

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



### Product description

The type 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 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 ± 2% accuracy.

The certificate includes calculated cell constant and temperature offset which when entered into the „custom cell“ menu of any GF meter would provide a 2% accuracy of the sensors reading. Electrodes can be shipped back to the GF factory for recertification.

### Features

- ± 2% accuracy - Custom calibration certificate provided
- Dual-threaded for in-line, submersible, or integral mount for 2850 sensor electronics
- 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

## Technical Details

### 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 standard 4.6 m (15 ft)  
(use for the maximum 30 m (100 ft) all sensors when used with the 9900, 9950 and direct conductivity/resistivity modules  
2839, 2040, 2041 and Maximum 2850 input cable length 4.6 m (15 ft) for all cells  
2042)

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  $\pm 0.5$  °C  $\pm 0.9$  °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 °C @ 2.76 bar	268 °F @ 40 psi
Storage Temperature	-20 °C to 131 °C	-4 °F to 268 °F

### Shipping Weight

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

### Standards and Approvals

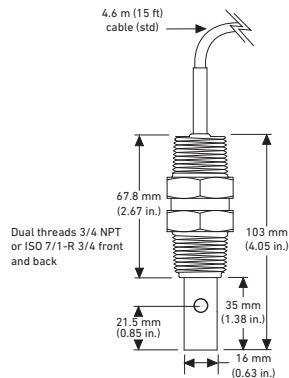
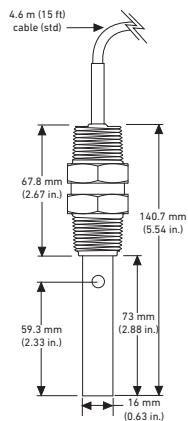
RoHS compliant, China RoHS  
Manufactured under ISO 9001, ISO 14001 and ISO 45001

## Dimensions

### Dual-Threaded Electrodes

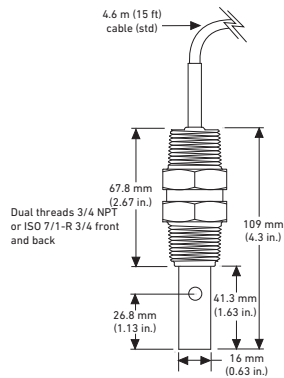
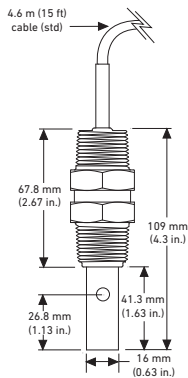
#### 3-2839-1V(D) (0.01 cell)

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



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

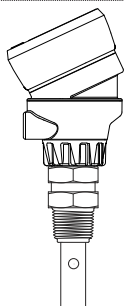
#### 3-2842-1V(D) (10.0 cell)\*



\* 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.

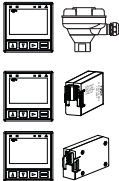
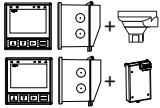

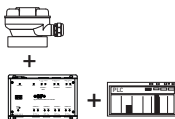

## Integral Mount Sensor

The 2839-2842 Dual Threaded Conductivity Electrodes can form an Integral Mount System with the 3-9900-1 GF 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>GF Instruments</p> <ul style="list-style-type: none"> <li>- 9900 with 2850 Sensor Electronics</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>GF Instruments</p> <ul style="list-style-type: none"> <li>- 9900 with 2850 Sensor Electronics</li> <li>- 9900 and Rear Enclosure or with 3-9900.394 Direct Conductivity/Resistivity Module and Rear Enclosure</li> </ul> 	<p>Type 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>Type 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>GF 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> 

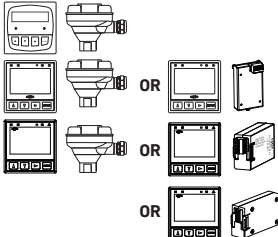
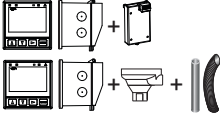
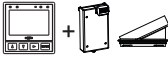
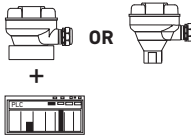
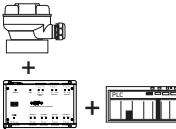
#### Type 2839-2842 Conductivity Electrodes



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>GF Instruments with 2850 Sensor Electronics</p> <ul style="list-style-type: none"> <li>- 9900 or with 3-9900.394 Direct Conductivity/Resistivity Module</li> <li>- 9950 with 9950.394-1 Direct Conductivity/Resistivity Module or with 3-9950.394-2 Dual Channel Conductivity Module</li> </ul> 	<p>GF 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>GF 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>Type 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>Type 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> 

