C 59 to 212°F	15 to 130°C 59 to 266°F
FH	Silica Resistant Flat Glass	Best choice for slurries and heavy fouling where silica may coat traditional glass electrodes.	1 to 14 pH	15 to 85°C 59 to 185°F	15 to 130°C 59 to 266°F

 = Most common electrodes

 = Special Application (Consult with factory)

Sensor Selection: Additional Options

Temperature Compensation

- PT100 RTD
- PT1000 RTD
- 3.01K Ohm RTD Balco (ABB, TBI-Bailey)
- 8550 Ohm (Honeywell / Leeds & Northrup)

Sensor Body Material

- Kynar PVDF: *Red or white based on model*

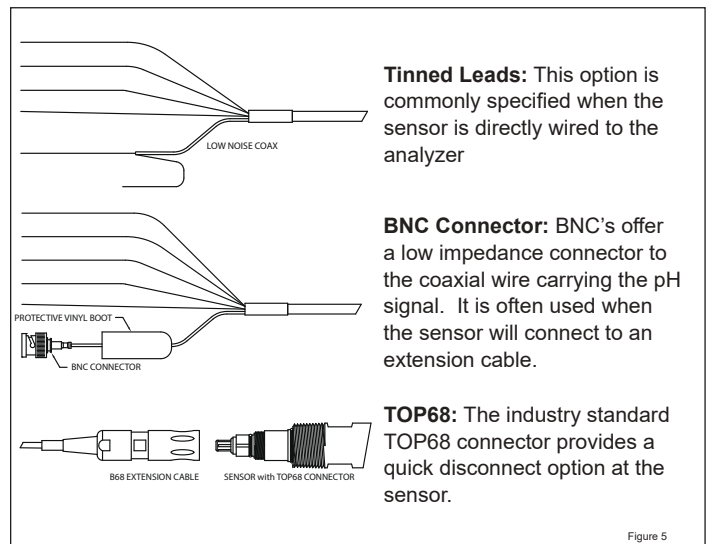
Sensor O-Ring Material

- Viton® Extreme™ ETP-600S
- EPDM
- FFKM (perfluoro-elastomer: i.e. Kalrez)

Sensor Tip Examples



Sensor Wiring Termination Examples



Performance Series pH/ORP Sensors with CRN Registration

Model 546

Threaded In-line, Submersible, High Pressure Hot Tap

The versatile Model 546 is suitable for in-line sample stream applications using the 3/4 inch NPT process connection. A similar connection on the rear of the sensor is used to mount the sensor in submersible and high pressure hot tap installations. With tip lengths from 0.5 to 3.5 inches the 546 sensor can fit through extended pipe nipples and flanges to reach into the process and provide optimum pH/ORP measurement.

CRN Registration (Alberta)
0F16420.2



Maximum Allowable Working Pressure / Temperature*

In-line: 150 PSIG @ -4 to 266°F (-20 to 130°C)

Hot Tap: 300 PSIG @ -4 to 131°F (-20 to 55°C)

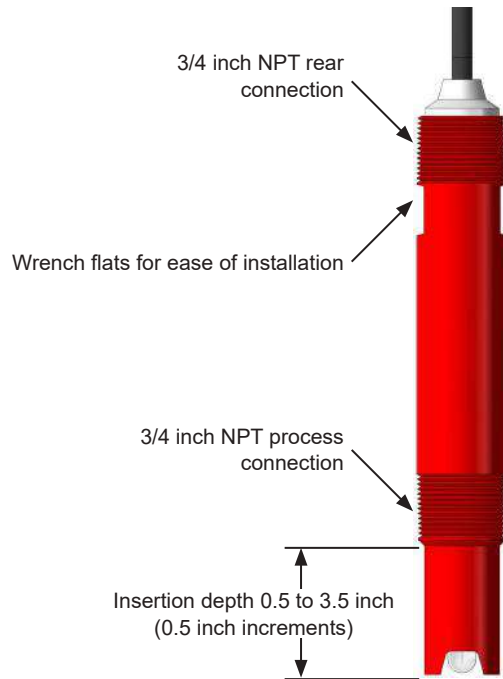
290 PSIG @ 131 to 194°F (55 to 90°C)

230 PSIG @ 194 to 266°F (90 to 130°C)

* MAWP based on min design temperature to max temperature listed.

