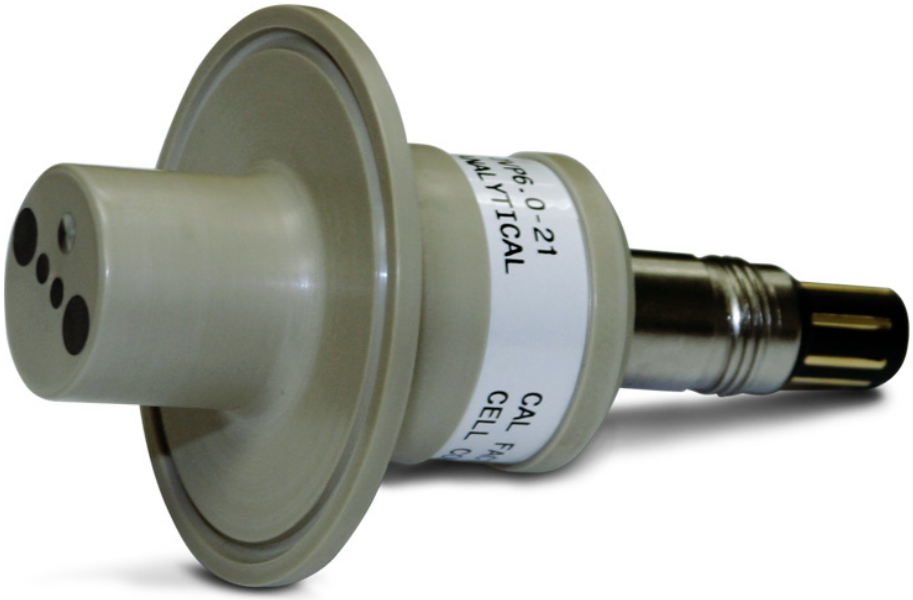
Product Data Sheet
June 2017
LIQ-PDS-410VP

Rosemount™ 410VP

Four-Electrode Conductivity Sensors



The Rosemount 410VP four-electrode conductivity sensor is primarily intended for the measurement of electrolytic conductivity in the pharmaceutical and food and beverage industries. Typical applications include monitoring the concentration of CIP solutions and rinses, monitoring eluents in chromatographic separations, and detecting liquid interfaces.

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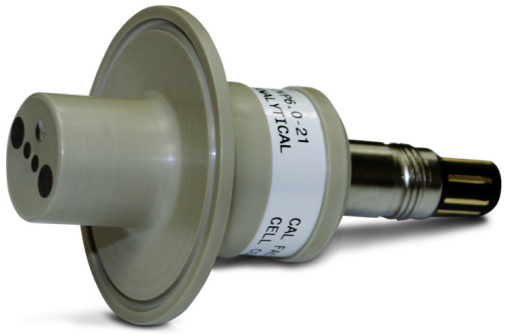
Overview



Meet Various Sanitary Requirements

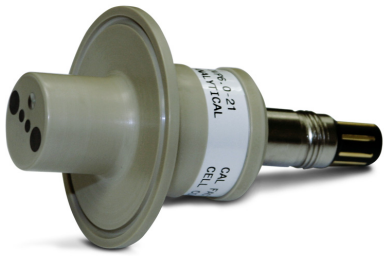
- Sensor body and elastomers are compliant with 21CFR177; a certificate of conformance is supplied with each sensor.
- 3-A Sanitary Standard 74-06 compliant.
- Wetted surfaces (except electrodes) have a 16 micro inch (0.4 micrometer) Ra finish.
- Available in Tri-Clamp, Varivent N, and G 1-¼ fittings.
- Animal-derived Ingredient (ADI) free optional.

High Performance and Robust Sensor Design

- Four-electrode design provides exceptional linearity between 1 µS/cm and 1400 mS/cm.
- Unfilled PEEK sensor body.
- Steam sterilization (SIP) tolerant up to 284 °F (140 °C).
- Rapid response to temperature changes with a Pt-1000 RTD.

Contents

Ordering Information



The Rosemount 410VP four-electrode conductivity sensor is intended for measuring conductivity in a variety of pharmaceutical and food and beverage applications. All wetted plastics and elastomers are compliant with 21CFR177, and all wetted surfaces except the electrodes have a 16 micro-inch (0.4 micrometer) Ra surface finish. A certificate of conformance is provided with each sensor. Interconnecting VP8 cable must be ordered separately and is required for all first time installations.

