Signet 2819-2823 Conductivity/Resistivity Electrodes

Reversible threads for in-line or submersible installation.

Sanitary tri-clamp flange version.

Features

- **Standard process connections**
  - **¾" NPT Polypro**
  - **Tri-clamp 1 -1½", 2"**
  - **Opt. ½" NPT 316 SS**
- **316 SS or Titanium standard electrode**
- **Alternative electrode materials available**
  - **Hastelloy-C**
  - **Monel**
- **In-line or submersible mounting**
- **NIST traceable certified cells ±1% meet USP requirements**

Description

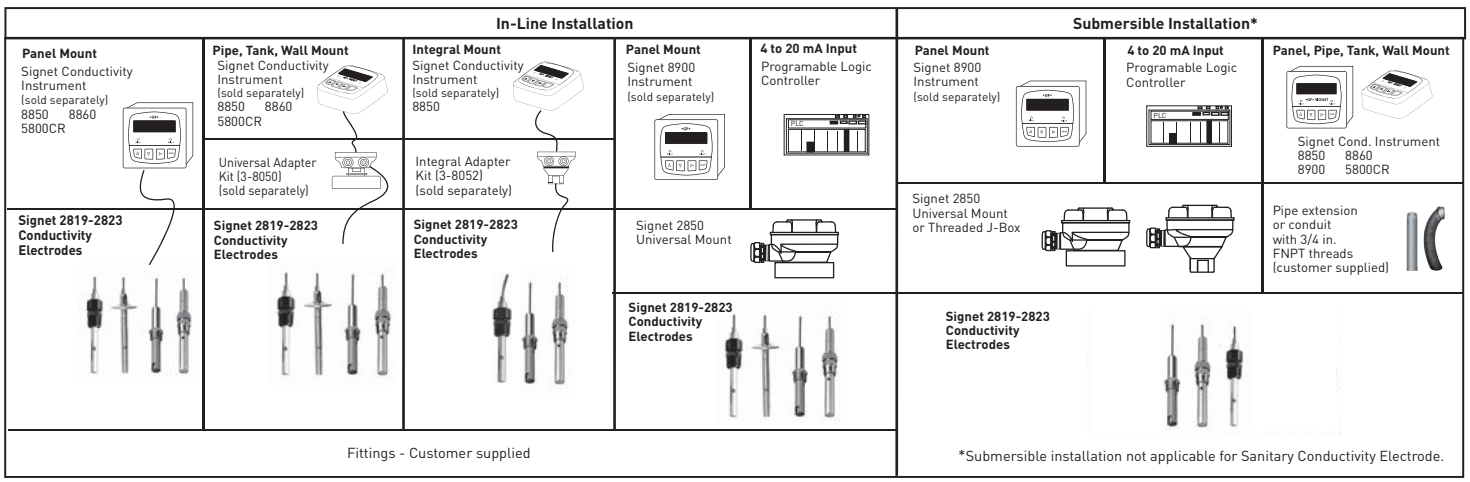
Signet 2819-2823 Conductivity/Resistivity Electrodes are designed to provide versatile installation and accurate sensing across a very broad dynamic range. These electrodes are built with a controlled surface finish to ensure accuracy and repeatability. The standard electrode is constructed 316SS or Titanium, but there are other materials availabe for maximum chemical compatibility. Reversible threads or sanitary flanges allow for maximum installation versatility. Sanitary flange versions are available with an optional NIST Traceability Certificate to meet USP requirements. Coupled with Signet patented measuring circuitry, a three decade measurement range is achieved without the need for troublesome electrode platinization. A platinum RTD (PT-1000) located within the electrode allows optimal temperature sensing.