Minimum Design Temperature

-4°F (-20°C)



546 In-line Installation

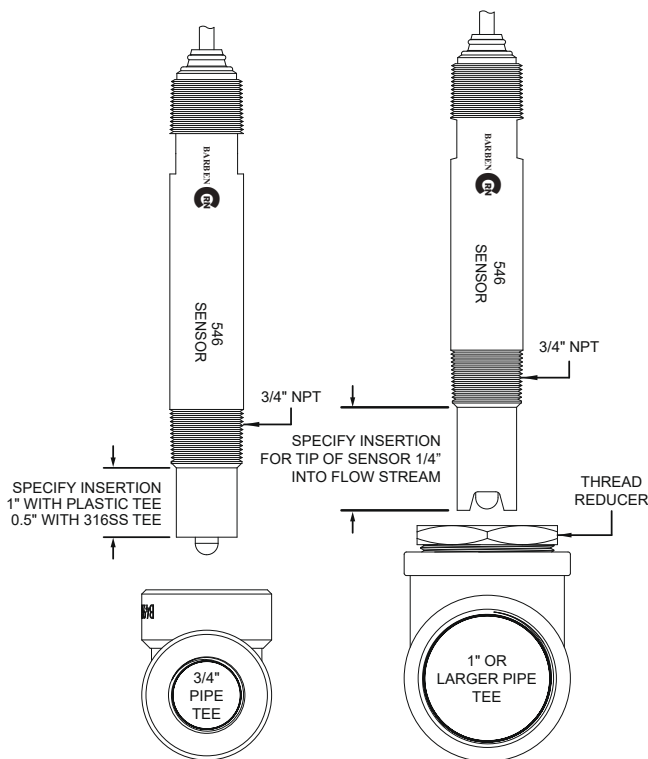


Figure 6

546 High Pressure Hot Tap Installation

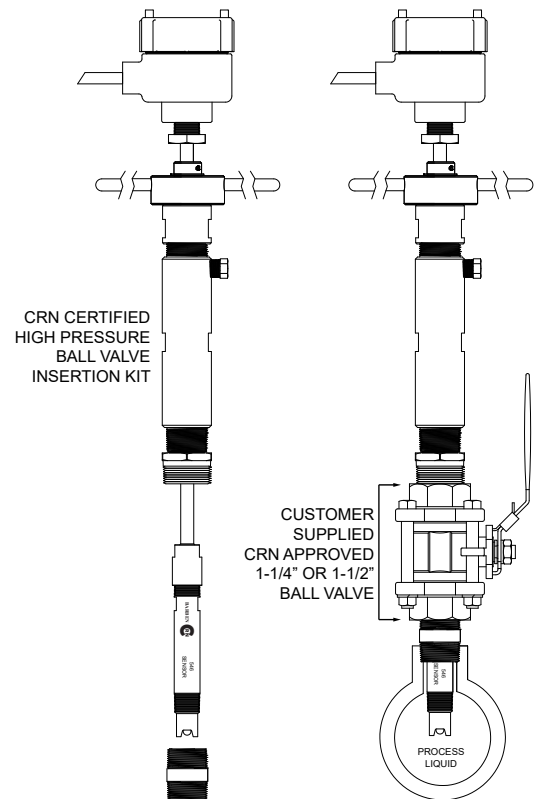


Figure 7

Performance Series pH/ORP Sensors with CRN Registration

Model 546 Sensor Options

Label	Axial Ion Path	Body	Electrode	Tip	TC	Body Options	Insertion Depth	Cable	Reference Wire	Terminations	
A	Alberta CRN Marked Product										
O-Ring Seal Material											
	V	Viton [®] Extreme [™] ETP-600S									
	E	EPDM									
	K	FFKM (perfluoro-elastomer)									
Body Style											
	546	3/4" MNPT Threaded Kynar 740 PVDF Body									
Measuring Electrode											
	R	Ruggedized, Hemi-glass (0 - 14 pH) 15 to 130°C (59 to 266°F)									
	E	Low Temp Hemi-glass (2 - 11 pH) -20 to 50°C (-4 to 122°F)									
	CE	Coating Resistant, Low Temp Hemi-glass (2 - 11 pH) -20 to 50°C (-4 to 122°F)									
	CF	Coating Resistant, Ruggedized, Flat-glass (0 - 14 pH) 20 to 130°C (68 to 266°F)									
	CR	Coating Resistant, Ruggedized, Hemi-glass (0 - 14 pH) 15 to 130°C (59 to 266°F)									
	FG	Ruggedized, Flat-glass (0 - 14 pH) 20 to 130°C (68 to 266°F)									
	FR	Hydrofluoric Acid Resistant, Ruggedized, Hemi-glass (1 - 14 pH) 15 to 130°C (59 to 266°F)									
	FH	Silica Resistant Coating, Ruggedized, Flat-glass (1 - 14 pH) 20 to 130°C (68 to 266°F)									
	HR	Silica Resistant Coating, Ruggedized, Hemi-glass (1 - 14 pH) 15 to 130°C (59 to 266°F)									
	PX	Platinum ORP, Flat Solid Billet (0 to +/-1500 mV) 0 to 130°C (32 to 266°F)									
Tip Configuration with Teflon Liquid Junction											
	FT	Flush no tip protection									
	DT	Dual Notch									
Temperature Compensation (TC)											
	N	None									
	B	Balco 3.01K Ohm (2 Wire)									
	C	PT100 RTD (3 Wire)									
	H	Honeywell 8550 ohm (2 Wire)									
	K	PT1000 RTD (3 Wire)									
Body Options											
	S	Standard Body 546									
	C	High pressure certification									
Insertion Depth from small end of front pipe thread to front of body											
	0.5	0.5"									
	1.0	1.0"									
	1.5	1.5"									
	2.0	2.0"									
	2.5	2.5"									
	3.0	3.0"									
	3.5	3.5"									
Cable Configuration - High Temperature, Low Noise TPE Jacket											
	JB	Junction Box Preinstalled (for use with B39 Extension cable when complete assembly is specified)									
	T	8" Pigtail - for use with junction box									
	T3	8" Pigtail for High Pressure Hot Tap									
	PH	TOP68 Quick Disconnect Plug Head (PT100 Temp Compensation Only)									
	1 to 5	1' to 5' - Standard									
	6 to 15	6' to 15'									
	16 to 30	16' to 30'									
	31 to 100	Longer lengths available. Consult factory for installation, application and leadtime. For lengths >30 feet, please consider Junction Box, Extension Cable and possible pre-amp.									
Reference Wire											
	C	Reference wire on coax shield (Common with BNC leads used with B39 Ext Cables)									
	E	Reference on separate wire (Best choice for direct wiring to analyzers)									
	X	Placeholder when Cable Configuration = PH									
Lead Terminations											
	BT	BNC (with tinned wires if sensor has temp comp)									
	BL	BNC (with #6 spade lug wires if sensor has temp comp)									
	B2	BNC (with Molex for temp comp; use with B39 Ext Cables)									
	TT	All tinned lead wires									
	LL	All #6 spade lug wires									
	PT	TOP68 Quick Disconnect Plug Tail on cable									
	PP	All wire ferrules									
	X	Placeholder when Cable Configuration = PH									
Mtl	AIP	Body	Elec	Tip	TC	Opt	Depth	Cable	Ref	Term	
A	V	546	R	DT	C	S	0.5	15	E	TT	Typical Sensor Configuration

