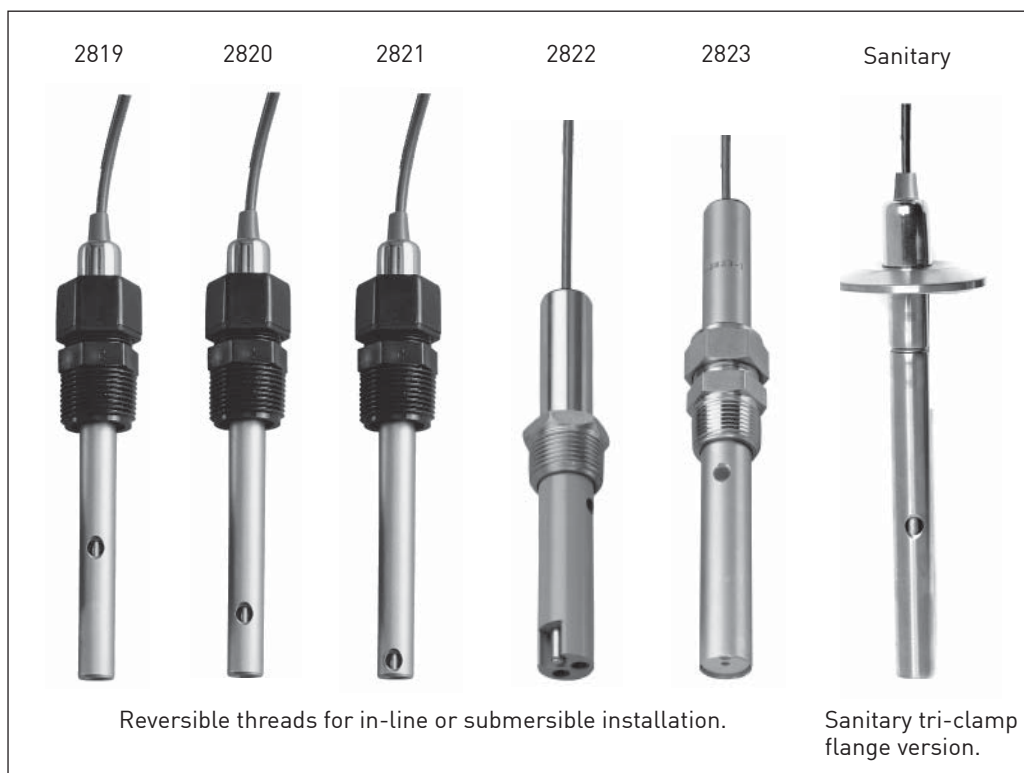


Signet 2819-2823 Conductivity/Resistivity Electrodes



Features

- Standard process connections
 - 3/4 in. NPT Polypro
 - Tri-clamp 1 - 1 1/2 in., 2"
 - Opt. 1/2 in. 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

Applications

- 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

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 316 SS or Titanium, but there are other materials available 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 (PT1000) located within the electrode allows optimal temperature sensing.