Additional Information

Specifications: see "Specifications" on page 3
Dimensional drawings: see "Installation" on page 5
Accessories: see "Accessories" on page 7
Engineering Specifications: see "Engineering Specification" on page 7

Table 1. Rosemount 410VP Four-Electrode Conductivity Sensor ordering information

Model	Sensor type
410VP	Four-electrode conductivity sensor
Process Connection	
20	1½ in. Tri-clamp
21	2 in. Tri-clamp
22	G 1¼
23	Varivent N
Material Specification	
_	No selection
40	Free of Animal-Derived Ingredients (ADI-Free)
Special Option	
99Q8	Supplier material traceability certificates
Typical Model Number: 410VP-20-40	

Specifications

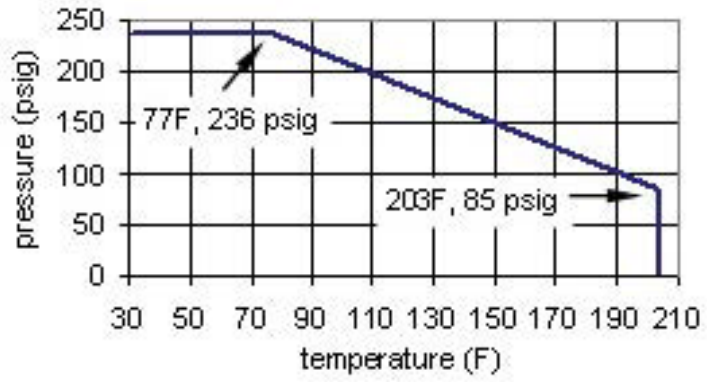
Table 2. Rosemount 410VP Four-Electrode Conductivity Sensor specifications

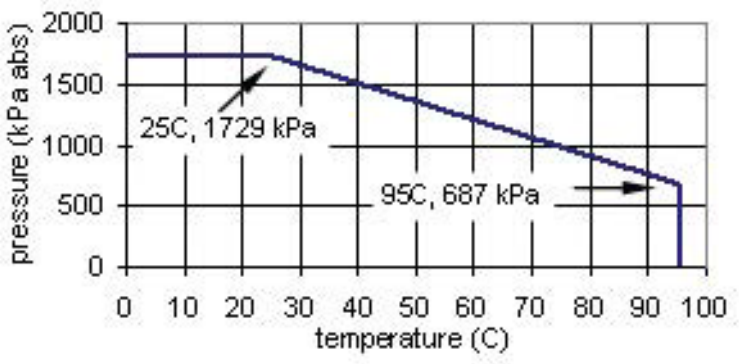
Wetted Materials	
Electrodes	316L stainless steel
Sensor body	unfilled PEEK; compliant with 21CFR177.2415
O-ring (option -22 only)	EP; compliant with 21CFR177.2600
Conformance to 3-A Sanitary Standards	
Sensors with option -20 and -21 meet 3-A sanitary standards for sensors and sensor fittings and connections used on milk and milk products equipment (74-06)	

Table 2. Rosemount 410VP Four-Electrode Conductivity Sensor specifications

Surface Finish
All wetted surfaces except electrodes have 16 micro inch (0.4 micrometer) Ra surface finish.
Cable
VP8 connector cable (sold separately; see "Accessories" on page 7)
Maximum Cable Length
100 ft (30.5 m)
Range
1 µS/cm to 1400 mS/cm
Accuracy
Within ±4% of the expected conductivity
Steam Sterilization
Tolerates SIP to 284 °F (140 °C)
Weight/Shipping Weight
1lb (0.5kg) / 1lb (0.5kg) Weight and shipping weight are rounded up to the nearest 1lb or 0.5kg.

Figure 1. Temperature and pressure



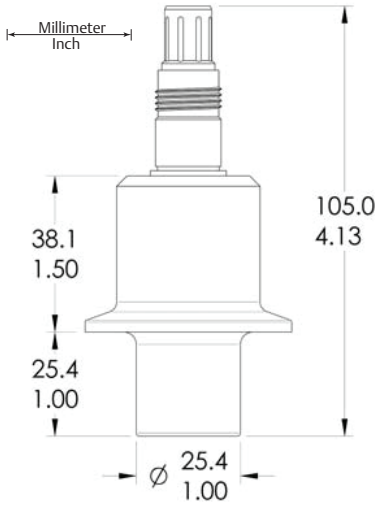


Installation

Install the sensor in the process piping so that the electrodes are completely immersed in the liquid. Generally, mounting the sensor in a vertical pipe is best. If the sensor must be installed in a horizontal pipe, place the sensor in the three o'clock position. Keep at least 0.75 inch (19 mm) clearance between the end of the sensor and the opposite pipe wall. Clamps and gaskets (if necessary) must be supplied by the user.