#### Type 2839-2842 Conductivity Electrodes



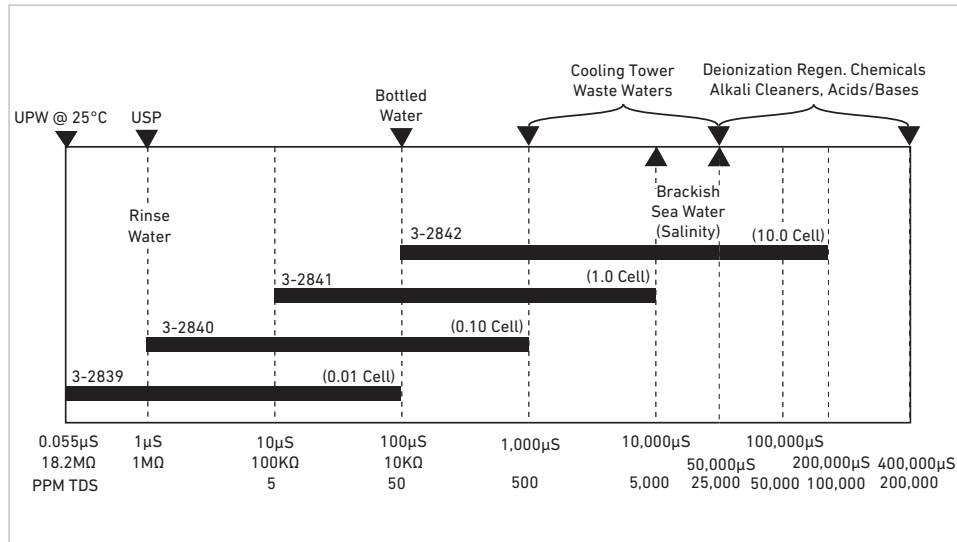
All Sold Separately

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

## Application Tips

- To optimize 9950-10 /-11 I/O module selection, you can utilize 2850-63 for two conductivity sensors at a time.
- 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.

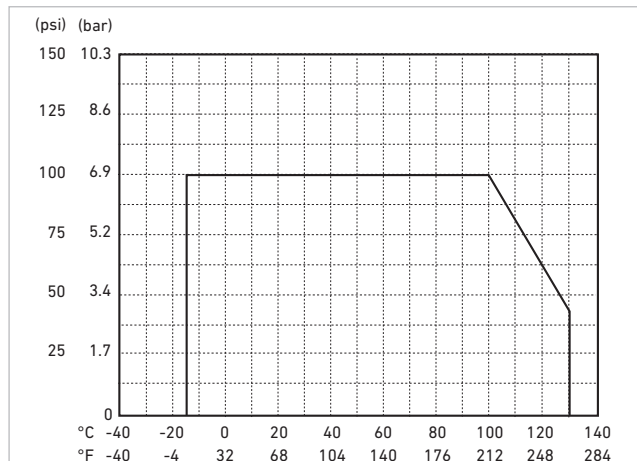
## Operating Range Chart



## Pressure-temperature diagram

### Note

The pressure-temperature diagrams are specifically for the GF sensor. During system design the specifications of all components must be considered. In the case of a metal piping system, a plastic sensor will reduce the system specification.



## Ordering Information

### Ordering Notes

1. The Conductivity Certification tools are compatible with the following GF Instruments: 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: 61501061646  
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 µS  
Solution temperature: 24.46°C

Test Data

Cell constant: 0.0985  
Temperature: 24.46°C

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

Mfr. Part	Code	Description
3-2850.101-1	159 001 392	Plug-in NIST traceable recertification tool, 1.0 µS simulated, for use with 2850 and 9900
3-2850.101-2	159 001 393	Plug-in NIST traceable recertification tool, 2.5 µS simulated, for use with 2850 and 9900
3-2850.101-3	159 001 394	Plug-in NIST traceable recertification tool, 10.0 µS simulated, for use with 2850 and 9900
3-2850.101-4	159 001 395	Plug-in NIST traceable recertification tool, 18.2 MΩ simulated, for use with 2850 and 9900
3-2850.101-5	159 001 396	Plug-in NIST traceable recertification tool, 10.0 MΩ simulated, for use with 2850 and 9900
3-2820.390	198 840 223	3/4 in. NPT Fitting, 316 SS replacement for 2823-1, and use for submersible mounting of 2822-1
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, 316 SS for higher temperature/pressure use with 2819-1, 2820-1 or 2821
3-2850-61	159 001 400	Universal junction box, conductivity electronics, digital (S <sup>3</sup> L) output
3-2850-62	159 001 401	Universal junction box, conductivity electronics, 4 to 20 output
3-2850-63	159 001 402	Dual digital (S3L) outputs (for 9950-10/-11)
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

\* Note: GF recommended sensors that require extended cable lengths be ordered from the factory.