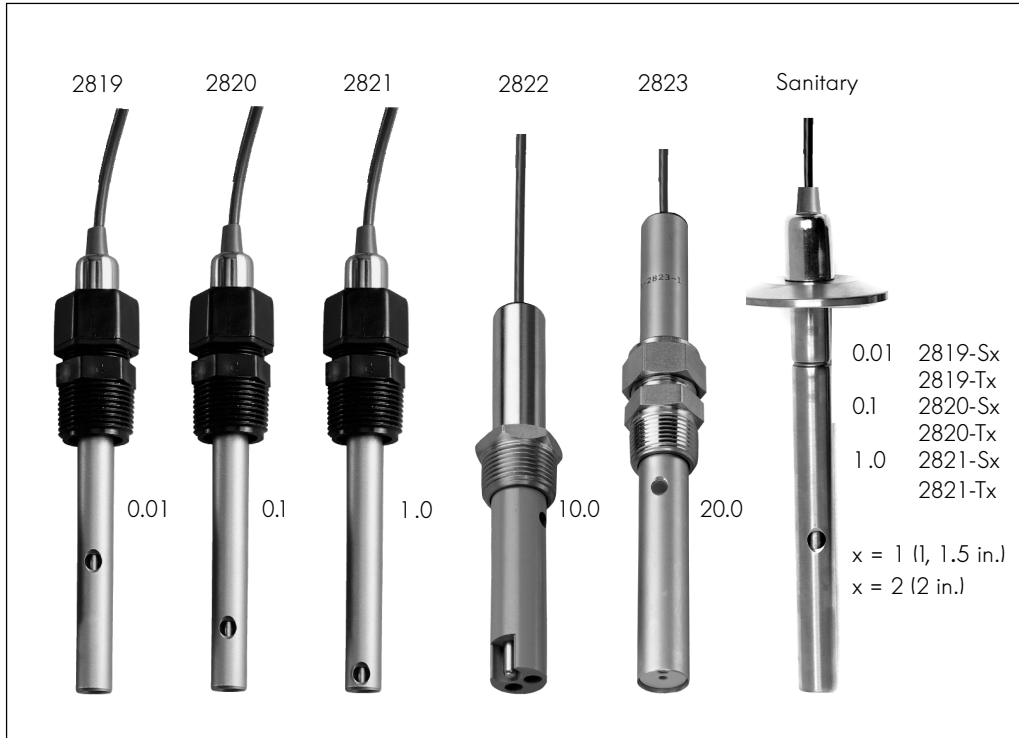


+GF+ SIGNET 2819 to 2823 Conductivity/Resistivity Sensors



Features

- Controlled surface finish ensures accuracy and repeatability
- Flow-through design
- In-line or submersible mounting
- Certified cells $\pm 2\%$ meets USP requirements
- Standard process connections
 - * $\frac{3}{4}$ " NPT Polypro
 - * Tri-clamp 1 - $1\frac{1}{2}$ ", 2"
 - * Opt. $\frac{1}{2}$ " NPT 316 SS
- 316 SS Standard Electrode
- Alternate materials -
 - * Titanium
 - * Hastelloy-C
 - * Monel
- PTFE insulator

Application

- Pure Water Treatment
 - * Reverse Osmosis
 - * De-ionization
 - * Distillation
- Boiler Condensate
- Semiconductor Water Production
- Rinse water monitoring and control
- Chemical Concentrations
- Cleaner and Degreaser Concentrations
- TDS
- Salinity
- USP Purified Water and WFI Water Production

Description

+GF+ SIGNET Conductivity/Resistivity Sensors are designed to provide versatile installation and accurate sensing across a very broad dynamic range. Coupled with +GF+ SIGNET-patented measuring circuitry a three decade range with $\pm 2\%$ of reading accuracy is