CE

Application

- **Pure Water Treatment**
  - **Reverse Osmosis**
  - **Deionization**
  - **Distillation**
- **Boiler Condensate**
- **Semiconductor Water Production**
- **Rinse Water Monitoring and Control**
- **Chemical Concentrations**
- **Cleaner and Degreaser Concentrations**
- **TDS (Total Dissolved Solids)**
- **Salinity**
- **USP Purified Water**
- **WFI Water Production**
- **Ultra Pure Water**

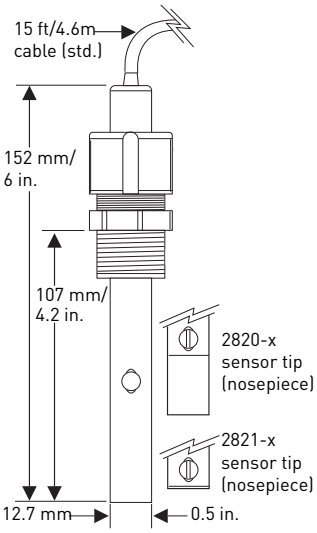
System Overview



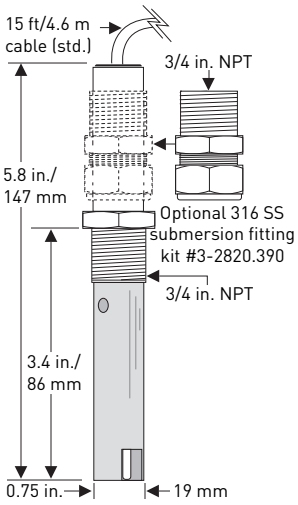
+GF+

Dimensions

2819, 2820, 2821



2822



Specifications

Models 3-2819-1* (0.01 cm^{-1} Cell)
Models 3-2820-1* (0.1 cm^{-1} Cell)
Models 3-2821-1* (1.0 cm^{-1} Cell)

***** Certified versions available (add "C" suffix to part no.)

General

Range:
- 3-2819: 0.055 to 100 µS (18.2MΩ to 10KΩ) (0.02 to 50 ppm)
- 3-2820: 1 to 1000 µS (1MΩ to 1KΩ) (0.5 to 500 ppm)
- 3-2821: 10 to 10,000µS (5 to 5,000 ppm)

Accuracy: ±2% of reading (certified cells ±1%)
Temp. comp. device: PT1000
Cable Length:
- 4.6 m/15 ft (standard)
- 30m/100ft (maximum)
- 7.6m/25ft for > 10MΩ (no splices)

Wetted Materials
- O-rings: EPR
- Insulator material: PTFE
- Electrodes: 316 Stainless Steel (1.4408, DIN 17440) or Titanium

Max. Temperature/Pressure Rating
- Standard Polypro fitting: 6.9 bar (100 psi) @ 100°C (212 °F)
- Optional 316 SS fitting (3-2820.392): 13.8 bar (200 psi) @ 120°C (248 °F)
- Sanitary Connection: 6.9 bar (100 psi) @ 120°C (248°F)

Temperature response, τ:
- 7 sec. (0.01 cell)
- 53 sec. (0.1 cell)
- 21 sec. (1.0 cell)

Temperature accuracy: 0.3°C

Shipping weight: 0.4 kg (0.8 lbs.)

Standards and Approvals
- CE
- Manufactured under ISO 9001:2000 for Quality and ISO 14001:2004 for Environmental Management

Model 3-2822-1 (10.0 cm^{-1} Cell)

General

Range:
100 to 200,000µS (50 to 100,000 ppm)
Accuracy:
±2% of reading (certified cells ±1%)
Temp. comp. device: PT1000
Cable Length:
- 4.6 m/15 ft (standard)
- 30m/100 ft (maximum)

Wetted Materials
- O-rings: EPR
- Body: CPVC
- Electrodes: 316 Stainless Steel (1.4408, DIN 17440)

Process Connection:
- Standard 316 SS fitting: 3/4 in. NPT threads
- Optional 316 SS submersion adapter fitting (3-2820.390): 3/4 in. NPT threads

Max. Temperature/Pressure Rating
6.9 bar (100 psi) @ 95°C (203°F)
Temp. response, τ: 5 seconds
Temp. accuracy: 0.3°C

See Temperature and Pressure graphs for more information.

Shipping weight: 0.4 kg (0.8 lbs.)

