

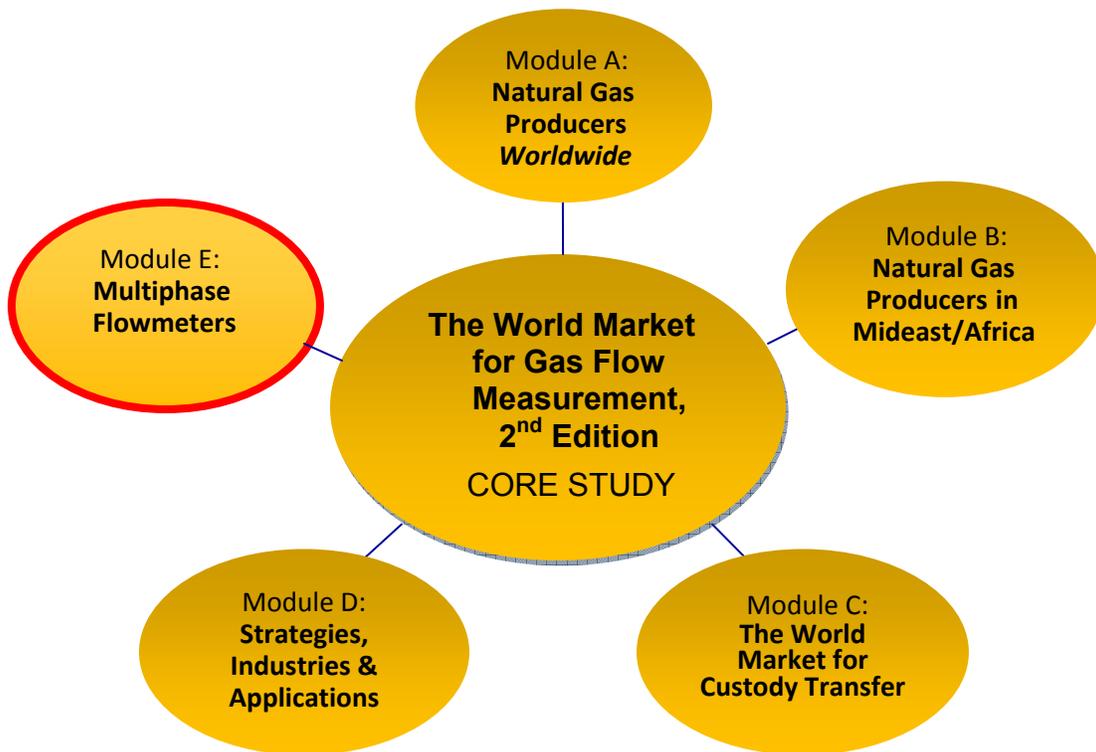


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Module E

The World Market for Multiphase Flowmeters

Overview



Publication Date: January 2012

www.FlowMultiphase.com



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Module E: **The World Market for Multiphase Flowmeters**

Flow Research is conducting a new study on the worldwide multiphase flowmeter market. The primary goal is to determine the size of this flowmeter market in 2010. Forecasts through 2015 will be included. The study is called *The World Market for Multiphase Flowmeters*. This study is Module E of the broader study, *The World Market for Gas Flow Measurement, 2nd Edition*.

The study has multiple purposes:

- To determine worldwide market size and market shares for multiphase flowmeters in 2010
- To forecast market growth for all types of multiphase flowmeters through 2015
- To identify the industries and applications where multiphase flowmeters are used, and to identify market growth sectors
- To provide a product analysis for the main companies selling into the multiphase flowmeter market
- To provide strategies to manufacturers for selling into the multiphase flowmeter market
- To provide company profiles of the main suppliers of multiphase flowmeters.



Flow Research photo of oil field pumpjack near Houston, TX

Rationale for Study

Flow Research published the 3rd edition of our worldwide study of all flowmeter types in October 2010. We have been reporting on all fourteen flowmeter technologies for more than decade in our comprehensive studies, in consultation with a wide spectrum of flowmeter manufacturers, by way of our two quarterly publications (*Market Barometer* and *Energy Monitor*), and through our regular contributions to industry journals such as *Flow Control* and *Processing* magazines. We are entirely focused on the business of industrial process flow, pressure, temperature, analytical instrumentation.

