

# Rosemount™ 140/141/142

## Contacting Conductivity Sensors



### Make reliable conductivity measurements with Rosemount 140 series conductivity sensors

Rosemount 140, 141, and 142 sensors are contacting conductivity sensors used for measuring electrolytic conductivity in applications ranging from high purity water to clean cooling water. These sensors are ideal for use in clean, non-corrosive water having conductivity less than about 20,000  $\mu\text{S}/\text{cm}$ .

# Overview



## Retractable Rosemount 140

- Perform maintenance and replace sensors easily by removing the sensor from process piping without having to shut down and drain the line or vessel.
- Compatible with 1 in. full port ball valves (sold separately).



## Versatile Rosemount 141 and 142

- ¾ in. MPT process connections for screw-in type installation.



## Robust Sensor Construction

- High temperature options allow sensors to be used in process temperatures up to 200 °C.
- Easily wire sensors to transmitters through an integral cast aluminum junction box.

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## Ordering Information



The Rosemount 140 contacting conductivity sensor is a retractable type sensor used to measure conductivity in process liquids having moderately high conductivity. Sensors are available in 0.2/cm and 1.0/cm cell constants. Interconnecting cable and ball valve/retraction assembly must be ordered separately.

**Table 1. Rosemount140 Contacting Conductivity Sensor ordering information**

Model	Sensor type
140	Contacting Conductivity Sensor
<b>Cell Constant and Temperature Construction</b>	
54	0.2/cm cell constant – Standard temperature up to 150 °C
55	0.2/cm cell constant – High temperature up to 200 °C
56	1.0/cm cell constant – Standard temperature up to 150 °C
57	1.0/cm cell constant – High temperature up to 200 °C
<b>Typical Model Number:140-56</b>	



The Rosemount 141 contacting conductivity sensor is a screw in type sensor available with 0.2/cm and 1.0/cm cell constants. Interconnecting cable for wiring between sensor junction box and transmitter is sold separately.

**Table 2. Rosemount141 Contacting Conductivity Sensor ordering information**

Model	Sensor type
141	Contacting Conductivity Sensor
<b>Cell constant</b>	
04	0.2/cm cell constant
06	1.0/cm cell constant
<b>Temperature construction</b>	
13	Standard temperature up to 150 °C
14	High temperature up to 200 °C
<b>RTD</b>	
54	Pt-100
<b>Typical model number:141-06-14-54</b>	



The Rosemount 142 contacting conductivity sensor is a screw in type sensor available with 0.01/cm and 0.1/cm cell constants. Interconnecting cable for wiring between sensor junction box and transmitter is sold separately.

**Table 3. Rosemount142 Contacting Conductivity Sensor ordering information**

Model	Sensor type
142	Contacting Conductivity Sensor
<b>Cell constant</b>	
01	0.01/cm cell constant
03	0.1/cm cell constant
<b>Temperature construction</b>	
13	Standard temperature up to 150 °C
14	High temperature up to 200 °C
<b>RTD</b>	
54	Pt-100
<b>Typical Model Number: 142-01-13-54</b>	

## Specifications

**Table 4. Rosemount 140 contacting conductivity sensor specifications**

<b>Cell constants</b>	
0.1 and 1.0/cm (nominal, to within +/- 5%)	
<b>Wetted materials</b>	
Electrodes	316 stainless steel
Body	316 stainless steel
Insulator	PEEK
O-rings	Viton
<b>Temperature range</b>	
Standard	32 °F to 302 °F (0 °C to 150 °C) maximum
High temperature	32 °F to 392 °F (0 °C to 200 °C) maximum
<b>Pressure</b>	
100 psig (791 kPa abs) maximum	
<b>Maximum retraction pressure</b>	
100 psig (791 kPa abs)	
<b>Vacuum</b>	
At 1.6 in. Hg (5.2 kPa) air leakage is less than 0.005 SCFM (0.00014 m <sup>3</sup> /min)	
<b>Junction box</b>	
Cast aluminum	
<b>Process connection</b>	
1 in. MPT through 1 inch full port ball valve (retractable)	
<b>Weight/shipping weight</b>	
5 lb /6 lb (2.5 kg / 3.0 kg) Weights rounded up to nearest whole lb or 0.5 kg	

