

Conductivity Sensors

- HIGH TEMPERATURE 316 SS AND PEEK CONSTRUCTION operates up to 200°C (392 °F).
- MODEL 140 RETRACTABLE SENSOR installs through a one inch ball valve.
- INCLUDES ALL INSTALLATION HARDWARE.
- RUGGED CAST ALUMINUM WEATHER PROOF JUNCTION BOX provides easy access to field wiring.
- MEASUREMENT RANGES FROM 0-1 $\mu\text{S}/\text{cm}$ to 0-20,000 $\mu\text{S}/\text{cm}$.



FEATURES AND APPLICATIONS

The Rosemount Analytical Models 140, 141, and 142 conductivity sensors are designed for measuring conductivity in high temperature and pressure applications. A choice of cell constants allows measurements in low to medium conductivity level samples. Corrosion-resistant 316 stainless steel construction and the ability to be inserted directly into a process line or through the side of a vessel make the sensors rugged and easy to install.

The Model 140 retractable conductivity sensor simplifies sensor installation and maintenance because it can be removed from a pressurized line or vessel without shutting down the process or using bypass sample lines. The sensor's measuring electrodes are inserted into the process through a 1 in. ball valve and a Viton¹ process seal. To retract the sensor, a retaining nut is loosened, the sensor backed out of the process and the ball valve closed.

The standard Model 140 is constructed of 316 stainless steel and PEEK and can operate at up to 150°C. High temperature options (Codes 05, 07, 55, or 57) must be selected to measure up to 200°C. The choice of a 0.2 or 1.0 cell constant allows conductivity measurements up to 20,000 $\mu\text{S}/\text{cm}$ with the Rosemount Analytical Models 54C, 1054A/B C, 2054C, 1181C, 2081C, 3081C, and 81C analyzers.

The Model 141 insertion sensor measures conductivity in high temperature, high pressure applications. The standard Model 141 is constructed of 316 stainless steel and PEEK and can operate at temperatures up to 150°C. An optional high temperature version (Code 14) can operate at temperatures up to 200°C. The choice of a 0.2 or 1.0 cell constant allows conductivity measurements up to 20,000 $\mu\text{S}/\text{cm}$ with the Rosemount Analytical Models 54C, 1054A/B C, 2054C, 1181C, 2081C, 3081C, and the 81C analyzers.

