Product Data Sheet
71-140 series/rev.B
February 2011

Conductivity Sensors

- RUGGED CONSTRUCTION withstands high temperature and pressure
- TWO MOUNTING CONFIGURATIONS: screw-in and retractable
- INTEGRAL JUNCTION BOX allows easy access to field wiring

APPLICATIONS

The Model 140, 141, and 142 sensors are contacting conductivity sensors intended for the determination of electrolytic conductivity in applications ranging from high purity water to clean cooling water. The sensors are ideal for use in clean, non-corrosive water having conductivity less than about 20,000 uS/cm. For dirty or corrosive sample or for samples having high conductivity, a toroidal sensor such as the Model 228 or 226 is recommended.

FEATURES

The Model 140 series sensors are available with a range of cell constants, allowing optimum matching of the sensor to the expected conductivity. For low conductivity, choose the Model 142 sensor (available with either 0.01 or 0.1/cm cell constants). For moderately high conductivity choose either the Model 140 or 141 sensors (both available with 0.2 or 1.0/cm cell constants). The cell constant is accurate to within ±5%, so the error in the measured conductivity will be at least ±5%. For higher accuracy, the sensor must be calibrated by the user. A broad range of calibration standards are available.

Although the Model 141 and 142 sensors, which have screw-in process connections, are suitable for most applications, the Model 140 sensor has the advantage of being retractable. It can be removed from the process piping without shutting down and draining the line or vessel. The retraction assembly and ball valve must be purchased separately.

All three models have 316 stainless steel electrodes and process connections and use either PEEK or PCTFE insulators. A high temperature option allows the sensor to be used at 392°F (200°C).

For ease of field wiring, all three models are equipped with an integral cast aluminum junction box.

SPECIFICATIONS (MODEL 140)

Cell constants: 0.2 and 1.0/cm (nominal, to within ±5%)

Wetted materials:

Electrodes: 316 stainless steel

Body: 316 stainless steel

Insulator: PEEK

O-rings: Viton[1]

Junction box: cast aluminum (not wetted), NEMA 7D

Process Connection: 1 inch MPT through 1-inch full port ball valve (retractable)

Temperature:

Standard: 302°F (150°C) maximum

High temperature: 392°F (200°C) maximum

Pressure: 100 psig (791 kPa abs) maximum

Maximum retraction pressure: 100 psig (791 kPa abs)

Weight/Shipping Weight: 5 lb/6 lb (2.5 kg/3.0 kg)

Weights rounded up to nearest whole lb or 0.5 kg

SPECIFICATIONS (MODEL 141)

Cell constants: 0.2 and 1.0/cm (nominal, to within ±5%)

Wetted materials:

Electrodes: 316 stainless steel

Body: 316 stainless steel

Insulator: PEEK

O-rings: Viton[1]

Junction box: cast aluminum (not wetted), NEMA 7D

Process Connection: 3/4 inch MPT

Temperature and pressure: see graphs

Weight/Shipping Weight: 2 lb/3 lb (1.0 kg/1.5 kg)

Weights rounded up to nearest whole lb or 0.5 kg

SPECIFICATIONS (MODEL 142)

Cell constants: 0.01 and 0.1/cm (nominal, to within ±5%)

Wetted materials:

Electrodes: 316 stainless steel

Body: 316 stainless steel

Insulator: PEEK (high temperature option)
PCTFE (low temperature option)

O-rings: Viton[1]

Junction box: cast aluminum (not wetted), NEMA 7D

Process Connection: 3/4 inch MPT

Temperature and pressure: see graphs

Weight/Shipping Weight: 2 lb/3 lb (1.0 kg/1.5 kg)

