

# Signet 2839-1V(D) to 2842-1V(D) PVDF Conductivity Electrodes



The Signet 2839-1V(D) to 2842-1V(D) Conductivity/Resistivity Electrodes are available in four cell constants from 0.01 to 10.0 cm<sup>-1</sup>, and are suitable for a wide variety of applications from high purity water quality monitoring to weak acids and bases. 316 SS electrode surface finishes are controlled in a precision bead blasting operation to ensure measurement accuracy and repeatability.

The PVDF insulator and process connections are injection over-molded to minimize variance between electrodes. Double threaded connections in either 3/4 in. NPT or ISO 7/1-R 3/4 enable quick and easy installation in submersible or in-line configurations. Transmitter integral mounting kit and junction boxes are available as accessories.

A Certificate of Calibration is included with all 2839-1V(D) to 2842-1V(D) Conductivity/Resistivity Electrodes. The electrodes are calibrated to meet  $\pm 2\%$  accuracy. Electrodes can be shipped back to the GF Signet factory for recertification.

The certificate includes calculated cell constant and temperature offset which when entered into the "custom cell" menu of any Signet meter would provide a 2% accuracy of the sensors reading.

## Features

- $\pm 2\%$  accuracy - Custom calibration certificate provided
- Dual-threaded
- Compact electrode length for easy in-line installation in small pipe sizes
- Triple orifice flow-through design reduces clogging and bubble entrapment
- 316 SS electrodes with injection molded PVDF process connections and insulators
- Meets USP requirements



## Applications

- Water Treatment & Water Quality Monitoring
- Reverse Osmosis
- Deionization
- Cooling Tower and Boiler Protection
- Distillation
- Desalination
- Demineralizer
- Semiconductor
- Aquatic Animal Life Support Systems

# Specifications

## General

### Operating Range

	2839	0.055 to 100 $\mu$ S	0.02 to 50 ppm	18.2 M $\Omega$ to 10 K $\Omega$
	2840	1 to 1,000 $\mu$ S	0.5 to 500 ppm	1 M $\Omega$ to 1 K $\Omega$
	2841	10 to 10,000 $\mu$ S	5 to 5,000 ppm	
	2842	100 to 200,000 $\mu$ S	50 to 100,000 ppm	

Cell Constant Accuracy  $\pm 2\%$  when the information provided on the certificate of calibration is entered into the transmitter/meter or when wet calibrated with a traceable standard.

Dual-Threaded Process Connection  
 -1V versions:  $\frac{3}{4}$  in. NPT  
 -1VD versions: ISO 7/1-R 3/4

Cable Length (use for the 2839, 40, 41 and 42)	standard	4.6 m (15 ft)
	maximum	30 m (100 ft) all sensors when used with the 9900
	0.01 cells	4.6 m (15 ft) used with 8850, 8860, and 2850*

Temperature Element PT1000

### Temp. Response, t

	0.01 cell	5 sec.
	0.10 cell	10 sec.
	1.0 cell	20 sec.
	10.0 cell	30 sec.

Temperature Accuracy	$\pm 0.5$ $^{\circ}$ C	$\pm 0.9$ $^{\circ}$ F
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## Wetted Materials

Internal O-ring (2841 and 2842)	FKM
Insulator Material	PVDF
Electrode Material	316 SS
Threaded Process Connection	PVDF

## Max. Temperature/Pressure Rating

	131 $^{\circ}$ C @ 2.76 bar	268 $^{\circ}$ F @ 40 psi
Storage Temperature	-20 $^{\circ}$ C to 131 $^{\circ}$ C	-4 $^{\circ}$ F to 268 $^{\circ}$ F

## Shipping Weight

2839	0.34 kg	0.74 lb
2840, 2841, 2842	0.30 kg	0.66 lb

## Standards and Approvals

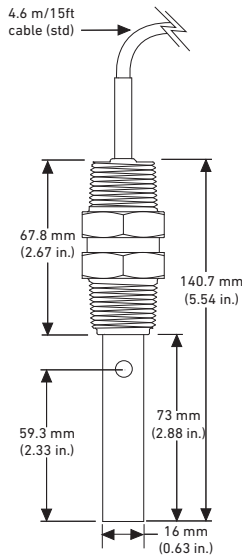
RoHS compliant, China RoHS  
 Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management and OHSAS 18001 for Occupational Health and Safety

\*2850 cable length 4.6 m (15 ft) maximum for all cells.  
 See Temperature and Pressure graphs for more information.