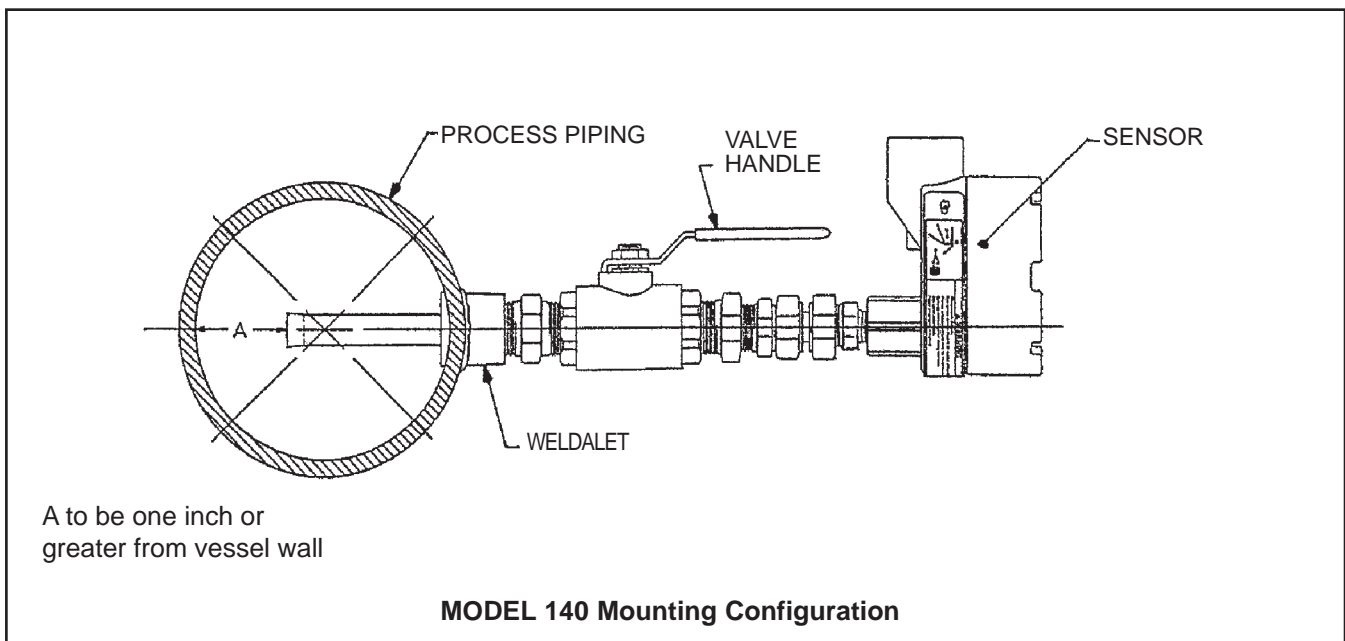
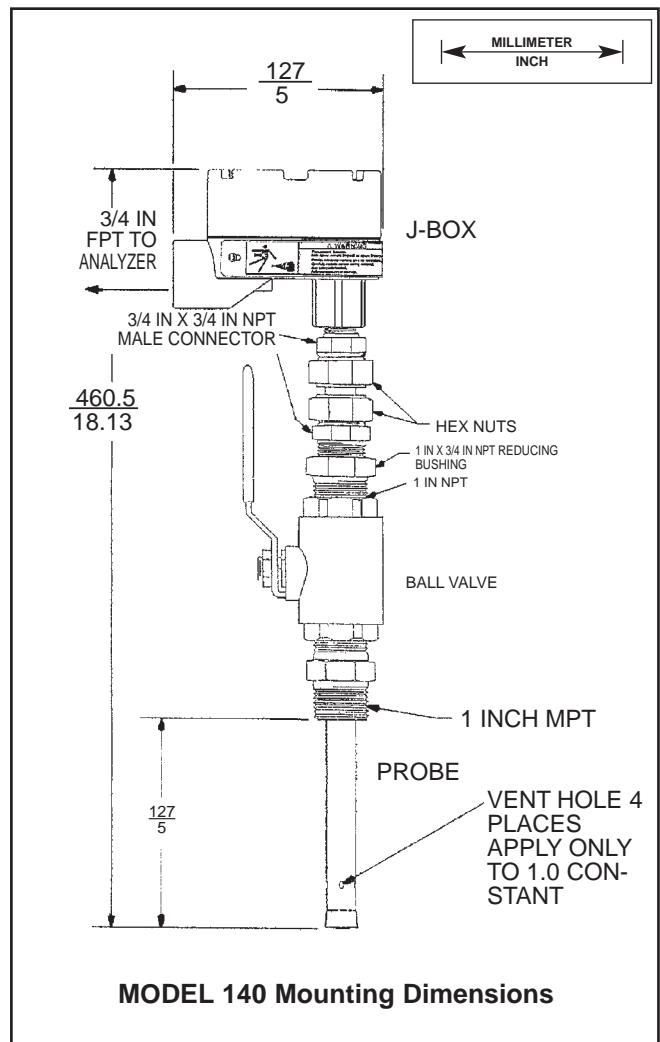
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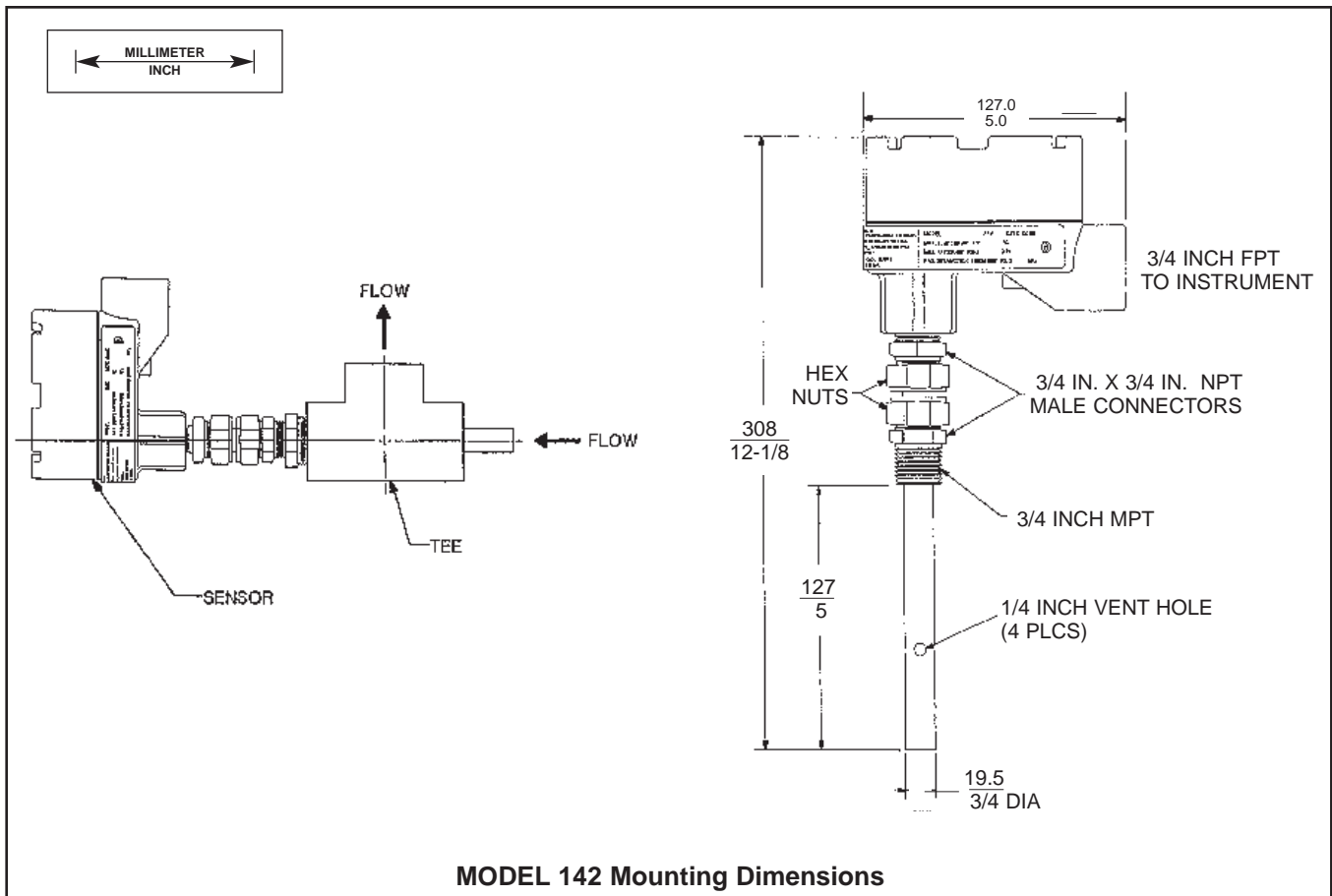
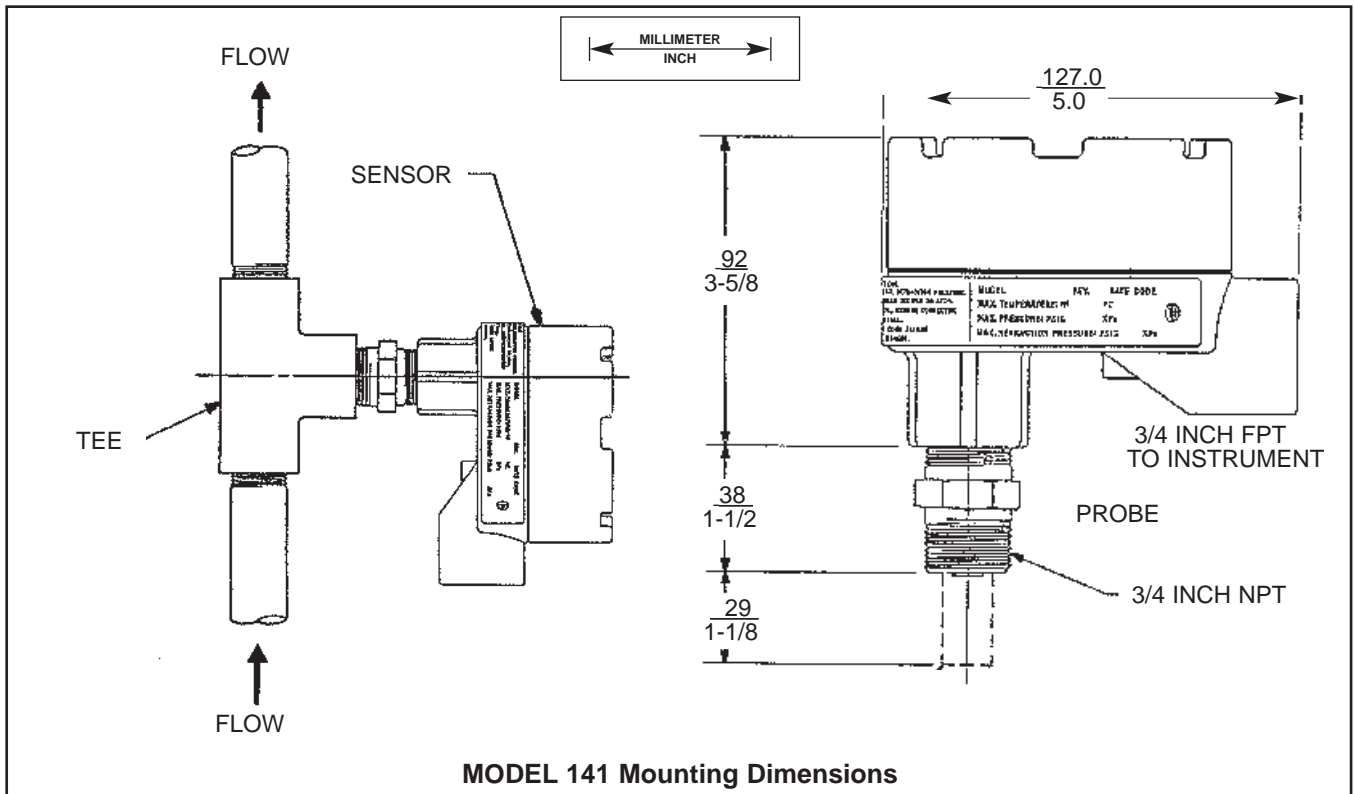
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The Model 142 low conductivity insertion sensor measures low conductivity solutions at high temperatures and pressures. The standard Model 142 is constructed of 316 stainless steel and Kel-F, and can operate at temperatures up to 150°C. An optional high temperature version (Code 14) can operate at temperatures up to 200°C and is constructed of 316 stainless steel and PEEK. The choice of a 0.01 or 0.1 cell constant allows measurement ranges from 0-1 $\mu\text{S}/\text{cm}$ and up to 0-2,000 $\mu\text{S}/\text{cm}$ with the Rosemount Analytical Models 54C, 1054A/B C, 1181C, 2081C, 3081C, and 81C analyzers.