546 High Pressure Hot Tap Accessories

Part Number (use with 1-1/4" valves)	Part Number (use with 1-1/2" valves)	Accessory Description
AB5104K-S125V	AB5104K-S150V	316 Stainless Steel Kit with Viton Seals
AB5104K-S125E	AB5104K-S150E	316 Stainless Steel Kit with EPDM Seals
AB5104K-S125K	AB5104K-S150K	316 Stainless Steel Kit with FFKM (Kalrez) Seals
AB5104K-T125V	AB5104K-T150V	Titanium Grade 2 Kit with Viton Seals
AB5104K-T125E	AB5104K-T150E	Titanium Grade 2 Kit with EPDM Seals
AB5104K-T125K	AB5104K-T150K	Titanium Grade 2 Kit with FFKM (Kalrez) Seals

Performance Series pH/ORP Sensors with CRN Registration

Model 551 Quick Change In-line

In some in-line applications sensor removal for routine cleaning or calibration becomes difficult due to conduit or cabling. The 551 Quick Change Sensor offers a unique method to extract the sensor through a "Nut Lock" Adapter system. The Nut Lock Adapter threads directly into 1 inch NPT process connections. The 551 sensor also includes a 3/4 inch rear connection for use in submersible applications.

CRN Registration (Alberta)
0F16420.2



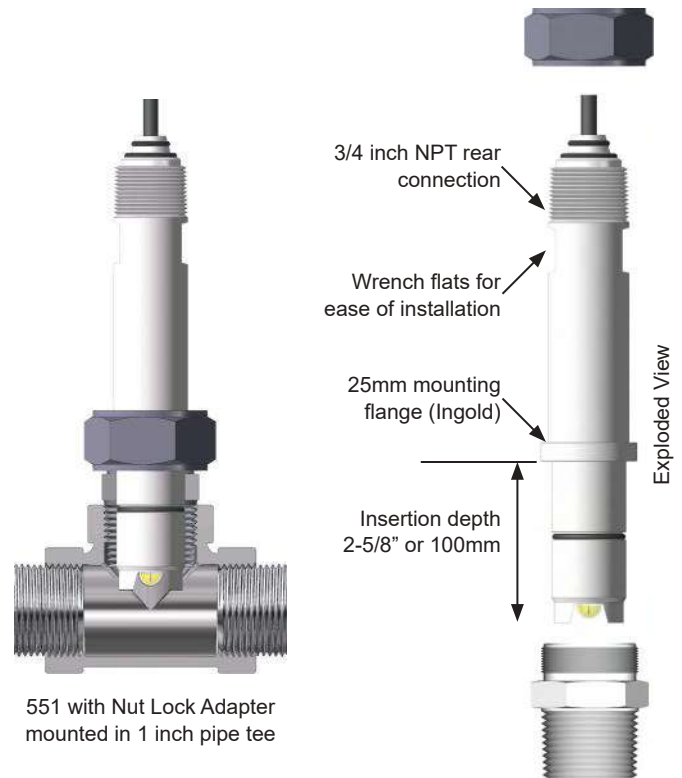
Maximum Allowable Working Pressure / Temperature*

- 286 PSIG @ -4 to 131°F (-20 to 55°C)
- 264 PSIG @ 131 to 194°F (55 to 90°C)
- 239 PSIG @ 194 to 266°F (90 to 130°C)

* MAWP based on min design temperature to max temperature listed.