Standards and Approvals
- CE
- Manufactured under ISO 9001:2000 for Quality and ISO 14001:2004 for Environmental Management

Specifications

Model 3-2823-1 (20.0 cm^{-1} Cell)

General

Range:
200 to 400,000 µS
(100 to 200,000 ppm)
Accuracy:
±2% of reading
Temp. comp. device: PT1000
Cable Length:
- 4.6m/15 ft (standard)
- 30m/100 ft (maximum)

Wetted Materials
- O-rings: EPR
- Insulator material: PTFE

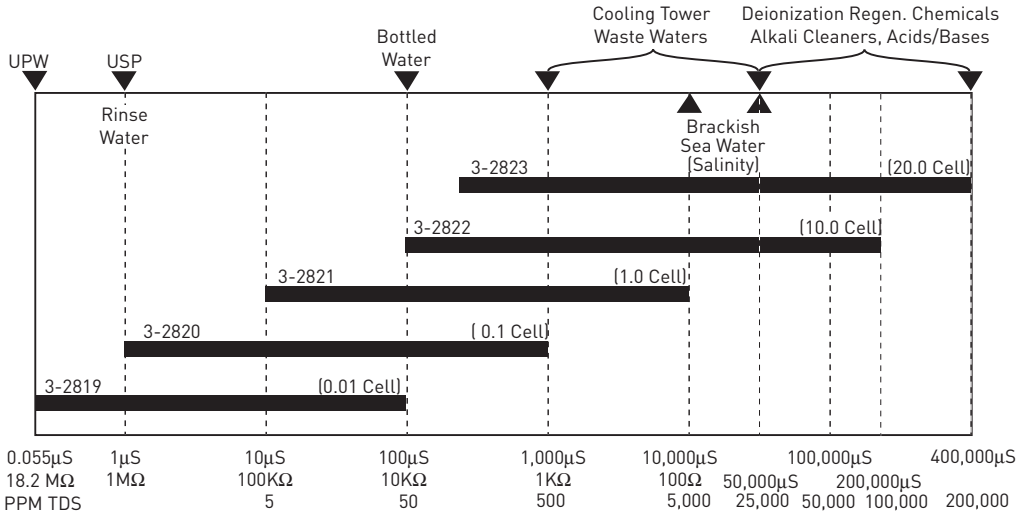
Process Connection
- Electrodes: 316 Stainless Steel (1.4408, DIN 17440)
- Std. 316 SS fitting: 3/4 in. NPT thread

Max. Temperature/Pressure Rating
6.9 bar (100 psi) @ 150°C (302°F)
Temp. response, τ: 120 seconds
Temp. accuracy: ±0.3°C

Shipping weight: 0.3 kg (0.6 lbs.)

Standards and Approvals
- CE
- Manufactured under ISO 9001:2000 for Quality and ISO 14001:2004 for Environmental Management

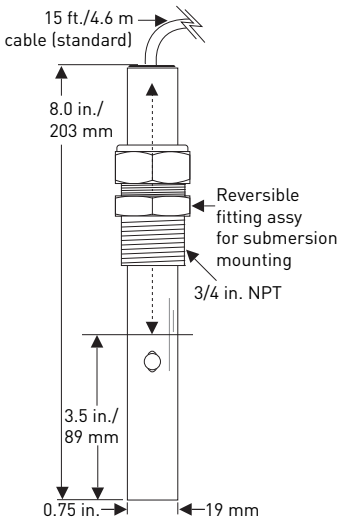
Operating Range Chart



+GF+

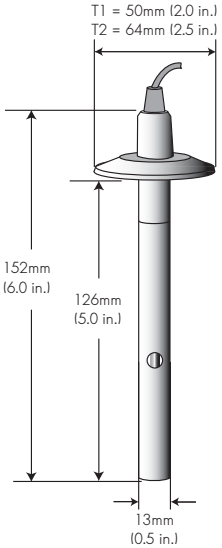
Dimensions

2823



Sanitary

Note: Tri-clamp is available for 2819, 2820, 2821 only. T1 or S1 is for 1 to 1.5 in. tees.
T2 or S2 is for 2 in. tees.



+GF+

Model 2819-2823 Ordering Notes:

1) Alternate wetted materials and sensor lengths are available through special order.