¹ A registered trademark of E. I. du Pont de Nemours and Company

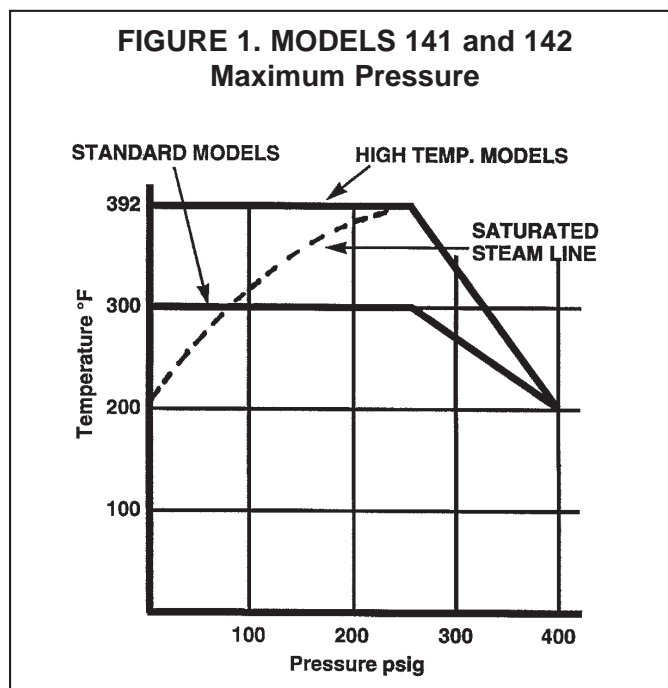
² A registered trademark of 3M Company.