Minimum Design Temperature

-4°F (-20°C)



551 with Nut Lock Adapter mounted in 1 inch pipe tee

551 In-Line Installation

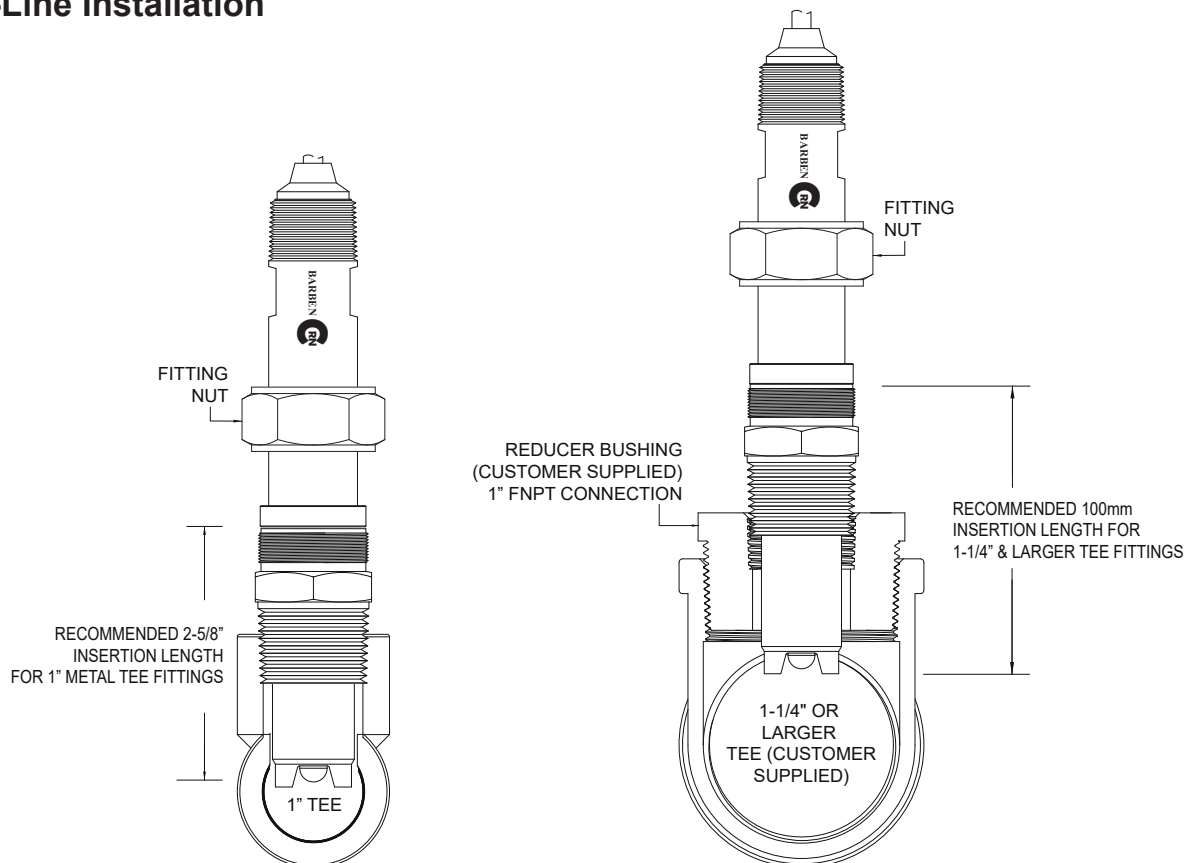


Figure 8

Performance Series pH/ORP Sensors with CRN Registration

551 Quick Change In-line pH / ORP Sensors

Label	Axial Ion Path	Body	Electrode	Tip	TC	Body Options	Insertion Depth	Cable	Reference Wire	Terminations		
A		Alberta CRN Marked Product										
		O-Ring Seal Material										
	V	Viton [®] Extreme™ ETP-600S										
	E	EPDM										
	K	FFKM (perfluoro-elastomer)										
		Body Configuration										
		551	Quick-Change Inline, Kynar 740 PVDF Body									
			Measuring Electrode									
			R	Ruggedized, Hemi-glass (0 - 14 pH) 15 to 130°C (59 to 266°F)								
			E	Low Temp Hemi-glass (2 - 11 pH) -20 to 50°C (-4 to 122°F)								
			CE	Coating Resistant, Low Temp Hemi-glass (2 - 11 pH) -20 to 50°C (-4 to 122°F)								
			CF	Coating Resistant, Ruggedized, Flat-glass (0 - 14 pH) 20 to 130°C (68 to 266°F)								
			CR	Coating Resistant, Ruggedized, Hemi-glass (0 - 14 pH) 15 to 130°C (59 to 266°F)								
			FG	Ruggedized, Flat-glass (0 - 14 pH) 20 to 130°C (68 to 266°F)								
			FR	Hydrofluoric Acid Resistant, Ruggedized, Hemi-glass (1 - 14 pH) 15 to 130°C (59 to 266°F)								
			FH	Silica Resistant Coating, Ruggedized, Flat-glass (1 - 14 pH) 20 to 130°C (68 to 266°F)								
			HR	Silica Resistant Coating, Ruggedized, Hemi-glass (1 - 14 pH) 15 to 130°C (59 to 266°F)								
			PX	Platinum ORP, Flat Solid Billet (0 to +/-1500 mV) 0 to 130°C (32 to 266°F)								
				Tip Configuration with Teflon Liquid Junction								
			FT	Flush with no tip protection								
			DT	Dual Notch								
			ST	Recessed Tip								
				Temperature Compensation (TC)								
			N	None								
			B	Balco 3.01K Ohm (2 Wire)								
			C	PT100 RTD (3 Wire)								
			H	Honeywell 8550 ohm (2 Wire)								
			K	PT1000 RTD (3 Wire)								
				Body Options								
			S	Standard Body 551								
				Insertion Depth from Rib to Front of Body								
			N	Standard (2.625" from rib)								
			100	100mm								
				Cable Configuration - High Temperature, Low Noise TPE Jacket								
			JB	Junction Box Preinstalled (for use with B39 Extension cable when complete assembly is specified)								
