



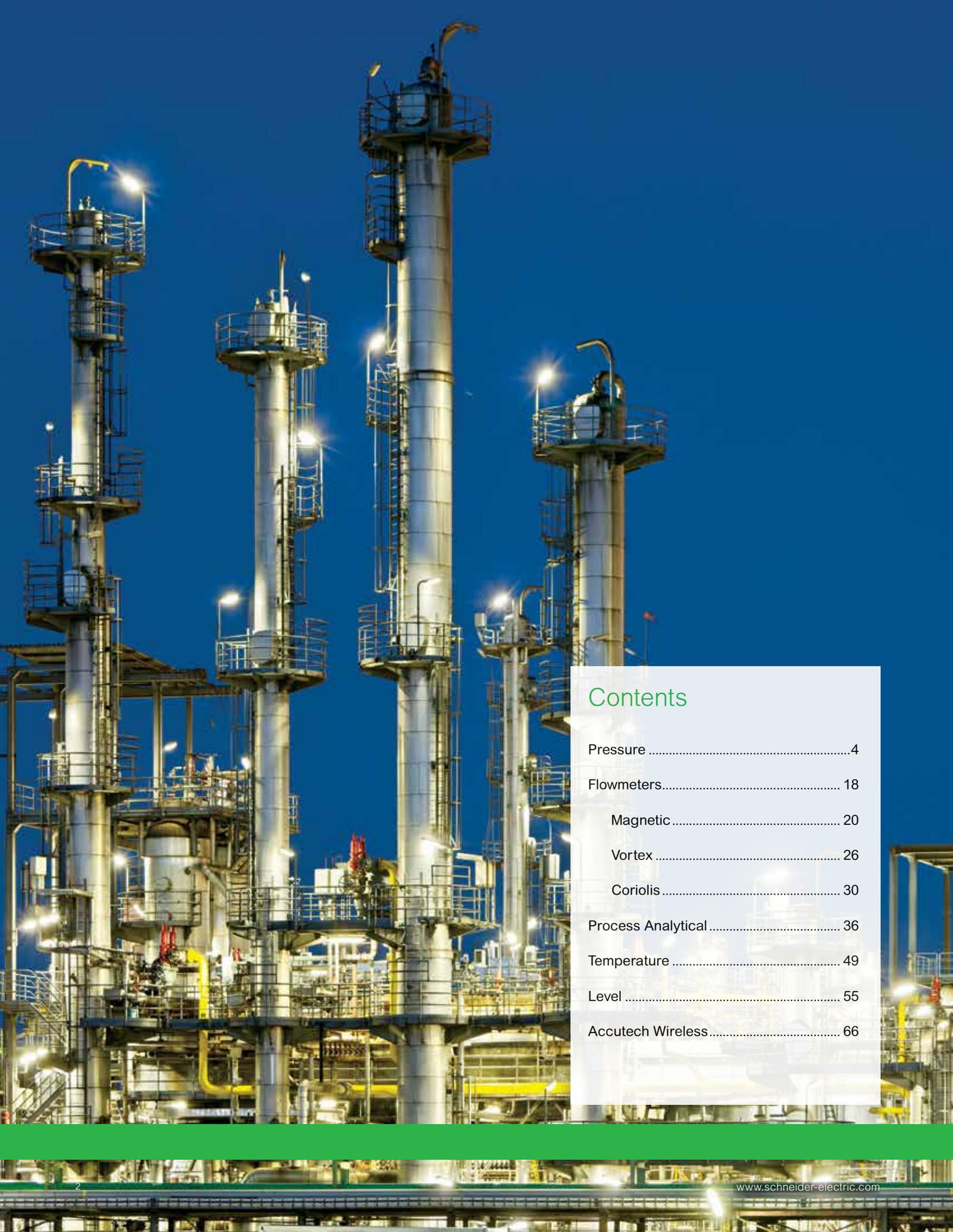
# Foxboro<sup>®</sup> Field Devices

Worry Less. Measure More.

[www.schneider-electric.com](http://www.schneider-electric.com)

Life Is 

**Foxboro<sup>®</sup>**  
by **Schneider Electric**



# Contents

- Pressure ..... 4
- Flowmeters..... 18
  - Magnetic ..... 20
  - Vortex ..... 26
  - Coriolis ..... 30
- Process Analytical ..... 36
- Temperature ..... 49
- Level ..... 55
- Accutech Wireless ..... 66

# The Impact of Control

A single innovative instrument can give you better process control and improve the performance of any one of your production assets: personnel, equipment, energy use, or inventory. Employing multiple instruments can positively impact the performance of all areas of your enterprise.

Foxboro instruments are allied with various industry-leading brands that result in systems, software, and services that dramatically improve your operation's economic, safety, and environmental performance. In addition, the deployment of multiple, advanced measurement systems will enhance the availability and utilization of all the assets on which your success depends.

For decades, the Foxboro brand has driven the development of various breakthrough measurement technologies: The first d/p cell, the dual-phase Digital Coriolis Mass Flowmeter, the DolpHin™ pH Sensor, and the Magnetic Flowmeter.

Foxboro instrumentation sets the industry standard for performance in a wide variety of measurement technologies:

- **Pressure transmitters** that provide best-in-class accuracy levels and the longest standard and optional warranties in the industry
- **Flowmeter technologies:** Magnetic, Vortex shedding and Coriolis that provide unparalleled solution for liquids, gases and steam
- **Process analytical** sensors that revolutionize pH and conductivity measurement
- **Temperature transmitters** providing accurate and reliable measurements in the harshest of environments
- **Level measurement** including LevelStar Buoyancy and LevelWave Radar devices for the widest choice of installation and applications
- **Accutech** provides wireless measurements where traditional instruments struggle with operation and budget goals

Foxboro instruments provide accurate, reliable measurement and analysis of pressure, flow, level, and process analytical variables so you have the process control you need for maximum integration and interoperability — all at competitive prices, low cost of ownership, and 24-hour worldwide support from a single source.



# Pressure Product Portfolio

## S Series Pressure Transmitters



IDP10S

IAP10S / IGP10S

## I/A Series Pressure Transmitters



IDP10 / IDP50

IDP31D / IDP15D

IAP10 / IGP10 / IGP50

## Multivariable Pressure Transmitters



IMV25 / IMV30 / IMV31

Accessories (seals, remote seals, manifolds)





# Pressure Measurements

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## Foxboro Pressure Transmitter Family:

Gauge, absolute, differential pressure, flange level and remote seals — from basic requirements to the most comprehensive and challenging applications in your plant.

## The Foxboro Pressure Transmitter Family: The Perfect Fit for Your Application

Foxboro pressure transmitters combine field-proven, reliable silicon strain-gauge sensor technology and quality manufacturing processes.

This family covers a broad range of pressure applications, including differential, gauge, and absolute pressure, as well as remote seal and flanged level. A wide variety of materials, flange sizes, and other options will suit every application.

Each transmitter uses the same innovative topworks packaging with modular intelligent electronics — greatly simplifying your installation, operation, maintenance, and spare parts requirements.

The premium Foxboro line includes pressure transmitters with the highest accuracy and longest warranties (5 years) in the business.



# Pressure Measurements

## S Series: New Generation of Pressure Transmitters — IDP10S, IGP10S and IAP10S

Intelligent, two-wire transmitters provide precise, reliable measurement of differential, absolute, or gauge pressure, and transmit a 4-20 mA output signal with a superimposed HART® digital signal for remote configuration and digital transmitter output.

### Key S Series Features

- FoxCal technology — 11 calibration curves stored internally
- Time in Service
- 100 mSec Response Time
- 5-year warranty as standard
- Local Display configuration capability
- High Turndown<sup>1</sup> (400:1) capability

### Innovative Fox-Cal Technology

So what are the benefits for you?

- Increase accuracy with the patented Foxboro multiple calibration technology (FoxCal)
- Reduce inventory costs over a wide range of applications that traditionally require multiple stocked transmitters
- Time in Service for advanced diagnostics
- Easy to use with LCD indicator and onboard push buttons for easy configuration
- 5-year warranty as standard
- Industry leading turndown capability

### Multiple Calibration Technology

Unique patented multiple calibration technology (FoxCal) feature eliminates the need for a traditional single span calibration at an application-specific pressure range.

- Uses multiple calibrated ranges stored in the onboard memory
- 11 calibration ranges are pre-set in the factory
- No re-calibration required from 2.5% to 100% of the upper range limit (URL)

### Time in Service

Enables customers to accurately track time in service and allows for predictive maintenance.

Similar to how an odometer allows an automobile owner to track the total number of miles driven and a trip odometer tracks the number of miles driven since a user-defined starting point, the IDP10S, IGP10S, and IAP10S transmitters allow you to keep track of the number of days the transmitter has been in service.

- Tracks total number of days the transmitter has been powered up in the field over its lifetime (total days)
- Tracks the number of days the transmitter has been powered up since the last Time in Service meter reset (user days)

### Wide Turndown Ranges

Excellent performance is maintained over an industry leading wide turndown range, meaning that an IDP10S, IGP10S, or IAP10S transmitter performs better than two to three separate transmitters designed to cover the same turndown range.

### Setting the Standard

Models IDP10S, IGP10S, and IAP10S provide superior functionality, performance, and durability, as well as a broad selection of materials, connections, and ranges. They offer high performance with accuracy of  $\pm 0.060\%$  of span at turndowns or exceeding up to 10:1 for popular models and 0.05% of reading (digital mode) at turndowns of 30:1 or greater.

This greatly simplifies your planning, ordering, spares procurement, and stocking.



IDP10S



IAP10S / IGP10S

<sup>1</sup> 400:1 — Turndown refers to maximum resolution

# Pressure Measurements

S Series: Patented FoxCal™ Multiple Technology Embedded

A totally unique patented technology that contributes to precise reliable measurement, high turndown without sacrificing reference accuracy, and excellent stability.



## Improved Process Accuracy

Our unique FoxCal technology eliminates the need for traditional single span curve calibrations at application-specific pressure ranges. The device can automatically transition to the most appropriate calibration curve based on the transmitter input, therefore maintaining measurement reference accuracy.

## Increased Plant Efficiency

Time in Service meter tracks both total number of days powered up over a device lifetime and is read-only. A second Time in Service meter can be reset to zero and accommodates periodic annunciations for maintenance scheduling.

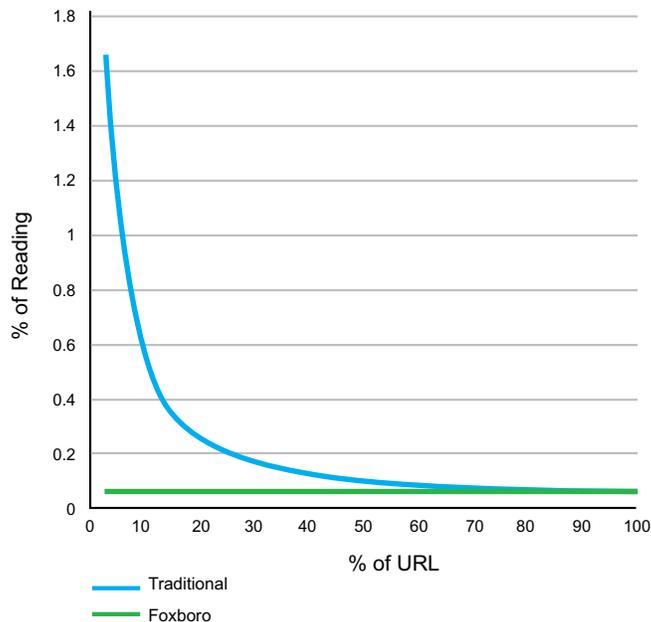
## Reduced Inventory Cost

A wide range of applications that normally would use multiple separate transmitters now need only one. Fewer types of transmitter sensors are required, which means fewer spare parts and reduced inventory.

## Less Chance of Wrong Sensor Selection

Additionally, the transmitter will transition to the most appropriate calibration curve, delivering the most accurate data even if the operating pressure is temporarily increasing. Typically, one S Series range covers 95% of plant pressure sensor requirements.

## Accuracy of Transmitters



*S Series maintains the same accuracy until 2.5% of the URL. Traditional transmitters begin to degrade at a much higher percentage.*

# Pressure Measurements

A Whole Range for Your Applications,  
Including the Most Specific Ones

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Our IMV30 multivariable transmitter measures absolute pressure, differential pressure, and process and transmitter temperatures, as well as calculating mass flow rate.



## Multivariable for Multiple Savings

The Foxboro Model IMV25 multivariable transmitter supplies pressure, differential pressure, and temperature measurement in a single instrument. It takes full advantage of digital communications for multiple measurements.

