



Reduce costs, improve well testing,
and maximize production

Integrated Well Testing Skid Solution

Proven automation solutions and local expertise to help you overcome your toughest challenges.





Uncertainty in your well test data can impair your ability to make the right field management decisions.

Tired of unnecessary spend, uncertain well test data, and missing production targets?

Whether you operate or are constructing an expansive onshore production field or offshore platform, the high costs and risks involved are pervasive. Project complexities and timing issues with new facility construction can cause higher CAPEX and unnecessary expenditures—extending the time to first oil. Once constructed, the ability to meet requirements of production well test frequency and accuracy is always a concern and if done manually, the possibility of human error and safety incidents increases. All of this, plus the high cost of reactive maintenance, can lead to potentially sub-optimal production decisions.

Reducing the topside weight of deepwater structures could save \$250,000 per meter of water depth, an average of \$150 million per unit.
 –US Department of Commerce estimate, cited by Offshore Magazine, November 2004



“Technical professionals may be spending as much as 60 percent of their time managing data before they are able to focus on the more critical, ‘value-added’ work.”
 –Krome, J., E&P Magazine 2006

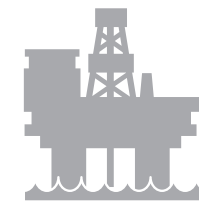


In process industries, maintenance costs and related lost production can add up to an amount equal to 8–48 percent of revenue.
 –Hägerby, M., Linköping Institute of Technology, 2002



Informed decisions—at less cost—for better reservoir management

Partnering with an automation supplier who will help you make the best facility decisions can greatly reduce project complexity, as well as CAPEX and OPEX spending. Emerson’s integrated well testing solution can help to dramatically reduce engineering, equipment cost, space, and weight in both onshore and offshore applications when compared to conventional automated manifolds. Accurate, reliable well test data is critical to getting the insight you need to make production and field management decisions.



Increase savings related to CAPEX and OPEX spending

- Reduce project complexity, integration time, and cost through the project lifecycle
- Reduce the overall well testing footprint
- Diminish the need for reactive maintenance services and human intervention

Operators can realize up to 50% CAPEX savings on initial well pad construction, switching from a separator per well to a multiphase meter per well.



Get reliable and immediate insight into your reservoir and wells

- Increase well testing frequency with reduced uncertainty
- Get real-time, well testing and production data you can count on
- Track changing well characteristics without manual intervention

Operators can see uncertainties as low as 2–3% for measuring liquid and gas with Emerson’s multiphase flow measurement technologies.



Maximize your production

- Quickly identify potential well problems such as water breakthrough
- Make frequent adjustments to choke settings and optimize artificial lift, secondary recovery, or EOR systems
- Protect well and facility integrity while extending service life

An oil producer with high sand production reduced annual maintenance costs by \$100,000 per year and improved measurement accuracy to ±0.15% with Emerson’s flow technologies.