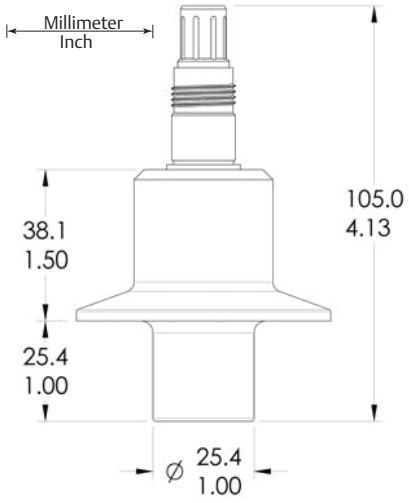
Dimensional Drawings

Figure 2. Rosemount 410VP-20 Conductivity Sensor dimensional drawing



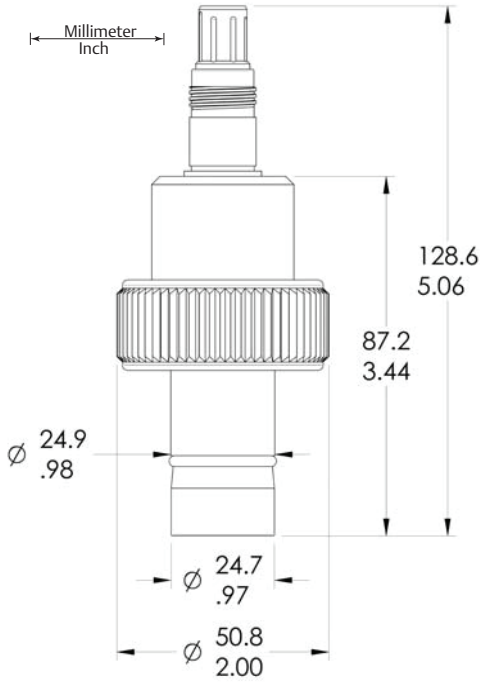
(1½ inch Tri-Clamp connection)

Figure 3. Rosemount 410VP-21 Conductivity Sensor dimensional drawing



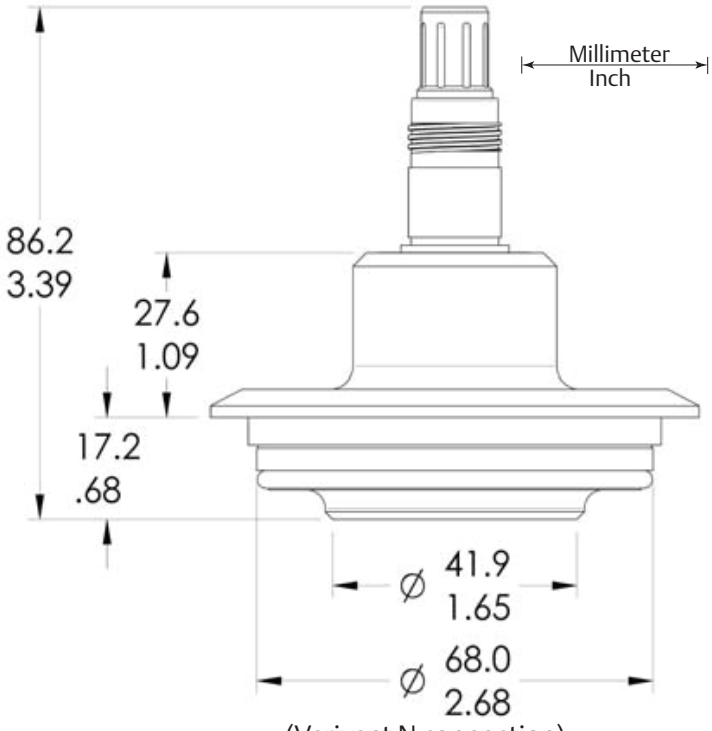
(2 inch Tri-Clamp connection)

Figure 4. Rosemount 410VP-22 Conductivity Sensor dimensional drawing



(G 1¼ connection)

Figure 5. Rosemount 410VP-23 Conductivity Sensor dimensional drawing



(Varivent N connection)

Accessories

Table 3. Rosemount 410VP Four-Electrode Conductivity Sensor accessories information

Part number	Description
24287-00	10 ft VP8 connector cable for Rosemount 410VP sensor
24287-01	50 ft VP8 connector cable for Rosemount 410VP sensor
23550-00	Remote junction box, without preamplifier
24289-00	Interconnect cable for Rosemount 410VP sensor, prepped
9200334	Interconnect cable for Rosemount 410VP sensor, unprepped
9210004	Conductivity standard, 2000 µS/cm, 16 oz
2001492	Stainless steel tag

Engineering Specification

- The sensor shall be suitable for the determination of electrolytic conductivity between 1 µS/cm and 1400 mS/cm.
- Measurement accuracy shall be ±4% of reading.
- The sensor shall be available in 1½-inch and 2-inch Tri-Clamp, Varivent N, and G 1¼ process connections.
- Electrodes shall be 316L stainless steel and the sensor body shall be unfilled PEEK. O-rings, if used, shall be EP. All plastics and elastomers shall be compatible with 21CFR177.
- All wetted surfaces shall except electrodes have a 16 micro-inch (0.4 micrometer) Ra finish.
- The sensor shall tolerate steam sterilization up to 284 °F (140 °C).
- The sensor shall be available with a Variopol VP8.0 quick-disconnect fitting.
- The sensor shall have an integral Pt 1000 RTD for temperature measurement.
- The sensor shall be Rosemount 410VP or equivalent.

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