## Dimensions

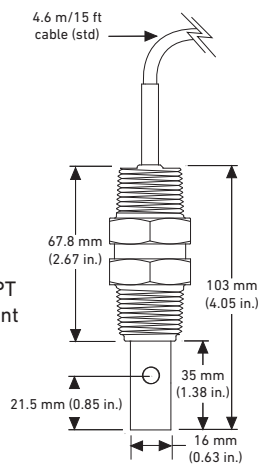
### Dual-Threaded Electrodes

3-2839-1V(D) (0.01 cell)

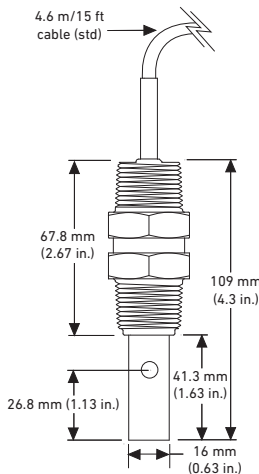


Dual threads 3/4 NPT  
or ISO 7/1-R 3/4 front  
and back

3-2840-1V(D) (0.1 cell)

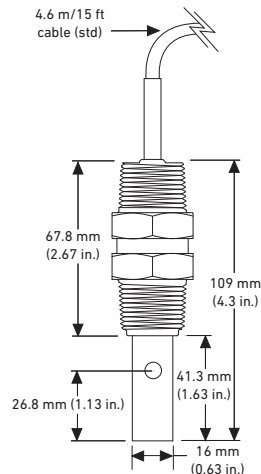


3-2841-1V(D) (1.0 cell)\*



Dual threads 3/4 NPT  
or ISO 7/1-R 3/4 front  
and back

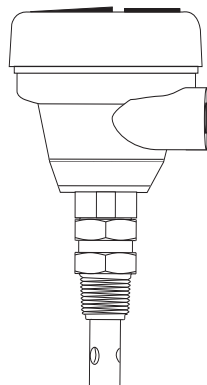
3-2842-1V(D) (10.0 cell)\*



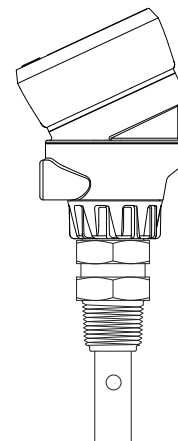
\* Although these electrodes look similar in design, there is an inherent difference. From the bottom view, the 2841 electrode features a simple plastic insert. However, the 2842 electrode features a complex plastic insert with four holes through which liquid flows.

### Integral Mount Sensor

The 2839-2842 Dual Threaded Conductivity Electrodes can be directly mounted to a 3-8850-3 transmitter, using the 8052 Integral Mount Kit. Customer to modify the cable length of the standard cable assembly. See sensor manual for details.



The 2839-2842 Dual Threaded Conductivity Electrodes can be directly mounted to a 3-9900-1 transmitter, 3-9900.396 direct conductivity module, 3-9900.396 angle adjust adapter and the 8052 Integral Mount Kit. Customer to modify the cable length of the standard cable assembly. See sensor manual for details.