			T	8" Pigtail - for use with junction box								
			PH	TOP68 Quick Disconnect Plug Head(PT100 Temp Compensation Only)								
			1 to 5	1' to 5' - Standard								
			6 to 15	6' to 15'								
			16 to 30	16' to 30'								
			31 to 100	Longer lengths available. Consult factory for installation, application and leadtime. For lengths >30 feet, please consider Junction Box, Extension Cable and possible pre-amp.								
				Reference Wire								
			C	Reference wire on coax shield(Common with BNC leads used with B39 Ext Cables)								
			E	Reference on separate wire(Best choice for direct wiring to analyzers)								
			X	Placeholder when Cable Configuration = PH								
				Lead Terminations								
			BT	BNC (with tinned wires if sensor has temp comp)								
			BL	BNC (with #6 spade lug wires if sensor has temp comp)								
			B2	BNC (with Molex for temp comp; use with B39 Ext Cables)								
			TT	All tinned lead wires								
			LL	All #6 spade lug wires								
			PT	TOP68 Quick Disconnect Plug Tail on cable								
			PP	All wire ferrules								
			X	Placeholder when Cable Configuration = PH								
Mtl	AIP	Body	Elec	Tip	TC	Opt	Depth	Cable	Ref	Term		
A	V	551	R	DT	C	S	N	15	E	TT	Typical Sensor Configuration	

551 Nut Lock Adapter Accessories

Part Number	Description	Specification
AB4954-0022	Nut Lock Adapter, 316 Stainless Steel, 1" MNPT Mounting Thread	ASTM A276 316 (Body), ASTM A479 316 (Nut)
AB4954-0036	Nut Lock Adapter, Titanium Grade 2 (wetted), 1" MNPT Mounting Thread	UNS N10276 (Body), ASTM A479 316 (Nut)
AB4954-0040	Nut Lock Adapter, Hastelloy C-276 (wetted), 1" MNPT Mounting Thread	ASTM B348 (Body), ASTM A479 316 (Nut)

Performance Series pH/ORP Sensors with CRN Registration

Model 547 Hot Tap Retractable

The Model 547 is a replaceable, cartridge style sensor. The sensor is fitted into a metallic sheath which is installed into an isolation valve assembly. This design is ideal for applications where measurement on a sample line is not desirable. When the sensor is removed for cleaning or calibration the valve can be used for isolation from the process. When sensor replacement is needed all metallic hardware is fully reusable thus saving money with on-going replacement expense.