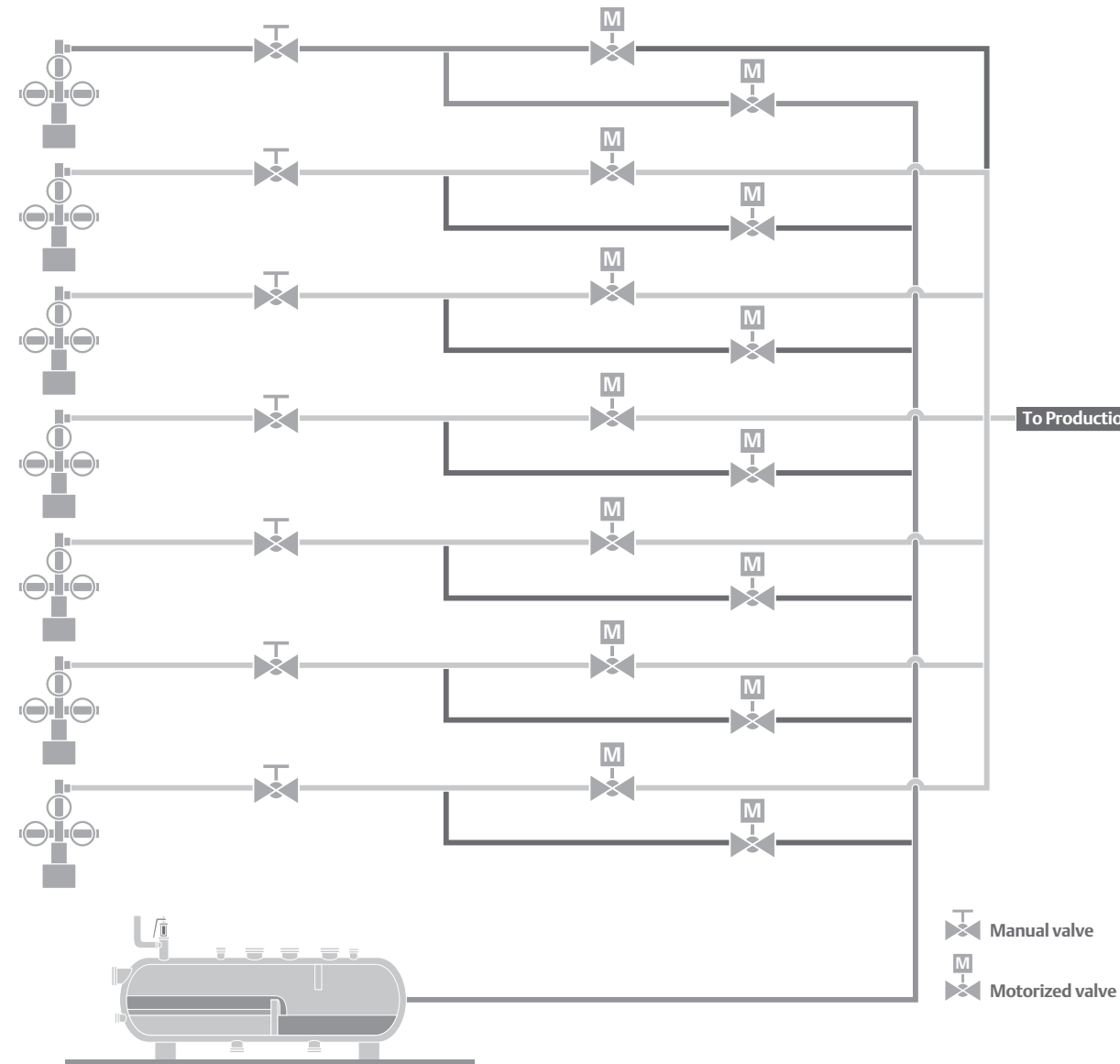
With Emerson, you can overcome your well testing challenges

Design and specification

- Reduce CAPEX spend with less weight and smaller footprint. [FEED ▶ p5](#)
- Shorten the time to first oil by reducing integration risks. [FEED ▶ p5](#)
- Conduct higher frequency well testing. [FEED ▶ p5](#)

Manifold integrity

- Eliminate valves and leak points. [Selectors ▶ p7](#)
- Increase well testing frequency. [Selectors ▶ p7](#)



Measurement accuracy and process integrity

- Get accurate, reliable measurements of oil, gas, and water without separation. [Metering ▶ p9](#)
- Improve stability of pressure and temperature measurements. [Metering ▶ p9](#)
- Get real-time flow characteristics. [Metering ▶ p9](#)
- Protect facility and well integrity with reliable data for chemical injection rates and sand production data. [Monitoring ▶ p9](#)

Field management

- Automate well testing and track changing characteristics. [Process ▶ p7](#)
- Get clear, up-to-date well dynamic informations. [Process ▶ p7](#)
- Increase well testing frequency. [Process ▶ p7](#)
- Maximize production and well performance insight. [Process ▶ p7](#)



Front End Engineering and Design

By engaging with a single source supplier, you can significantly reduce project complexity and reduce CAPEX and OPEX spend. [Learn more. ▶ p5](#)

Flow Metering and Corrosion/Erosion Monitoring

With well-suited flow meters and corrosion and erosion monitoring technologies, you can get accurate flow rate measurements and real-time data about the dynamics of each well for increased production and recovery by operating wells at their peak potential. [Learn more. ▶ p9](#)

Flow Selectors and Process Control

With the right flow selector and process control devices, you can replace the functionality of a conventional manifold arrangement and increase well test accuracy and efficiency—across your entire facility—for reduced CAPEX spend and optimized production. [Learn more. ▶ p7](#)

Front End Engineering and Design

By partnering with Emerson, you'll have the support of a single supplier who understands your well testing requirements and considers your budget and time restraints.