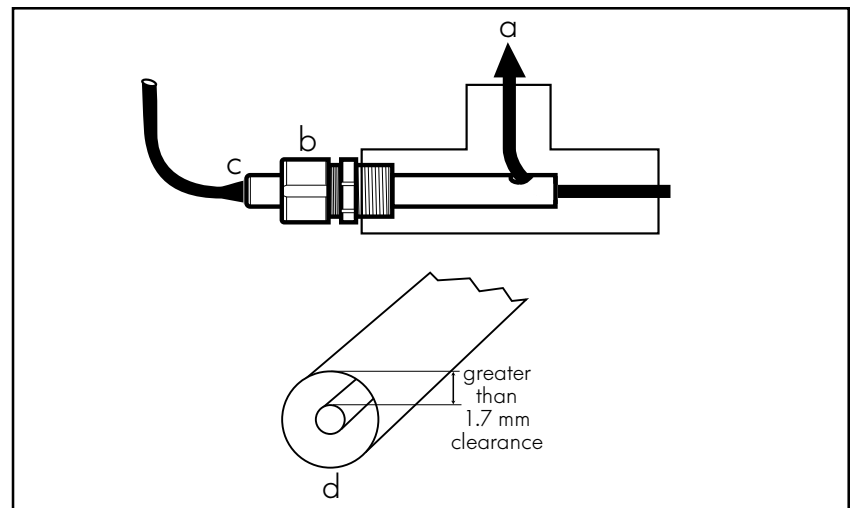
achieved without the need for troublesome sensor platinization. Platinum RTD (PT-1000) properly located within the sensor allows optimal temperature sensing. Standard wiring allows connection without costly "patch cords."

Options

Conductivity Sensors	Instrument Options			
	8850	5800CR	5900	9050CR
3-2819-1 to 3-2823-1	●	●	22/23	●
Certified Cells	●	●		

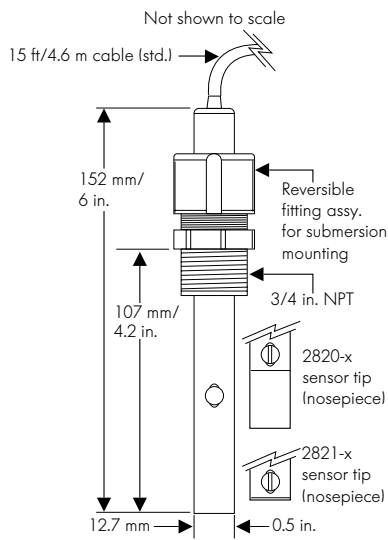
Technical Features

- Flow-through design eliminate bubble entrapment or sediment build-up
- Removable/reversible sensor fitting design
- Built-in strain relief
- Proper electrode clearance reduces possible DI resin or particle entrapment, critical with 0.01 cell designs

