


# SANITARY TOROIDAL SENSOR

- NON-CONTACTING (TOROIDAL) SENSORS resist corrosion and fouling.
- SANITARY DESIGN meets 3A standards. 
- EASY IN-LINE INSTALLATION using 2-inch Tri-Clamp fitting.
- SENSORS ARE IDEAL for measuring CIP solutions, water/product interface, and eluents in chromatographic separations.



**MODEL 225**

## APPLICATIONS

The Rosemount Analytical Model 225 sensor is designed for pharmaceutical and food and beverage applications where a sanitary design is required. Typical applications are monitoring CIP solutions, detecting product/water interfaces, checking product quality, and monitoring eluents used in chromatographic separations.

## FEATURES

The Model 225 toroidal (inductive) conductivity sensor consists of a pair of wire-wound metal toroids overmolded with either PEEK or Tefzel<sup>1</sup>. When the sensor is immersed in a conductive liquid and an AC voltage is applied to the drive coil, a voltage is induced in the liquid surrounding the coil. The voltage causes an ionic current to flow proportional to the conductance of the liquid. The ionic current induces a current in the second or receive coil, which the analyzer measures. The induced current is directly proportional to the conductivity of the solution.

The Model 225 sensor is available in a variety of wetted materials: glass-filled PEEK, unfilled PEEK, and unfilled Tefzel. There are two unfilled PEEK options. Both conform to 3-A Sanitary Standards, and one is molded from PEEK that meets USP Class VI requirements.

The Model 225 sensor has an integral RTD to allow temperature-compensated conductivity measurements.

Toroidal conductivity sensors work well in highly conductive liquids, up to about 2 S/cm (2,000,000 uS/cm). The minimum conductivity depends on the size of the toroids, the number of windings in each toroid, and the analyzer. When used with the 1056 analyzer, the limit for the Model 225 sensor is 15 uS/cm. When used with other instruments, the limit is 200 uS/cm.

Conductivity measurements made with toroidal sensors are insensitive to flow rate and direction. The sensor must be installed so that it is completely flooded, and the toroid hole must remain open.

<sup>1</sup>Tefzel is a registered trademark of E.I. duPoint de Nemours and Co.

## SPECIFICATIONS

**Cell constant (nominal):** 2.7/cm

**Minimum conductivity:** 200 uS/cm

**Maximum conductivity:** 2 S/cm

**Wetted materials:**

option	wetted materials
-03	glass-filled PEEK
-07	unfilled PEEK
-08	unfilled PEEK (meets USP Class VI)
-09	unfilled Tefzel

**Process connection:** 2-inch Tri-Clamp

**Conformance to 3-A Sanitary Standards:** Models 225-07 and 225-08 meet 3-A sanitary standards for sensors and sensor fittings and connections used on milk and milk products equipment (74-03).

