

# The World Market for Pressure Transmitters, 3<sup>rd</sup> Edition

## Overview



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## The World Market for Pressure Transmitters, 3<sup>rd</sup> Edition

Pressure transmitter revenues have grown substantially in the last five years, according to **The World Market for Pressure Transmitters, 3<sup>rd</sup> Edition**, released in August 2011. The total size of the worldwide pressure transmitter market is a little less than half the size of the worldwide flowmeter market in terms of revenues.



But annual sales do not tell the whole story of the pressure transmitter market. We believe the size of the installed base is a major reason why the pressure transmitter market is strong and will continue to hold its own within the instrumentation world.



In our 2<sup>nd</sup> Edition covering 2006 data we predicted a compound annual growth rate (CAGR) of 6.1 percent per year. Now we have discovered that revenues did indeed meet that target in 2010 and that the pressure transmitter market is still going strong. We predict that sales will continue to grow at an average of 6.1 percent per year through 2015 to create a very large instrumentation market.

### Reasons for Growth

Several factors account for the growth in the transmitter market.

First, the pressure transmitter market has grown due to growth in the number of capital projects in Asian and other countries, and especially due to growth in China and the Mideast.

Second, there has been a tremendous increase in the amount of activity in oil & gas exploration and production in the past several years, due to increases in the price of oil and natural gas.

Finally, suppliers have made significant technological improvements to their pressure transmitters, resulting in more stable and accurate products, and this has given customers a reason to buy into this market, or to upgrade their existing products.

## Rationale for Study

Flow Research published the 2<sup>nd</sup> edition of our worldwide pressure transmitter study in September 2007. With significant growth in the oil and gas and other energy markets, we believed that this was an optimal time to see what happened to the pressure transmitter market in 2010 after the downturn that many companies experienced in 2009.

The primary goal of The World Market for Pressure Transmitters, 3<sup>rd</sup> Edition was to determine the size of the pressure transmitter market in 2010, with forecasts through 2015. The study has multiple purposes:

- Determine worldwide market size and market shares for pressure transmitters in 2010
- Forecast market growth for all types of pressure transmitters through 2015
- Identify industries and applications where pressure transmitters are used, including growth areas
- Analyze products for the main companies selling into the pressure transmitter market
- Offer strategies to manufacturers for selling into the pressure transmitter market
- Profile main pressure transmitter suppliers
- Identify factors causing the market to grow

## Background

In conducting this study, we contacted all known manufacturers of pressure transmitters worldwide to assemble a picture of the total pressure transmitter market. We asked suppliers to provide detailed information about geographic segmentation, industries sold into, types of pressure transmitters sold, and many other product segments. As a result, the study identifies where growth is occurring in the market, as well as the underlying factors for that growth.

Pressure transmitters are typically made up of a pressure sensor, an amplifier or conditioning element, and an output signal. The output signal is used to transmit the pressure reading to a flow computer, controller, or distributed control system (DCS).

While pressure transmitters are used to measure pressure, they also have an important relation to three other widely measured variables: flow, level, and temperature. Differential pressure (DP) transmitters are used to measure both flow and level, and some pressure transmitters have temperature sensors on board to measure temperature. In some cases, this temperature

## History of Pressure Measurement

The history of pressure measurement goes back to the 17<sup>th</sup> century, when both Evangelista Torricelli and Blaise Pascal experimented with early versions of the barometer. For many years, pressure was measured with a manometer – a U-shaped tube partially filled with mercury, oil, or some other liquid. When gas pressure is introduced into one end of the tube, the liquid is displaced. The amount of displacement is relative to the amount of gas pressure.

Early methods of pressure measurement have been replaced in today's environment with pressure transducers and transmitters.

One advantage of today's electronic pressure transmitters is that certain actions may need to be taken, depending on the pressure reading of a gas, liquid, or steam. The electronic signal from a pressure transmitter allows it to be integrated into a control system, unlike earlier mechanical methods, including pressure gages that had to be manually read.

measurement is used along with a pressure and volumetric flow measurement to compute mass flow.

This study does not include pressure transducers, which are generally lower in cost and smaller than pressure transmitters, and are typically not used in the process industries. They typically have loose wires at one end, and do not perform at the same level as pressure transmitters. Pressure transducers often have a millivolt output, while pressure transmitters have a 4-20 mA output or a digital output.

## Segmentation

### Geographic Segmentation

- North America (U.S. and Canada)
- Europe
- Middle East and Africa
- Japan
- China
- Asia without China and Japan
- Latin America (Mexico, Central America, South America)



### Pressure Transmitters by Type

Pressure transmitters are divided by the following four types and further subdivided according to whether they are used to measure flow or level:

- Multivariable (MV) pressure transmitters that measure two or more process variables – usually pressure and temperature – in a single device.
- Differential pressure (DP) transmitters measure the difference in pressure upstream and downstream of a constriction in a pipe called a primary element.
- Gage pressure transmitters measure an amount of pressure that includes atmospheric pressure.
- Absolute pressure transmitters measure an amount of pressure that does not include atmospheric pressure.