**Table 5. Rosemount 141 contacting conductivity sensor specifications**

<b>Cell constants</b>	
0.2 and 1.0/cm (nominal, to within +/- 5%)	
<b>Wetted materials</b>	
Electrodes	316 stainless steel
Body	316 stainless steel
Insulator	PEEK
O-rings	Viton
<b>Temperature and pressure</b>	
See <a href="#">Figure 1 on page 7</a>	
<b>Vacuum</b>	
At 1.6 in. Hg (5.2 kPa) air leakage is less than 0.005 SCFM (0.00014 m <sup>3</sup> /min)	
<b>Junction box</b>	
Cast aluminum	
<b>Process connection</b>	
¾ in. MPT	
<b>Weight/shipping weight</b>	
2 lb / 3 lb (1.0 kg / 1.5 kg) Weights rounded up to nearest whole lb or 0.5 kg	

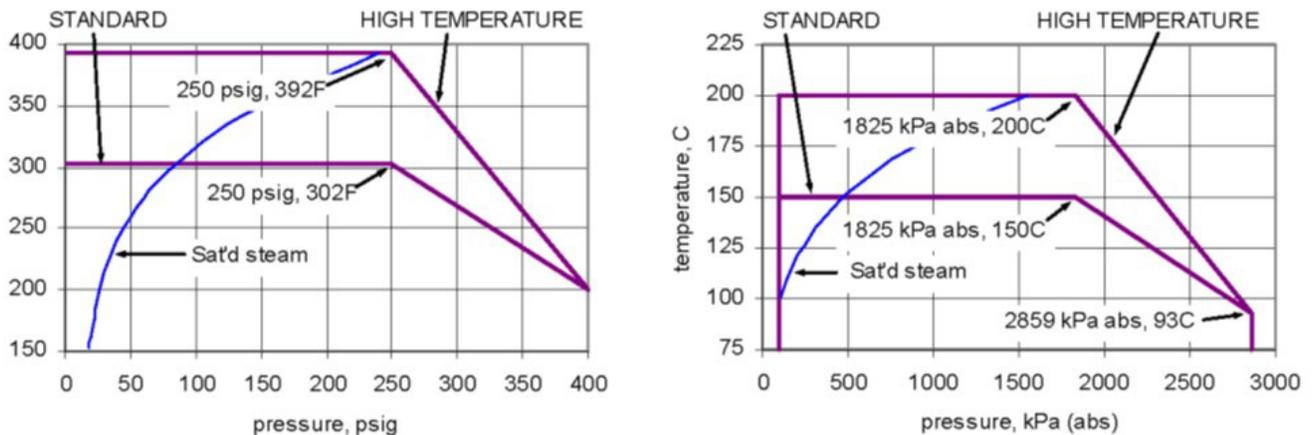
**Table 6. Rosemount 142 contacting conductivity sensor specifications**

<b>Wetted materials</b>	
Electrodes	316 stainless steel
Body	316 stainless steel
Insulator	PEEK (high temperature option)
	PCTFE (low temperature option)
O-rings	Viton
<b>Temperature and pressure</b>	
See <a href="#">Figure 1</a> on page 7	
<b>Vacuum</b>	
At 1.6 in. Hg (5.2 kPa) air leakage is less than 0.005 SCFM (0.00014 m <sup>3</sup> /min)	
<b>Junction box</b>	
Cast aluminum	
<b>Process connection</b>	
¾ in. MPT	
<b>Weight/shipping weight</b>	
2 lb / 3 lb (1.0 kg / 1.5 kg) Weights rounded up to nearest whole lb or 0.5 kg	

**Table 7. Specifications for Ball Valve Kit PN 23724-00**

<b>Wetted Materials</b>
316 stainless steel except Teflon® seat and seals in ball valve