Minimizing the number of transmitters and process penetrations will give you significant savings for purchase, installation, and maintenance.

## Solve the Multivariable Flow Equation

Our Model IMV30 is designed so comprehensive flow equations reside right in the transmitter. You receive highly accurate pressure- and temperature-compensated mass or volumetric flow rate calculations.

With this impressive meter, DP at full flow can be as low as 0.12 kPa (0.5 in H<sub>2</sub>O) and as high as 210 kPa (840 in H<sub>2</sub>O).

## Boiler Drum Level Issues?

Our Model IMV31 is designed to accurately measure drum level. This IMV31 has built-in steam density tables and helps compensate for boiler shrinkage and swelling.

# Pressure Measurements

Integration and Design to Fit Your Needs

## Easy Integration into Your System

Select the level of transmitter output you need: analog outputs of 4-20 mA or 1 to 5 V dc (low power) or digital communications using HART or FOUNDATION Fieldbus protocol. Modbus communication is also supported on the IMV25 multivariable transmitter.

## Installation Versatility

Choose from traditional or new low-profile structures to get the best installation method for your application. The traditional structure retains the industry standard “right-angle” design with process connections in the horizontal plane.

Low-profile structures provide process connections in the vertical plane, facing downward when the transmitter is in the upright position. They are ideal for replacing Coplanar™ transmitters or for meeting Coplanar-type installation requirements that use a similar mounting arrangement.

LP1 low-profile structures make economical, small, lightweight transmitters that are ideal for direct manifold mounting. A single vent/drain screw is provided on each side, positioned to allow both vertical and horizontal mounting.

LP2 low-profile structures are full-featured designs suitable for either direct manifold or bracket mounting. Threaded holes are provided for mounting to existing or new brackets. Separate vent and drain screws on both sides offer complete venting and draining in the upright position.

## Need More Performance?

Need the best possible performance for both DP and GP applications? Turn to our IDP50 and IGP50 premium-performance transmitter models. These models are ideal for challenges such as differential head measurement for wide-ranging flows, or applications demanding low ambient temperature effect, small spans, or high stability.

Accuracy leads the industry at  $\pm 0.025\%$  of span for turndowns up to 10:1 and within  $\pm 0.05\%$  even at turndowns as high as 80:1; stability is better than  $\pm 0.02\%$  URL per year for five years, with extremely low total probable error (TPE).

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The interchangeability and intelligence of our differential pressure transmitter comes through when the pressure is on. A choice of traditional or low-profile structures allows you to select the best installation method for each application, while maintaining common configuration, operation, and maintenance procedures.



# Selection Guide

## Pressure Transmitters



Model		IAP10S / IGP10S
Type / Design		Absolute / Gauge / Inline
Communication Protocols		HART
FoxCal Technology (Patented)		Yes
Reference Accuracy	HART - Analog	±0.060% Span
	HART - Digital FOUNDATION Fieldbus	±0.05% Reading
	4-20 mA	n/a
	1 to 5 V dc	n/a
Response Time		100 mSec
Turndown Ratio		400:1
Temperature Range		-40°C to +85°C -40°F to +185°F
Process Temperature Range	Silicone Fill Fluid	-46°C to +121°C -51°F to +250°F
	Inert Fill Fluid	-29°C to +121°C -20°F to +250°F
Supply Voltage	HART	11.5 to 42 V dc
	FOUNDATION Fieldbus	n/a
	Analog	n/a
	Low Power	n/a
Ingress Protection Rating		IP66 / IP68
Housing Material		Aluminum & 316 Stainless Steel
Certifications and Approvals		FM, CSA, ATEX, IECEx
Warranty		5 Years
Process Connections	Standard	1/2" NPT External; 1/4" NPT Internal
	Sanitary	No
	Pulp & Paper	No
	High Pressure	No
Remote Seals and Closed-Coupled Seals	Yes	Yes
Specifications*		PSS 2A-1C13 P



### IAP10 / IGP10

### IAP20 / IGP20

### IGP50

Absolute / Gauge / Inline

Absolute / Gauge / Dual Head

Gauge / Inline

HART, FF<sup>1</sup> ITK5

HART, FF<sup>1</sup> ITK5

HART, FF<sup>1</sup> ITK5

No

No

No

±0.060% Span

±0.060% Span

±0.025% Span

±0.050% Span

±0.050% Span

±0.025% Span

±0.20% Span

±0.20% Span

n/a

±0.10% Span

±0.10% Span

n/a

500 mSec

500 mSec

500 mSec

30:1

30:1

80:1

-40°C to +85°C  
-40°F to +185°F

-40°C to +85°C  
-40°F to +185°F

-40°C to +85°C  
-40°F to +185°F

-46°C to +121°C  
-51°F to +250°F

-46°C to +121°C  
-51°F to +250°F

-46°C to +121°C  
-51°F to +250°F

-29°C to +121°C  
-20°F to +250°F

-29°C to +121°C  
-20°F to +250°F

-29°C to +121°C  
-20°F to +250°F

11.5 to 42 V dc

11.5 to 42 V dc

11.5 to 42 V dc

9 to 32 V dc

9 to 32 V dc

9 to 32 V dc

11.5 to 42 V dc

11.5 to 42 V dc

n/a

9 to 30 V dc

9 to 30 V dc

n/a

IP66 / IP68

IP66 / IP68

IP66 / IP68

Aluminum & 316 Stainless Steel

Aluminum & 316 Stainless Steel

Aluminum & 316 Stainless Steel

FM, CSA, ATEX, IECEx,  
TÜV SIL2

FM, CSA, ATEX, IECEx,  
TÜV SIL2

FM, CSA, ATEX, IECEx

5 Years

5 Years

5 Years

1/2" NPT External;  
1/4" NPT Internal

1/4" & 1/2" NPT;  
1/4" & 1/2" RC

1/2" NPT External;  
1/4" NPT Internal

Yes

Yes

No

Yes

Yes

No

Yes

No

No

Yes

No

No

PSS 2A-1C13 E

PSS 2A-1C13 E

PSS 2A-1C13 H

<sup>1</sup> FF = FOUNDATION Fieldbus.

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.

# Selection Guide

## Pressure Transmitters

(continued)



Model		IDP10S	IDP10
<b>Type / Design</b>		Differential / Traditional Low-Profile 1 and 2	Differential / Traditional Low-Profile 1 and 2
<b>Communication Protocols</b>		HART	HART, FF <sup>1</sup> ITK5 Analog, Low Power
<b>FoxCal Technology (Patented)</b>		Yes	No
<b>Reference Accuracy</b>	HART - Analog	±0.060% Span	±0.060% Span
	HART - Digital FOUNDATION Fieldbus	±0.05% Reading	±0.050% Span
	4-20 mA	n/a	±0.20% Span
	1 to 5 V dc	n/a	±0.10% Span
<b>Response Time</b>		100 mSec	500 mSec
<b>Turndown Ratio</b>		400:1	30:1
<b>Temperature Range</b>		-40°C to +85°C -40°F to +185°F	-40°C to +85°C -40°F to +185°F
<b>Process Temperature Range</b>	Silicone Fill Fluid	-46°C to +121°C -51°F to +250°F	-46°C to +121°C -51°F to +250°F
	Inert Fill Fluid	-29°C to +121°C -20°F to +250°F	-29°C to +121°C -20°F to +250°F
<b>Supply Voltage</b>	HART	11.5 to 42 V dc	11.5 to 42 V dc
	FOUNDATION Fieldbus	n/a	9 to 32 V dc
	Analog	n/a	11.5 to 42 V dc
	Low Power	n/a	9 to 30 V dc
<b>Ingress Protection Rating</b>		IP66 / IP68	IP66 / IP68
<b>Housing Material</b>		Aluminum & 316 Stainless Steel	Aluminum & 316 Stainless Steel
<b>Certifications and Approvals</b>		FM, CSA, ATEX, IECEx	FM, CSA, ATEX, IECEx, TÜV SIL2
<b>Warranty</b>		5 Years	5 Years
<b>Process Connections</b>	Standard	1/2" NPT External; 1/4" NPT Internal	1/4" & 1/2" NPT; 1/4" & 1/2" RC
	Sanitary - Remote Seals Close Coupled	Yes	Yes
	Pulp & Paper - Remote Seals Close Coupled	Yes	Yes
	High Pressure	No	No
<b>Remote Seals and Closed-Coupled Seals</b>		Yes	Yes
<b>Specifications*</b>		PSS 2A-1C14 M	PSS 2A-1C14 C



### IDP50

### IDP31D

### IDP15D

Differential / Traditional  
Low-Profile 1 and 2

Differential / Traditional

Draft Range  
Differential / Traditional

HART, FF<sup>1</sup> ITK5

HART

HART

No

No

No

±0.025% Span

±0.050% Span

±0.04% Span

±0.025% Span

±0.050% Span

n/a

n/a

n/a

n/a

n/a

n/a

n/a

500 mSec

500 mSec

500 mSec

80:1

400:1

80:1

-40°C to +85°C  
-40°F to +185°F

-40°C to +85°C  
-40°F to +185°F

-40°C to +85°C  
-40°F to +185°F

-46°C to +121°C  
-51°F to +250°F

-46°C to +121°C  
-51°F to +250°F

-40°C to +70°C  
-40°F to +158°F

-29°C to +121°C  
-20°F to +250°F

-29°C to +121°C  
-20°F to +250°F

-40°C to +70°C  
-40°F to +158°F

11.5 to 42 V dc

11.5 to 42 V dc

11.5 to 42 V dc

9 to 32 V dc

n/a

n/a

n/a

n/a

n/a

n/a

n/a

n/a

IP66 / IP68

IP66 / IP68

IP66 / IP68

Aluminum & 316 Stainless Steel

Aluminum & 316 Stainless Steel

Aluminum & 316 Stainless Steel

FM, CSA, ATEX, IECEx

FM, CSA, ATEX, IECEx, TÜV SIL2

FM, CSA, ATEX, IECEx

5 Years

2 Years

2 Years

1/4" & 1/2" NPT; 1/4" & 1/2" RC

1/4" & 1/2" NPT; 1/4" & 1/2" RC

1/4" & 1/2" NPT; 1/4" & 1/2" RC

No

Yes

Yes

No

Yes

Yes

No

No

No

No

No

No

PSS 2A-1C14 L

PSS 2A-1C17 A

PSS 2A-1C17 A

<sup>1</sup> FF = FOUNDATION Fieldbus.

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.

# Selection Guide

## Pressure Multivariable



Model <sup>1</sup>		IMV25
<b>Digital Output</b>		HART, Modbus
<b>4-20 mA Output</b>		HART
<b>Analog Output</b>		4-20 mA and 1 to 5 V dc
<b>Remote Communication</b>		HART, HART Communicator, PC-Based Configurator
<b>Local Communication</b>	Optional	LCD Indicator with Push Buttons and HART Transmitters
	Standard	LCD Indicator with Push Buttons and 4-20 mA / 1 to 5 V dc Transmitters
<b>Accuracy — Under Reference Operating Conditions in % of Calibrated Span</b>		Pressure and DP (10:1 turndown) $\pm 0.05\%$ Span Digital; $\pm 0.075\%$ Span 4-20 mA
<b>Stability — Long-Term Drift</b>		Less than $\pm 0.05\%$ of URL per Year over a 5-Year Period
<b>Measurement Type</b>		Silicone Strain Gauge Sensors – Successfully Field-Proven
<b>Sensor Material</b>		316L Stainless Steel or Hastelloy C for Both Traditional and Low-Profile Structures
<b>Sensor Fill Fluid</b>		Silicone, Fluorinert
<b>Upper Range Limit — Maximum<sup>2</sup></b>		36.5 MPa (5,300 psi)
<b>Ambient Temperature Range</b>		-29°C to +82°C / -20°F to +180°F – Normal Operating Conditions
<b>Process Temperature Range</b>		-200°C and +850°C / -328°F and +1562°F
<b>Supply Voltage</b>	HART 4-20 mA	11.5 to 42 V dc; a Minimum Output Load of 250 $\Omega$ is Required
	4-20 mA Analog Output	11.5 to 42 V dc
	1 to 5 V dc Analog Output	9 to 15.5 V dc
<b>Certifications and Approvals</b>		EMC, ATEX, PED, CSA IEC IP66 / IP68 and NEMA 4X NAMUR NE 21 and NAMUR 105
<b>Warranty</b>		5 Years
<b>Bypass Manifolds</b>		Yes
<b>Specifications*</b>	HART	PSS 2A-1C15 B
	Modbus	PSS 2A-1C15 D