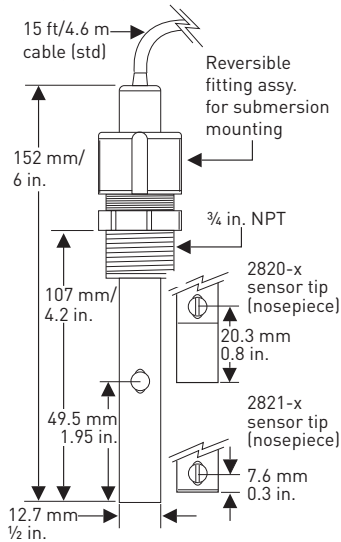
System Overview



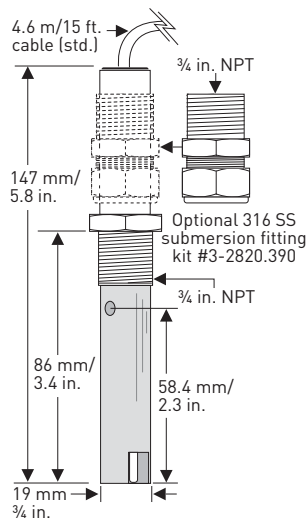
In-Line Installation				Submersible Installation*			
Panel Mount Signet Conductivity Instrument (sold separately) 5800CR 8850 8860 	Pipe, Tank, Wall Mount Signet Conductivity Instrument (sold separately) 5800CR 8850 8860 	Integral Mount Signet Conductivity Instrument (sold separately) 8850 	Panel Mount Signet 8900 Instrument (sold separately) 	4 to 20 mA Input Programmable Logic Controller 	Panel Mount Signet 8900 Instrument (sold separately) 	4 to 20 mA Input Programmable Logic Controller 	Panel, Pipe, Tank, Wall Mount Signet Cond. Instrument 5800CR 8850 8860 8900
	Universal Adapter Kit (3-8050) (sold separately) 	Integral Adapter Kit (3-8052) (sold separately) 			Signet 2850 Universal Mount or Threaded J-Box 	Signet 2850 Universal Mount or Threaded J-Box 	Pipe extension or conduit with 3/4 in. FNPT threads (customer supplied)
Signet 2819-2823 Conductivity Electrodes 	Signet 2819-2823 Conductivity Electrodes 	Signet 2819-2823 Conductivity Electrodes 	Signet 2850 Universal Mount 	Signet 2819-2823 Conductivity Electrodes 	Signet 2850 Universal Mount or Threaded J-Box 	Signet 2819-2823 Conductivity Electrodes 	Signet 2819-2823 Conductivity Electrodes
Fittings - Customer supplied				*Submersible installation not applicable for Sanitary Conductivity Electrode.			

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

Operating Range:

- 3-2819: 0.055 to 100 μ S (18.2 M Ω to 10 K Ω) (0.02 to 50 ppm)
- 3-2820: 1 to 1000 μ S (1 M Ω to 1 K Ω) (0.5 to 500 ppm)
- 3-2821: 10 to 10,000 μ S (5 to 5,000 ppm)

Cell Constant Accuracy: $\pm 2\%$ of reading (certified cells $\pm 1\%$)

Temp. Comp. Device: PT1000

Cable Length:

- 4.6 m/15 ft (standard)
- 30 m/100 ft (maximum)
- 7.6 m/25 ft for > 10 M Ω application (no splices) for 2819 sensors

Wetted Materials

- O-rings: EPR (EPDM)
- 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 lb

Standards and Approvals

- RoHS compliant

Model 3-2822-1 (10.0 cm⁻¹ Cell)

General

Operating Range:

100 to 200,000 μ S (50 to 100,000 ppm)

Cell Constant Accuracy:

$\pm 2\%$ of reading (certified cells $\pm 1\%$)

Temp. Comp. Device: PT1000

Cable Length:

- 4.6 m/15 ft (standard)
- 30 m/100 ft (maximum)

Wetted Materials

- O-rings: EPR (EPDM)
- 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 lb

Standards and Approvals

- RoHS compliant

Specifications

Model 3-2823-1 (20.0 cm⁻¹ Cell)

General

Operating Range:

- 200 to 400,000 μ S (100 to 200,000 ppm)

Cell Constant Accuracy:

$\pm 2\%$ of reading

Temp. Comp. Device: PT1000

Cable Length:

- 4.6 m/15 ft (standard)
- 30 m/100 ft (maximum)

Wetted Materials

- O-rings: EPR (EPDM)
- Insulator Material: PTFE

Process Connection

- Electrodes: 316 stainless steel (1.4408, DIN 17440)
- Standard 316 SS fitting: $\frac{3}{4}$ 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

