

# Signet 2839-1V(D) to 2842-1V(D) 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 ¾ in. NPT or ISO 7/1-R ¾ 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 ± 2% accuracy.

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. Electrodes can be shipped back to the GF Signet factory for recertification.

## Features

- ± 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 custom cell constant 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, 2840, 2841 and 2842)

|          |                                                                                                     |
|----------|-----------------------------------------------------------------------------------------------------|
| Standard | 4.6 m (15 ft)                                                                                       |
| Maximum  | 30 m (100 ft) all sensors when used with the 9900, 9950 and direct conductivity/resistivity modules |

2850 cable length 4.6 m (15 ft) maximum for all cells

Temperature Element Pt1000

### Temperature 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

## Wetted Materials

Electrode Material 316 SS

Threaded Process Connection PVDF

Internal O-ring (2841 and 2842) FKM

Insulator Material 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

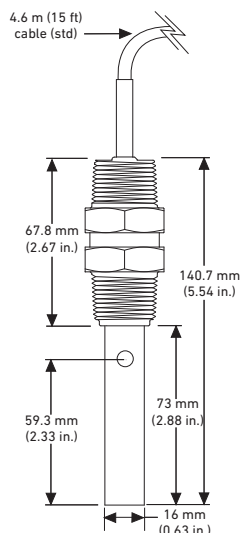
RoHS compliant, China RoHS

Manufactured under ISO 9001, ISO 14001 and ISO 45001

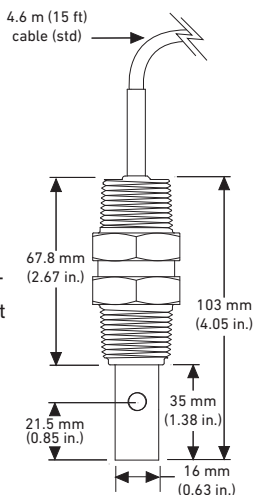
## Dimensions

### Dual-Threaded Electrodes

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

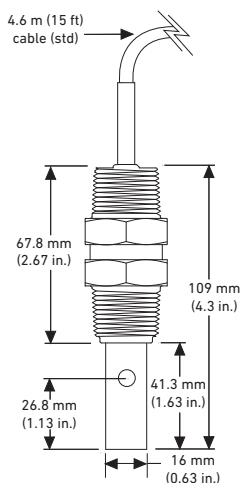


3-2840-1V(D) (0.1 cell)



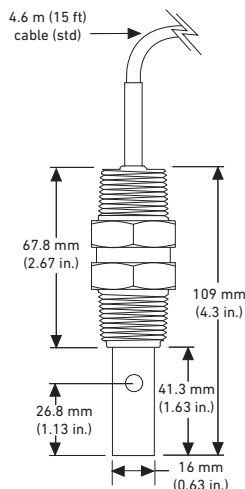
Dual threads 3/4 NPT  
or ISO 7/1-R 3/4 front  
and back

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)\*

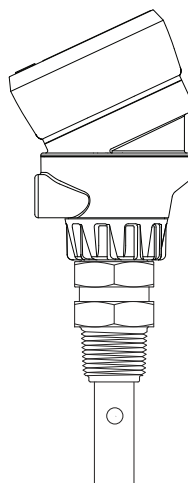


\* Although these electrodes look similar in design, there is an inherent difference. From the bottom view, the 2841 electrode features a simple plastic insert. However, the 2842 electrode features a complex plastic insert with four holes through which liquid flows.

### Integral Mount Sensor

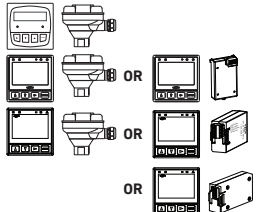
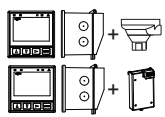
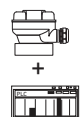
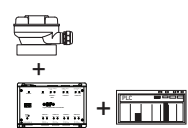
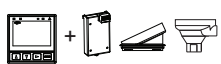
The 2839-2842 Dual Threaded Conductivity Electrodes can form an Integral Mount System with the 3-9900-1 Signet Transmitter when using the 3-9900.396 Direct Conductivity Module, angle adapter and the 8052 Integral Mount Kit.