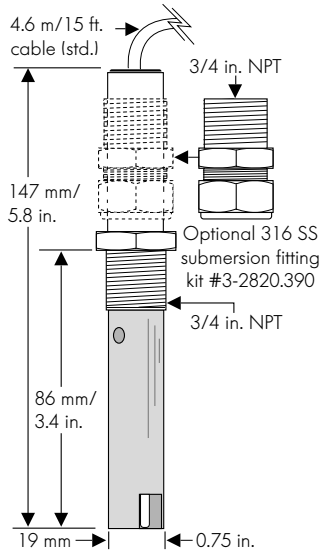


Dimensions

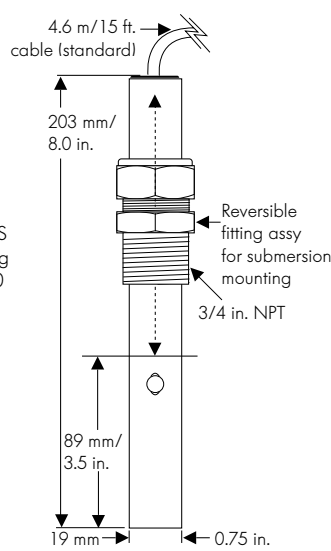
2819, 2820, 2821



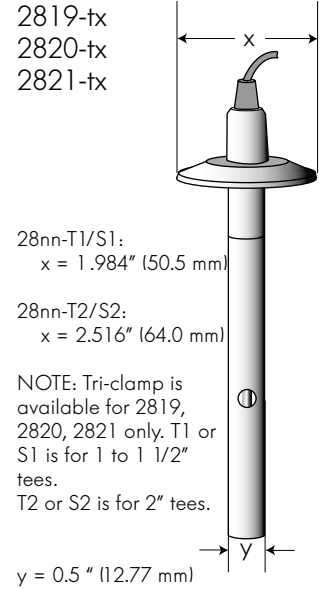
2822



2823



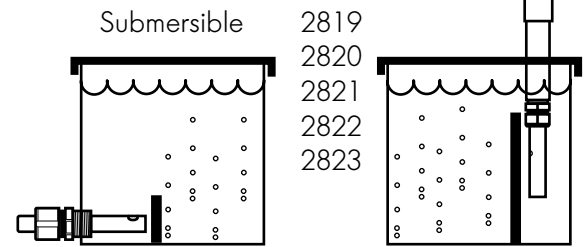
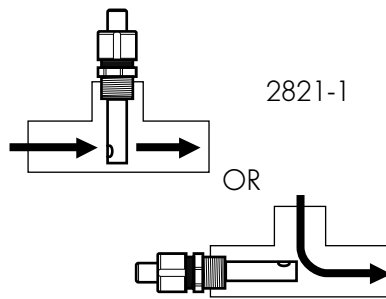
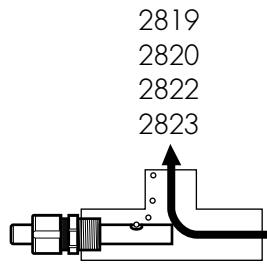
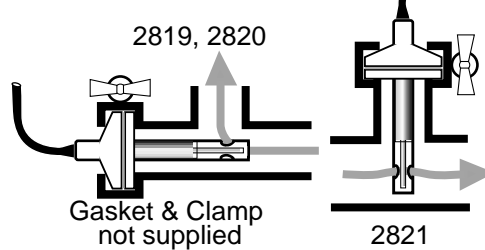
Sanitary:



Installation

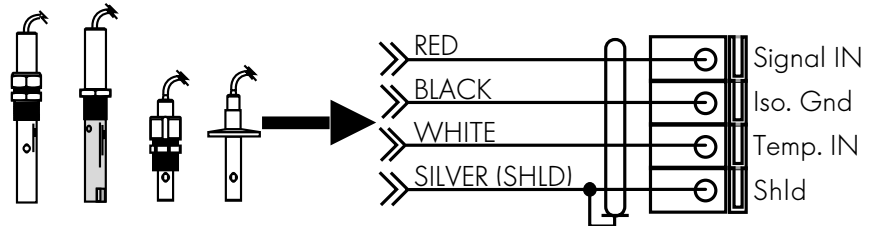
- Select a sensor location free of air bubbles and sediment buildup.
- Conductivity measurements are adversely affected by substances that coat the electrodes.

Tri-clamp Connection

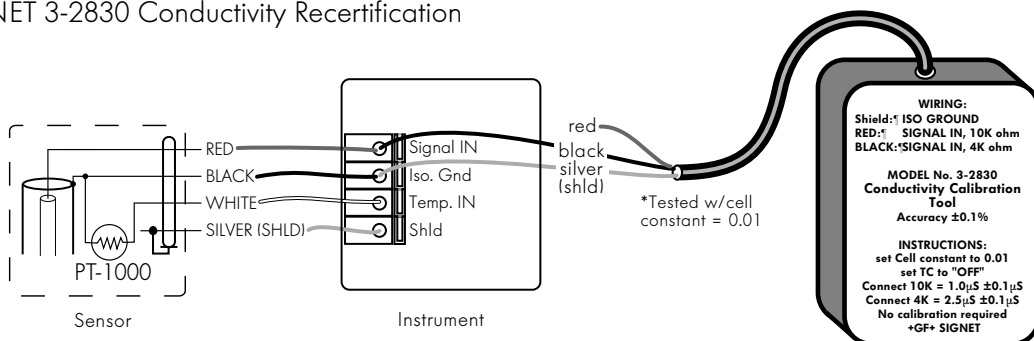


Wiring

- Standard cable length 4.6 m (15 ft.) extendable up to 30 m (100 ft.) with 3-conductor shielded 22 AWG cable
- Route sensor cable separate from power lines