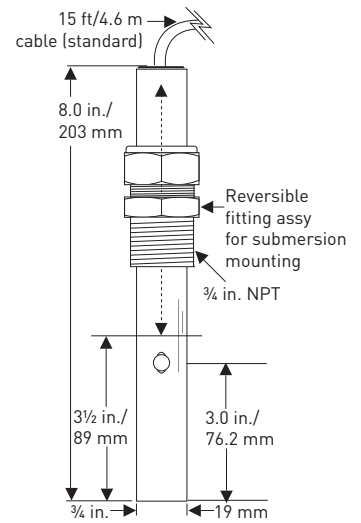
Shipping Weight 0.3 kg 0.6 lb

Standards and Approvals

- RoHS compliant

Dimensions

2823

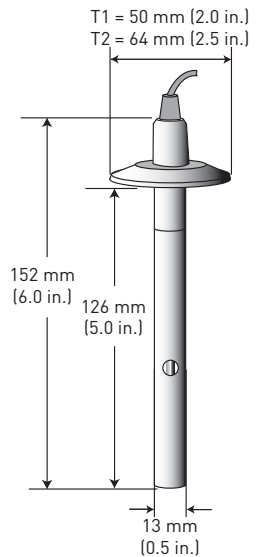
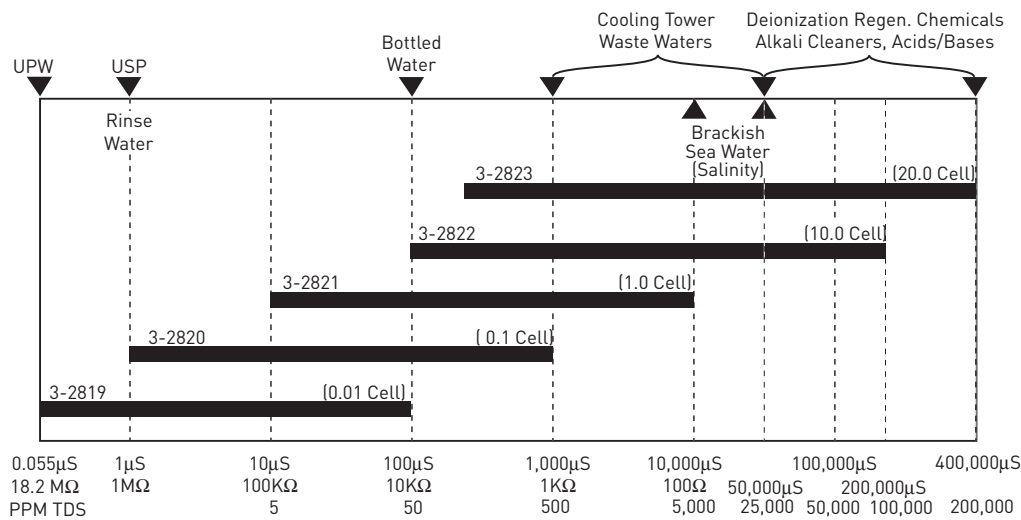


Sanitary

Note

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

Operating Range Chart



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
Temp. 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 2850-6x/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 ¾ in. reversible threads (except 2822 which has fixed ¾ in. threads) for in-line or submersible mounting
S1*	316 SS electrode with Sanitary Tri-clamp flange; for insertion into 1 to 1½ in. 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 1½ in. tees
T2*	Titanium electrode with Sanitary Tri-clamp flange; for insertion into 2 inch tees
NIST Traceable Certificate - Optional	
C*	NIST Certified
Special Order Options	
	High Temperature and Pressure options available by special request - consult factory
	Wetted materials (Hastelloy-C and Monel) and sensor lengths are available by special request - consult factory
	Cable length extensions of up to 30 m (100 ft) are available. For resistivity measurements above 10 MΩ, the maximum cable length is 7.6 m (25 ft) - consult factory
	Wet-Tap, ball valve retractable sensor for long insertion length are available by special request - 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	Mfr. Part No.	Code
3-2819-1	198 844 010	3-2820-T1	159 000 624
3-2819-S1	159 000 085	3-2820-T2	159 000 625
3-2819-S1C	159 000 087	3-2821-1	198 844 001
3-2819-S2	159 000 086	3-2821-S1	159 000 093
3-2819-S2C	159 000 088	3-2821-S1C	159 000 095
3-2819-T1	159 000 081	3-2821-S2	159 000 094
3-2819-T1C	159 000 083	3-2821-S2C	159 000 096
3-2819-T2	159 000 082	3-2821-T1	159 000 626
3-2819-T2C	159 000 084	3-2821-T2	159 000 627
3-2820-1	198 844 000	3-2822-1	198 844 002
3-2820-S1	159 000 089	3-2823-1	198 844 003
3-2820-S1C	159 000 091		
3-2820-S2	159 000 090		
3-2820-S2C	159 000 092		

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2820.390	198 840 223	¾ in. NPT Fitting, 316 SS for use with 2822-1 for submersible mounting
3-2820.391	198 840 221	¾ in. NPT Fitting, Polypro replacement for 2819-1, 2820-1 or 2821-1
3-2820.392	198 840 222	½ in. NPT Fitting, 316 SS for use with 2819-1 or 2821
3-2830	159 000 628	Conductivity Certification Tool; simulates 1 µS/cm and 2.5 µS/cm
5523-0322	159 000 761	Sensor cable (per ft), 3 cond. plus shield, 22 AWG (for cable extension through a junction box for the following sensors: 3-2820, 3-2821, 3-2822, 3-2823)
3-8050-1	159 000 753	Universal mount junction box

Rev A (3/09)