Complete Integral Mount System with 9900 transmitter are available through our Specials program.



# System Overview

## In-Line Installation

| Panel Mount                                                                                                                                                                                                                                                                                                          | Pipe, Tank, Wall Mount                                                                                                                                                                                          | 4 to 20 mA Output*                                                                                                                                                                              | Automation System                                                                                                                                                                                                                         | Field (Integral) Mount*                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Signet Instruments with 2850 Sensor Electronics</p> <ul style="list-style-type: none"> <li>- 8900</li> <li>- 9900 or with 3-9900.394 Direct Conductivity/Resistivity Module</li> <li>- 9950 with 9950.394 Direct Conductivity/Resistivity Module or with 3-9950.394-2 Dual Channel Conductivity Module</li> </ul> | <p>Signet Instruments with 2850 Sensor Electronics</p> <ul style="list-style-type: none"> <li>- 9900 and Rear Enclosure or with 3-9900.394 Direct Conductivity/Resistivity Module and Rear Enclosure</li> </ul> | <p>Signet 2850 Sensor Electronics with</p> <ul style="list-style-type: none"> <li>- Customer Supplied Programmable Logic Controller or</li> <li>- Programmable Automation Controller</li> </ul> | <p>Signet 2850 Sensor Electronics with</p> <ul style="list-style-type: none"> <li>- 0486 Profibus Concentrator and</li> <li>- Customer Supplied Programmable Logic Controller or</li> <li>- Programmable Automation Controller</li> </ul> | <p>Signet Instrument</p> <ul style="list-style-type: none"> <li>- 9900 with 3-9900.394 Direct Conductivity/Resistivity Module, 3-9900.396 angle adapter and 3-8052 Integral Mount Kit</li> </ul> |
|                                                                                                                                                                                                                                     |                                                                                                                                |                                                                                                                |                                                                                                                                                         |                                                                                                               |

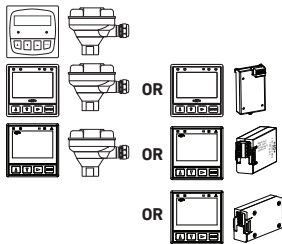
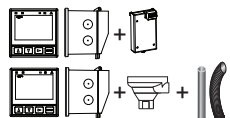
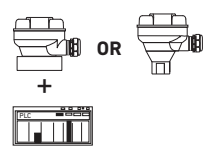
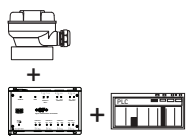
### Signet 2839-2842 Conductivity Electrodes



Customer Supplied Fittings, 3/4 in. NPT or ISO threaded

All Sold Separately

## Submersible Installation

| Panel Mount                                                                                                                                                                                                                                                                                                          | Pipe, Tank, Wall Mount                                                                                                                                                                                                                                                                  | Field (Integral) Mount                                                                                                                                                                           | 4 to 20 mA Output*                                                                                                                                                                              | Automation System                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Signet Instruments with 2850 Sensor Electronics</p> <ul style="list-style-type: none"> <li>- 8900</li> <li>- 9900 or with 3-9900.394 Direct Conductivity/Resistivity Module</li> <li>- 9950 with 9950.394 Direct Conductivity/Resistivity Module or with 3-9950.394-2 Dual Channel Conductivity Module</li> </ul> | <p>Signet Instruments with 2850 Sensor Electronics</p> <ul style="list-style-type: none"> <li>- 9900 and Rear Enclosure or with 3-9900.394 Direct Conductivity/Resistivity Module, Rear Enclosure and customer supplied pipe extension or conduit with 3/4 in. FNPT threads*</li> </ul> | <p>Signet Instrument</p> <ul style="list-style-type: none"> <li>- 9900 with 3-9900.394 Direct Conductivity/Resistivity Module, 3-9900.396 angle adapter and 3-8052 Integral Mount Kit</li> </ul> | <p>Signet 2850 Sensor Electronics with</p> <ul style="list-style-type: none"> <li>- Customer Supplied Programmable Logic Controller or</li> <li>- Programmable Automation Controller</li> </ul> | <p>Signet 2850 Sensor Electronics with</p> <ul style="list-style-type: none"> <li>- 0486 Profibus Concentrator and Customer Supplied Programmable Logic Controller or</li> <li>- Programmable Automation Controller</li> </ul> |
|                                                                                                                                                                                                                                   |                                                                                                                                                                                                      |                                                                                                               |                                                                                                             |                                                                                                                                           |