**Figure 1. Rosemount 141 and 142 sensor pressure/temperature graphs**



# Dimensional and Installation Drawings

Figure 2. Rosemount 140 sensor dimensional drawing

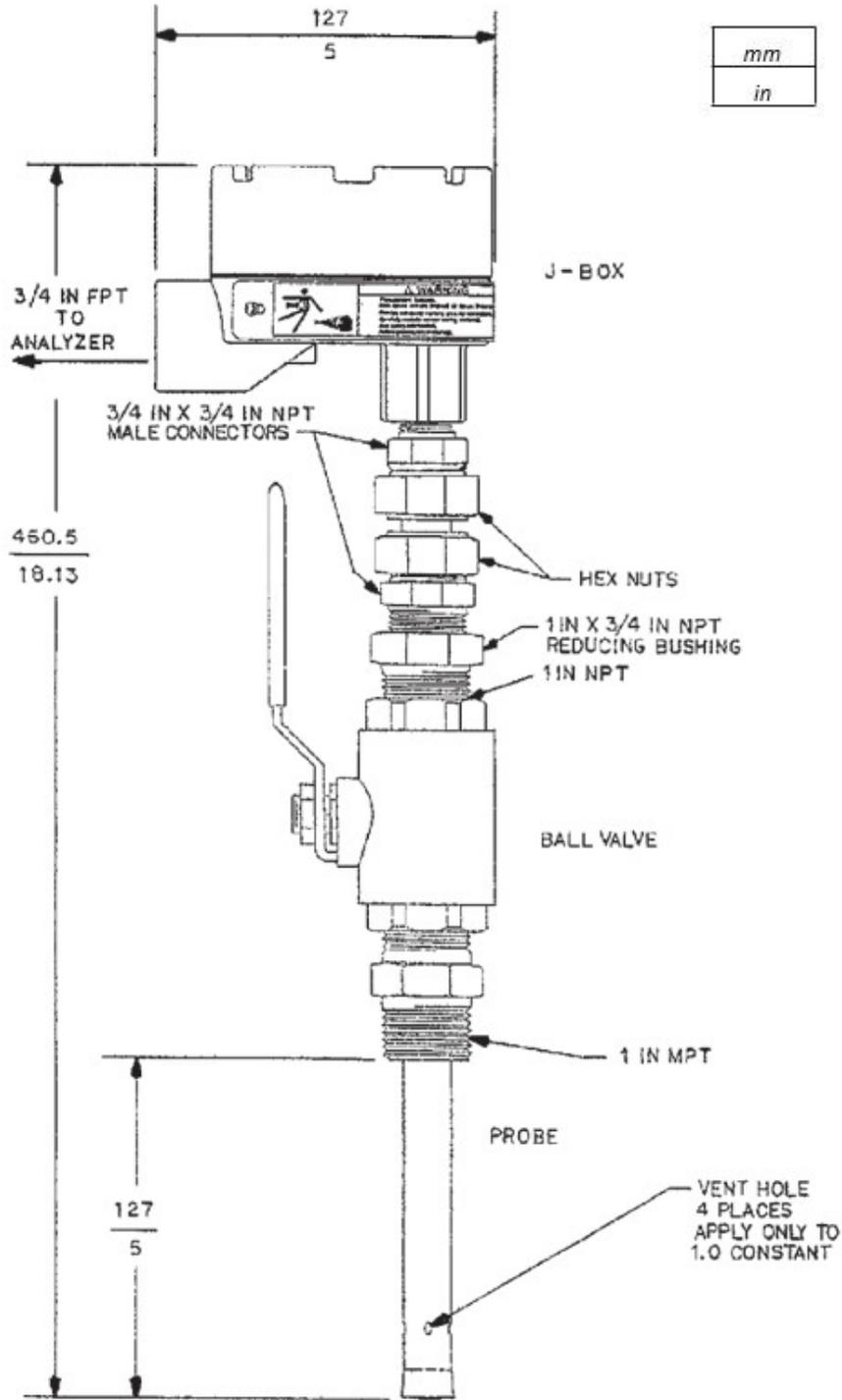
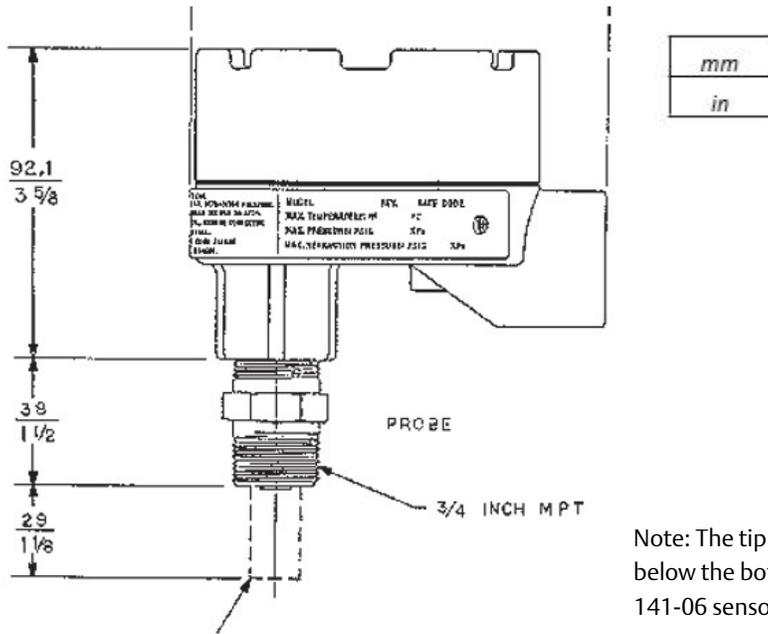


Figure 3. Rosemount 141 sensor dimensional drawing



Note: The tip of the 141-06 sensor extends 1.in. below the bottom of the threads. The tip of the 141-06 sensor is even with the bottom threads.