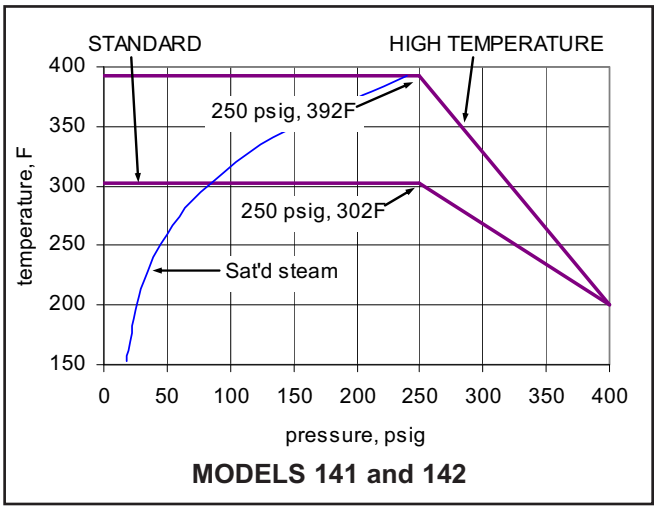
Weights rounded up to nearest whole lb or 0.5 kg

SPECIFICATIONS (PN 23724-00 ball valve kit)

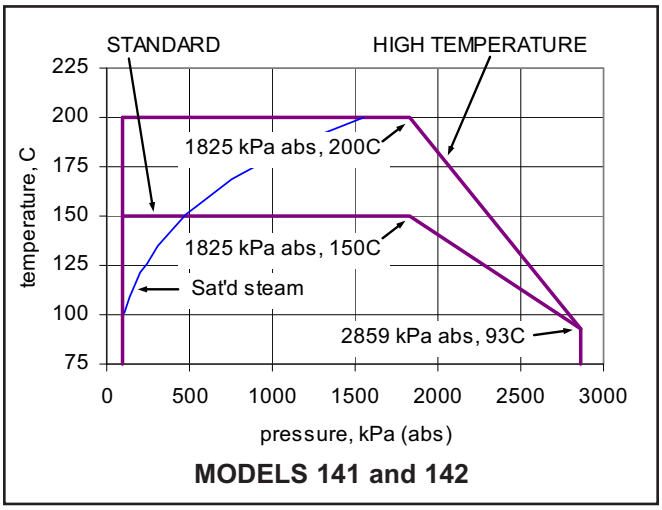
Wetted Materials: 316 stainless steel except Teflon[2] seat and seals in ball valve