### Pressure Transmitters by Fluid Type

Pressure transmitters are segmented by fluid type:

- Liquid
- Steam
- Gas

### Pressure Transmitters by Mounting Type

Pressure transmitters are distinguished by whether they are shipped with any of the following mounting accessories, or with none:

- Remote seals
- Manifolds only
- Primary element assemblies
- None



### **Pressure Transmitters by Smart vs. Conventional**

Pressure transmitters are also segmented as follows:

- Smart
- Conventional
- Low cost

### **Pressure Transmitters by Communication Protocol**

Pressure transmitters are segmented by the following protocols:

- HART
- Foundation Fieldbus®
- Profibus
- Modbus
- Proprietary Protocols
- Other

### **Pressure Transmitters by Sensing Technology**

Pressure transmitters are segmented in this study by the following sensing technologies:

- Capacitive
- Piezoresistive
- Strain gage
- Other

### **Pressure Transmitters by Industry**

Pressure transmitters are used mainly in the process industries. We include the following industries in this study:

- Oil & gas production, transportation, and distribution
- Refining
- Chemical
- Food & Beverage
- Pharmaceutical
- Pulp & paper
- Metals & mining
- Power
- Water & wastewater
- Other

### **Key pressure transmitter market issues addressed in this study**

- Factors causing the market to grow
- Growth in the use of multivariable transmitters
- Impact of new-technology flowmeters on DP transmitter sales
- Impact of higher-accuracy pressure transmitters on user practices and purchases
- Role of installed base in maintaining pressure transmitter growth
- Trend toward pressure transmitters with increased diagnostic capabilities
- Acceptance rate of communication protocols such as Foundation Fieldbus in the market
- Extent to which primary element sales are driving sales of DP transmitters
- Trend towards integrating primary elements with DP transmitters into a single flowmeter
- New product and technology developments
- Growth strategies for pressure transmitter suppliers
- Importance of gage & absolute pressure transmitters in relation to plant safety and efficiency

### Pressure Transmitters by Application

Pressure transmitters are segmented in this study by the following applications:

- Flow
- Level
- Process pressure
- Other

### Pressure Transmitters by Sales Channels

The pressure transmitter market is segmented according to the following sales channels:

- Direct sales
- Independent representatives
- Distributors
- E-business

### Pressure Transmitters by Customer Type

The pressure transmitter market is segmented according to the following customer types:

- End-users
- OEMs
- Systems integrators
- Engineers/consultants

### Strategies for Success

- Discussion of market forces at work
- Strategic action perspectives
- Forming alliances to enhance product offerings

### Company Background

Dr. Jesse Yoder is President of Flow Research Inc., a company he founded in 1998. Dr. Yoder has 22 years of experience as a writer and an analyst in process control and instrumentation. Since 1990, he has written more than 110 market research studies, most of them regarding flow and instrumentation. Dr. Yoder has also written more than 120 articles on flow and instrumentation for trade journals. Links to many of these can be found at <http://www.flowresearch.com/articles.htm>.

Norm Weeks, Senior Market Analyst, joined Flow Research in November 2004 after a 24-year stint with Verizon. At Verizon, Norm specialized in creating innovative customer solutions, product management, and product marketing. He is now a fulltime market analyst for Flow Research, has completed several studies, and regularly contributes articles and editorial assistance to our *Market Barometer* and *Energy Monitor* publications.

Christina Glaser, a Research Analyst who is new to Flow Research, is a seasoned software programmer, architect, and developer with significant website experience. In addition to her

### Company Profiles

*The study profiles leading pressure transmitter suppliers, including:*

- ABB
- Anderson Instrument Company
- Ashdown Process Control
- Emerson Rosemount/Bristol
- Endress+Hauser
- Fuji Electric
- Hitachi
- Honeywell
- Invensys/Foxboro
- Siemens
- Smar
- Yamatake
- Yokogawa

technical talent, she brings significant customer savvy, with clients that range from Staples to Microsoft.

Belinda Burum, Vice President and Editor, has worked in high tech for 16 years as a marketing communications writer and manager. She joined the company in 2002, and has since then worked on many projects. In addition to her work on market studies, Belinda is serving as associate editor of the *Market Barometer* and the *Energy Monitor*.

Besides writing and publishing studies of this type, Flow Research specializes in user surveys that include a detailed analysis of customer perceptions. Dr. Yoder is also available for group presentations and consultations.

### **Flow Research studies contribute to an ongoing view of the flowmeter market**

Listed below is a summary of Flow Research studies completed during the last few years in the area of process control instrumentation. These studies are further described at [www.flowresearch.com/d/flow.htm](http://www.flowresearch.com/d/flow.htm).