CRN Registration (Alberta)
0F16420.2

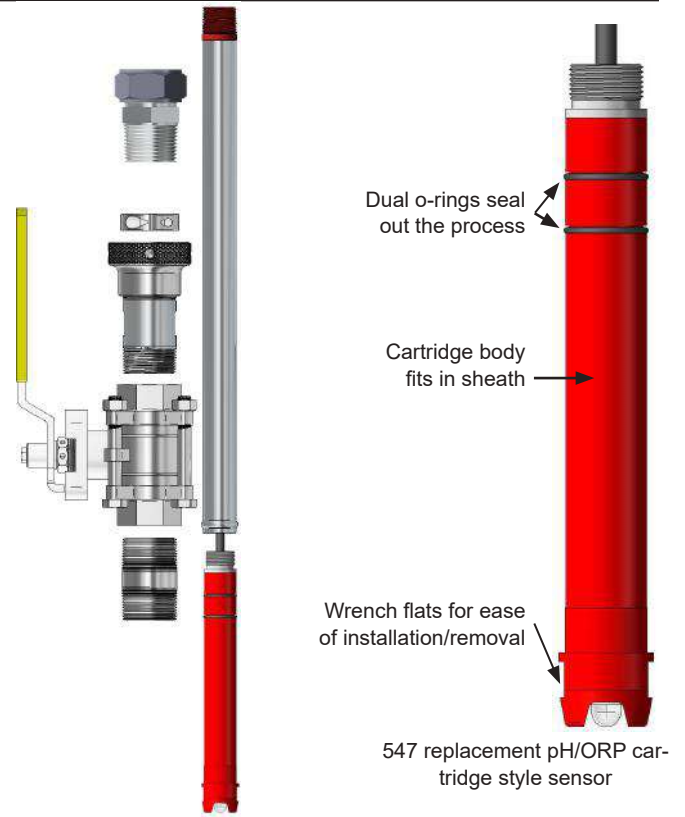


Maximum Allowable Working Pressure / Temperature*
Operating: 150 PSIG @ -4 to 266°F (-20 to 130°C)

Service: 65 PSIG recommended for retraction/insertion

* MAWP based on min design temperature to max temperature listed.

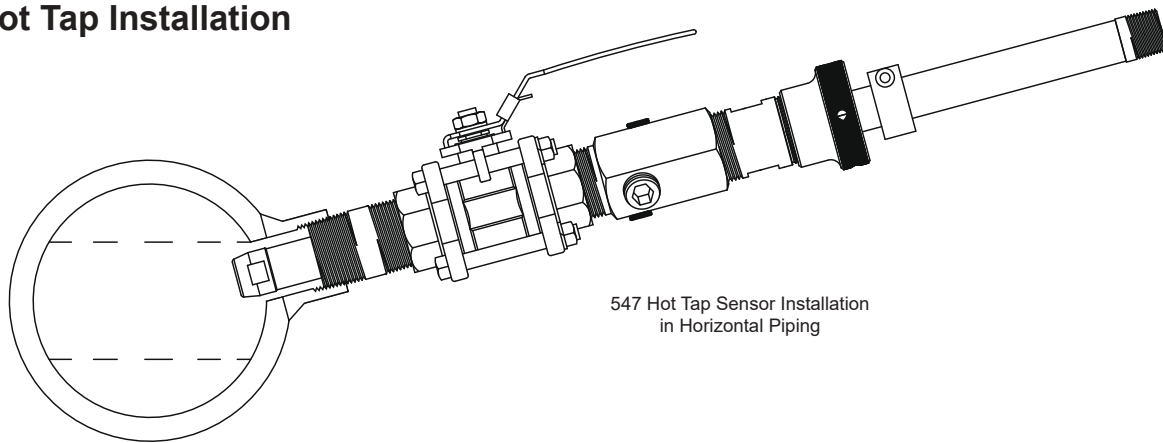
Minimum Design Temperature
-4°F (-20°C)



Exploded view with ball valve assembly and compression fitting

547 Hot Tap Installation

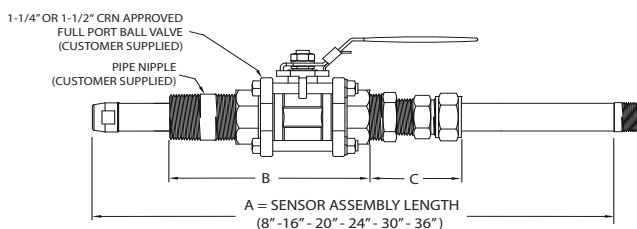
Figure 9



547 In-line Sizing Example

Insertion
Depth = (A) - (B) - (C)

The insertion depth should exceed any mounting hardware (flange, standoff or thread-o-let) plus the pipe wall thickness by at least 1/4" (6mm) to get the tip of the sensor into the process.



Valve & Nipple (Customer Supplied)	"B" Estimate	Compression Fitting	"C" Estimate
1-1/4" SS Valve	6.5"	Wrench Tight	3.0"
		Hand Tight	3.5"
1-1/2" SS Valve	7.1"	Wrench Tight	3.0"
		Hand Tight	4.5"
1-1/4" Kynar Valve	8.0"	Wrench Tight	3.0"
		Hand Tight	3.5"
1-1/2" Kynar Valve	8.6"	Wrench Tight	3.0"
		Hand Tight	4.5"