SENSOR SPECIFICATIONS

SPECIFICATIONS	MODEL 140	MODEL 141	MODEL 142
Cell Constant	0.2 and 1.0/cm Standard: 150°C (302°F)	0.2 and 1.0/cm Standard: 150°C (302°F)	0.01 and 01/cm Standard: 150°C (302°F)
Maximum Temperature	High Temp: 200° C (392°F)	up to 250 psig (1825 kPa abs) High Temp: 200°C (392°F) up to 250 psig (1825 kPa abs)	up to 250 psig (1825 kPa abs) High Temp: 200°C (392°F) up to 250 psig (1825 kPa abs)
Maximum Pressure	100 psig (791 kPa)	See Figure 1	See Figure 1
Temperature Compensation	Codes 04, 06, 54, 56: 0-150°C (32-302°F) Codes 05, 07, 55, 57: to 200°C (to 392°F)	Standard: 0-150°C (32-302°F) High Temp: to 200°C (to 392°F)	Standard: 0-150°C (32-302°F) High Temp: to 200°C (to 392°F)
WETTED MATERIALS			
Electrodes	316 Stainless Steel.	316 Stainless Steel.	316 Stainless Steel.
Insulators	PEEK	PEEK	Kel-F for standard temp. PEEK for high temperature
O-Rings	Viton	Viton	Viton
Sensor Body	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Junction Box	Cast Aluminum	Cast Aluminum	Cast Aluminum
Weight/Ship Weight	5 lb/6 lb (2.26/2.72 kg)	2 lb/3 lb (0.9/1.4 kg)	4 lb/5 lb (1.9/2.3 kg)



ORDERING INFORMATION

The Model 140 Retractable Conductivity Sensor: Designed for insertion through a 1 in. ball valve. Materials of construction include 316 SS electrodes with PEEK insulator for service up to 200°C. Standard features include a cast aluminum NEMA 7D junction box and a choice of cell constants of either 0.2 or 1.0. The cable and ball valve must be ordered separately.

MODEL 140 RETRACTABLE CONDUCTIVITY SENSOR	
CODE	GROUP I FOR USE WITH MODEL 1181C (Required Selection - one only from Group I or II)
04	0.2/cm cell constant
05*	0.2/cm cell constant, high temperature construction
06	1.0/cm cell constant
07*	1.0/cm cell constant, high temperature construction
CODE	GROUP II FOR USE WITH MODELS 54C, 1054A/B C, 2054C, 2081C, 3081C & 81C
54	0.2/cm cell constant
55	0.2/cm cell constant, high temperature construction
56	1.0/cm cell constant
57	1.0/cm cell constant, high temperature construction
140	54 EXAMPLE

* Model 1181 C must be supplied with 100 to 200°C temperature compensation range (option -09).

NOTE: Ball valve kit, P/N 23724-00, is ordered as a separate item.

ACCESSORIES for Models 140, 141, and 142

P/N	DESCRIPTION
23724-00	Ball valve kit, 316 stainless steel (for Model 140 sensors)
9200104	Cable, 8 conductor, 24 AWG, 4 shielded pair (1181C)
9200266	Cable, 9 conductor (1054A/B C, 2054C, 2081C, 3081C, 54C, and 81C)
9200275	Cable, 5 conductor, shielded (unprepped)
23747-00	Cable, 5 conductor, shielded (prepped)
SS-3	Conductivity standard, 2000 μ S/cm, 1 qt
SS-6	Conductivity standard, 200 μ S/cm, 1 qt
23731-00	Process fitting rebuild kit (for Model 140 sensors)
23730-00	Process compression fitting (3/4-in. NPT) kit (for Model 140 sensors)
9310120	Junction box compression fitting (for Model 140 sensors)
9550200	O-ring, 2-116, Viton (for Model 140 sensors)
3001882	Process compression fitting, 3/4-in. NPT (for Model 142 sensors)

ORDERING INFORMATION

The Model 141/142 Insertion Conductivity Sensors: Designed for high pressure, high temperature service. The Model 141 Sensor cell constants of 0.2 and 1.0 are suitable for measurements up to 20,000 $\mu\text{S}/\text{cm}$. The Model 142 Sensor cell constants of 0.1 and 0.01 provide conductivity measurements down to 1 $\mu\text{S}/\text{cm}$ full scale. The standard -13 sensors are constructed to operate up to 150°C. To operate up to 200°C, the high temperature option (Code 14) must be selected. The sensors do not come with interconnecting cable. See previous page for cable requirements.

MODEL 141/142 INSERTION CONDUCTIVITY SENSOR	
CODE	CELL CONSTANT (Required Selection)
01*	0.01/cm (Model 142 only)
03	0.1/cm (Model 142 only)
04	0.2/cm (Model 141 only)
06	1.0/cm (Model 141 only)
CODE	TEMPERATURE (Required Selection)
13	Standard construction for operation up to 150°C
14**	High temperature construction for operation between 100° C and 200°C
54	For use with Models 54C, 1054A/B C, 2054C, 2081C, 3081C & 81C
141	06 13 54 EXAMPLE

* Recommended for use with the Models 3081C and 81C for best accuracy at low conductivity

** Model 1181C must be supplied with 100° to 200°C temperature compensation range (option -09).



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