[1] Viton is a registered trademark of DuPont Performance Elastomers

[2] Teflon is a registered trademark of E. I. DuPont de Nemours and Company

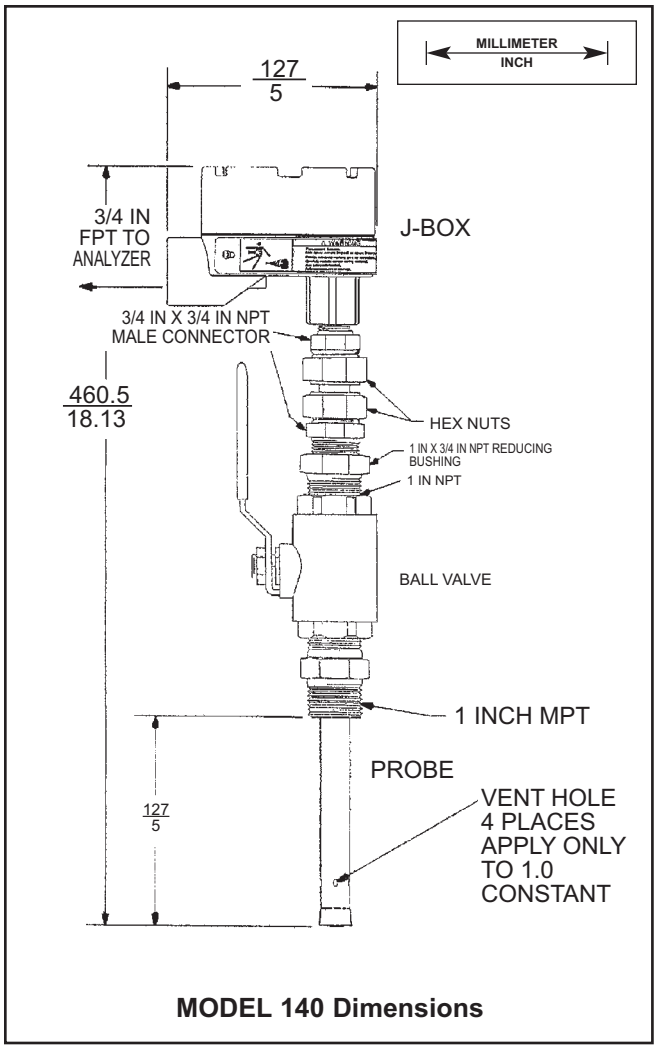


MODELS 141 and 142

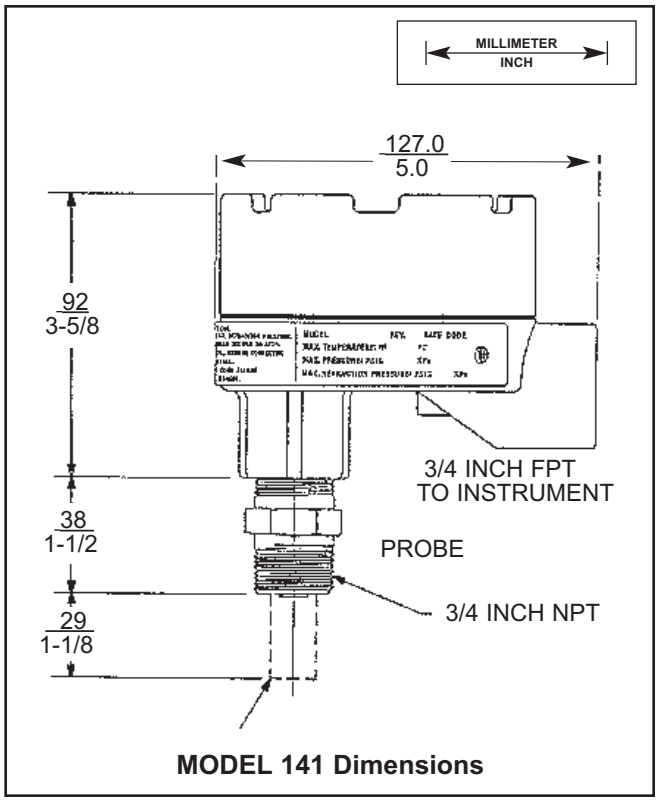


MODELS 141 and 142

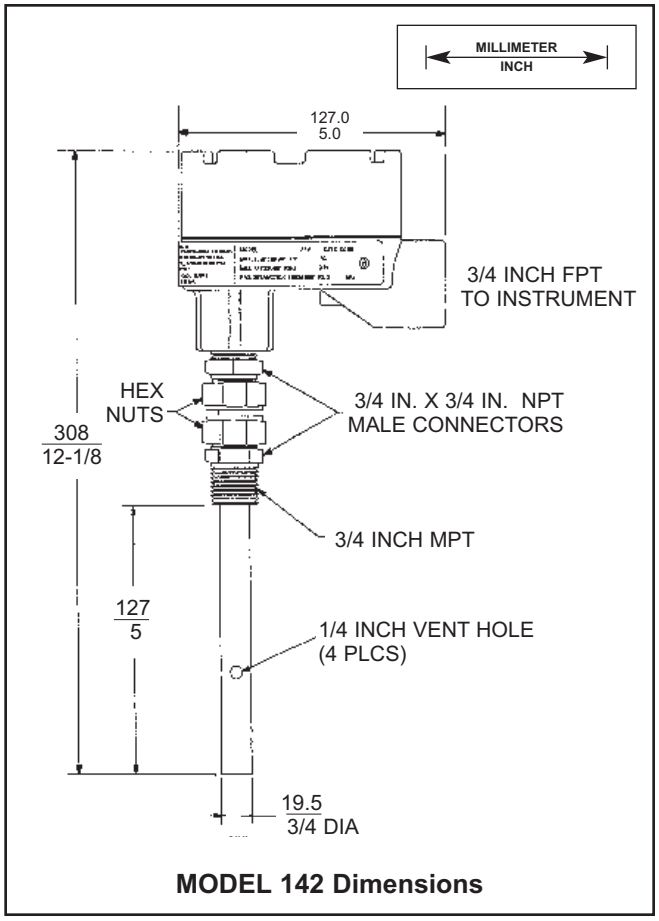
SENSOR DIMENSIONS



MODEL 140 Dimensions

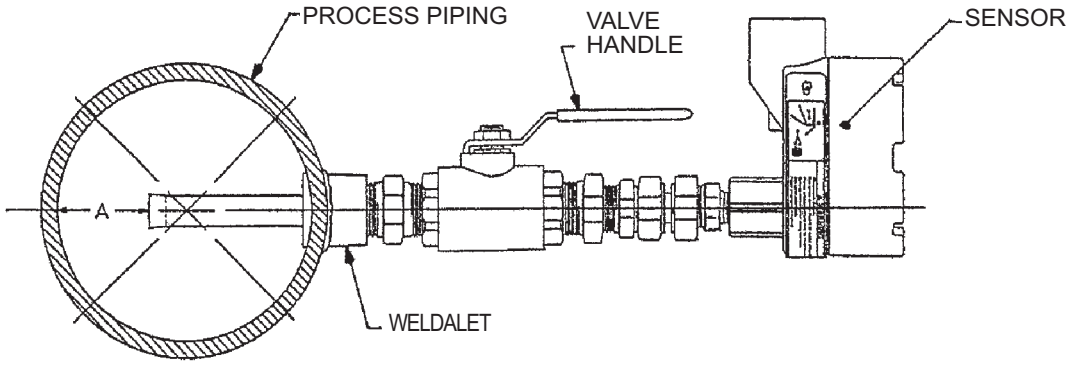


MODEL 141 Dimensions



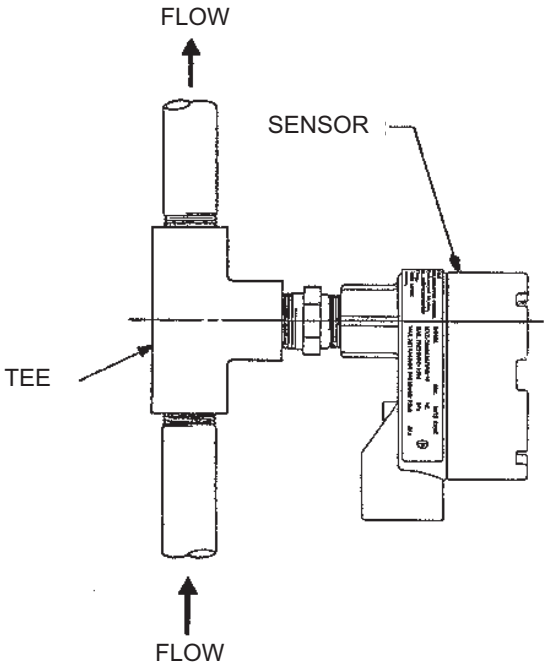
MODEL 142 Dimensions

INSTALLATION DETAILS

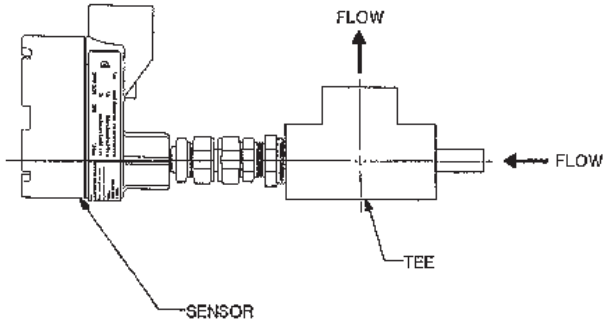


A to be one inch or greater from vessel wall

MODEL 140



MODEL 141



MODEL 142

ORDERING INFORMATION

The Model 140 Retractable Conductivity Sensor is intended for the measurement of conductivity in process liquids having moderately high conductivity where the ability to remove the sensor without shutting down the process or draining the line is required. The sensor is compatible with Models 1056, 56, 54eC, 1066-C, Xmt-C, 5081-C, and 6081-C. Interconnecting cable and ball valve kit must be ordered separately.