Our focus on flow has recently been on the emerging development of multiphase flowmeter technologies. Developments here are of particular value in the oil & gas industry, an industry that we routinely report on as part of our world view of measurement applications.

Users are discovering the economic and flow management benefits of technologies that provide real time data on oil and gas flows. Increasingly, the complex demands of managing oil and gas reservoir assets require more sophisticated tools so that producers may improve operating margins in the highly competitive energy market.

Today's exploration and production environment is filled with potential investment, environmental, and personnel risks as new methods are employed to extract valuable energy resources in areas previously not utilized. At the same time, traditional flow measurement ideals such as non-restrictive measurement points, high reliability of accuracy and repeatability, and lengthy life cycles are still in play. Multiphase metering instrumentation offers reservoir managers the confidence to more effectively and more safely operate topside, offshore, and subsea wells.

We believe that this is an optimal time to quantify the existing size and future growth in this market, and to take an in-depth look at the new technologies, manufacturers, and applications in what promises to be one of the fastest growing markets in the worldwide flowmeter industry.

Background of Study

Flow Research has followed the flowmeter, pressure, and temperature markets for more than ten years. During this time, we have completed multiple studies on the many flowmeter technologies, pressure transmitters, and temperature sensors and transmitters in use today. Our study on differential pressure (DP) transmitters and primary elements revealed for the first time the actual size of the worldwide DP flowmeter market, including primary elements.

In 2004, Flow Research published a market study on the worldwide gas flow measurement market called *The World Market for Gas Flow Measurement* (www.gasflows.com). This included all flow technologies used to measure gas flow. In 2008, we published a comprehensive study of the worldwide ultrasonic flowmeter market that identified the market for custody transfer of natural gas. This study was called *The World Market for Ultrasonic Flowmeters, 3rd Edition* (www.flowultrasonic.com). And in 2010, we updated all of our worldwide flowmeter numbers as part of our global study covering all types of flowmeters, *The World Market for Flowmeters, 3rd Edition* (www.floweverything.com). The third edition of this study was published in October 2010.

Flow Research recently completed a six month study on the worldwide market for custody transfer of natural gas. The research included onsite interviews with natural gas suppliers in the Middle East. The purpose of the interviews, which were conducted in the UAE, Saudi Arabia, Qatar, and Oman between September and November 2009, was to identify trends in natural gas flow measurement and to better understand growth in the natural gas market in the Middle East, Europe, and worldwide.

Our ongoing cycle of regularly scheduled editions to individual flowmeter types have focused on both the flowmeter technologies and markets - including both new-technology and traditional technology flowmeters - as well as temperature sensors and temperature transmitters on a regional and worldwide basis. We understand how and why flowmeters perform critical tasks within nearly all instrumentation industries and markets, whether here in North America or beyond.

Our quarterly publications, *Market Barometer* and *Energy Monitor*, serve as regular updates to our knowledge base of the entire range of instrumentation technologies used within the worldwide process control instrumentation market.

In conducting this study, we are contacting all known manufacturers of multiphase flowmeters worldwide. Flow Research has already identified recent entrants into this growing market and plans to report detailed information about each company. In so doing, we plan to assemble a comprehensive picture of the total multiphase flowmeter market.

We asked suppliers to provide detailed information about geographic segmentation, industries sold into, types of multiphase flowmeters 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. Our already completed end-user survey provides additional perspectives on this market.

Key issues to be addressed in this study

This study will address the following key issues in the multiphase flowmeter market:

- The factors causing the market to grow
- Growth in the use of multiphase flowmeters
- The future of multiphase in custody transfer applications
- The use of multiphase flowmeters in oil and gas applications
- The increased number of suppliers in the multiphase flowmeter market
- Line sizes for multiphase flowmeter applications
- The use of multiphase flowmeters in oil and gas applications
- The importance of electromagnetic radiation technology and its future in this market
- New product and technology developments
- Growth strategies for multiphase flowmeter suppliers

Operating Principle

Multiphase flowmeters are generally found to have highest utility in the oil and gas industry. This value is largely based on their ability to simultaneously measure the proportional content of oil, water, and gas streaming at the wellhead. There are multiple technologies presently employed by manufacturers to satisfy this application, and we plan to explore all of them. This instrumentation is presently very costly on per unit basis, but much in demand. Manufacturers are concentrating their efforts to develop new phase measurement techniques at lower costs to end-users.