Vol I	The World Market for Coriolis Flowmeters, 4th Edition	Q1 2012**
Vol II	The World Market for Magnetic Flowmeters, 4th Edition	May 2009
Vol III	The World Market for Ultrasonic Flowmeters, 4th Edition	Q4 2011**
Vol IV	The World Market for Vortex Flowmeters, 3rd Edition	July 2010
Vol V	The World Market for DP Flowmeters and Primary Elements	January 2007
Vol V-A	The World Market for DP Flow Transmitters	September 2007
Vol VI	Worldwide Survey of Flowmeter Users, 2nd Edition	January 2006
Vol VII	The World Market for PD Flowmeters, 2nd Edition	November 2011**
Vol VIII	The World Market for Turbine Flowmeters, 2nd Edition	October 2011**
Vol IX	The World Market for Pressure Transmitters, 3rd Edition	June 2011
Vol X	The World Market for Flowmeters, 3rd Edition	October 2010
Vol XI	The World Market Gas for Flow Measurement, 2nd Edition	June 2011
Vol XII	The World Market for Steam Flow Measurement	March 2008
Vol XIII	The World Market Mass for Flow Controllers	July 2008
Vol XIV	The World Market for Thermal Flowmeters	October 2009
Vol XV	The World Market for Liquid Analytical Instruments	February 2011
Vol XVI	The World Market for Oil Flow Measurement	Q2/Q3 2012

\*\*Studies in progress

In addition, Flow Research provides quarterly updates on the flow and energy industries in the **Market Barometer** and the **Energy Monitor**. The **Energy Monitor** analyzes the current state of the oil & gas, refining, power, and renewables industries, and the implications for instrumentation supplier. Both reports are part of the Worldflow Monitoring Service; more details are available at [www.worldflow.com](http://www.worldflow.com). For more information on Flow Research, please visit our website at [www.flowresearch.com](http://www.flowresearch.com).



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## **The Flow Research *Founding Sponsor Program***

To produce studies that most closely match our clients' needs, Flow Research instituted the Founding Sponsor Program. This program enables companies who wish to participate at a high level in a study's research to influence its scope and segmentation. In addition, Founding Sponsors receive regular updates from Flow Research on study progress, and receive a significant discount on the regular price of the study.

Procedure: Early in the planning phase of a study, Founding Sponsors receive a proposal that includes the proposed segmentation. Founding Sponsors can propose additional segmentation, and can also suggest changes to the proposed segmentation. While the decision to adopt particular segmentation ultimately lies with Flow Research, and is based on input from all contributors, we will do our best to accommodate the specific needs of each of our clients.

During the research phase of a study, Flow Research will issue regular reports that provide updates on the progress of the research. These reports will be sent to Founding Sponsors, who are then invited to provide any additional input or comments into the study.

Being a Founding Sponsor requires making an early commitment to purchase the study. However, in return, Founding Sponsors receive a significant discount off the regular price of the study. Payment can be made either in one amount at the beginning of the study, or split into two, with the second payment due upon delivery of the study.

For additional details, or to find out how the Founding Sponsor program applies to any particular study, please contact Flow Research. We look forward to working with you!

If you have any questions about the Founding Sponsor program, please contact Norm Weeks at (781) 245-3200, or [norm@flowresearch.com](mailto:norm@flowresearch.com).

Please visit our pressure website for more information!

**[www.WorldPressure.com](http://www.WorldPressure.com)**

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[The World Market for Pressure Transmitters, 3<sup>rd</sup> Edition - \*Current edition\*](#) (August 2011)

[The World Market for Pressure Transmitters, 2nd Edition](#) (October 2007)

[The World Market for Pressure Transmitters, 1st Edition](#) (2004 - Provides historical perspective)

[The World Market for Differential Pressure \(DP\) Flowmeters and Primary Elements](#) (January 2007)

[Differential Pressure Articles](#) [Links to DP Transmitter Suppliers](#)

### **Pressure Transmitter Articles**

The following pressure-related articles have all been written by Dr. Jesse Yoder and published in the indicated industry journals since 2004:

[The Paradigm Case Method of Flowmeter Selection](#)

[Pressure Transmitter Trends](#) - Flow Control – August 2004

[The Difference with Differential Pressure](#) - Flow Control – November/December 2004

[The Key to Unlocking the DP Flowmeter Market](#) - Processing, September 2006

[2006 Flowmeter User Study Results - DP Remains Dominant, but New Technologies are Catching On](#) - Flow Control, September 2006

[DP Flowmeters Ride the Wave of Growth in the Oil & Gas Industry](#) - Processing, May 2007

[A Primer on Primary Elements - Understanding a Key Aspect of DP Flow Measurement](#) - Flow Control, May 2007

[What the Future Holds: Trends in Pressure Transmitter Technology](#) - Flow Control - March 2008

[Not so Element-ary - New Primary Elements Expand the Reach of DP Flow Measurement - Flow Control](#) - September 2009

[DP Flowmeters - An Old Technology Gets Some New Looks](#) - Flow Control - December 2009

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## Why Flow Research?

- We specialize in flowmeter markets and technologies
- We have researched all flowmeter types
- We study suppliers, distributors, *and* end-users
- Our worldwide network of contacts provides a unique perspective
- Our mission is to supply the data to help your business succeed

[www.worldpressure.com](http://www.worldpressure.com)