**IMV30**



**IMV31**

HART	HART
HART	HART
4-20 mA	4-20 mA
HART, HART Communicator, PC-Based Configurator	HART, HART Communicator, PC-Based Configurator
LCD Indicator with Push Buttons with HART Transmitters	LCD Indicator with Push Buttons with HART Transmitters
LCD Indicator with Push Buttons and 4-20 mA / 1 to 5 V dc Transmitters	LCD Indicator with Push Buttons and 4-20 mA / 1 to 5 V dc Transmitters
DP and AP $\pm 0.05\%$ Span Digital Flow Rate $\pm 1.0\%$ of Flow Rate for Typical Head Class Meter Applications	DP and AP $\pm 0.05\%$ Span Digital Level: $\pm 0.3\%$ of Maximum Level
Less than $\pm 0.05\%$ of URL per Year over a 5-Year Period	Less than $\pm 0.05\%$ of URL per Year over a 5-Year Period
Silicone Strain Gauge Sensors – Successfully Field-Proven	Silicone Strain Gauge Sensors – Successfully Field-Proven
316L Stainless Steel or Hastelloy C for Both Traditional and Low-Profile Structures	316L Stainless Steel or Hastelloy C for Both Traditional and Low-Profile Structures
Silicone, Fluorinert	Silicone, Fluorinert
36.5 MPa (5,300 psi)	20 MPa (3,000 psi)
-29°C to +82°C / -20°F to +180°F – Normal Operating Conditions	-29°C to +82°C / -20°F to +180°F – Normal Operating Conditions
-200°C and +850°C / -328°F and +1562°F	-200°C and +850°C / -328°F and +1562°F
11.5 to 42 V dc; a Minimum Output Load of 250 $\Omega$ is Required	11.5 to 42 V dc; a Minimum Output Load of 250 $\Omega$ is required
11.5 to 42 V dc	11.5 to 42 V dc
9 to 15.5 V dc	9 to 15.5 V dc
EMC, ATEX, PED, CSA IEC IP66 / IP68 and NEMA 4X NAMUR NE 21 and NAMUR 105	EMC, ATEX, PED, CSA IEC IP66 / IP68 and NEMA 4X NAMUR NE 21 and NAMUR 105
5 Years Standard / 17 Years Optional	5 Years Standard / 17 Years Optional
Yes	Yes
PSS 2A-1C15 A	PSS 2A-1C15 C

<sup>1</sup> NOTE: This is just a guide. Please consult the individual PSS's for exceptions, restrictions and more detailed information.

<sup>2</sup> Absolute Pressure measured directly. Gauge Pressure calculated from user-entered barometric pressure constant.

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.

# Flowmeter Product Portfolio

## Magnetic Flowmeters



IMT30A, IMT31A and IMT33A



9500A



9600A



IMT25



9200A



9300A



8000A



8300



MAG2



IMT96



2800

## Vortex Flowmeters



84C



84F



84W



84S

## Coriolis Flowmeters



CFT51



CFS10 and CFS20



CFS25

# Magnetic Flowmeters

Our complete magnetic flowmeter family, including MagPLUS, sets an industry standard for wide-ranging excellence.

## The Flexible Solution for Most Flows

Magnetic flowmeters are designed to fit a wide range of applications, including water, slurries, chemicals, pharmaceuticals, and foodstuffs, in a wide range of industries. Foxboro magnetic meters are a reliable flow measurement solution with a lower cost of ownership and maintenance, with field-proven stability to maximize the availability of flow measurement.

For most applications, a Foxboro magnetic flowmeter with DC excitation is the ideal solution.

This efficient system comprises a Foxboro flanged body, wafer body, or sanitary magnetic flowtube coupled to an intelligent magnetic flow transmitter.

Our transmitters boast such desirable features as automatic/manual empty tube pipe detection, bidirectional measurement, contact inputs for remote operability, and relay outputs for alarm functionality. You also receive flexible configuration to fit your control scheme, easy programming, and durable, modular construction.

In addition, our new MagPLUS flowmeters provide continuous diagnostic and self-tests, with the capability to identify coating and corrosion of the electrode, or change of flow profile. A new, unique feature is also available with MagPLUS, the virtual reference grounding. With the virtual grounding, electrodes or rings can be left out, simplifying and reducing installation costs while eliminating the risk of the accuracy being affected by an unstable ground on site.

Our flowtubes are available in a wide range of sizes (0.1" to 80", 3 mm to 2,000 mm) with an extensive variety of industrial and sanitary options.

These flowtubes can be used with most conductive fluids, including hard-to-handle liquids and slurries. Retained, reinforced PFA liners withstand even severe process temperature swings to 204°C (400°F) and process pressures from full vacuum to 51 bar (740 psi).

You also get a wide variety of mounting options, line sizes, and configurations.





## The Breakthrough Technology for Your Toughest Flow Problems

Foxboro flow expertise stretches from the process industry's first mag flow system in 1954 to DC pulsed mag transmitters in 1983. Today, we are developing even better answers for your flow future.

Only one magnetic flowmeter solves your most challenging flow problems. With AC excitation, the Foxboro MagEXPERT™ IMT96 squelches noise and boosts performance on your worst flows such as slurries, cement, or pulp and paper applications.

The MagEXPERT uses the Foxboro's patented eX-Pulse coil excitation method to create a strong measurement signal, coupled with optimum noise reduction capability and fast speed of response.

The result is a clean, accurate, and reliable measurement where solids or additives generate unacceptably high process signal noise, including chemical additives, slurries, and high-consistency or pulsating flows.

Like most Foxboro flow solutions, MagEXPERT provides online, intelligent diagnostics and help, simple, menu-driven software configuration, compatibility with A/C 2800 flowtube, high accuracy and fast response, plus durability and ease of use.

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Our revolutionary MagEXPERT IMT96 flowmeter is the only solution specifically designed for your greatest flow challenges.



Need some help to select the right magnetic flowmeter for your process?  
Visit [www.FlowExpertPro.com](http://www.FlowExpertPro.com) for easy sizing and selection.

# Selection Guide

## Magflow Flowmeters



Model	MagPLUS 9500A IMT30A / 31A / 33A	MagPLUS 9600A IMT30A / 31A / 33A
<b>Applications</b>	Water & Wastewater Industry, Power Industry	Sanitary Flowmeter used for Food & Beverage, Pharmaceutical, Cosmetics
<b>Size</b>	1" to 80"; DN25 to DN2000	1/10" to 6"; DN2.5 to DN150
<b>Accuracy</b>	0.5% to IMT30A (above 0.5 m/s) 0.3% ±1 mm/s... IMT31A 0.2% ±1 mm/s... IMT33A	0.5% to IMT30A (above 0.5 m/s) 0.3% ±1 mm/s... IMT31A 0.2% ±1 mm/s... IMT33A
<b>Liners</b>	Hard rubber, Polyolefin (PO)	Reinforced PFA
<b>Electrode Material</b>	Hastelloy C, Stainless Steel, Titanium	Hastelloy C and B2, Stainless Steel, Titanium, Tantalum, Platinum, Tantalum-Tungsten
<b>Fittings</b>	EN 1092-1, JIS, ASME B16.5, AWWA	DIN 11850 / 11866, DIN 11851, DIN 11864-2A, DIN 32676, ISO 2037, ISO 2852, SMS 1145, Tri-Clamp
<b>Temperature Range</b>	-5°C to +80°C / +23°F to +176°F	-40°C to +140°C / -40°F to +284°F
<b>Minimum Conductivity</b>	5 µS (water ≥ 20 µS/cm)	5 µS
<b>Communication Protocols</b>	4-20 mA, HART, FF <sup>1</sup> , Modbus	4-20 mA, HART, FF <sup>1</sup> , Modbus
<b>Certifications and Approvals</b>	ATEX, IECEx, FM, CSA, NEPSI KTRW, ACS, DVGW, NSF 61 and WRAS Drinking Water Approvals	CSA 3-A Sanitary Approval
<b>Specific Features</b>	Virtual Grounding option Continuous device and process diagnostics	Continuous device and process diagnostics
<b>Specifications*</b>	9500A PSS 1-6H4 A IMT30A PSS 1-6H3 A IMT31A PSS 1-6H2 A IMT33A PSS 1-6H1 A	9600A PSS 1-6H5 A IMT30A PSS 1-6H3 A IMT31A PSS 1-6H2 A IMT33A PSS 1-6H1 A



### 9200A / IMT25

Standard Application in the Process Industry

1/2" to 78"; DN15 to DN2000

±0.5% of reading

Neoprene, Linatex, EPDM  
Ebonite, PTFE

Hastelloy C,  
Platinum-Iridium,  
316L SST, Titanium,  
Tantalum

ANSI, EN 1092-1, AWWA

PTFE liner:  
-20°C to +100°C / -4°F to +212°F  
EPDM:  
-10°C to +70°C / +14°F to +158°F  
Neoprene:  
0°C to +70°C / +32°F to +158°F  
Linatex Rubber:  
-40°C to +70°C / -40°F to +158°F  
Ebonite:  
0°C to +95°C / -32°F to +203°F

5 µS

4-20 mA, HART

FM, CSA

9200A PSS 1-6F10 A  
IMT25 PSS 1-6F5 A

### 9300A / IMT25

General Purpose Flowmeter for Chemical and Process Industry

1/2" to 16"; DN15 to DN400

±0.25% of reading (1/2" to 6")  
±0.5% of reading (8" to 16")

Retained PFA, PTFE,  
Polyurethane (PU)

316L SST (conical option),  
Hastelloy C (conical option),  
Platinum-Iridium, Titanium,  
Tantalum-Tungsten

ANSI, EN 1092-1

PFA liner (depending on size):  
-40°C to +180°C / -40°F to +356°F  
-40°C to +120°C / -40°F to +250°F  
PTFE liner  
-40°C to +180°C / -40°F to +356°F  
Polyurethane liner:  
-29°C to +71°C / -20°F to +160°F

5 µS

4-20 mA, HART

FM, CSA

9300A PSS 1-6F F  
IMT25 PSS 1-6F5 A

<sup>1</sup> FF = FOUNDATION Fieldbus.

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.

# Selection Guide

## Magflow Flowmeters

(continued)



Model	8000A / IMT25	8300 / IMT25
<b>Applications</b>	General Purpose Wafer Flowmeter for Chemical & Process Industry	Water, Slurries, and Sticky, Abrasive, and Highly Corrosive Processes
<b>Size</b>	1/16" to 6"; DN1.6 to DN150	1/2" to 36"; DN15 to DN900
<b>Accuracy</b>	±0.25% of reading (1/2" to 6") ±0.5% of reading (1/16" to 1/4")	±0.5% of reading
<b>Liners</b>	Ceramic, retained PFA	Neoprene, PTFE, Polyurethane
<b>Electrode Material</b>	316L Stainless Steel (conical option), Hastelloy C (conical option), Platinum-Iridium, Titanium, Tantalum-Tungsten	316L Stainless Steel (conical option), Hastelloy C (conical option), Tantalum-Tungsten, Titanium, Platinum-10% Iridium
<b>Fittings</b>	Wafer (flangeless) Sanitary with Tri-Clamp End Connections	ANSI, EN 1092-1
<b>Temperature Range</b>	Ceramic liner: -40°C to +204°C / -40°F to +400°F PFA liner: -40°C to +180°C / -40°F to +356°F	PTFE liner (depending on size): -40°C to +180°C / -40°F to +356°F -18°C to +82°C / 0°F to +180°F Polyurethane liner: -18°C to +71°C / 0°F to +160°F Neoprene liner: -18°C to +82°C / 0°F to +180°F
<b>Minimum Conductivity</b>	5 µS	5 µS
<b>Communication Protocols</b>	4-20 mA, HART	4-20 mA, HART
<b>Certifications and Approvals</b>	FM, CSA, 3-A Sanitary Approval	FM, CSA
<b>Specific Features</b>		
<b>Specifications*</b>	8000A PSS 1-6F2 A 8000A Sanitary: PSS 1-6F2 C IMT25 PSS 1-6F5 A	8300 PSS 1-6F2 B IMT25 PSS 1-6F5 A



### 2800 / IMT96 MagEXPERT

### MAG2

Tough Application Flowmeter for Slurries,  
Pulp Stock and Non-uniform Solids

2-Wire Flowmeter for Water & Wastewater  
Applications and Chemical Industry

1/2" to 36"; DN15 to DN900

Wafer body: 1" to 4"; DN25 to DN100  
Flanged body: 1/10" to 8"; DN2.5 to DN200

±0.50% of rate (1/2" to 12")  
±1.0% of rate (14" to 36")

±0.50% of rate

Neoprene, PTFE,  
Polyurethane

PFA

316L Stainless Steel (conical option),  
Hastelloy C (conical option),  
Platinum-Iridium, Titanium,  
Tantalum-Tungsten

Hastelloy C-276,  
Platinum-Iridium,  
316L Stainless Steel, Titanium,  
Tantalum, Nickel Zirconium

ANSI, EN 1092-1, AWWA

ANSI, EN 1092-1, Wafer

PTFE liner (depending on size):  
-40°C to +180°C / -40°F to +356°F  
-18°C to +82°C / 0°F to +180°F  
Polyurethane liner:  
-18°C to +71°C / 0°F to +160°F  
Neoprene liner:  
-18°C to +82°C / 0°F to +180°F

-20°C to +100°C / -4°F to +212°F

2 µS

10 µS

4-20 mA, HART

4-20 mA, HART

FM, CSA

ATEX, FM, CSA, NEPSI

Loop-Powered, 2-Wire Operation

2800 PSS 1-6B5 A  
IMT96 PSS 1-6F8 A

MAG2 PSS 1-6G3 A

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.