Proposed Segmentation

The proposed segmentation for this study is as follows:

Geographic Segmentation

- North America (United States and Canada)
- Europe (including Central Europe and Former Soviet Union)
- Middle East/Africa
- Japan
- China
- Asia without Japan/China
- Latin America (Mexico, Central America, and South America)



Flowmeters by Use of Radiation Type

- Gamma ray
- None
- Other

Flowmeters by Type of Radioactive Material

- Americium
- Barium
- Cesium
- Other

Multiphase Flowmeter Usage by Application Site

- Topside (land-based)
- Offshore
- Subsea

Multiphase Flowmeters by Measurement Configuration

- Before a separation rig or separator
- After a separation rig or separator
- Without the use of a separator rig or separator

Multiphase Flowmeters by Use with Other Instrumentation

- Water cut meters
- Pressure transmitters
- Temperature transmitters
- Other instrumentation

Multiphase Flowmeters by Application

- Fiscal monitoring
- Allocation monitoring
- Reservoir monitoring
- Other applications

Flowmeters by Sales Channel

- Direct Sales
- Independent Representatives
- Distributors
- E-Business

Flowmeters by Customer Type

This flowmeter market will be segmented according to the following customer types:

- End-Users
- OEMs
- Systems Integrators
- Engineers/Consultants

Strategies for Success

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



- + Average pricing data
- + The obstacles to growth are described
- + The reasons behind multiphase metering success are explained
- + Quantified growth rates are provided worldwide and by region

Market Shares of the Leading Suppliers

This study will provide company market share data in multiple categories. Market share data will be provided for the following geographic regions:

- Worldwide
- North America (United States and Canada)
- Europe (including Central Europe and Former Soviet Union)
- Middle East/Africa
- Japan
- China
- Asia without Japan/China
- Latin America (Mexico, Central America and South America)

How will the *Founding Sponsor Program* help me?

- You can have your specific data requirements included in the study
- You help determine the scope and final objectives
- You receive periodic updates as the research progresses
- You are among the first to receive final study results
- You receive favorable pricing and other purchase terms

See the enclosure for more information

Company Profiles

Complete company profiles on the leading multiphase flowmeter suppliers will be included. The following is a partial list of the companies to be profiled in this study:

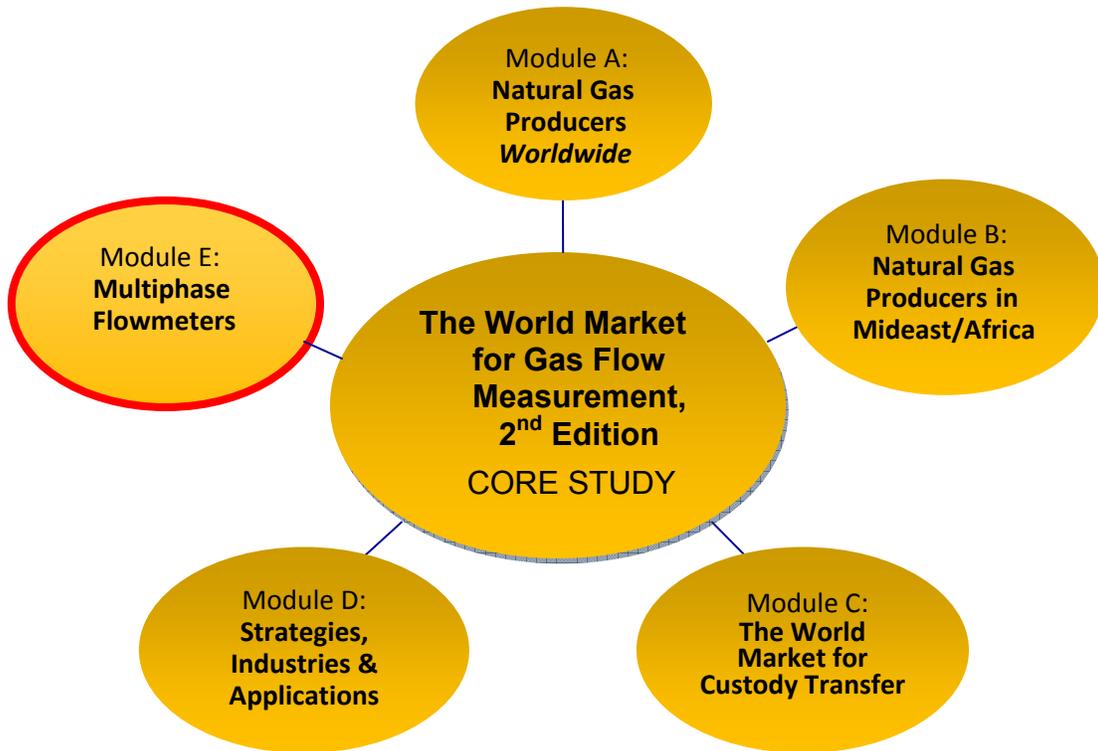
- Agar Corporation
- Framo Engineering
- Jiskoot (Cameron Measurement Systems)
- Multiphase Meters
- Neftemer
- Phase Dynamics
- Roxar (Emerson Process Management)
- Schlumberger
- Solartron ISA
- Weatherford