Figure 4. Rosemount 142 sensor dimensional drawing

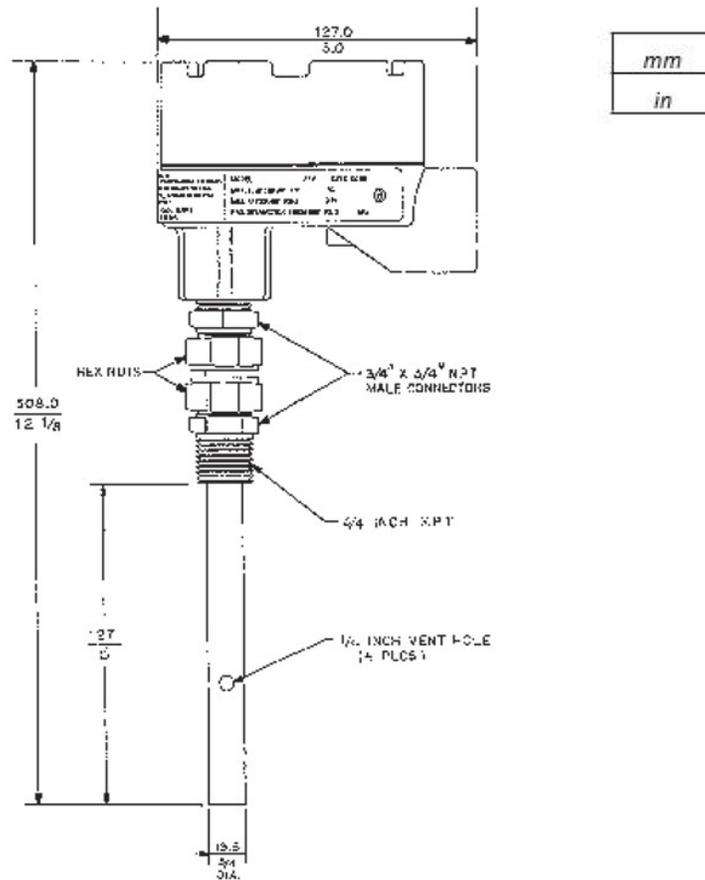
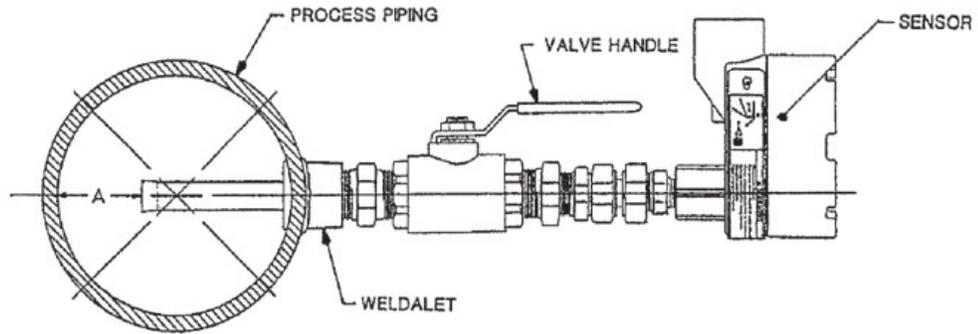