# Vortex Flowmeters

The 84C vortex flowmeter with temperature compensation is the best solution for mass flow measurement of saturated steam or custom liquids, reducing the cost of ownership.



## The Industry's Most Popular Vortex Meter Choice

Foxboro's 84 Series intelligent vortex flowmeters are proven to be the best choice for meeting many of the accuracy, dependability, and cost challenges your process can present.

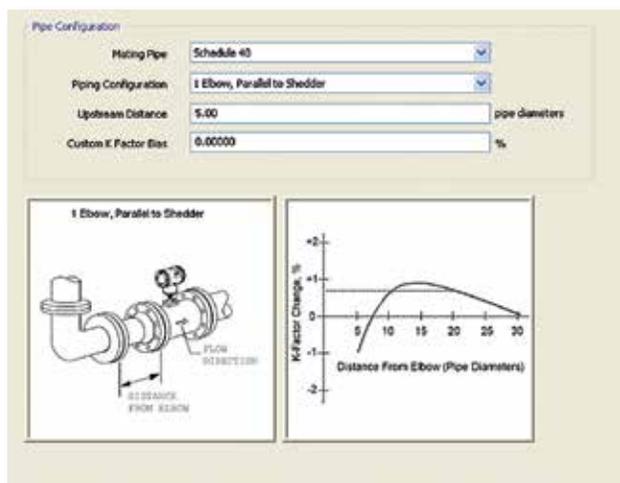
Forget about specifying different models for liquid, gas, and steam measurements. With the Foxboro vortex flowmeter, a single sensor design handles the majority of your measurement needs. And, with the introduction of the 84C having built-in temperature compensation for mass flow of saturated steam or custom liquids, the 84 family of vortex meters provides an even higher value solution for your measurement needs. Therefore, you simplify ordering, reduce inventories, and cut overall costs. Even after years of hard use, you continue to receive predictable, long-term, accurate performance, with a minimum cost of ownership.

## Smart, Durable Design

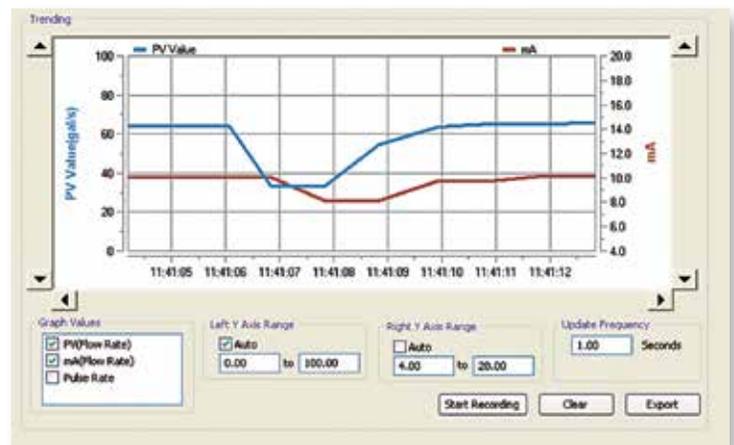
The patented shape of the shedding element has no moving parts to wear out and degrade accuracy.

The 84C, with built-in Pt1000 RTD temperature sensor, provides best-in-class accuracy for compensated mass flow of saturated steam.

Patented "**Direct Sense™**" vortex sensing places the sensor in the correct location for the widest rangeability and best low-flow performance. The toughened sensor (backed by a lifetime warranty) stands up to harsh processes, as does the rugged, epoxy-coated housing. An optional isolation manifold will allow you to replace the entire sensor assembly without shutting down your process.



Built-in configuration tools for real-world applications.



Trending you can customize.



### Intelligence in Every Model

All Foxboro intelligent vortex flowmeters possess excellent low flow rate characteristics, wide rangeability, and online diagnostics. They also include a K-factor correction and compensation for piping effects to provide the most accurate measurement possible.

Like many Foxboro instruments, they can be remotely interrogated or configured by your choice of PC software based on FDT/DTM standard or any hand-held terminal using DD files.

### A Choice of Versions

Our flanged-body and wafer-body vortex flowmeters measure liquid, gas, or steam at process temperatures up to 430°C (800°F). Our sanitary intelligent vortex flowmeter is 3-A authorized for applications that require crevice-free design to enable inline cleaning.

The 84S sanitary vortex flowmeter is suitable for hygienic applications and CIP cycles.



Searching for a great vortex meter? Look no further than Foxboro. Visit [www.FlowExpertPro.com](http://www.FlowExpertPro.com) for help with sizing and selection of a vortex flowmeter that meets your liquid, gas, or steam flow measurement needs.

# Selection Guide

## Vortex Flowmeters



Model	84F	84F-NPT
<b>Applications</b>	Gas, Liquid, or Steam applications (clean single-phase fluid). General purpose flowmeter for virtually any process industry. Chemical, Oil & Gas, Energy Industries, Utilities.	Gas, Liquid, or Steam applications (clean single-phase fluid). Direct replacement for turbine, magnetic flow, and orifice meters. Chemical, Oil & Gas, Energy Industries.
<b>Size</b>	3/4" to 12"; DN15 to DN300	1" to 2"; DN25 to DN50
<b>Accuracy</b>	±0.5% of reading in liquids ±1.0% of reading in gas and steam	±0.5% of reading in liquids ±1.0% of reading in gas and steam
<b>Flowtube Material</b>	316 or 304 Stainless Steel	316 or 304 Stainless Steel
<b>Fittings</b>	Flange ANSI RF, ANSI RTJ, EN 1092-1	Male NPT threaded
<b>Temperature Range</b>	-20°C to +200°C / 0°F to +400°F +150°C to +430°C / +300°F to +800°F	-20°C to +200°C / -4°F to +400°F +150°C to +430°C / +300°F to +800°F
<b>Communication Protocols</b>	4-20 mA, HART	4-20 mA, HART
<b>Certifications and Approvals</b>	ATEX, IECEx, FM, CSA, NEPSI	ATEX, IECEx, FM, CSA, NEPSI
<b>Specific Features</b>		
<b>Specifications*</b>	(Style A) PSS 1-8A3 A (Style B) PSS 1-8A7 A	PSS 1-8A7 A



**84W**

Liquid, gas, or steam applications (clean single-phase fluid).  
General purpose flowmeter for virtually any process industry. Chemical, Oil & Gas, Energy Industries, Utilities.

3/4" to 8"; DN15 to DN200

±0.5% of reading in liquids  
±1.0% of reading in gas and steam

316 Stainless Steel or Nickel alloy CW2M (equivalent to Hastelloy C-4C)

Wafer (flangeless)  
Centering for ANSI Class 150, 300, 600 and Metric PN 63, PN 100; Centering for Metric PN 16 and PN 40; Centering for ANSI Class 600; Centering for Metric PN 16; Centering for Metric PN 40  
Wafer (flangeless)  
Centering for ANSI Class 150, 300, 600  
Centering for Metric PN 16, 40, 63, 100

-20°C to +200°C / 0°F to +400°F  
+200°C to +430°C / +400°F to +800°F

4-20 mA, HART

ATEX, IECEx, FM, CSA, NEPSI

PSS 1-8A3 A



**84S**

Liquid, gas, or steam applications (clean single-phase fluid).  
Hygienic design for Food & Beverage and Pharmaceutical sanitary applications. Wide range of temperature and pressure, ideal for CIP/SIP skid application.

2" to 3"; DN50 to DN80

±0.5% of reading in liquids  
±1.0% of reading in gas and steam

316 Stainless Steel tube and 316L Stainless Steel shedder bar

3-A I-line coupling mates with Cherry Burrell 15 WI, SI (DIN 11851) coupling with external knuckle thread, per DIN 405, Part 1; RJT coupling per BS 1864, with external Whitworth thread, 6 TPI; 3-A Tri-clamp type quick-disconnect ferrule, mates with Tri-Clover 14 WMP or equivalent; ISS (ISO 2853) coupling with external Trapezoidal thread, 8 TPI

-18°C to +177°C / 0°F to +350°F

4-20 mA, HART

ATEX, IECEx, FM, CSA, NEPSI  
3-A Sanitary certification, approved with no cracks or crevices wetted-parts

PSS 1-8A5 A



**84C**

Liquid, steam, or gas application (clean single-phase fluid).  
Utility metering of saturated steam in the process industries with integrated temperature compensation.  
Low-cost mass meter for liquid.  
General purpose flowmeter for virtually any process industry.

3/4" to 12"; DN15 to DN300

±0.5% of reading in liquids  
±1.0% of reading in gas and steam  
Mass flow rate accuracy of ±1.4% of reading in saturated steam

316 or 304 Stainless Steel

Flange  
ANSI RF, ANSI RTJ, EN 1092-1  
Wafer  
Centering for ANSI Class 150, 300, 600  
Centering for Metric PN 16, 40, 63, 100

-20°C to +200°C / 0°F to +400°F  
+150°C to +260°C / +300°F to +500°F

4-20 mA, HART

ATEX, IECEx, CSA, INMETRO, EAC

Temperature compensated Vortex

PSS 1-8A8 A

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.

# Coriolis Mass Flowmeters

With single-path construction, our CFS10 flowtubes provide obstruction-free flow-through and positive cleaning. Clogging is virtually eliminated. The no-splitter design means process fluid is never damaged.

## The Meter for Your Critical Process Flows

Foxboro's Coriolis flow transmitters handle measurements that cause other Coriolis meters to fail. They overcome problems associated with entrained gases, empty tube conditions, or flash-prone fluids and fully realize the promise of Coriolis measurement to achieve high accuracy, eliminate downtime, avoid workarounds, and keep profits flowing.

These Coriolis mass flowmeters comprise Foxboro CFT51 mass flow transmitters in conjunction with CFS mass flowtubes. They deliver highly accurate, direct measurement of mass flow, density, and temperature as well as total mass, volume flow, and concentration of mixtures (BRIX, baume, alcohol, and even customs). They are your meters of choice to measure the mass flow of conventional liquids — plus non-Newtonian fluids, viscous, abrasive, shear-sensitive fluids, slurries, and liquefied gases.

Our clean-in-place flowtube construction makes sanitary applications a specialty. Where competitive designs bend, Foxboro Coriolis flowtubes give just a slight twist. You get added insurance against metal fatigue.

CFS10: Single-path flow system available in sizes 1/8" to 2"

CFS20: Dual-path system available to 3"

CFS25: Lower cost, inline design flowtube for more general process applications available in sizes 1/5 to 3"

## The Meter That Bursts the Entrained Air Bubble

There is one application type even the best Coriolis meters have trouble handling: fluids with entrained air bubbles. Even the smallest bubbles in the process fluid can seriously interrupt or even stall your measurement.

Finally, there is a Foxboro solution for even this formerly intractable difficulty. The CFT51 digital Coriolis mass flow transmitter bursts the entrained air bubble problem forever.





### First to Find the Fix

The CFT51 solves the problem as nothing has done before. Foxboro's patented software-based system prevents the erratic liquid/gas flowtube vibrations that cause measurement failures, by maintaining a digitally precise process flow measurement — while simultaneously retuning the drive of the Coriolis flowtube every halfcycle of the drive frequency.

This completely eliminates air-induced interruptions or stoppages during two-phase events. You can measure from liquid to gas back to liquid and everything in between. This allows batch operations from an empty tube to a full tube, back to an empty tube, without ever waiting for a full flowtube. Result: no lost product or below-spec batches.

The CFT51 offers superior response times — better than ten times faster than other mass meters. It is ideal for small batches as well as small-volume proving. Nothing else on the market can successfully tackle these challenging applications. For cheese making, pulp & paper coatings, foaming fluids, tanker truck/railcar unloading, and more, turn to the astonishing CFT51 mass flow transmitter.