2) Cable lengths of up to 30m (100 ft) are available - consult factory.

3) Use PN 3-2820.390 or 3-2820.391 for a submersible threaded connection.

4) Use the Conductivity Certification Tool (PN 3-2830) for NIST traceable conductivity values per USP requirements. The tool is compatible with the 8850, 8860, and 5800CR instruments.

Example of NIST Traceability Certificate

CERTIFICATE

Date: November 10, 2003
Sensor Part Number: 3-2819-T1C
Sensor Serial Number: 980159-04
Sensor Cell Constant: 0.0102
Temperature Element Offset: 0.1°C
Measured at: 24.8°C

NIST Certified

Application Tips:

- Liquid levels must be high enough to cover orifice on sensor body.
- Threads on models 2819, 2820, 2821, and 2823 can be reversed in the field.
- Use Model 2819 with the 2850/8900 for low conductivity applications requiring multiple measurement points.
- Install sensors in an area that will remain free of air bubbles and sediment build-up.
- Conductivity measurements are affected if electrodes are coated by process substances.

Please refer to Wiring, Installation and Accessories sections for more information.

Ordering Information

Sensor Part Number			
3-2819	0.01 cm-1 cell constant		
3-2820	0.1 cm-1 cell constant		
3-2821	1.0 cm-1 cell constant		
3-2822	10 cm-1 cell constant		
3-2823	20 cm-1 cell constant		
	Sensor material and mounting - Choose one		
	1	316 SS electrode with 3/4 in. reversible threads (except 2822 which has fixed 3/4 in. threads) for in-line or submersible mounting	
	S1*	316 SS electrode with Sanitary Tri-clamp flange; for insertion into 1 to 1.5 inch tees	
	S2*	316 SS electrode with Sanitary Tri-clamp flange; for insertion into 2 inch tees	
	T1*	Titanium electrode with Sanitary Tri-clamp flange; for insertion into 1 to 1.5 inch tees	
	T2*	Titanium electrode with Sanitary Tri-clamp flange; for insertion into 2 inch tees	
		NIST Traceable Certificate - Optional	
		C*	NIST Certified
			Other options available on special order
			Other wetted materials and sensor lengths are available - consult factory
			Cable length extensions of up to 30m (100 ft) are available. For resistivity measurements above 10 MΩ, the maximum cable length is 7.6m (25ft) - consult factory
3-2820	**-S1**	**C**	**Example Part Number**
*Available for 0.01 cm-1, 0.1 cm-1, and 1.0 cm-1 cells only			

Mfr. Part No.	Code
3-2819-1	**198 844 010**
3-2819-S1	**159 000 085**
3-2819-S1C	**159 000 087**
3-2819-S2	**159 000 086**
3-2819-S2C	**159 000 088**
3-2819-T1	**159 000 081**
3-2819-T1C	**159 000 083**
3-2819-T2	**159 000 082**
3-2819-T2C	**159 000 084**
3-2820-1	**198 844 000**
3-2820-S1	**159 000 089**
3-2820-S1C	**159 000 091**

Mfr. Part No.	Code
3-2820-S2	**159 000 090**
3-2820-S2C	**159 000 092**
3-2820-T1	**159 000 624**
3-2820-T2	**159 000 625**
3-2821-1	**198 844 001**
3-2821-S1	**159 000 093**
3-2821-S1C	**159 000 095**
3-2821-S2	**159 000 094**
3-2821-S2C	**159 000 096**
3-2821-T1	**159 000 626**
3-2821-T2	**159 000 627**
3-2822-1	**198 844 002**
3-2823-1	**198 844 003**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2820.390	**198 840 223**	3/4 in. NPT Fitting, 316SS for use with 2822-1 for submersible mounting
3-2820.391	**198 840 221**	3/4 in. NPT Fitting, Polypro replacement for 2819-1, 2820-1 or 2821-1
3-2820.392	**198 840 222**	1/2 in. NPT Fitting, 316SS for use with 2820-1 or 2821-1
3-2830	**159 000 628**	Conductivity Certification Tool; simulates 1 µS/cm and 2.5 µS/cm