MODEL 140	RETRACTABLE CONDUCTIVITY SENSOR
CODE	**Cell constant and temperature construction (required selection)**
54	0.2/cm cell constant, standard temperature, to 302°F (150°C)
55	0.2/cm cell constant, high temperature, to 392°F (200°C)
56	1.0/cm cell constant, standard temperature, to 302°F (150°C)
57	1.0/cm cell constant, high temperature, to 392°F (200°C)
140	**54** **EXAMPLE**

NOTE: Interconnecting cable and the retraction assembly must be ordered separately. See ACCESSORIES.

The Model 141/142 Insertion Conductivity Sensors are intended for the measurement of conductivity in process liquids over a range of conductivity. Choose smaller cell constants (0.01 and 0.1/cm) for low conductivity liquids and high cell constants (0.2 and 1.0/cm) for moderate and high conductivity. The sensor is compatible with Models 1056, 56, 54eC, 1066-C, Xmt-C, 5081-C, and 6081-C. Interconnecting cable must be ordered separately.

MODEL 141/142	INSERTION CONDUCTIVITY SENSOR
CODE	**Cell Constant (Required Selection)**
01	0.01/cm cell constant (Model 142 only)
03	0.1/cm cell constant, (Model 142 only)
04	0.2cm cell constant, (Model 141 only)
06	1.0/cm cell constant, (Model 141 only)

CODE	TEMPERATURE (Required Selection)
13	Standard construction for use up to 302°F (150°C)
14	High temperature construction for use up to 392°F (200°C)

CODE	RTD (Required Selection)
54	For use with Models 1056, 56, 54eC, 1066-C, Xmt-C, 5081-C, and 6081-C
140	**01** **13** **54** **EXAMPLE**

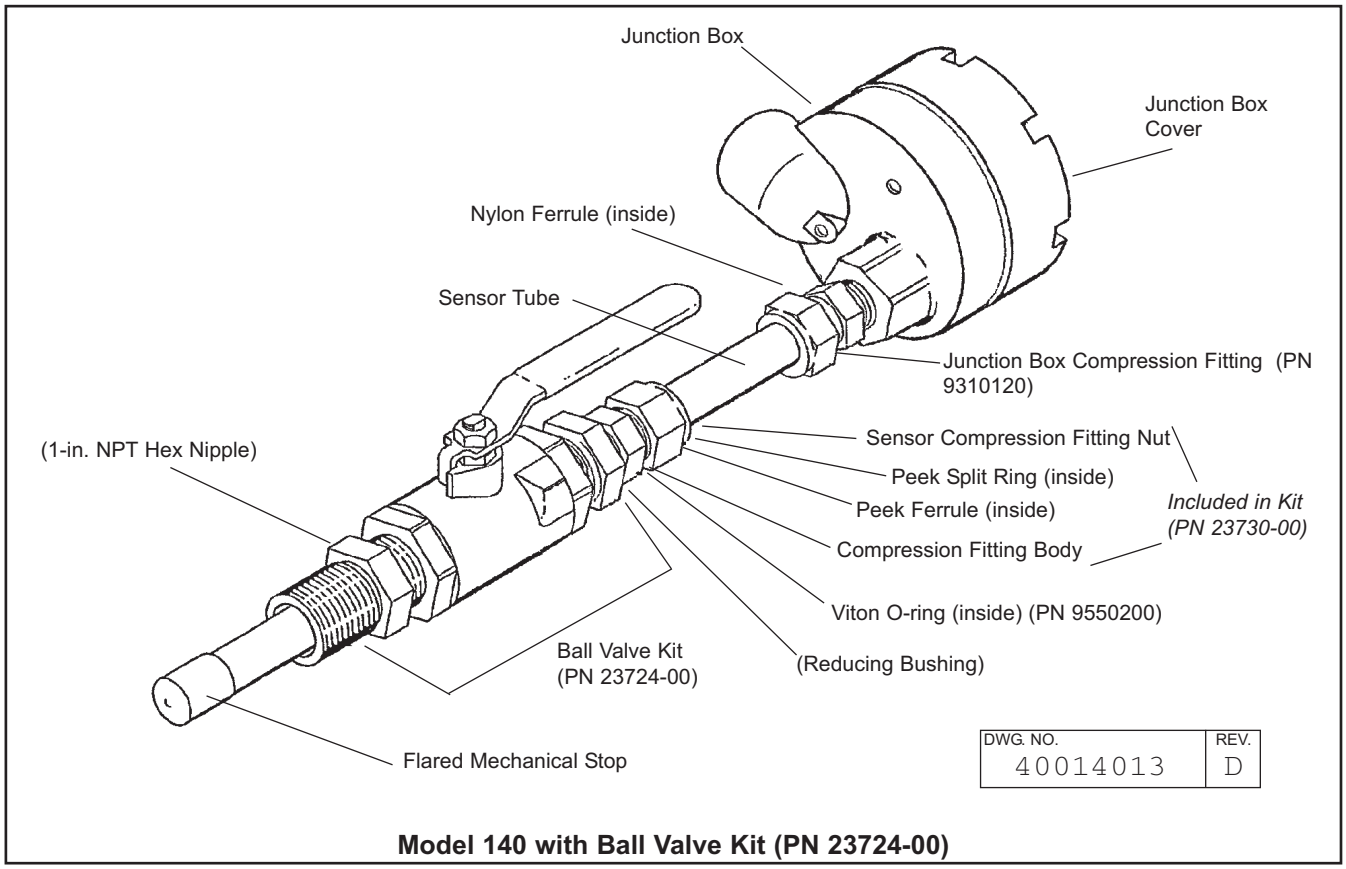
NOTE: Interconnecting cable must be ordered separately. See ACCESSORIES.