Publication Date

The target date for publication of this study is January 2012. It is part of two clusters of studies on oil and gas measurement that are described on the following pages.

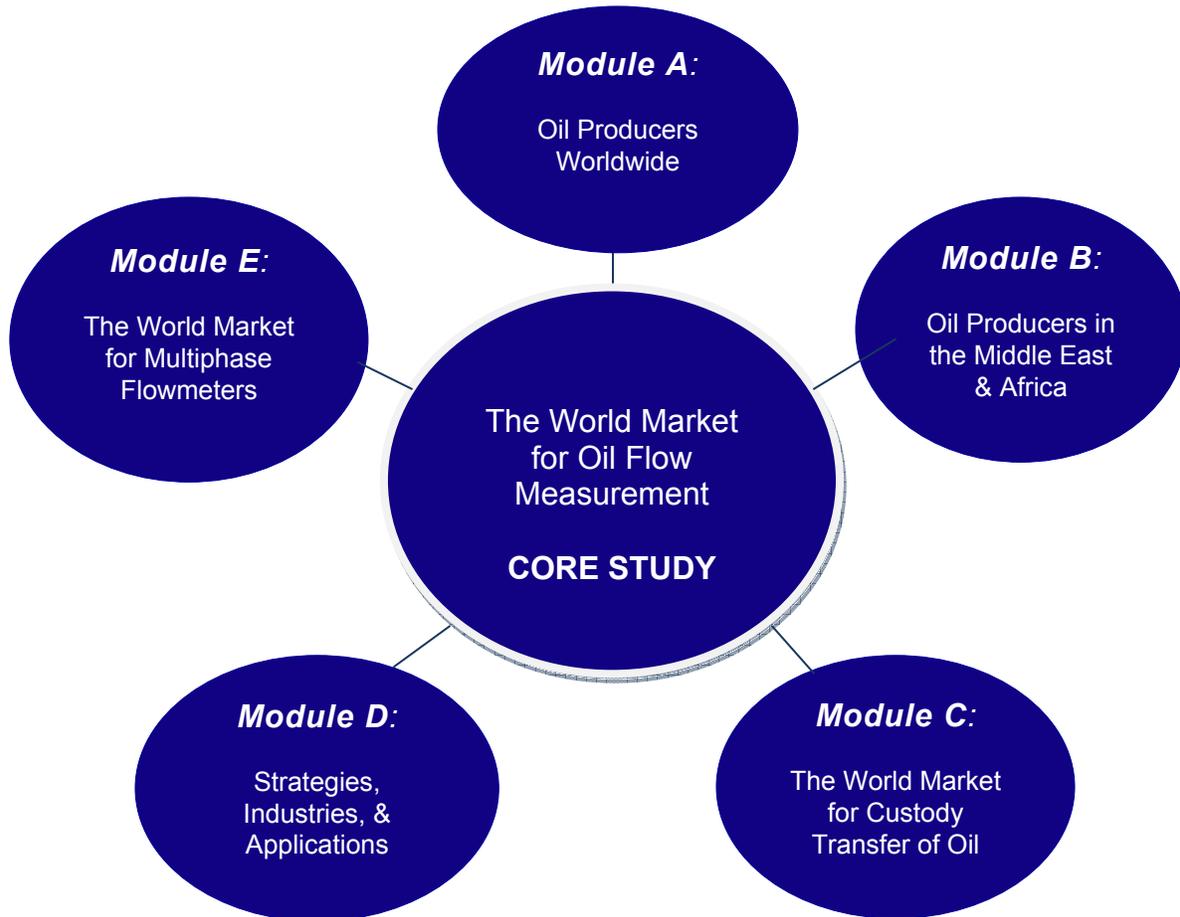
The World Market for Gas Flow Measurement, 2nd Edition

