

# Foxboro® Vortex Flowmeter Temperature Compensated

# Foxboro®

## Sales Guide

by **Schneider Electric**

## Model 84C

### On-Board Temperature Measurement with *DirectSense*™ Technology ensures best performance and reliability

The Foxboro® brand Model 84C sets the example for industry standards whether the application requires accuracy for utility metering of fluids in the process industries; fuel, air, steam or gas metering for the measurement of energy in any high use application; or stability and repeatability for process control.

The Low Power version of the Vortex Flowmeters differ from other 84 Series Vortex flowmeters in that the supply current is fixed at a constant to 10 mA, and remain in operation down to a minimum voltage of 10 V dc. They are intended for use with battery power with any form of recharging technology such as solar arrays or alternators.

#### Key features

- Liquid, gas or steam applications
- Best-in-class accuracy:
  - Volumetric flow rate accuracy of  $\pm 0.5\%$  of reading in liquids and  $\pm 1.0\%$  of reading in gas and steam
  - Mass flow rate accuracy of  $\pm 1.4\%$  of reading in saturated steam
  - Processing temperature accuracy of  $\pm 1^\circ\text{F}$  ( $0.56^\circ\text{C}$ ) for saturated steam
- User Defined liquid with temperature compensation
- Flanged body design: 3/4 to 12 in (DIN15 to DN300)
- High Pressure options up to Class 1500 and PN160
- Widest rangeability in class
- Low power versions available for use in battery or solar power applications
- ActiveTuning™ algorithm
- Pulse output provides raw, frequency, or pulse (total) modes
- *DirectSense*™ Technology ensure best performance and reliability

# Selling Proposition

Customer Segment	End User	Manufacturer's Representative	Distributor
<b>Selling Proposition #1</b>	<b>Temperature Compensated Vortex Meter</b> Ideal for liquid, gas or steam applications	<b>DirectSense Technology</b> <i>Ensures best performance and reliability</i>	<b>Measures Saturated Steam</b> Measures temperature and volumetric flow and provides steam density and mass flow
<b>Selling Proposition #2</b>	<b>High Accuracy</b> More precise accounting of energy utilization - meter cost recouped in under a year	<b>Expert product and application support</b> Technical Assistance Center staffed with experienced Flow engineers	<b>Over 100 years of flow meter experience</b> Field proven technology since 1908 - large installed base
<b>Selling Proposition #3</b>	<b>High reliability</b> Maintenance costs of other technologies can be upward of \$1,500 every couple to three years	<b>New application opportunities</b> Wide variety of applications, user defined liquid with temperature compensation	<b>Expert product and application support</b> Technical Assistance Center staffed with experienced Flow engineers
<b>Selling Proposition #4</b>	<b>Long Life</b> No moving parts to wear out, no bearings to seize, little or no maintenance	<b>Flexibility and Ease of Use</b> Can be figured from LCD indicator, HART communicator, or PC-based configurator	<b>Lower Cost</b> Lower installation costs (no need for expensive gas eliminators) and lower cost of ownership (low maintenance cost relative to PD and turbines)

# Key Sales Messages

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## Product Set—Vortex—Temperature Compensated

- Foxboro Vortex Model 84C is equipped with integral temperature compensation for flow measurement of saturated steam

## Unique Messages

- The 84C adds temperature compensation to provide the best solution for mass flow measurement of saturated steam
- As an extension of the Model 84 Family of Vortex flowmeters, the 84C includes the unique advantages of *DirectSense*™ technology to eliminate routine problems encountered with other vortex meters

## Main Highlights and Differentiators

- DirectSense technology:
  - Provides best-in-class performance
  - Increased measurement sensitivity for wider rangeability
  - Greater immunity to pipe vibration
  - High reliability
  - Replaceable sensor without recalibrating
- Best-in-class accuracy
  - Volumetric flow rate accuracy of  $\pm 0.5\%$  of reading in liquids and  $\pm 1.0\%$  in gas and steam
  - Mass flow rate accuracy of  $\pm 1.4\%$  of reading in saturated steam
  - Process temperature accuracy of  $\pm 1^\circ\text{F}$  ( $0.56^\circ\text{C}$ ) for saturated steam

## Limitations

- Available in flanged at initial release

## Value Drivers

- Lower installation costs (no need for expensive gas eliminators)
- Lower cost of ownership (low maintenance cost relative to PD and turbine)

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## Commercial Approach

- Growth opportunity for our customers with saturated steam applications
- Provide customers additional Vortex measurements

## Applications

- Utility metering of fluids in the process industries
- Fuel, air, steam or gas metering for the measurement of energy in any high use application
- Stability and repeatability for process control

## Target Users

- I&E Foreman—easy to install and maintain
- Maintenance Manager—cut costs
- Process Engineer—reliable process control
- Utility Plant Manager

## Qualifying Questions

- Do you want to improve cost and flexibility for your saturated steam application?
- Do you require a non-mechanical device that does not require considerable amounts of energy?
- Do you want better accounting of steam usage throughout your operation?

# Example of Precise Accounting of Energy Utilization

Steam Usage		Steam cost/ day	Cost of inaccuracy in \$/day		days ROI
Tons/day	Tonnes/ day	\$8/ Ton	Other 5%	<b>84C</b> 1.40%	\$7000 meter cost
100	90.71847	\$800	\$40	\$11	243
200	181.4369	\$1,600	\$80	\$22	122
300	272.1554	\$2,400	\$120	\$34	81
400	362.8739	\$3,200	\$160	\$45	61
500	453.5924	\$4,000	\$200	\$56	49
600	544.3108	\$4,800	\$240	\$67	41
700	635.0293	\$5,600	\$280	\$78	35
800	725.7478	\$6,400	\$320	\$90	30
900	816.4662	\$7,200	\$360	\$101	27
1000	907.1847	\$8,000	\$400	\$112	24
1100	997.9032	\$8,800	\$440	\$123	22

For this example, the meters costs are recouped in well under a year going from 5% to 1.4% accuracy.

Note: the steam usage at a paper miller can be 1,500 tons/day.