Figure 5. Installation details for Rosemount 140 sensor



A to be 1 in. or more from vessel wall

Figure 6. Installation details for Rosemount 141 sensor

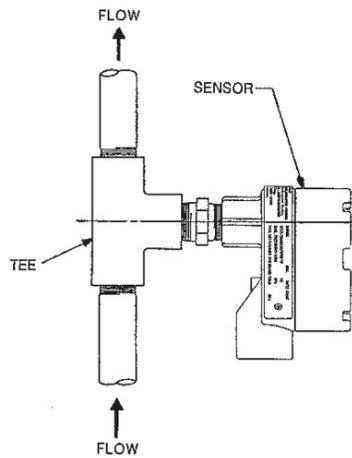
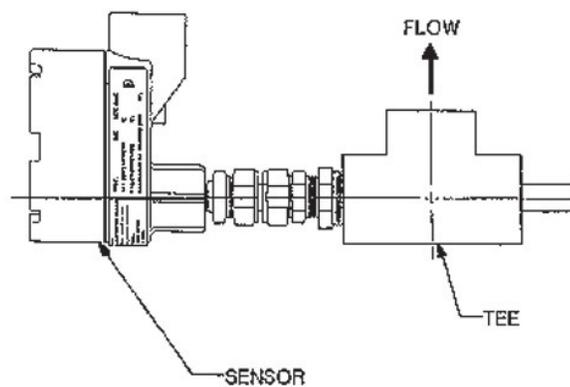


Figure 7. Installation details for Rosemount 142 sensor



## Accessories

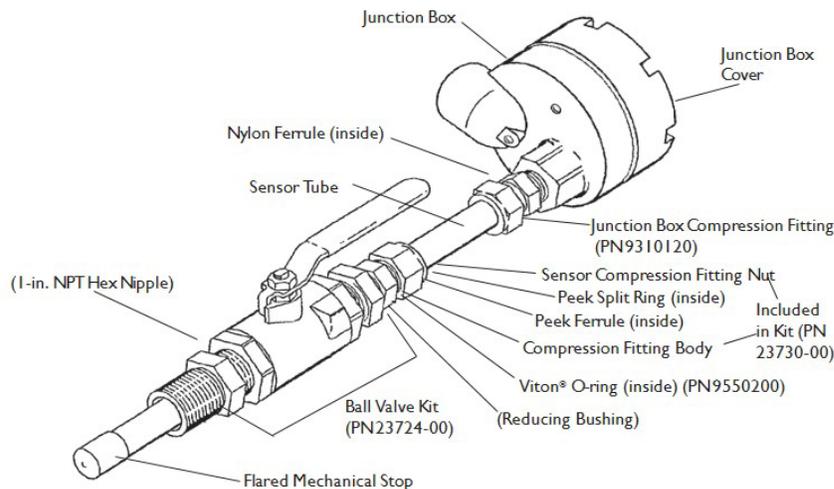
**Table 8. Rosemount 140/141/142 Sensor accessories information**

Part number	Description
23550-00	Junction box for remote cable connection
9200275	Connecting cable, unterminated, specify length
23747-00	Connecting cable, terminated, specify length
05010781899	Conductivity standard SS-6, 200 $\mu\text{S}/\text{cm}$ , 32 oz. (0.95 L)
05010797875	Conductivity standard SS-6A, 200 $\mu\text{S}/\text{cm}$ , 1 gal (3.78 L)
05010782468	Conductivity standard SS-5, 1000 $\mu\text{S}/\text{cm}$ , 32 oz (0.95 L)
05010783002	Conductivity standard SS-5A, 1000 $\mu\text{S}/\text{cm}$ , 1 gal (3.78 L)
05000705464	Conductivity standard SS-1, 1409 $\mu\text{S}/\text{cm}$ , 32 oz (0.95 L)
05000709672	Conductivity standard SS-1A, 1409 $\mu\text{S}/\text{cm}$ , 1 gal (3.78 L)
05010782147	Conductivity standard SS-7, 5000 $\mu\text{S}/\text{cm}$ , 32 oz (0.95 L)
05010782026	Conductivity standard SS-7A, 5000 $\mu\text{S}/\text{cm}$ , 1 gal (3.78 L)

**Table 9. Rosemount 140 Sensor accessories information**

Part number	Description
23724-00	Ball valve kit
23730-00	Process compression fitting, $\frac{3}{4}$ in. NPT
23731-00	Process fitting rebuild kit
9310120	Junction box compression fitting
9550200	O-ring <sup>®</sup> 2-116, Viton <sup>®</sup>

**Figure 8. Rosemount 140 with Ball Valve Kit (PN 23724-00)**



*Rosemount 140 Sensor with Ball Valve Kit  
(PN 23724-00)*

**Table 10. Rosemount 142 Sensor accessories information**

Part number	Description
33107-01	Compression fitting, ¾ in.
9310063	Ferrule, ¾ in.
9310066	Compression nut, ¾ in.

**Notes:**

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