With our broad network of manufacturing centers, your entire assembly will be handled in-house from design to delivery for simplified procurement, reduced program management costs, and better control over delivery. You'll have access to application experts who can help you select process automation devices that reduce the number of valves, pipes, actuators, wiring, and installation time so you can reduce CAPEX and OPEX significantly, and increase the safety, reliability and performance of your structure. Local engineering and technical support are available during commissioning and startup throughout the lifecycle of your facility—so you can keep your skid performing at its best.



Consulting Services

- Wireless site surveys
- Modernization and migration planning
- Optimization services



Project Services

- Entire assembly handled in-house
- SCADA systems integration
- Instrumentation startup and commissioning
- Valve startup and commissioning
- Standardized components and documentation



Lifecycle Services

- Instrument calibration
- Uncertainty analysis and meter proving
- Engineering support for automation direct to EPC
- Valve diagnostic services
- Local repair and refurbishments



Educational Services

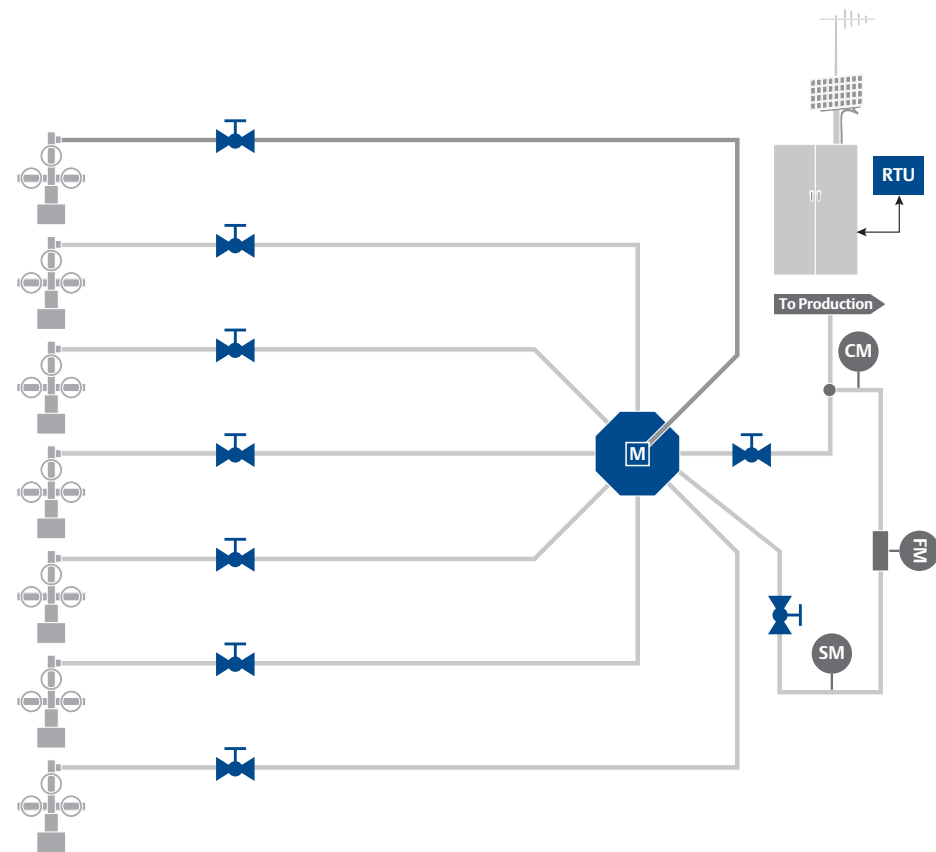
- Local onsite technical courses offered anywhere in the world to help teams adapt to new technology or product



Engaging early with global, local automation and technology experts will help streamline project execution so you can focus on speed and quality.

Flow Selectors and Process Control

The use of multiport flow selectors with multiphase flow metering and control units keep your skid performing reliably while relaying up-to-date data about your well tests. Selectors provide CAPEX benefits with a smaller footprint and considerably less weight. Operating expenditures are reduced with less maintenance due to one-third the valves necessary, and reduce the need to dispatch personnel to the site. Appropriate control logic and real-time, remote monitoring capabilities help increase well test frequency and accuracy. By guaranteeing well tests are performed accurately and on schedule, you'll have the performance data you need to maximize production and minimize damage to the reservoir—without the need for manual intervention.