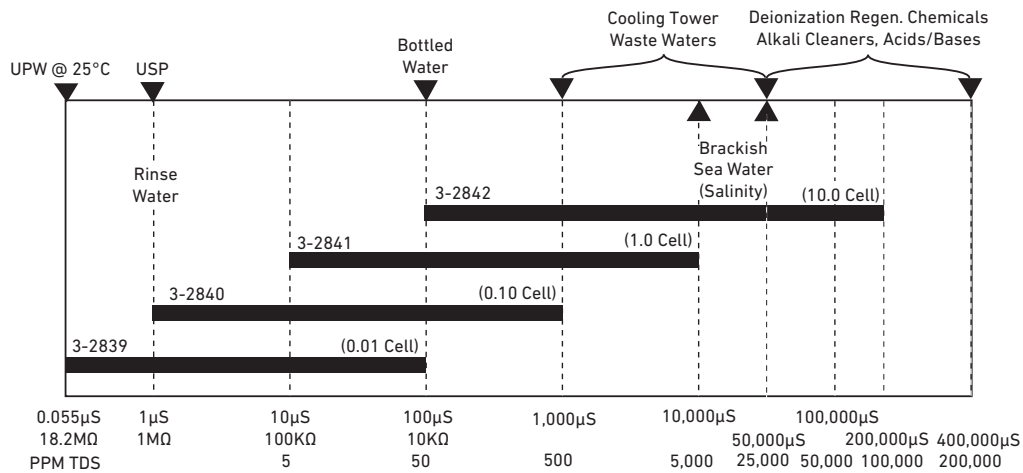
### Signet 2839-2842 Conductivity Electrodes



All Sold Separately

\*Refer to the Signet Submersion Kit brochure (3-0000.707) located on our website for installation suggestions and options.

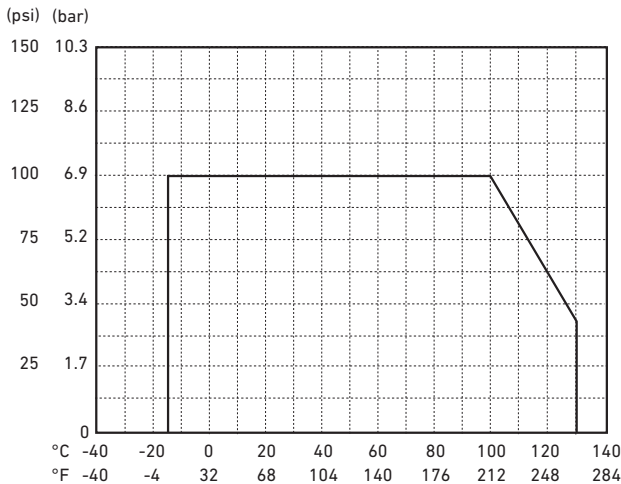
# Operating Range Chart



## 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.

### Ordering Notes

- 1) The Conductivity Certification tools are compatible with the following Signet Instruments: 8900, 9900, and 9950.
- 2) The sensor cable can be extended up to 30 m (100 ft). See restrictions under general specifications.

Georg Fischer Signet LLC  
Signet Conductivity/Resistivity Electrodes

**+GF+**

**Test Certificate**

Part information

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

Measuring Standard(s)

ID#: RS-11  
Cal due date: 7/14/2015

Test Conditions

KCl solution concentration: 203.50  $\mu\text{S}$   
Solution temperature: 24.46 $^{\circ}\text{C}$

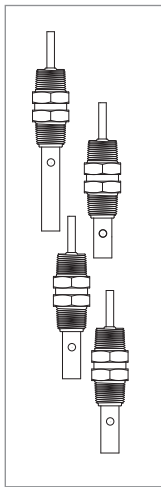
Test Data

Cell constant: 0.9992  
Specificity: 1.0000

Example of Test Certificate

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

## Ordering Information



### Sensors for use with 9900, 9950 and 2850 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 any sensor being used with the 2850-6X, cable length 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, 9950, 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, 9950, 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, 9950, 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, 9950, 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, 9950, 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                                                                                                                     |