## In-Line Installation

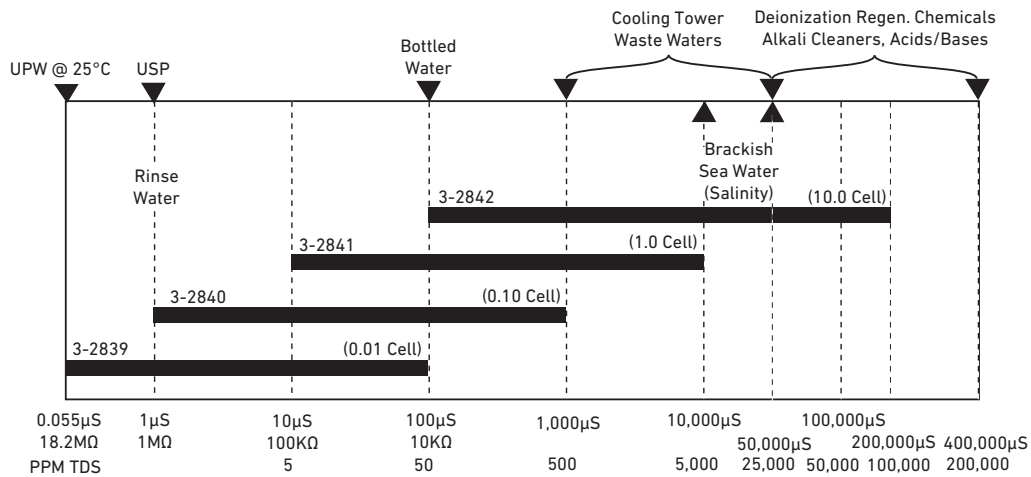
Panel Mount	Pipe, Tank, Wall Mount	Field (Integral) Mount	4 to 20 mA Output	Automation System
Signet Instruments 8850 8860 8900 with 2850 Sensor Electronics 9900 with 3-9900.394 Direct Conductivity/Resistivity Module or 2850 Sensor Electronics	Signet Instrument 8850 with 3-8050 Universal Mount Kit 9900 with 3-9900.394 Direct Conductivity/Resistivity Module or 2850 Sensor Electronics and Rear Enclosure	Signet Instrument 8850 with 3-8052 Integral Mount Kit 9900 with 3-9900.394 Direct Conductivity/Resistivity Module and Rear Enclosure	Signet 2850 Sensor Electronics with a customer supplied Programmable Logic Controller or Programmable Automation Controller	2850 Sensor Electronics with 0486 Profibus Concentrator and Customer Supplied Programmable Logic Controller or Programmable Automation Controller
Signet 2839-2842 Conductivity Electrodes				
Customer Supplied Fittings, 3/4 in. NPT or ISO threaded			All sold separately	

## Submersible Installation

Pipe, Tank, Wall Mount	Field (Integral) Mount	Automation System
Signet Instruments 8850 8860 8900 with 2850 Sensor Electronics 9900 with 3-9900.394 Direct Conductivity/Resistivity Module and Rear Enclosure or 2850 Sensor Electronics with Angle Adapter and customer supplied pipe extension or conduit with 3/4 in. FNPT threads*	Signet Instrument 8850 with 3-8052 Integral Mount Kit 9900 with 3-9900.394 Direct Conductivity/Resistivity Module and Angle Adapter	2850 Sensor Electronics with 0486 Profibus Concentrator and Customer Supplied Programmable Logic Controller or Programmable Automation Controller
Signet 2839-2842 Conductivity Electrodes		
		All sold separately

\*Refer to the Signet Submersion Kit brochure (3-0000-707) located on our website for installation suggestions and options.

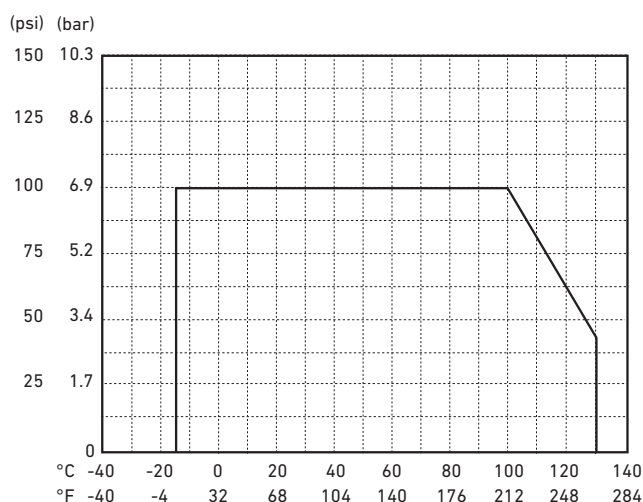
## Operating Range Chart



## Temperature/Pressure Graphs

### Note:

The pressure/temperature graphs are specifically for the Signet sensor. During system design the specifications of all components must be considered. In the case of a metal piping system, the PVDF process connector provided with the sensor may reduce the overall system working pressure.



### Application Tips

- Use 2839 series electrodes with the 3-2850-63 electronics and 8900 for applications requiring multiple measuring points.
- Liquid levels must be high enough to cover vent hole on sensor body.
- 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.
- Use Model 2839 with the 2850/8900 for low conductivity applications requiring multiple measuring points.

