

# Foxboro® Flow-Through Conductivity Sensors

## 871FT Series Non-Invasive Sanitary Flow-Through Conductivity Sensors

The Foxboro 871FT Non-Invasive Sanitary Flow-Through Sensor is an in-line sensor that measures the conductivity of virtually any conductive liquid. It provides a unique conductivity measurement for numerous Food and Pharmaceutical applications, including the monitoring and control of beverage products and their associated CIP requirements. The Foxboro 871FT unique non-invasive Sanitary Sensor is 3-A compliant per Sanitary Standard 74 and certified by EHEDG.



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**Foxboro**®

by **Schneider** Electric

# Foxboro 871FT Flow-Through Conductivity Sensors

## Features



### Product at a Glance

- Family of noninvasive, flow-through, toroidal conductivity sensors
- Sanitary and Industrial versions
- Selection of process wetted materials
- Facilitates installation by eliminating bypass loops
- Tubular design promotes self-cleaning
- Calibratable in place with unique and patented plug-in calibration port

### Non-Invasive Flow-Through Design

The 871FT Flow-Through Sensors provide a totally non-invasive measurement of conductivity and significantly reduce the influence of coatings and deposits on conductivity measurements.

The Non-Invasive Sanitary 871FT Sensors provide a unique conductivity measurement for numerous Food and Pharmaceutical applications, including the monitoring and control of beverage products (such as juices, beer, dairy, wine, soft drinks, and bottled water) and their associated Clean In Place (CIP) requirements.

Also, these Sensors permit dramatic savings in product otherwise lost to drain, and provide significant savings in maintenance time and in manually monitored and/or lost CIP solution(s). In addition, the capability of in-line calibration obviates the need to open the process line to the environment, which then often requires a process line recertification. Calibration may be completed without stopping the process flow. The simple Tri- Clamp type end connection permits ease of installation for conventional applications.

### Principal of Operation

These sensors consist of inductive toroids mounted on an electrically nonconductive (insulator) section coaxial with the piping system. The primary toroids induce an electric current in the process fluid as it passes through the insulator (bore piece). The voltage created, which varies with process fluid conductivity, is detected by secondary toroid(s) and converted to a conductivity measurement.

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FD-DS-A-001

# Foxboro 871FT Flow-Through Conductivity Sensors

## Features

### Sanitary Sensors

The Foxboro 871FT unique non-invasive Sanitary Sensor Virgin PEEK material is 3-A compliant per Sanitary Standard 74 and certified by EHEDG. The sensor is offered in materials consistent with U.S. Food and Drug Administration regulations for Food Service. The assembly complies with 3-A Sanitary standards of design for dairy equipment, and may be completely disassembled for total sanitation. A Sensor is provided with Virgin PEEK insulator (bore piece) providing a 0.00041mm (16 micro-inches) or better interior bore finish in line sizes from 15mm (0.5in) to 100mm (4in). Completely crevicefree flow-through construction facilitates all CIP operations. Industry standard Tri-Clamp type end connection mountings permit ease of flow-through installation and removal.

### Ease of Installation

The Sensor's "wafer" design permits it to literally replace a small section of process piping, while its industry standard end connections permit ease of installation to, and removal from, process lines. The unique compact sensor design provides an end-to-end dimension which does not exceed 178.8mm (7in) in any bore size.

### Low Installed Costs

The Foxboro 871FT Sensors reduce cost in three ways. First, unlike conventional insertion toroidal sensors, which require a minimum pipe size to avoid wall effects, the 871FT sensors install directly into the process line, even in lines as small as 15 mm (0.5in) and up to 100 mm (4in). Second, the time to calibrate an 871FT is greatly reduced since the sensor does not have to be removed from the pipe. Third, there are no metal-to-plastic joints, which become failure points on conventional sensors due to different coefficients of thermal expansion.

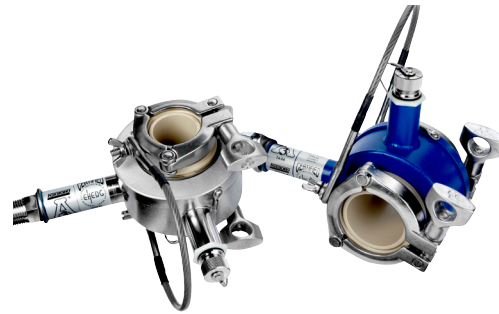
### Compatible Instrumentation

The Foxboro 871FT Sensors are ideal for use with the Foxboro 876EC loop powered and 875EC line powered transmitters.

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### Benefits

- Calibrate in place. Process line does not have to be opened. Precludes revalidation of process.
- Sanitary compliancy. 3-A and EHEDG.
- Patented shirt-pocket calibration tool for electrodeless conductivity.
- Most built-in application curves for concentration measurement.



### Calibration Tool

Patented calibration plugs permit quick and accurate calibration. Easier than decade boxes or chemical solutions.

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## Functional Specifications

### End Connections Materials

Sanitary versions utilize a one-piece insulator of Virgin PEEK or PCTFE material; the traditional Tri-Clamp type end connection is used with either of these materials.

### Sanitary Sensor – Wetted Bore Piece

Virgin PEEK - FDA and 3-A Compliant; EHEDG Certified

**Note:** User supplied EHEDG approved seals, i.e. SS/Kalrez, are required to maintain EHEDG certification for use with Tri-Clamp Connector.

#### Maximum Pressure

- 225 psi (15.50 bar); Tri-Clamp with 15, 20, and 50mm (0.5, 0.75, and 2in) line sizes
- 150 psi (10.34 bar); Tri-Clamp with 25, 40, and 80mm (1, 1.5, and 3in) line sizes
- 100 psi (6.90 bar); Tri-Clamp with 100mm (4in) line size

#### Temperature Limits

- 14 to 250°F (-10 to +121°C)

### PCTFE

#### Maximum Pressure

- 60 psi (4.14 bar)

#### Temperature Limits

- 14 to 250°F (-10 to +121°C)



## Transmitters For Use With 871FT Sensors

876EC Loop Powered Transmitter



875EC Line Powered Transmitter



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