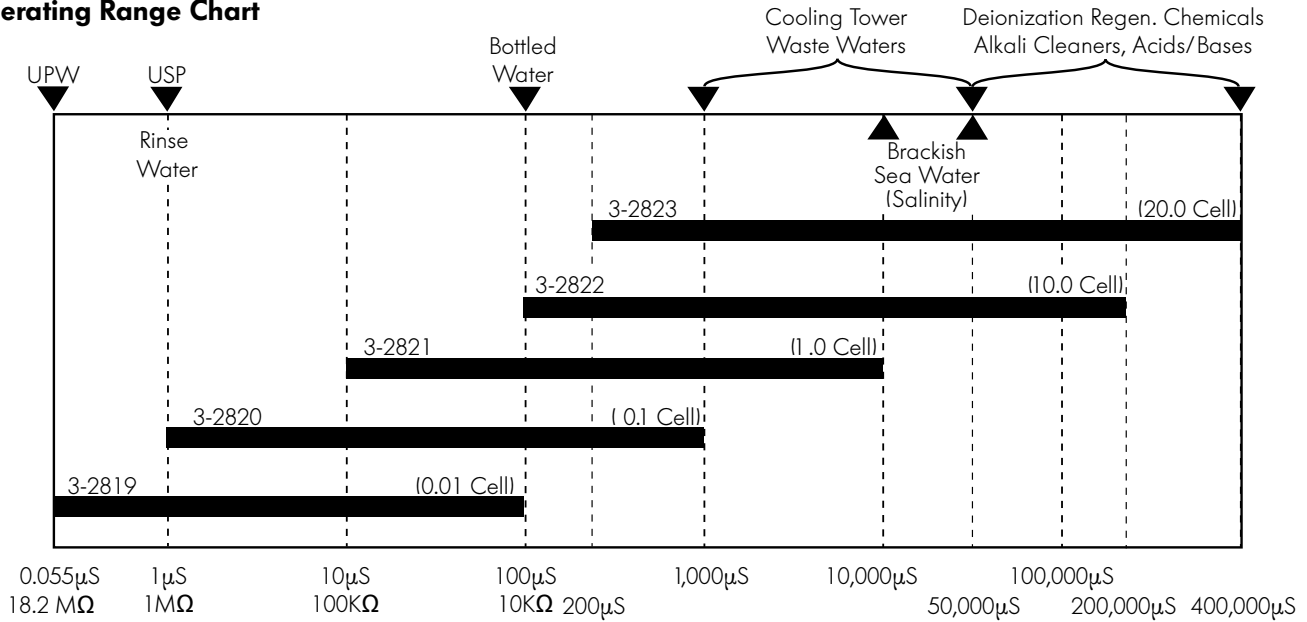


+GF+ SIGNET 3-2830 Conductivity Recertification Tool



Technical Data

Operating Range Chart



	3-2819	3-2820	3-2821	3-2822	3-2823
Range:	0.055 to 100 µS (18.2MΩ to 10KΩ) (0.02 to 50 ppm)	1 to 1000 µS (1MΩ to 1KΩ) (0.5 to 500 ppm)	10 to 10,000µS (5 to 5,000 ppm)	100 to 200,000µS (50 to 100,000 ppm)	200 to 400,000 µS (100 to 200,000 ppm)
Accuracy:	±2% of reading				

Models 3-2819-1* (0.01 Cell)

Models 3-2820-1* (0.1 Cell)

Models 3-2821-1* (1.0 Cell)

*Certified versions available (add "C" suffix to part number)

Temp. comp. device: PT1000
 O-rings: EPR
 Insulator material: PTFE
 Electrodes: 316 Stainless Steel or Titanium
 Maximum Temperature/Pressure Rating:
 Std. Polypro fitting: 6.9 bar (100 psi) @ 100°C (212 °F)
 Opt. 316 SS fitting: 13.8 bar (200 psi) @ 120°C (248 °F)
 Sanitary Connection: 6.9 bar (100 psi) @ 120°C (248°C)
 Cable Length: 15 ft. (4.6 meter) std.
 Sensor weight: 312 g (11 oz.)
 Temperature response, τ: 7 sec. (0.01) 53 sec. (0.1) 21 sec. (1.0)
 Temperature accuracy: 0.3°C

Model 3-2822-1 (10.0 Cell)

Temp. comp. device: PT1000
 O-rings: EPR
 Insulator material: CPVC
 Electrodes: 316 Stainless Steel
 Std. 316 SS fitting: 3/4 in. NPT threads
 Opt. 316 SS submersion adapter fitting:
 3/4 in. NPT threads
 Max. press./temp.: 6.9 bar (95 psi) @ 150°C (203°F)
 Temp. response, τ: 5 seconds
 Temp. accuracy: 0.3°C
 Cable Length: 15 ft. (5 m) std.
 Sensor weight: 371 g (13 oz.)

Model 3-2823-1 (20.0 Cell)

Temp. comp. device: PT1000
 O-rings: EPR
 Insulator material: PTFE
 Electrodes: 316 Stainless Steel
 Std. 316 SS fitting: 3/4 in. NPT thread
 Max. press./temp.: 6.9 bar (100 psi) @ 100°C (212 °F)
 Temp. response, τ: 120 seconds
 Temp. accuracy: 0.3°C
 Cable Length: 15 ft. (5 meter) std.
 Sensor weight: 312 g (11 oz.)