Performance Series pH/ORP Sensors with CRN Registration

547 Hot Tap Retractable pH / ORP Sensors

Label	Axial Ion Path	Body	Electrode	Tip	TC	Body Options	Insertion Depth	Cable	Reference Wire	Terminations	
A		Alberta CRN Marked Product									
		O-Ring Seal Material									
	V	Viton® Extreme™ ETP-600S									
	E	EPDM									
	K	FFKM (perfluoro-elastomer)									
		Body Configuration									
		547	Cartridge Style Sensor, Kynar 740 PVDF Body								
			Measuring Electrode								
	R	Ruggedized, Hemi-glass (0 - 14 pH) 15 to 130°C (59 to 266°F)									
	E	Low Temp Hemi-glass (2 - 11 pH) -20 to 50°C (-4 to 122°F)									
	CE	Coating Resistant, Low Temp Hemi-glass (2 - 11 pH) -20 to 50°C (-4 to 122°F)									
	CF	Coating Resistant, Ruggedized, Flat-glass (0 - 14 pH) 20 to 130°C (68 to 266°F)									
	CR	Coating Resistant, Ruggedized, Hemi-glass (0 - 14 pH) 15 to 130°C (59 to 266°F)									
	FG	Ruggedized, Flat-glass (0 - 14 pH) 20 to 130°C (68 to 266°F)									
	FR	Hydrofluoric Acid Resistant, Ruggedized, Hemi-glass (1 - 14 pH) 15 to 130°C (59 to 266°F)									
	FH	Silica Resistant Coating, Ruggedized, Flat-glass (1 - 14 pH) 20 to 130°C (68 to 266°F)									
	HR	Silica Resistant Coating, Ruggedized, Hemi-glass (1 - 14 pH) 15 to 130°C (59 to 266°F)									
	PX	Platinum ORP, Flat Solid Billet (0 to +/-1500 mV) 0 to 130°C (32 to 266°F)									
			Tip Configuration with Teflon Liquid Junction								
	FT	Flush no tip protection									
	DT	Dual Notch									
			Temperature Compensation (TC)								
	N	None									
	B	Balco 3.01K Ohm (2 Wire)									
	C	PT100 RTD (3 Wire)									
	H	Honeywell 8550 ohm (2 Wire)									
	K	PT1000 RTD (3 Wire)									
			Body Options								
	S	Standard Body Replacement Sensor									
	C	High Pressure Certification Replacement Sensor									
	A	8 in. 316 Stainless Steel sheath									
	B	8 in. Titanium Grade 2 sheath									
	D	8 in. Hastelloy C sheath									
	E	16 in. 316 Stainless Steel sheath									
	F	16 in. Titanium Grade 2 sheath									
	G	16 in. Hastelloy C sheath									
	H	20 in. 316 Stainless Steel sheath									
	J	20 in. Titanium Grade 2 sheath									
	K	20 in. Hastelloy C sheath									
	L	24 in. 316 Stainless Steel sheath									
	M	24 in. Titanium Grade 2 sheath									
	N	24 in. Hastelloy C sheath									
	P	30 in. 316 Stainless Steel sheath									
	Q	30 in. Titanium Grade 2 sheath									
	R	30 in. Hastelloy C sheath									
	T	36 in. 316 Stainless Steel sheath									
	U	36 in. Titanium Grade 2 sheath									
	V	36 in. Hastelloy C sheath									
	W	60 in. 316 Stainless Steel sheath									
	X	60 in. Titanium Grade 2 sheath									
	Y	60 in. Hastelloy C sheath									
			Accessory Hardware (Sensor O-Ring Material above determines Assesory Hardware Material)								
	N	Standard Replacement Sensor Cartridge									
	1	1" SS316 Wrench Tight Compression Fitting (AB4954-0001V, E, K)									
	2	1" SS316 Wrench Tight Compression Fitting + Clean-Cal-Purge Fitting 1-1/4" MNPT									
	3	1" SS316 Wrench Tight Compression Fitting + Clean-Cal-Purge Fitting 1-1/2" MNPT									
	4	1" Titanium Grade 2 Wrench Tight Compression Fitting (AB4954-0009V, E, K)									
	5	1" Titanium Grade 2 Wrench Tight Compression Fitting + Clean-Cal-Purge Fitting 1-1/4" MNPT									
	6	1" Titanium Grade 2 Wrench Tight Compression Fitting + Clean-Cal-Purge Fitting 1-1/2" MNPT									
	7	1" Hastelloy C Wrench Tight Compression Fitting AB4954-0002V, E, K)									
	8	1-1/4" SS316 Hand Tight Compression Fitting (AB4954-0003V, E, K)									
	9	1-1/4" SS316 Hand Tight Compression Fitting + Clean-Cal-Purge Fitting 1-1/4" MNPT									
	A	1-1/4" SS316 Hand Tight Compression Fitting + Clean-Cal-Purge Fitting 1-1/2" MNPT									
	B	1-1/4" Titanium Grade 2 Hand Tight Compression Fitting (AB4954-0005V, E, K)									
	C	1-1/4" Titanium Grade 2 Hand Tight Compression Fitting + Clean-Cal-Purge Fitting 1-1/4" MNPT									
	D	1-1/4" Hastelloy C Hand Tight Compression Fitting (AB4954-0004V, E, K)									
			Cable Configuration - High Temperature, Low Noise TPE Jacket								
	JB	Junction Box (for use with B39 Extension cable when complete assembly is specified)									
	T1	8" Pigtail for (8" assy or High Pressure or SS Flow Cell)									
	T2	8" Pigtail for (16" assy)									
	T3	8" Pigtail for (20" assy)									
	T4	8" Pigtail for (24" assy)									
	T5	8" Pigtail for (30" assy)									
	T6	8" Pigtail for (36" assy)									
	1 to 5	1' to 5' - Standard									
	6 to 15	6' to 15'									
	16 to 30	16' to 30'									
	31 to 100	Longer lengths available. Consult factory for information and leadtime. For lengths >30 feet, please consider Junction Box, Extension Cable and possible pre-amp.									
			Reference Wire								
	C	Reference wire on coax shield (Common with BNC leads used with B39 Ext Cables)									
	E	Reference on separate wire (Best choice for direct wiring to analyzers)									
			Lead Terminations								
	BT	BNC (with tinned wires if sensor has temp comp)									
	BL	BNC (with #6 spade lug wires if sensor has temp comp)									
	B2	BNC (with Molex for temp comp; use with B39 Ext Cables)									
	TT	All Tinned Lead wires									
	LL	All #6 Spade Lug wires									
	PT	TOP68 Quick Disconnect Plug Tail on cable									
	PP	All wire ferrules									
Mtl	AIP	Body	Elec	Tip	TC	Opt	Depth	Cable	Ref	Term	
A	V	547	R	DT	C	S	N	15	E	TT	
Typical Sensor Configuration											