### A Complete Net Oil Solution

Finally, when combined with an industry-leading flow computer, Foxboro Coriolis flowmeters offer a complete solution for liquid net oil measurement: NOCT60A. The NOCT60A Net Oil Coriolis Transmitter integrates digital Coriolis technology with Realflo® flow computation software and PLC-style logic to provide an all-in-one device for streamlined separation and allocation measurement, with auditable flow history data for regulatory compliance. It is the ideal solution for measurement from a 2-phase or 3-phase separator in upstream Oil & Gas applications. See PSS 1-2B6 A\* for more details.

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Our amazing CFT51: it handles the bubbles that can stop a conventional mass flowmeter in its tracks.



Visit [www.FlowExpertPro.com](http://www.FlowExpertPro.com) to help with sizing and selection of this and other Foxboro meters.

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.

# Selection Guide

## Coriolis Flowmeters



Model		CFT51 / CFS10
<b>Applications</b>		Mass Flow, Volume Flow, Density, and Temperature measurements of Liquids & Gases. 2-Component concentration measurement. Best 2-Phase continuous measurement capability — Applications in Food & Beverage, Pharmaceuticals, Chemical, Power, Oil & Gas Industries. Custody transfer applications also.
<b>Size</b>		1/8" to 2"; DN3 to DN50
<b>Accuracy</b>	Liquid	±0.10% of flow rate plus flowtube zero instability
	Gas	±0.50% of flowrate plus flowtube zero instability
	Density	±0.0005 g/cc or better
<b>Flowtube Material</b>		AISI Type 316L Stainless Steel, Nickel alloy equivalent to Hastelloy C-22
<b>Fittings</b>		ANSI, EN 1092-1, DIN 11851, BS4504, Tri-Clamp, Threaded ANSI B2.1
<b>Temperature Range</b>		-200°C to +180°C / -328°F to +356°F
<b>Communication Protocols</b>		HART, Modbus
<b>Certifications and Approvals</b>		ATEX, IECEx, FM, CSA 3-A Sanitary approval
<b>Specific Features</b>		Custody transfer (NTEP / Industry Canada) Concentration measurement (Brix, Baume, %Solute, Proof, Custom)
<b>Specifications*</b>		CFT51 PSS 1-2B7 C CFS10 PSS 1-2B1 A



### CFT51 / CFS20

Mass Flow, Volume Flow, Density, and Temperature measurements of Liquids & Gases.  
 2-Component Concentration measurement.  
 Best 2-Phase continuous measurement capability —  
 Applications in Food & Beverage, Pharmaceuticals, Chemical, Power, Oil & Gas Industries. Custody transfer applications also.

1.5" to 3"; DN40 to DN80

±0.10% of flow rate plus flowtube zero instability

±0.50% of flowrate plus flowtube zero instability

±0.0005 g/cc or better

AISI Type 316L Stainless Steel, Nickel alloy equivalent to Hastelloy C-22

ANSI, EN 1092-1, BS4504, Tri-Clamp, Threaded DIN

-200°C to +180°C / -328°F to +356°F

HART, Modbus

ATEX, IECEx, FM, CSA  
 3-A Sanitary approval

Custody transfer (NTEP / Industry Canada)  
 Concentration measurement  
 (Brix, Baume, %Solute, Proof, Custom)

CFT51 PSS 1-2B7 C  
 CFS20 PSS 1-2B1 A

### CFT51 / CFS25

Mass Flow, Volume Flow, Density, and Temperature measurements of Liquids & Gases.  
 2-Component Concentration measurement.  
 Applications in Power, Chemical, Oil & Gas Industries.

1/2" to 3"; DN15 to DN80

±0.10% of flow rate plus flowtube zero instability

±0.50% of flowrate plus flowtube zero instability

±0.0005 g/cc or better

AISI Type 316L Stainless Steel

ANSI B16.5, DIN EN 1092-1, Female thread BSPP, Female thread

-60°C to +150°C / -76°F to +302°F

HART, Modbus

ATEX, IECEx, FM, CSA

Concentration measurement  
 (Brix, Baume, %Solute, Proof, Custom)

CFT51 PSS 1-2B7 C  
 CFS25 PSS 1-2B3 A

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.

# Selection Guide

## Flow Technologies



Model	Coriolis	Magnetic
<b>Technology</b>		
Type of Measurement	Linear mass flow measurement Density measurement	Linear volumetric flow measurement
<b>Liquids</b>		
Clean Liquid	Good	Good
Dirty Liquid	Good	Good
Corrosive Liquid	Limited	Good
Low Conductivity Liquid <5 μS	Good	No
High Viscosity	Good	Good
<b>Gas</b>		
Clean Gas	Good	No
Dirty / Corrosive Gas	Limited	No
Steam	No	No
<b>Special Applications</b>		
High Temperature	Limited	Limited
Low Temperature	Good	No
Low Velocity	Good	Good
Abrasive Slurries	Limited	Good
Fibrous Slurries	Good	Good
Dual-phase / Emulsion	Good	Limited
<b>Specifications</b>		
Accuracy	0.1% to 2%	0.2% to 2%



**Vortex**

**dP**

Linear volumetric flow measurement  
Mass flow measurement for steam  
and liquids

Square root volumetric flow  
measurement

**Good**

**Good**

**Limited**

**Limited**

**Limited**

**Limited**

**Good**

**Good**

No

No

**Good**

**Good**

**Limited**

**Limited**

**Good**

**Good**

**Good**

**Limited**

**Limited**

**Limited**

No

No

No

No

No

No

No

No

0.5% to 1%  
1.4% for saturated steam mass flow

0.5% to 3%

# Process Analytical Product Portfolio

## pH and ORP Sensors



PH10 and ORP10 DolpHin



PH10 DolpHin Smart



PH10 DolpHin Smart w/PC Interface



PH12



871A



871PH



EP462A

## Electrodeless and Flowthrough Conductivity Sensors



871EC



871FT Sanitary



871FT Industrial



EP402



Calibration Plugs

## Contacting Conductivity Sensors



871CR



871CR with Ball Valve Assembly



871CC

## Analyzers and Transmitters



875 Analyzers



876 Transmitters

# Process Analytical

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Analyze or control the pH, oxidation-reduction potential (ORP), conductivity, or resistivity of your process with exceptional analytical solutions such as our 875 Series analyzer.

## The Process Analytical Experts

Bring us your toughest analytical measurement challenges. We have the intelligent Foxboro analyzers, transmitters, sensors, and solutions you need.

Our analytical history displays an entire galaxy of significant technical firsts. Any survey would include our multi-measurement intelligent transmitters, flow-through conductivity sensors, dissolved oxygen sensor diagnostics, and more. Our unique, long-lived DolpHin sensors are currently revolutionizing pH measurement.

Today, we supply more than just quality instrumentation. Our expert application specialists tackle challenges from feasibility studies for new processes to fine-tuning your existing application.

## The Ultimate Analyzer Solution

Our 875 Series intelligent analyzer is the perfect platform for all your analysis needs.

Call on it for accurate, flexible measurement of variables from contacting conductivity and resistivity to pH/ORP and electrodeless conductivity.





No analyzer on today's market is easier to use. All 875 Series models are packed with useful features, from history logs with up to 100 time- and date-stamped events to complete sensor and analyzer diagnostics.

The 875PH analyzer provides auto-buffer recognition for flawless pH calibrations. The 875EC model offers a host of pre-programmed chemical concentration ranges and corresponding temperature compensations. The 875EC model offers application switching and storage of up to three sets of application configurations that include custom curve sets.

Every 875 model has all the advantages you require in an analyzer. It furnishes ultimate speed and simplicity in installation, configuration, calibration, and operation. You get a large, backlit LCD; on-screen help with intuitive menus; field or panel-mounting; and easy wiring access. Plus a host of additional features tailored to your industry or application.

This analyzer is line-powered and certified for Class I, Division 2 environments.

### The Ease-of-Use Transmitter Standard

The Foxboro 876 intelligent two-wire transmitter shares many of the 875's advantages. It has become an industry standard, offering the same balance of built-in capabilities, such as advanced sensor diagnostics, with ease of use, including self-prompting menu trees and PC-based configuration.

The 876 is loop-powered, yielding lower wiring costs. This transmitter is also intrinsically safe and certified for Class I, Division 1 areas.

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For the lower wiring costs of a loop-powered instrument, turn to our popular 876 transmitter.



# Process Analytical

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Sensor design, selection, installation, and maintenance are critically important to the success of an analytical measurement. Foxboro products and expertise can help you achieve your desired results.

## The Sensors You Seek

We offer the widest array of innovative sensor technologies, materials, sizes, and geometries in the business. From ultrapure water to the most aggressive acids and bases, we can handle your process solution. Among our offerings: Foxboro electrodeless conductivity, pH/ORP/ISE, flow-through conductivity, contacting conductivity/resistivity, and dissolved oxygen sensors. Rely on Foxboro sensors to solve your most challenging applications. Our breadth of line drastically simplifies your requirements for installation, calibration, accessibility, troubleshooting, and maintenance.

## The Right Fit for Every Application

Foxboro sensors provide the specific advantages for each required application:

- For pure and ultrapure water measurement, our 871CR sensors supply the highest possible accuracy.
- For aggressive chemicals or industries requiring unbroken process lines, our flow-through 871FT sensors offer an innovative, noninvasive conductivity solution.
- For pH measurement in aggressive chemical solutions, our DolpHin reference technology with internal Nafion ion barrier protects the external junction from fouling and reduces maintenance.
- For measurement of dissolved oxygen, with regular maintenance our tough, rebuildable 871DO sensors can last several years, even in the most challenging applications.

Simplify the calibration of any Foxboro electrodeless conductivity sensor loop by using our high-precision EP485 resistance calibration plugs. Precision calibration... in a shirt-pocket tool!

## The pH Benchmark

Our PH10 DolpHin sensor line has revolutionized the field. With remarkable longevity in the harshest environments, plus outstanding ease of use in any application, DolpHin has become the industry standard for pH/ORP sensors. DolpHin technology is also available in our 871PH rebuildable sensors and 12 mm PH12 sensors.

## Twice the Life

DolpHin sensors remain extremely accurate for double the service life of competitive sensors in high-temperature and temperature cycling applications up to 121°C (250°F).

This unheard-of stability in the harshest process environments is due in part to our DolpHin sensors' unique pH glass formulation. A flat glass design offers self-cleaning for longer service life. A domed glass version operates longer and more accurately at high temperatures.

## The 12 mm pH Standard

The new Foxboro PH12 Series includes the process industry's first PEEK bodied sensor; making it the most durable 12 mm pH sensor available anywhere. It is available with a flat membrane sensing electrode and no metallic wetted parts. Its nonmetallic solution ground is a standard feature, allowing for sensor diagnostics in a cost-effective platform.

## Smart pH Sensor

The latest offering from Foxboro is the new PH10-S Smart (coupled with the new 876-S transmitter) providing customers with a robust solution for their pH measurements. The new sensor has internal, digital electronics and carries sensor ID, calibration parameters, and diagnostic history in its non-volatile memory. Calibrations are easier, faster, and more reliable since they can be accomplished in an instrument shop environment.

Foxboro's unique 871FT sanitary electrodeless conductivity flow-through sensor.



The sensors in our extraordinary DolpHin family are designed to reduce probe replacements, cut maintenance calls — and improve your ROI.



Foxboro's new Smart pH Sensor (coupled with the new 876PH transmitter) eliminates the need to bring pH buffer solutions to the field.



Foxboro analytical sensors provide unmatched ease of use, robustness, and application flexibility in almost any process solution.



For pH applications requiring a rugged, yet cost-effective sensor in a 12 mm form factor, the Foxboro PH12 provides the most durable materials and construction available.

# Selection Guide

## Analytical pH and ORP Sensors



Model	PH10 DolpHin, Analog	PH10 DolpHin, Smart	ORP10 DolpHin
<b>Sensor Type</b>	pH	pH	ORP
<b>pH Range</b>	0 to 14	0 to 14	N/A
<b>Maximum Temperature</b>	121°C / 250°F	121°C / 250°F	121°C / 250°F
<b>Installation Type</b>	Universal slip fit, submersion, inline, retractable	Universal slip fit, submersion, inline, retractable	Universal slip fit, submersion, inline, retractable
<b>Electrode Type</b>	Domed or flat	Domed or flat	Flat
<b>Maintenance Type</b>	Disposable	Disposable	Disposable
<b>Integral Electronics</b>	Yes, preamp	Yes, analog to digital circuit	Yes, preamp
<b>Features</b>	High performance	High performance, digital output, stores calibration and other data	High performance
<b>Specifications*</b>	PSS 6-1C3 A	PSS 6-1C3 A	PSS 6-1C3 A
<b>Data Sheet*</b>	FD-DS-A-009	FD-DS-A-001	FD-DS-A-009



Proprietary pH glass formulations used in all of our pH sensors provide superior performance in challenging applications.