Standards and Approvals

- NIST Traceable ±2% (add "C" suffix to part number)
- CE, Manufactured under ISO 9001

Ordering +GF+ SIGNET 3-2819 to 2823 Conductivity/Resistivity Sensors

Mfr. Part No.	Code	Description
3-2819-1	198 844 010	Conductivity/Resistivity (CR) Cell, 0.01, SS
3-2820-1	198 844 000	Conductivity Cell, 0.1, SS
3-2821-1	198 844 001	Conductivity Cell, 1.0, SS
3-2822-1	198 844 002	Conductivity Cell, 10, SS
3-2823-1	198 844 003	Conductivity Cell, 20, SS
3-2819-S1	159 000 085	CR Sanitary, 0.01, SS, 1 to 1 1/2 in.
3-2819-S1C	159 000 087	CR Sanitary, 0.01, SS, 1 to 1 1/2 in., Certified
3-2819-S2	159 000 086	CR Sanitary, 0.01, SS, 2 in.
3-2819-S2C	159 000 088	CR Sanitary, 0.01, SS, 2 in., Certified
3-2819-T1	159 000 081	CR Sanitary, 0.01, Titanium, 1 to 1 1/2 in.
3-2819-T1C	159 000 083	CR Sanitary, 0.01, Titanium, 1 to 1 1/2 in., Certified
3-2819-T2	159 000 082	CR Sanitary, 0.01, Titanium, 2 in.
3-2819-T2C	159 000 084	CR Sanitary, 0.01, Titanium, 2 in., Certified
3-2820-S1	159 000 089	CR Sanitary, 0.1, SS, 1 to 1 1/2 in.
3-2820-S1C	159 000 091	CR Sanitary, 0.1, SS, 1 to 1 1/2 in., Certified
3-2820-S2	159 000 090	CR Sanitary, 0.1, SS, 2 in.
3-2820-S2C	159 000 092	CR Sanitary, 0.1, SS, 2 in., Certified
3-2820-T1	159 000 624	CR Sanitary, 0.1, Titanium, 1 to 1 1/2 in.
3-2820-T2	159 000 625	CR Sanitary, 0.1, Titanium, 2 in.
3-2821-S1	159 000 093	CR Sanitary, 1.0, SS, 1 to 1 1/2 in.
3-2821-S1C	159 000 095	CR Sanitary, 1.0, SS, 1 to 1 1/2 in., Certified
3-2821-S2	159 000 094	CR Sanitary, 1.0, SS, 2 in.
3-2821-S2C	159 000 096	CR Sanitary, 1.0, SS, 2 in., Certified
3-2821-T1	159 000 626	CR Sanitary, 1.0, Titanium, 1 to 1 1/2 in.
3-2821-T2	159 000 627	CR Sanitary, 1.0, Titanium, 2 in.

CERTIFICATE	
Date:	March 20, 2000
Sensor Part Number:	3-2819-1C
Sensor Serial Number:	980159-04
Sensor Cell Constant:	0.0100
Temperature Element Offset:	0.1°C
Measured at:	24.8°C
NIST Certified	

NOTE: Alternate wetted materials and lengths are available through special order.
Cable length extensions to 100 ft. (30 m) are available through special order.

Accessories

Mfr. Part No.	Code	Description
3-2820.392	198 840 222	1/2 in. NPT Fitting, 316SS
3-2820.390	198 840 223	3/4 in. NPT Fitting, 316SS
3-2820.391	198 840 221	3/4 in. NPT Fitting, Polypro
3-2830	159 000 628	Conductivity Recertification Tool

Engineering Specifications

- The sensors shall meet appropriate CE standards.
- The sensors shall be manufactured under ISO 9001 certified processes.
- The sensors shall be 316 SS or Titanium.
- The sensors shall have PTFE insulation. The 10.0 Cell insulation shall be CPVC.
- The sensors shall be supplied with a PT-1000 Platinum RTD.
- The sensors shall be supplied with a reversible 3/4 in. NPT Polypropylene fitting or alternatively a 1/2 in. NPT 316 SS fitting or alternatively an optional 3/4 in. (2822-1, 2823-1) 316 SS NPT fitting for in-line or submersion installation.
- The sensors shall be of a concentric design with a minimum clearance of 0.06 in. (1.5 mm) between electrodes.
- The process connection shall allow accessibility of removal for cleaning.
- The sensor cell constant, model number and date of manufacture shall be clearly stated on the sensor cable.
- The sensor cable shall be standard 15 feet, 3 conductor, foil shield, with drain wire. The allowable cable extension using like cable is 100 feet.
- The sensor shall have a maximum pressure rating of 100 psi, at 100°C or alternatively shall be supplied with an SS process connection having a maximum pressure rating of 200 psi, at 120°C.
- Optional: The sensor will be equipped with a certification of cell constant value. Such certification is to be supplied in printed form on the sensor cabling and additionally in written form.
- The sensors shall be Model +GF+ SIGNET as ordered.