What's your opportunity?

- Reduce CAPEX and OPEX spend with additional benefits over the lifetime of the equipment.
- Cost-effectively connect all wells in a wide area using wireless RTUs.

Get more reliable data and improve your operational flexibility. Connect with an Emerson expert.

Getting accurate, timely data from your flow selectors and control management systems is important. Transforming that data into a strategy that gives you more operational flexibility and efficiency is even more critical. Emerson experts can help.



Services offered...

- Global and local support during commissioning, startup, and post-startup phases
- Comprehensive, 24/7 on-demand technical support
- User training
- Custom process control software programming

Featured flow selector and process control solutions

Fisher Multiport Flow Selector



- Allows the selecting and diverting of well fluids from up to seven wells to a single test outlet, flow loop, or sampling device.
- Reduces the number of isolation valves and corresponding piping in production/test manifolds
 - Compact size and weight for reduced footprint
 - Decreased installation, operating, wiring, maintenance, and parts costs
 - Field adjustable seal/seat for various materials for adverse service conditions

Bettis Electric Multiport Control Actuator



- Controls and monitors the operation of the Bettis Multiport Flow Selector.
- Provides precise positioning of the Multiport Flow Selector within +/- one degree of the selected port
 - Supports various network protocols
 - I/O and alarm monitoring
 - Wide range of motors for any voltage or torque

Trunnion and Floating Ball Valves



- Controls and diverts or stops the flow of fluid in a pipeline for safety or maintenance purposes.
- Increased body corrosion allowance for extended life and improved performance
 - Designed to reliably operate in a wide range of temperatures and environments
 - Bi-directional API 598 "Zero" leakage performance provides positive shut-off

Related products

ROC and FloBoss Computers



- Measure and control liquid or gas flow to support fiscal measurement, custody transfer, batch loading, and more.
- Distributed RTU network capabilities for widely dispersed wells
 - Configurable systems minimize custom programming
 - Top level sequencing and data collection from local devices
 - Intuitive applications software
 - Low power consumption

OpenEnterprise SCADA Software



- Remotely monitor and control wells, field devices, and equipment.
- Open-standard interfaces provide business systems access to real-time historical and configuration data
 - Integrates seamlessly with ROC and FloBoss RTUs
 - Powerful reporting and trending tools
 - Alarm and event manager with text messaging and email support

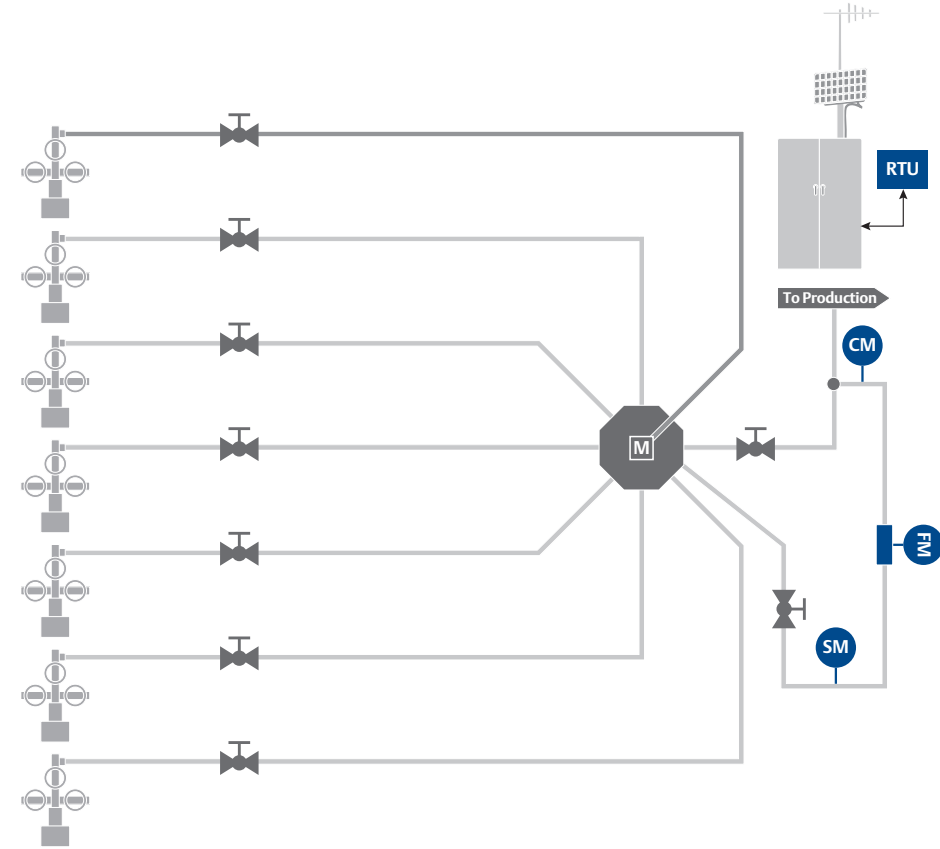
SmartProcess Oil & Gas Application Suite