ACCESSORIES for all models

Part Number	Description	Weight	Shipping Weight
23550-00	Junction box for remote cable connection	8 lb (4.0 kg)	9 lb (4.5 kg)
9200275	Connecting cable, unterminated, specify length	0.6 lb/10ft (1 kg/10 m)	Add 1 lb (0.5 kg)
23747-00	Connecting cable, terminated, specify length	0.6 lb/10ft (1 kg/10 m)	Add 1 lb (0.5 kg)
05010781899	Conductivity standard SS-6, 200 uS/cm, 32 oz (0.95 L)	3 lb (1.5 kg)	4 lb (2.0 kg)
05010797875	Conductivity standard SS-6A, 200 uS/cm, 1 gal (3.78 L)	9 lb (4.5 kg)	10 lb (4.5 kg)
05010782468	Conductivity standard SS-5, 1000 uS/cm, 32 oz (0.95 L)	3 lb (1.5 kg)	4 lb (2.0 kg)
05010783002	Conductivity standard SS-5A, 1000 uS/cm, 1 gal (3.78 L)	9 lb (4.5 kg)	10 lb (4.5 kg)
05000705464	Conductivity standard SS-1, 1409 uS/cm, 32 oz (0.95 L)	3 lb (1.5 kg)	4 lb (2.0 kg)
05000709672	Conductivity standard SS-1A, 1409 uS/cm, 1 gal (3.78 L)	9 lb (4.5 kg)	10 lb (4.5 kg)
05010782147	Conductivity standard SS-7, 5000 uS/cm, 32 oz (0.95 L)	3 lb (1.5 kg)	4 lb (2.0 kg)
05010782026	Conductivity standard SS-7A, 5000 uS/cm, 1 gal (3.78 L)	9 lb (4.5 kg)	10 lb (4.5 kg)

ACCESSORIES for Model 140

Part Number	Description	Weight	Shipping Weight
23724-00	Ball valve kit	3 lb (1.5kg)	4 lb (2.0 kg)
23730-00	Process compression fitting, ¾ inch NPT	1 lb (0.5 kg)	2 lb (1.0 kg)
23731-00	Process fitting rebuild kit	1 lb (0.5 kg)	2 lb (1.0 kg)
9310120	Junction box compression fitting	1 lb (0.5 kg)	2 lb (1.0 kg)
9550200	O-ring 2-116, Viton	1 lb (0.5 kg)	2 lb (1.0 kg)



Model 140 with Ball Valve Kit (PN 23724-00)

ACCESSORIES for Model 142

Part Number	Description	Weight	Shipping Weight
3001882	Process compression fitting, ¾ inch NPT	1 lb (0.5 kg)	2 lb (1.0 kg)

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