PH12	871A	871PH	EP462A
pH, ORP	pH, ORP	pH, ORP	pH low conductivity
0 to 14	2 to 12	0 to 14	0 to 14
140°C / 284°F	85°C / 180°F	121°C / 250°F	100°C / 212°F
PG13 connection to accessories, inline, retractable	Submersion, inline, retractable	Submersion, inline, retractable	Twist-lock, submersion, inline
Domed or flat	Flat	Selectable	Domed
Disposable	Disposable	Rebuildable	Disposable
No	Yes, preamp	Yes, preamp	No
12 mm form factor, available lengths 120 mm to 425 mm	Totally flat sensing surface	Small, inexpensive plug-in electrodes	Stable measurements in high-purity water
PSS 6-1C5 A	PSS 6-1C2 B	PSS 6-1C2 A	PSS 6-1C6 A
FD-DS-A-007		FD-DS-A-008	

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.



# Selection Guide

## Analytical Electrodeless and Flowthrough Conductivity Sensors



Model	871EC	EP307B	EP307G	871FT	EP402	FT10
<b>Sensor Type</b>	Small and large bore	Barrel geometry	Borosilicate glass	Flowthrough	Flowthrough	Flowthrough
<b>Installation Type</b>	Invasive, Insertion, Immersion, Retractable	Invasive, Insertion, Immersion, Retractable	Invasive, Insertion, Submersion	Non-invasive, Inline, Sanitary, Tri-clamp, Industrial	Non-invasive, Inline, Threaded, Flange	Non-invasive, Inline, Flaretek tube, NSP300 tube
<b>Line Size</b>	3" min / DN80	3" min / DN80	3" min / DN80	0.5" to 4" / DN15 to DN100	3/32" to 5/8" / 2.4 to 15.9 mm	1/2", 3/4" and 1" / DN15, DN20, DN25
<b>Calibrate Inline</b>	No	No	No	Yes	Yes	Yes
<b>All Thermoplastic</b>	Yes	Yes	No	No	No	Yes
<b>Specifications*</b>	PSS 6-3C4 A			PSS 6-3Q1 A		PSS 6-3Q1 B
<b>Data Sheet*</b>	FD-DS-A-013		FD-DS-A-018	FD-DS-A-003		FD-DS-A-014

**Calibration Plug Accessory** Patented Calibration Plugs are accessories to the conductivity sensors in the above matrix. Versions of these plugs are available for all sensors except EP402. Calibration plugs contain a precision resistor to simulate a conductivity value. They optionally contain a second resistor to simulate temperature. Much easier to use than decade boxes or wet solutions, these plugs are truly a shirt pocket calibration tool with superb accuracy and repeatability. When coupled with the 871FT or FT10 sensor, they help facilitate an inline calibration without the need to remove the sensor from the process.

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.



Superior electrodeless conductivity sensor technology, coupled with unique calibration plugs, dramatically reduce your cost of ownership.

# Selection Guide

## Analytical Contacting Conductivity and Resistivity Sensors



Model	871CR	871CC
<b>Mounting</b>	Insertion, Immersion, Retractable	Insertion, Immersion, Retractable
<b>Installation Type</b>	Universal slip fit	Fixed installation type dictated by model code selection
<b>Temperature Compensation</b>	1,000 ohm 3-wire platinum RTD	100 ohm 2-wire platinum RTD or 100 kohm 2-wire thermistor
<b>Accuracy</b>	0.1% of 0.1 cm <sup>-1</sup> cell factor	2% of 0.1 cm <sup>-1</sup> cell factor
<b>Insertion Lengths</b>	Model code selectable	Fixed length
<b>Specifications*</b>	PSS 6-3C2 B	PSS 6-3C2 A

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.



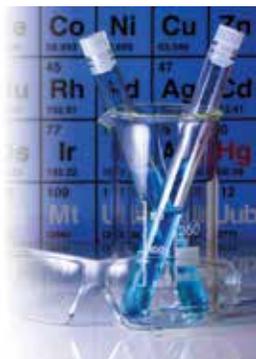
For measurement of pure and ultrapure water, Foxboro contacting conductivity sensors provide highly accurate cell constants and temperature sensors. Users in semiconductor, power generation, beverage, and other industries rely on Foxboro sensors for control of their critical water purity applications.

# Selection Guide

## Analytical Transmitters



Model	875PH	876PH
<b>Measurements</b>	pH, ORP, ISE	pH, ORP, ISE, Combination pH/ORP <sup>1</sup>
<b>2- or 4-wire</b>	4-wire	2-wire
<b>Power</b>	V ac <sup>3</sup> , 24 V dc	12.8 to 42 V dc
<b>Menu-Driven with Help Text</b>	Yes	Yes
<b>Inputs</b>	1 Sensor, 1 Temp, pH/ORP	1 Sensor, 1 Temp, Combination pH/ORP <sup>2</sup>
<b>Alarms</b>	2	0
<b>Certifications and Approvals</b>	Class 1, Div 2 Non-incendive	Class 1, Div 1 and 2 Intrinsically safe
<b>Output</b>	Dual 4-20 mA, HART	4-20 mA, HART
<b>Multi-application</b>		
<b>Custom Curve</b>		
<b>Specifications*</b>	PSS 6-1A1 E	PSS 6-1A4 A
<b>Data Sheet*</b>	FD-DS-A-016	FD-DS-A-005 FD-DS-A-001 (Smart)



Our analyzers provide menu selections for most common chemical concentration applications, and our long history in analytical measurements provides a knowledge base that can greatly assist in specifying the correct sensor for the job.



### 875EC

### 876EC

### 875CR

### 876CR

Conductivity,  
Concentration

Conductivity,  
Concentration

Conductivity and  
Resistivity

Conductivity and  
Resistivity

4-wire

2-wire

4-wire

2-wire

V ac<sup>3</sup>, 24 V dc

14.7 to 42 V dc

V ac<sup>3</sup>, 24 V dc

12.8 to 42 V dc

Yes

Yes

Yes

Yes

1 Sensor, 1 Temp

1 Sensor, 1 Temp

2 Sensor, 2 Temp

1 Sensor, 1 Temp

2

0

2

0

Class 1, Div 2  
Non-incendive

Class 1, Div 1 and 2  
Intrinsically safe

Class 1, Div 2  
Non-incendive

Class 1, Div 1 and 2  
Intrinsically safe

Dual 4-20 mA, HART

4-20 mA, HART

Dual 4-20 mA, HART

4-20 mA, HART

Yes

Yes

Yes

Yes

Multiple,  
auto-switching

Multiple,  
auto-switching

Multiple,  
auto-switching

Multiple  
auto-switching

PSS 6-3N1 C

PSS 6-3N3 A

PSS 6-3A1 B

PSS 6-3A2 A

FD-DS-A-012

FD-DS-A-006

FD-DS-A-011

FD-DS-A-004

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.

<sup>1</sup> S Smart version available in pH only.

<sup>2</sup> S Smart version available in pH only and one Smart pH sensor input.

<sup>3</sup> See PSS for AC voltage selections.





# Temperature Product Portfolio

## Temperature Transmitters



RTT15S



RTT80



RTT15

## Thermowells



## Sensors



# Temperature Measurements

---

With Foxboro RTT15, RTT15S, and RTT80 temperature transmitters, you choose the intelligence level you need, as well as multiple configuration options.



## Total Solution

Foxboro by Schneider Electric is a total solution provider for industrial process temperature measurements. With three families of intelligent temperature transmitters and broad selections of sensors and thermowells, accurate and reliable measurements over a wide range of temperatures can be ensured in the harshest of environments. Inputs from Resistance Temperature Detectors (RTDs), Thermocouples (TCs), ohm, or mV sources are converted by Foxboro RTT15, RTT15S, and RTT80 transmitters into scaled analog and digital outputs.

## Full Customization

Transmitters can be integrated with sensors and thermowells at the Foxboro factory and arrive at the measurement site configured with the desired output selections, temperature units, lower and upper range limits, and other configurable parameters.



# Temperature Measurements

## Transmitters

RTT15S with optical buttons is operable through the glass cover of its explosion-proof housing.



Foxboro's three families of temperature transmitters offer a differentiated selection of features to satisfy a wide variety of industrial process applications. Intrinsically safe, explosion-proof, and flame-proof agency certifications enable installation in the most hazardous locations.

## Sensors and Thermowells

Highly accurate platinum RTDs and a variety of TCs covering wide temperature ranges can be combined with threaded, welded, flanged, or sanitary thermowells and integrated with any of Foxboro's transmitters or connection heads for remote deployment in compliance with hazardous location requirements.

RTT80 has advanced features such as hot backup, sensor drift and corrosion detection, and SIL safety certification.



SPRING-LOADED FOR THERMOWELL MOUNT



WELDED CONNECTION

MODEL TF / FLANGED WELL



MODEL TT / THREADED WELL



MODEL TS SANITARY WELL



MODEL TW / WELD-IN WELL



RTT15 offers both Profibus digital communications and FOUNDATION Fieldbus.



# Selection Guide

## Temperature Transmitters



Model	RTT15	RTT15S	RTT80
<b>Output</b>	FOUNDATION Fieldbus and Profibus	4-20 mA and HART	4-20 mA, HART and FOUNDATION Fieldbus
<b>Input Types</b>	RTD, TC, ohm, or mV	RTD, TC, ohm, or mV	RTD, TC, ohm, or mV
<b>Housing Options</b>	DIN module only, connection head or universal with optional explosion-proof rating	DIN module only or universal with optional explosion-proof rating	DIN module only, universal or dual compartment with optional explosion-proof rating
<b>Display Options</b>	No display	Optional red or white backlit with optional optical configuration buttons	Optional LCD
<b>Factory-Mounted Thermowells and Sensors</b>	Yes	Yes	Yes
<b>Configuration Options</b>	Custom factory, DTM, or Handheld (Profibus through host system)	Optical button display, custom factory, DTM, Handheld	Custom factory, DTM, or Handheld
<b>Digital Accuracy</b>	Pt100 $\pm 0.1^{\circ}\text{C}$ TC (K) $\pm 0.5^{\circ}\text{C}$	Pt100 $\pm 0.1^{\circ}\text{C}$ TC (K) $\pm 0.5^{\circ}\text{C}$	Pt100 $\pm 0.14^{\circ}\text{C}$ TC (K) $\pm 0.32^{\circ}\text{C}$
<b>A/D Accuracy (% of Span)</b>	0.05	0.05	0.03
<b>Dual-Channel Capability</b>	Dual 2-wire RTD, TC; average, difference, hot backup	Dual 2-wire RTD, TC; average or difference	Dual 2- or 3-wire RTD, dual TC, TC/2- or 3-wire RTD; average, difference, switching, hot backup
<b>Diagnostics</b>	Sensor broken or shorted	Sensor broken or shorted	Sensor broken or shorted, drift detection, sensor corrosion
<b>SIL2 Certifications</b>	No	No	Yes
<b>Certifications and Approvals</b>	FM, CSA, ATEX, IECEx	FM, CSA, ATEX, IECEx, NEPSI, INMETRO	FM, CSA, ATEX, IECEx
<b>Specifications*</b>	PSS 2A-1F5 A	PSS 2A-1F5 B	PSS 2A-1F8 B

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.

# Selection Guide

## Temperature Sensors and Thermowells



PR and PRMTA Series RTD <sup>1</sup> Sensors	MT and PRMTA Series TC <sup>2</sup> Sensors	Thermowells
Highest accuracy ( $\pm 0.13^{\circ}\text{C}$ / $\pm 0.23^{\circ}\text{F}$ )	Wide temperature ranges (-270°C to +1300°C / -454°F to +2372°F)	TT Series Thread: 1/2", 3/4" or 1" NPT
Platinum elements with 2-, 3-, or 4-wires	Types E, J, K, N, and T	TF Series Flanged: ANSI Class 150, 300 or 600
Custom linearization (Callendar van Dusen)	Lengths up to 914 mm (36") standard with custom longer lengths	TW Series Welded: 1.05" and 1.315" OD for 3/4" and 1" pipe socket weld
Lengths up to 914 mm (36") standard with custom longer lengths	316 Stainless Steel or Nickel alloy sheaths	TS Series Sanitary: 3/4", 1", 1-1/2", 2", and 4" Tri-Clamp
316 Stainless Steel or Nickel alloy sheaths	Welded connection or spring-loaded for thermowell mount	Straight, tapered, and stepped shanks available
Welded connection or spring-loaded for thermowell mount	MT Series Available in connection head for remote deployment	Lengths up to 914 mm (36") standard with custom longer lengths
PR Series available in connection head for remote deployment	MT Series* PSS 1-1B6 A	316 Stainless Steel standard or other materials by request
PR Series* PSS 1-1B1 A PRMTA Series* PSS 3-3E1 A	PRMTA Series* PSS 3-3E1 A	T Series* PSS 3-3D1 A

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.