- Improve operational efficiency with field management for a broad range of applications.
- Easy to configure and integrate with SCADA software
 - Automations cyclic test well separators of up to 64 wells
 - Ensures consistent well operation

Flow Metering and Corrosion/Erosion Monitoring

Flow meters installed on your manifold provide critical data that helps you manage your reservoir. Management and monitoring of sand and other particulates is critical to maintaining integrity of your assets and production optimization. Emerson's multiphase flow meter and corrosion and erosion monitoring technologies provide real-time information about the dynamic behavior of each well and help you identify changes in production characteristics. This allows you to act quickly and efficiently minimize integrity risks so you can make the right production decision.



What's your opportunity?

- Measure the individual flow rates of oil, gas, and water without the need for any separation.
- Detect—in real time—sand and other particulates in any flow line.

Ensure your flow measurement accuracy. Connect with a local expert.

With a global network of Flow Service Centers, Emerson delivers a complete range of services that keep you running at your peak, while helping you get the most out of your process and people.



Services offered...

- Certified repair
- Accredited calibration
- Critical spares
- Quick turnaround

Featured flow metering solutions

Roxar Multiphase Flow Meter



- Meter accurately measures the flow rates of oil, gas, and water without separation, mixing, or moving parts.
- 80 percent less weight compared to traditional flow meters
 - Provides 3D interpretation of flow rates without any separation
 - Real-time trending
 - Renders hard-to-analyze bubbles and phase mixtures with multi-velocity flow analysis
 - Interchangeable venture to easily adapt to reduction in flow rates as field ages

Micro Motion Coriolis Flow Meter



- Measures density and flow with high accuracy and detects gas or liquid contamination.
- Corrects for entrained gas volume for high oil production measurement accuracy
 - Highly reliable with no internal moving parts
 - Smart Meter Verification diagnostic ensures meter performance meets specification

Related products

Roxar CorrLog Corrosion Monitor



- Transmitter allows accurate, continuous, online monitoring of corrosion on pipes or vessels.
- Calculates metal loss rate on the ROXAR corrosion probes for effectively revealing fluid corrosivity from the well on test
 - Increase positioning flexibility, optimize signal routing, and simplify maintenance and replacement with 20-meter cable
 - Wired or wireless connectivity

Roxar Acoustic Sand Monitor



- Identifies in real-time sand production in any water, oil, gas or multiphase flow line.
- Non-intrusive for onshore and offshore locations
 - Listens to acoustics of sand hitting pipe wall, allowing accurate identification and quantification of sand in grams per second
 - Safe and easy to install on new or existing pipelines
 - Alarm setting helps implement sand management system based on no sand at all (Maximum Sand Free Rate) or a certain amount that is acceptable (Maximum Allowable Sand Rate)

Roxar FieldWatch Well Test



- Designed for well test management by integrating data from the ROXAR Multiphase Meter.
- Integrated workflow from meter installation to well test report and post analysis
 - Proper meter setup before starting well test to avoid errors and improper results due to incorrect configuration, reducing human errors
 - Well test job tracking, reports, results, and meter configurations

Get started



Emerson Automation Solutions
1100 W. Louis Henna Blvd.
Building One
Round Rock, TX 78681
USA

Emerson delivers time-tested and innovative integrated well test solutions designed to help you improve your operation's overall well test data and frequency. Contact us now for world-class technologies, and services that can maximize your production while reducing overall expenditures. Getting started is easy. Visit www.Emerson.com|Oil&Gas

The Emerson logo is a trademark and service mark of Emerson Electric Co. ©2017 Emerson Electric Co. All other marks are the property of their respective owners. All rights reserved.
D352182X012 / Printed in USA / 5-17



CONSIDER IT SOLVED™