A Modular Approach to the Gas Flow Market



The World Market for Gas Flow Measurement, 2nd Edition features a core gas flow measurement study and five modules that can be ordered as add-on or standalone reports. Together they provide a comprehensive picture of the gas flow market from multiple perspectives. The in-depth research in the modules complements and builds on the detailed results of the core study.

The World Market for Oil Flow Measurement



Founding Sponsorships

We are offering the opportunity for companies to become Founding Sponsors of this study. Benefits of being a Founding Sponsor include being able to participate in determining study scope and direction, being sent regular updates on study progress, and receiving a favorable discount pricing package. The Founding Sponsor program is explained for your consideration later in this document.

In the meantime, please review the segmentation and let us know if there is any additional segmentation you would like to see, or if you would like to propose changes to the existing segmentation. Thank you in advance for your input, and we hope to hear from you!

Background

Dr. Jesse Yoder is President of Flow Research Inc., a company he founded in 1998. Dr. Yoder has 24 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 about flow and instrumentation. A selection of recent and scheduled Flow Research studies include the list on the following page.

Recent and Scheduled Flow Research studies:

Volume I	The World Market for Coriolis Flowmeters, 4 th Edition (Q1 2012)**
Volume II	The World Market for Magnetic Flowmeters, 5th Edition (Q4 2012)
Volume III	The World Market for Ultrasonic Flowmeters, 4 th Edition (Q1/Q2 2012)**
Volume IV	The World Market for Vortex Flowmeters, 3rd Edition (July 2010) <i>New</i>
Volume V	The World Market for DP Flowmeters and Primary Elements (January 2007)
Volume V-A	The World Market for DP Flow Transmitters (September 2007)
Volume V-B	The World Market for Primary Elements (September 2007)
Volume VI	Worldwide Survey of Flowmeter Users, 2nd Edition (January 2006)
Volume VII	The World Market for Positive Displacement Flowmeters, 2 nd Ed (January 2012)**
Volume VIII	The World Market for Turbine Flowmeters, 2 nd Ed (January 2012)**
Volume IX	The World Market for Pressure Transmitters, 3 rd Edition (June 2011)**
Volume X	The World Market for Flowmeters, 3 rd Edition (October 2010) <i>New</i>
Volume XI	The World Market for Gas Flow Measurement, 2 nd Edition (Q3/Q4 2011) <i>New</i>
Volume XII	The World Market for Steam Flow Measurement (March 2008)
Volume XIII	The World Market for Mass Flow Controllers (July 2008)
Volume XIV	The World Market for Thermal Flowmeters (October 2009)
Volume XV	The World Market for Liquid Analytical Instruments (Feb. 2011) <i>New</i>

***Studies in progress* These studies are described at www.flowresearch.com/flow.htm

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 www.flowresearch.com/articles.htm.

Norm Weeks, Senior Market Analyst, joined Flow Research in 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.

Belinda Burum, Vice President and Editor, has worked in high tech for 16 years as a technical writer and marketing communications manager. She joined the company in 2002, and has since then worked on many projects. She has a strong customer focus. 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. 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. For more information on Flow Research, please visit our website at www.flowresearch.com.



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Blaise Pascal

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 [1] 781 245-3200, or norm@flowresearch.com.

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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.FlowMultiphase.com