<sup>1</sup> Resistance Temperature Detectors

<sup>2</sup> Thermocouples



# Level Product Portfolio

## LevelWave and LevelStar Series



LR01 LevelWave



LG01 LevelWave



244LVP LevelStar



244LD LevelStar



167LP



# Level, Density and Interface Measurements

## The Right Measurements on the Level

We apply superior Foxboro technology and experience to continuously measure the level, interface, or density of liquids in industrial processes. Based on the proven Archimedes buoyancy principle and utilizing no moving parts, our level transmitters are rugged and extremely reliable, requiring virtually no maintenance.

They also supply precise measurements, even at extreme process temperatures from  $-196^{\circ}\text{C}$  to  $+500^{\circ}\text{C}$  ( $-320^{\circ}\text{F}$  to  $+930^{\circ}\text{F}$ ) and pressures from vacuum to 500 bar.

Our loop-powered buoyancy transmitters offer HART and FOUNDATION Fieldbus communication. Plus LCDs and push buttons for easy calibration. Their process-wetted materials are available in steel, stainless steel, inconel, Duplex, or Hastelloy C. To withstand your challenging process environment, they are FM/ATEX rated explosion-proof and intrinsically safe, approved for SIL2 applications with a proof-test interval up to 5 years.

## Our Level Transmitter Family

The 244LD LevelStar Buoyancy transmitter is the flagship product for the range of buoyancy transmitters offered. Its rugged design for extreme process temperatures makes it a top choice for all industrial process level measurements.

The 244LVP is a value-based solution for all industry applications, due to a robust, modular design, wherein reliability is equally as important as durability and accuracy.

The 167LP Pneumatic transmitter is used for measuring level, interface, or density of liquids. The transmitter converts the lifting force of the displacer body to an analog pneumatic output. Ideal for extreme process level measurements.

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Call on one reliable level transmitter family for all your measuring ranges and applications.



# Selection Guide

## LevelStar Sandwich- and Flange-Mounted Versions



Model	244LD LevelStar
Type / Design	Sandwich Mounted
Measurements	Level, Interface, Density
Size	DN70 / 80 / 100 ANSI 3" / 4"
Accuracy	±0.2% at Level, Density, and Interface measurement. Increased accuracy with customized adjustments.
Pressure Range	Full vacuum up to 500 bar / 7,250 psi
Process Temperature Range	-196°C to +500°C (-320°F to +932°F)
Ambient Temperature Range	-50°C to +85°C (-58°F to +185°F)
Measuring Range	Up to 50 m / 165'
Body Material <sup>1</sup>	316L Stainless Steel, 321, Duplex Inconel® 625, 825 Carbon Steel Hastelloy C
Housing Material	Aluminum & Stainless Steel
Certifications and Approvals	ATEX ia / d, FM, CSA, GOST-R, NEPSI, INMETRO SIL2, NACE
Communication Protocols	HART, FOUNDATION Fieldbus
Protection Category	IP66
Accessories	Heating / Cooling
Specifications*	PSS EML0171 G



### 244LVP LevelStar

### 167LP LevelStar

Flange Mounted

Sandwich Mounted

Level, Interface, Density

Level, Interface, Density

DN50 / 80 / 100 ANSI 2" / 3" / 4"

DN80 / 100 ANSI 3" / 4"

±0.2 % at Level, Density, and Interface measurement.  
Increased accuracy with customized adjustments.

Relative error <1%

Full vacuum up to 150 bar / 2,175 psi

Full vacuum up to 250 bar / 3,625 psi

-50°C to +150°C (-58°F to +302°F)

-196°C to +500°C (-320°F to +932°F)

-50°C to +70°C (-50°F to +158°F)

-50°C to +90°C (-58°F to +194°F)

Up to 12 m / 40'

Up to 50 m / 165'

316L Stainless Steel / 316Ti

316 Stainless Steel  
Carbon Steel  
Hastelloy C

Aluminum & Stainless Steel

Aluminum

ATEX ia / d, FM, CSA, GOST-R, NEPSI, INMETRO  
SIL2, NACE

ATEX ia / d  
NACE

HART, FOUNDATION Fieldbus

Pneumatic

IP66

IP55 / IP65

On Request

Heating / Cooling

PSS EML1710 G

PSS EML0110 A

<sup>1</sup> Others on Request.

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.



# LevelWave Radar

## Description

LevelWave Series Models LR01 and LG01 Radar level measurement devices offer accurate reliable level measurement for the widest choice of installation and applications.

The LevelWave Radar Series is state-of-the-art measurement technology combined with robust and durable instrumentation. Each device has a unique 360-degree rotation, which allows for side or top mounting as standard, making it much simpler to fit into an existing space. For greater ease, all LevelWave instruments feature a user-friendly external display, offering easy, intuitive configuration for a new operator. For further effortless operation for busy engineers, there is an option for full digital remote electronics up to a distance of 100 meters.

---

LG01 and LR01 LevelWave Radar Series



## Benefit

The Foxboro LG01 LevelWave Guided Wave Radar transmitter is designed to perform continuous level measurement in a wide range of industries and applications. A modular design of housing and sensor ensures suitability for a variety of mounting positions and applications. It's a universal measurement device for liquids and solids.

With Quick Noise Scanning to reduce false reflections, the LG01 Guided Wave Radar can be used for liquid level measurement in process tanks for various chemical products as well as liquid and solid volume measurement for storage tanks.

The Foxboro LR01 Continuous Wave Free Space Radar incorporates a modular design of housing and antenna that ensures suitability for a variety of mounting positions and applications. The Empty-Tank Spectrum filter allows for measurements with fixed or moving parts in tank. It is ideally designed for measurement of liquids, pastes, and slurries in storage and process tanks as well as water and wastewater applications.

# Selection Guide

## Radar vs. LevelStar Displacer

**Foxboro Field Devices offer more than radar level meters.** Foxboro Field Devices offer different product solutions for level, density, and interface measurement. For each application requirement there are dedicated solutions available from Foxboro. Use this table to assist you with selecting the best product for your needs.



Model	Free-Space Radar LR01	Guided Wave Radar LG01	Displacer 244LD
<b>Parameters</b>			
Density	No	No	Good
Interface (emulsion layer)	No	No	Good
Very Low Dielectric Constant	No	Suitable <sup>1</sup>	Good
Multipurpose Tanks	Good	Good	Suitable <sup>1</sup>
Tank with Built-In Components	Suitable <sup>1</sup>	Suitable <sup>1</sup>	Suitable <sup>1</sup>
Dished Vessel / Tank End	Suitable <sup>1</sup>	Good	Good
Strong Moving Media	Good	Suitable <sup>1</sup>	Suitable <sup>1</sup>
Steam Generation	No	No	Good
Media with Foam / Boiling Surface	No	Suitable <sup>1</sup>	Good
Pressure >40 Bar	No	No	Good
Direct Measurement Inside the Tank	Good	Good	Good
Non-Contact Measurement	Good	No	No
Temperature >+250°C (482°F)	No	Suitable <sup>1</sup>	Good
Temperature <-50°C (-58°F)	Good	No	Good
<b>Specifications*</b>	PSS EML3020 A	PSS EML3010 A	PSS EML0710 G

<sup>1</sup> Under certain conditions.

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.



With the LevelWave Series, different tanks can be managed through remote electronics option for a distance of up to 100 m / 328'.



The LevelWave Series has a broad accessory portfolio such as stainless steel weather protection to ensure operation in all extremes of temperature and weather conditions.

# Selection Guide

## LevelWave Radar Series

Here is a quick breakdown of the most commonly used process parameters to help you select which product suits your application best.



Model	Free-Space Radar LR01	Guided Wave Radar LG01
<b>Process Parameters</b>		
Measuring Range $\leq 30$ m; $\leq 98.43'$	Good	Good
Measuring Range $\leq 40$ m; $\leq 131.23'$	No	Good
Storage Tanks	Good	Good
Still Well / Reference Chambers	Suitable <sup>1</sup>	Good
Complex Process Tanks (e.g., with agitators)	Suitable <sup>1</sup>	Good
Pressure $\leq 40$ barg; $\leq 580$ psig	Good	Good
Process Connection Temperature $\leq +250^\circ\text{C}$ ; $\leq +482^\circ\text{F}$	Good	Good
Process Connection Temperature $\leq +300^\circ\text{C}$ ; $\leq +572^\circ\text{F}$	No	Good
2-wire Technology	Good	Good
Profibus PA / FOUNDATION Fieldbus	Good	Good
ATEX, FM, IECEx and Other Approvals	Good	Good
SIL2	Good	Good
<b>Specifications*</b>	PSS EML3020 A	PSS EML3010 A

<sup>1</sup> Under certain conditions.

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.



For superior performance in petrochemical and oil & gas applications. The 244LD LevelStar comes with a wear-free design for rough conditions.



The LR01 is used in the food & beverage industry. Non-contact with the process so no EHEDG or 3-A sanitary certificate needed.

# Selection Guide

## LevelWave Radar Series



Model	LR01 Free-Space Radar
Frequency	X-band (10 GHz)
Technology	Frequency Modulated Continuous Wave (FMCW)
Media	Liquids, Pastes and Slurries
Calibrated Accuracy	±5 mm (±0.2")
Pressure Range	40 bar / 580 psi
Process Temperature Range	-60°C to +250°C (-76°F to +482°F)
Ambient Temperature Range	-40°C to +80°C (-40°F to +176°F)
Measuring Range	30 m / 100'
Material (Probe/Antenna)	Stainless Steel, PP, PTFE
Housing Material	Aluminum, Stainless Steel
Remote Version	Up to 100 m / 328'
Certifications and Approvals	ATEX, IECEx, FM, CSA, NEPSI, SIL, NACE
Communication Protocols	HART, FOUNDATION Fieldbus, Profibus PA
Process Connections <sup>1</sup>	ANSI, EN / DIN, JIS, NPT-Thread
Protection Category	IP66 / 67
Accessories	Heating / Cooling, Weather Protection, Purging (liquid or gas)
Specifications*	PSS EML3020 A-EN



### LG01 Guided-Wave Radar

L-band (1 GHz)

Time-Domain Reflectometry (TDR)

Liquids, Pastes, Solids

±3 mm (±0.12")

40 bar / 580 psi

-50°C to +300°C (-58°F to +572°F)

-40°C to +80°C (-40°F to +176°F)

40 m / 130'

Stainless Steel, Hastelloy C

Aluminum, Stainless Steel

Up to 100 m / 328'

ATEX, IECEx, FM, CSA, NEPSI,  
SIL, NACE

HART, FOUNDATION Fieldbus, Profibus PA

ANSI, EN / DIN, JIS, NPT-Thread

IP66 / 67

Heating / Cooling, Weather Protection, Purging (liquid or gas)

PSS EML3010 A-EN

<sup>1</sup> Others on Request.

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.