**Compliance with USP Class VI:** Model 225-08 is molded from PEEK that meets USP Class VI requirements.

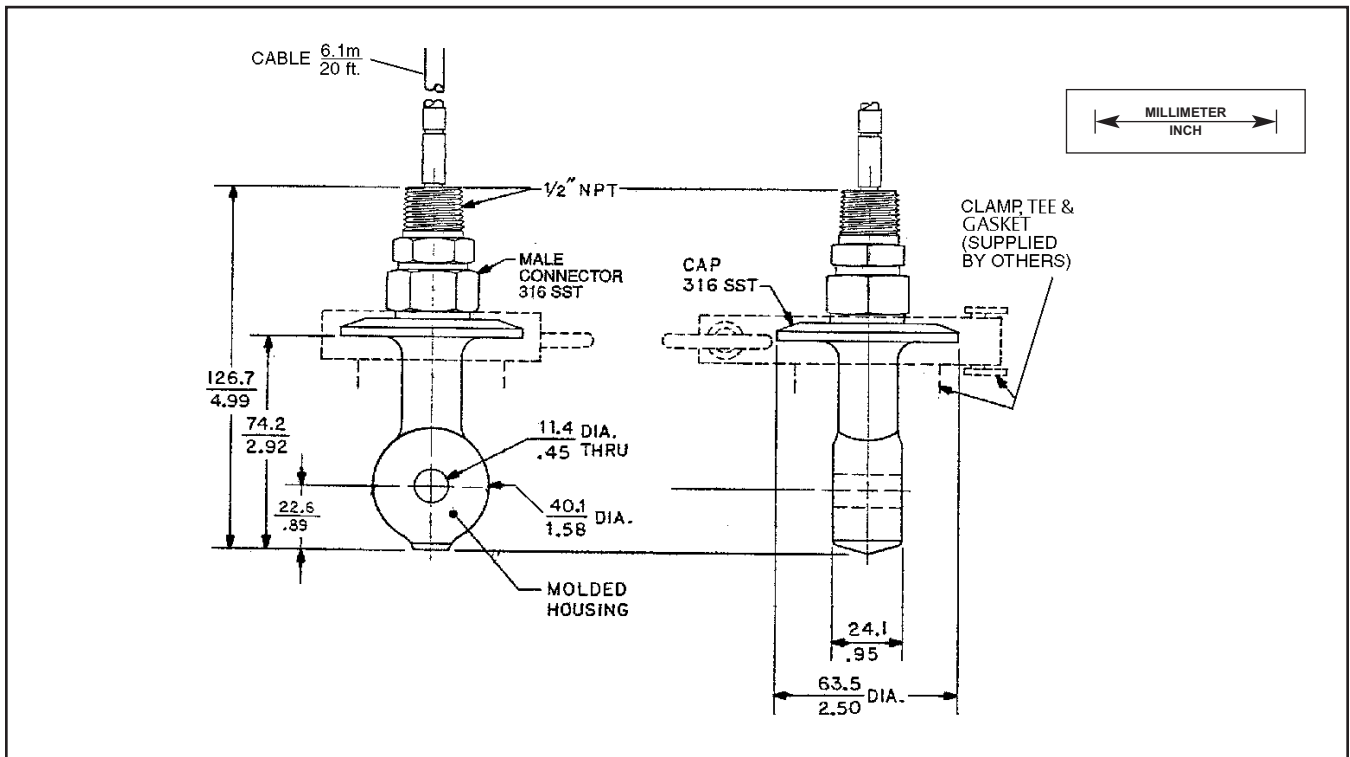
**Temperature and pressure:**

option	temperature	pressure
-03	230°F (110°C)	200 psig (1480 kPa abs)
-07	266°F (130°C)	200 psig (1480 kPa abs)
-08	266°F (130°C)	200 psig (1480 kPa abs)
-09	230°F (110°C)	200 psig (1480 kPa abs)

**Cable length:** 20 ft (6.1 m)

**Maximum cable length:** 200 ft (61 m)

**Weight/shipping weight:** 2 lb/3 lb (1.0 kg/1.5 kg)



**MOUNTING & DIMENSIONAL DRAWING**

Install the sensor so that it is completely flooded with liquid. Installation in a vertical pipe run is best. If the pipe run is horizontal, install the sensor in the 3 o'clock position.

## MODEL 225 SANITARY TOROIDAL CONDUCTIVITY SENSOR

The Model 225 Sanitary Toroidal Conductivity Sensor is available glass-filled PEEK, unfilled PEEK, unfilled PEEK that meets USP Class VI standards, and unfilled Tefzel. The unfilled PEEK options also conform with 3-A sanitary standards. The sensor includes an integral RTD for temperature compensation and 20 ft of integral cable. All sensors have a 2-inch Tri-Clamp fitting. The sensor is compatible with the 1055, 1056, 54eC, 5081-T and Xmt-T instruments. For improved EMI/RFI shielding, choose cable option -56.

MODEL 225 SANITARY TOROIDAL CONDUCTIVITY SENSOR	
CODE	BODY MATERIAL (REQUIRED SELECTION)
03	Glass-filled PEEK
07	Unfilled PEEK (Conforms to 3-A sanitary standards)
08	Unfilled PEEK (Conforms to 3-A sanitary standards and USP Class VI)
09	Unfilled Tefzel
CODE	CABLE (REQUIRED SELECTION) (Note 1)
54	Standard integral cable (Note 2)
56	Integral cable with additional shielding for improved EMI/RFI protection (Note 2)
<b>225</b>	<b>-07 -56 EXAMPLE</b>

### NOTES:

1. Cables can be extended using the remote junction box PN 23550-00. See also EXTENSION CABLE.
2. Option -56 cable is recommended for use with the 1055, 1056, 54eC, 5081-T, and Xmt-T instruments.

## ACCESSORIES

PART NUMBER	DESCRIPTION
2001492	Stainless steel tag, specify marking
23550-00	Remote junction box for use with 1055, 1056, 54eC, 5081-T and Xmt-T

## EXTENSION CABLE

PART NUMBER	DESCRIPTION
23294-00	Interconnecting cable for use with 225-54 sensors
23294-04	Interconnecting cable for use with 225-56 sensor. Cable has more EMI/RFI shielding than 23294-00 and is recommended for use with 1055, 1056, 54eC, 5081-T, and Xmt-T instruments.

## ENGINEERING SPECIFICATION FOR 225 SENSOR

1. The sensor shall measure electrolytic conductivity using the inductive or toroidal method.
2. The sensor shall be molded from glass-filled PEEK, unfilled PEEK, or unfilled Tefzel and have a 2-inch Tri-Clamp fitting.
3. The unfilled PEEK sensor shall be available in a version that meets 3A sanitary standard 74-03.
4. The unfilled PEEK sensor shall also be available in an option that is molded from USP Class VI material.
5. The glass-filled PEEK and unfilled Tefzel sensor shall withstand 230°F (110°C) at 200 psig (1480 kPa abs).
6. The unfilled PEEK sensors shall withstand 266°F (130°C) at 200 psig (1480 kPa abs).
7. The sensor shall be Rosemount Analytical Model 225 or approved equal.



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