### Ordering Notes

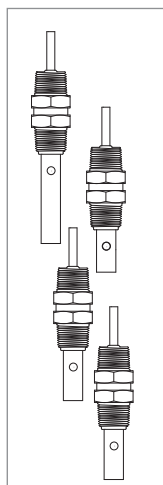
- 1) The Conductivity Certification tools are compatible with the following Signet Instruments: 8900, 9900.
- 2) The sensor cable can be extended up to 30 m (100 ft). See restrictions under general specifications.

Georg Fischer Signet LLC		<b>+GF+</b>
Signet Conductivity/Resistivity Electrodes		
<b>Test Certificate</b>		
<u>Part information</u>		
Code:	159 310 244	
Mfr. Part #:	3-2840.310-3	
Serial number:	61501061446	
Description:	0.1 cm-1, dual threaded, 1/4" NPT, PVDF	
Temperature Element:	RTD PT1000	
Test date:	1/6/2015 2:36:23 PM	
<u>Measuring Standard(s)</u>		
ID#:	RS-11	
Cal due date:	7/14/2015	
<u>Test Conditions</u>		
KCl solution concentration:	203.50 $\mu$ S	
Solution temperature:	24.46 °C	
<u>Test Data</u>		
Cell constant	Specific	
Temperature	0.0980	

Example of NIST Traceability Certificate

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

## Ordering Information



### Sensors for use with 9900, 2850, and 8860 Instruments

Mfr. Part No.	Code	Cell Constant	Connection	Thread Size(s)	Cable Length
3-2839-1V	<b>159 001 810</b>	0.01 cm-1	Dual threaded	¾ inch NPT	4.6 m (15 ft)
3-2839-1VD	<b>159 001 811</b>	0.01 cm-1	Dual threaded	ISO 7/1-R 3/4	4.6 m (15 ft)
3-2840-1V	<b>159 001 812</b>	0.1 cm-1	Dual threaded	¾ inch NPT	4.6 m (15 ft)
3-2840-1VD	<b>159 001 813</b>	0.1 cm-1	Dual threaded	ISO 7/1-R 3/4	4.6 m (15 ft)
3-2841-1V	<b>159 001 814</b>	1.0 cm-1	Dual threaded	¾ inch NPT	4.6 m (15 ft)
3-2841-1VD	<b>159 001 815</b>	1.0 cm-1	Dual threaded	ISO 7/1-R 3/4	4.6 m (15 ft)
3-2842-1V	<b>159 001 816</b>	10 cm-1	Dual threaded	¾ inch NPT	4.6 m (15 ft)
3-2842-1VD	<b>159 001 817</b>	10 cm-1	Dual threaded	ISO 7/1-R 3/4	4.6 m (15 ft)

### Special Order Options - Please consult the factory

Cable length extensions of up to 30 m (100 ft) are available.

For resistivity measurements above 10 MΩ when used with the 8850-3 or the 8860 cable lengths of the sensor should not exceed 4.6 m (15 ft).

## Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2850.101-1	<b>159 001 392</b>	Plug-in NIST traceable recertification tool, 1.0 μS simulated, for use with 8900, 9900, 2850 and the 2850 4-20 mA output
3-2850.101-2	<b>159 001 393</b>	Plug-in NIST traceable recertification tool, 2.5 μS simulated, for use with 8900, 9900, 2850 and the 2850 4-20 mA output
3-2850.101-3	<b>159 001 394</b>	Plug-in NIST traceable recertification tool, 10.0 μS simulated, for use with 8900, 9900, 2850 and the 2850 4-20 mA output
3-2850.101-4	<b>159 001 395</b>	Plug-in NIST traceable recertification tool, 18.2 MΩ simulated, for use with 8900, 9900, 2850 and the 2850 4-20 mA output
3-2850.101-5	<b>159 001 396</b>	Plug-in NIST traceable recertification tool, 10.0 MΩ simulated, for use with 8900, 9900, 2850 and the 2850 4-20 mA output
3-2850-61	<b>159 001 400</b>	Universal junction box, conductivity electronics, digital (S <sup>3</sup> L) output
3-2850-62	<b>159 001 401</b>	Universal junction box, conductivity electronics, 4 to 20 output
3-8052	<b>159 000 188</b>	¾ in. integral mounting kit
5523-0322	<b>159 000 761</b>	Sensor cable (per ft), 3 cond. plus shield, 22 AWG, for cable extension through a junction box for the following sensors: 3-2840, 3-2841, 3-2842
3-8050-1	<b>159 000 753</b>	Universal mount junction box