# Accutech Wireless Product Portfolio

## Base Radio



BR10 – Div 1, Zone 1, Base Radio



BR20 – Div 2, Zone 2, Base Radio

## Level



GL10 – Gauge Level



SL10 – Submersible Level



FL10 – Float Level

## I/O



AI10 / AV10 – Analog Input



SI10 – Switch Input / Output



VC10 – Valve Control



4AO / 8SW / 4AO-8SW – Output Modules

## Pressure



AP10 – Absolute Pressure



GP10 – Gauge Pressure



DP20 – Differential Pressure

## Temperature



RT10 – RTD Temperature



TC10 – Thermocouple Temperature

## Flow



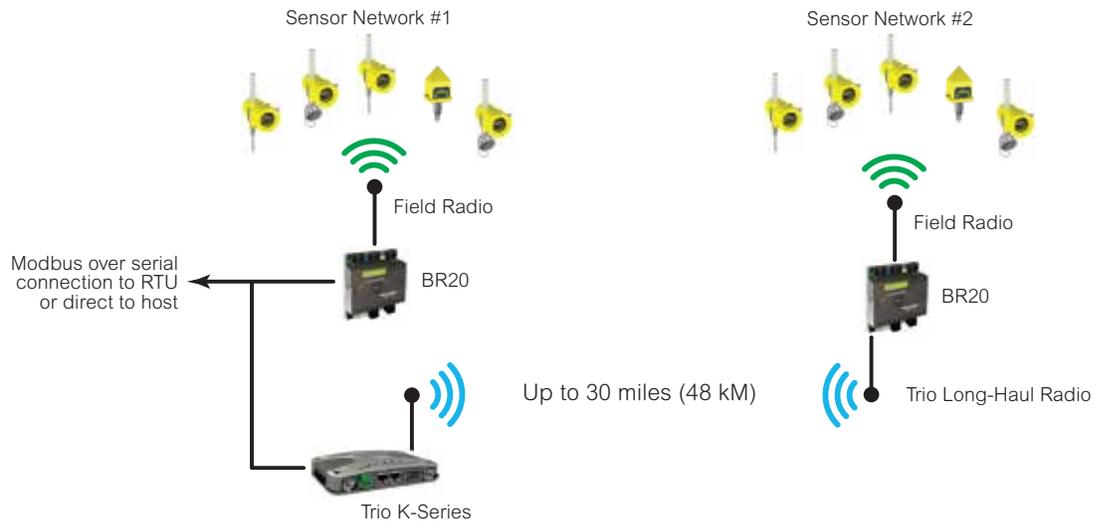
TM10 – Turbine Meter Totalizer



# Rapid Deploy Wireless Instrumentation Solutions for Telemetry and Remote SCADA

Where traditional instruments struggle with operation and budget goals, Accutech wireless instrumentation provides the solution.

Accurate measurement is vital to gain process knowledge. Companies are increasingly forced to measure process variables that are difficult to reach and expensive to support. Distance, hazardous environments, and absence of power are just a few of the hurdles faced. With operational efficiency as the primary goal, the deployment of self-powered wireless instrumentation provides the knowledge you need at an affordable price.



With a wide range of available instruments for temperature, pressure, flow, level, and more, Accutech is suited to many industrial applications, including upstream oil and gas and remote plant applications in water and wastewater.

Accurate field instruments are self-contained with power, radio, and sensor, making them easy to install. The high-performance, license-free radio, and long-lasting battery reduce support costs while delivering your valuable data.

# Take Ownership of Your Field Instrument Network

Accutech instrumentation offers a versatile selection of instruments and base radios with performance-enhancing options that can satisfy any application.



Installation of a complete wireless instrument network cannot be easier, with push button configuration, integrated link tests, and rugged compact designs.

Reliable, self-powered, spread-spectrum radios (900 MHz and 2.4 GHz) provide effective network connectivity and long-term service.

Tested for use in hazardous locations, Accutech field instruments can function in extreme temperatures.

## Flexible Wireless Communication

Accutech networks use 900 MHz or 2.4 GHz license-free, frequency-hopping, spread-spectrum radios, offering superior ranges of up to 3,000 ft (~1,000 m) using standard integrated antennas. Extended-reach options include external directional antennas and an integrated Trio™ long-haul data radio that offers 256-bit AES encryption.

## Easily Configured, Highly Scalable Deployment

Each Accutech base radio can support 100 field instruments with up to 1 sec sampling on instruments. For extended scalability 256 base radios can coexist. Push button configuration and simple link test features allow entire networks to be deployed in hours.

## Ease of Use, Low Maintenance

Standard Accutech field units include a single D Cell Lithium Thionyl battery that offers up to ten years of service, depending on data rates and battery options. Advance notification is provided several weeks before a new field-replaceable battery is required.



# A Toolset for Challenging Applications

Tested for use in harsh locations, Accutech field instruments can function in extreme environments of temperature and humidity and come with a three-year warranty.



Accutech is available in a versatile selection of instruments and base radios with performance-enhancing options that can satisfy any application. Optional external sensor configurations allow installation in below-ground areas or on process equipment that is hard to reach. External high-gain antennas are available for complex environments where considerable obstructions require ultra-long reach.

With this kind of flexibility, Accutech becomes a key element in any challenging application:

- Wireless Wellhead monitoring and control (including plunger arrival)
- Tank level measurement (with dual float liquid interface option)
- Environmental monitoring (storm water, irrigation, reservoirs)
- Pressure measurement in any process, from 5 psi to 15,000 psi.
- Monitoring remote sites with discrete input switches
- Delivering 4-20 mA signals from third-party analog instruments

## Maximize Return on Investment While Improving Efficiency and Safety

Engineered for challenging applications, Accutech networks help to reduce costs and lessen holes in your operational data monitoring.

- **Reducing installation costs:** Reduce cabling, trenching, and conduit costs. Self-powered means no regenerative power systems.
- **Increased productivity:** Monitor process variables you could not before. Quick configuration, instant connectivity, and little maintenance.
- **Enhanced safety:** Integrated field units tested for harsh locations enable data point monitoring in tough environments.



## Industry Standard Connectivity

Accutech supports industry standard Modbus protocol, providing interoperability with a wide range of industrial equipment and host systems.

## Certified and Durable

With NEMA 4X packaging, Accutech products are designed for demanding applications and are certified CSA Class 1, Div 1, and ATEX/IECEx (-ai and -d). A push button interface enables configuration in hazardous environments.

## Configure and Monitor from Base Radio

Accutech Manager configuration and management software provides a user-friendly commissioning interface for Accutech networks, offering remote configuration and firmware upgrades, enhanced diagnostics, field unit authentication to base radio, and trending/data collection.

# Selection Guide

Accutech



## BR10

### Base Radio

- Supports 100 field units with 915 MHz or 2.4 GHz radio
- Serial Modbus via RS-485
- Remote antenna option
- 10-30 V dc input power
- CSA Class 1, Div 1 (xp)
- ATEX / IECEx -d
- Data Sheet\*: BR10

## BR20

### Base Radio

- DIN rail mount
- Supports 100 field units with 915 MHz or 2.4 GHz radio
- Optional Trio data radio for long-haul connectivity with host
- Serial Modbus via RS-485
- 11-30 V dc input power
- CSA Class 1, Div 2
- ATEX / IECEx -n
- Data Sheet\*: BR20

## AI10 / AV10

### Current / Voltage Multi-Input Field Unit

- Accuracy:  $\pm 0.1\%$  of full scale reading at reference conditions
- Dual current (4-20 mA) or voltage (0-10 V) analog inputs
- Includes dual contact closure inputs
- Remote antenna option
- NEMA 4X enclosure
- CSA Class 1, Div 1 (IS)
- ATEX / IECEx -ia
- Data Sheet\*: AI10 / AV10

## AP10

### Absolute Pressure Field Unit

- Accuracy:
  - $\pm 0.25\%$  of full scale at 20°C (68°F)
  - $\pm 0.5\%$  of URL
- 30 psia and 250 psia max pressure options
- NEMA 4X housing
- Remote antenna and remote sensor option
- CSA Class 1, Div 1 (IS)
- ATEX / IECEx -ia
- Data Sheet\*: AP10



## DP20

### Differential Pressure Field Unit

- Accuracy:  $\pm 0.2\%$  of URL
- Available in five different pressure ranges:
  - $\pm 100$  in H<sub>2</sub>O
  - $\pm 300$  in H<sub>2</sub>O
  - -25 psi to +25 psi
  - -25 psi to +100 psi
  - -25 psi to +300 psi
- NEMA 4X housing
- Remote antenna option
- CSA Class 1, Div 1 (IS)
- ATEX / IECEx -ia
- Data Sheet\*: DP20

## FL10

### Float Level Field Unit

- For use with Siemens 2,000 series probes
- 1/4" and 1/2" resolution options
- Lengths up to 30'
- Single float or dual float for liquids interface
- NEMA 4X housing
- Remote antenna option
- CSA Class 1, Div 1 (IS)
- Available in North America only
- Data Sheet\*: FL10

## GL10

### Gauge Level Field Unit

- Accuracy:
  - $\pm 0.25\%$  of full scale at 20°C (68°F)
  - $\pm 0.5\%$  of URL
- 15 psig and 30 psig max pressure options
- Specific gravity correction and multiple units of measure selection
- NEMA 4X housing
- Remote antenna and remote sensor option
- CSA Class 1, Div 1 (IS)
- ATEX / IECEx -ia
- Data Sheet\*: GL10

## GP10

### Gauge Pressure Field Unit

- Accuracy:
  - $\pm 0.25\%$  of full scale at 20°C (68°F)
  - $\pm 0.25\%$  of URL (15,000 psig)
  - $\pm 0.3\%$  of URL (2,500 & 5,000 psig)
  - $\pm 0.5\%$  of URL (5, 15, 30, 100, 250, 1,000 & 10,000 psig)
- 5, 15, 30, 100, 250, 1,000, 2,500, 5,000, 10,000, 15,000 psig
- NEMA 4X housing
- Remote antenna and remote sensor option
- CSA Class 1, Div 1 (IS)
- ATEX / IECEx -ia
- Data Sheet\*: GP10



### RT10

#### RTD Temperature Field Unit

- Electronics accuracy:  $\pm 0.1\%$  of reading
- 4-wire 100 or 1,000 ohm DIN RTD
- Integrated RTD or junction box option for customer supplied RTD
- NEMA 4X housing
- Remote antenna and remote sensor option
- CSA Class 1, Div 1 (IS)
- ATEX / IECEx -ia
- Data Sheet\*: RT10

### SI10

#### Switch Input Field Unit

- Dual contact closure switch input with counter function
- Counter frequency up to 5 Hz
- Optional dual switch dry contact outputs capable of switching 1 A @ 30 V
- Remote antenna option
- NEMA 4X housing
- CSA Class 1, Div 1 (IS) for models without outputs; Div 2 with outputs
- ATEX / IECEx -ia for models without outputs; IECEx -d for models with outputs
- Data Sheet\*: SI10

### SL10

#### Submersible Level Field Unit

- Submersible hydrostatic pressure sensor
- Accuracy:  $\pm 0.5\%$  of URL
- Pressure ratings up to 30 psi (2 Bar), lengths to 15 m (75')
- Vent to atmosphere or to tank
- Remote antenna option
- NEMA 4X housing
- CSA Class 1, Div 1 (IS)
- ATEX / IECEx -ia
- Data Sheet\*: SL10

### TC10

#### Thermocouple Temperature Field Unit

- Types B, C, E, J, K, L, N, S, T, U
- Electronics accuracy:  $\pm 0.1\%$  of full scale reading
- Integrated single T/C or junction box option that supports dual customer supplied T/Cs
- NEMA 4X housing
- Remote antenna option
- CSA Class 1, Div 1 (IS)
- ATEX / IECEx -ia
- Data Sheet\*: TC10



### TM10

#### Turbine Meter Totaliser Field Unit

- Interfaces many 2-wire magnetic pickups
- Instantaneous flow and totalized values
- Frequency 1 Hz to 10 KHz
- NEMA 4X housing
- Remote antenna option
- CSA Class 1, Div 1 (IS)
- ATEX / IECEx -ia
- Data Sheet\*: TM10

### VC10

#### Valve Controller Field Unit

- Accuracy:  $\pm 0.25\%$  of full scale reading
- Sales valve actuation and control
- Control and monitoring of plunger lift systems
- Start-up and default configuration options
- Integrated pressure sensor for active control of solenoid pulse width
- Two digital inputs, for plunger arrival and discrete input applications
- CSA Class 1, Div 1, hazardous location certified
- Data Sheet\*: VC10

### 4AO / 8SW / 4AO-8SW

#### Output Modules

- Direct connection between Accutech base radios and DCS or process control systems
- Provides analog and discrete outputs from associated field units
- DIN rail-mounted
- Stackable (25 max, 100 AO, 200 DO)
- Three models available:
  - 4-channel analog output
  - 8-point contact closure
  - Combination of 4-channel analog / 8-contact
- Data Sheet\*: 4AO / 8SW / 4AO-8SW

\* Please use this term in our search window on [www.schneider-electric.com](http://www.schneider-electric.com) to access more product details.



# Measuring Up to the Future

Foxboro instruments offer complete, bi-directional communications in multiple protocols, including fieldbus. You receive a seamless integration of our world-renowned systems and services into a single, unified automation and information platform that covers all facets of your field and plant operations.

The result: Significant increases in utilization and productivity of your people, equipment, energy use, and inventory; powerful new functionality; and major savings in time and costs for commissioning, startup, operations, and maintenance.

The story of Foxboro Field Devices is never-ending. So, no matter what challenges your future may bring, our commitment to excellence and ongoing innovation means you can trust that Foxboro instrumentation will measure up.



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## Want more information?

Want to stay informed of current and future developments? Need in-depth spec sheets and equipment drawings? Access the information you want anytime at [www.schneider-electric.com](http://www.schneider-electric.com).

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