Performance Series pH/ORP Sensors with CRN Registration

547 Hot Tap Accessories

CRN Sheath Kits for 547 Cartridge Style Sensors			
316SS Part #	Titanium Part #	Hastelloy C-276 Part #	Description
AB5104-0068V	AB5104-0058V	AB5104-0078V	8" Kit, Kynar Backpiece with Viton Seals (non-wetted)
AB5104-0216V	AB5104-0116V	AB5104-0316V	16" Kit, Kynar Backpiece with Viton Seals (non-wetted)
AB5104-0220V	AB5104-0120V	AB5104-0320V	20" Kit, Kynar Backpiece with Viton Seals (non-wetted)
AB5104-0224V	AB5104-0124V	AB5104-0324V	24" Kit, Kynar Backpiece with Viton Seals (non-wetted)
AB5104-0230V	AB5104-0130V	AB5104-0330V	30" Kit, Kynar Backpiece with Viton Seals (non-wetted)
AB5104-0236V	AB5104-0136V	AB5104-0336V	36" Kit, Kynar Backpiece with Viton Seals (non-wetted)

CRN Wrench Tight Compression Fittings for 547 Cartridge Style Sensors (Works with all sheath kits listed above)			
316SS Part #	Titanium Part #	Hastelloy C-276 Part #	Description
AB4954-0001V	AB4954-0009V	AB4954-0002V	Wrench Tight Compression Fitting with Viton Seal, 1" Male NPT
AB4954-0001E	AB4954-0009E	AB4954-0002E	Wrench Tight Compression Fitting with EPDM Seal, 1" Male NPT
AB4954-0001K	AB4954-0009K	AB4954-0002K	Wrench Tight Compression Fitting with FFKM (Kalrez) Seal, 1" Male NPT

CRN Hand Tight Compression Fittings for 547 Cartridge Style Sensors (Works with all sheath kits listed above)			
316SS Part #	Titanium Part #	Hastelloy C-276 Part #	Description
AB4954-0003V	AB4954-0005V	AB4954-0004V	Hand Tight Compression Fitting with Viton Seal, 1-1/4" Male NPT
AB4954-0003E	AB4954-0005E	AB4954-0004E	Hand Tight Compression Fitting with EPDM Seal, 1-1/4" Male NPT
AB4954-0003K	AB4954-0005K	AB4954-0004K	Hand Tight Compression Fitting with FFKM (Kalrez) Seal, 1-1/4" Male NPT

CRN Clean / Calibrate / Purge Fittings for 547 Cartridge Style Sensors (Install between customer supplied isolation valve and related CRN compression fitting)			
316SS Part #	Titanium Part #	Hastelloy C-276 Part #	Description
AB4954-0014	AB4954-0015		Clean / Calibrate / Purge Fitting with 3/8" ports, for Wrench Tight Compression fitting and 1-1/4" Female NPT isolation valve
AB4954-0023	AB4954-0024	AB4954-0018	Clean / Calibrate / Purge Fitting with 3/8" ports, for Wrench Tight Compression fitting and 1-1/2" Female NPT isolation valve
AB4954-0016	AB4954-0017	AB4954-0134	Clean / Calibrate / Purge Fitting with 3/8" ports, for Hand Tight Compression fitting and 1-1/4" Female NPT isolation valve
AB4954-0025	AB4954-0026	AB4954-0019	Clean / Calibrate / Purge Fitting with 3/8" ports, for Hand Tight Compression fitting and 1-1/2" Female NPT isolation valve

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