Improve production data, decrease operating costs, and reduce your HSE risk

Onshore Oil and Gas Separation
Proven automation solutions and local expertise to help you overcome your toughest challenges.
Tired of uncertain production data, high workover costs, and needless HSE risk?

In your line of work, you always have to do more with less—and faster. It’s a problem with several causes. Well production dynamics are always in flux. You’re usually missing timely production data that could give you a clear picture of reservoir performance while allowing you to correct well production problems. And all too often, you scramble to solve problems as they crop up—an inefficient approach that escalates health, safety, and environmental risks as you send people into the field.


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.

Sending personnel into the field for reactive maintenance increases operating costs and safety risks.

Meet your HSE performance and regulatory compliance goals

• Monitor and reduce fugitive emissions
• Cut down on trips to remote well sites
• Simplify regulatory reporting

Using Emerson level solutions, an energy company in Louisiana eliminated two yearly maintenance field trips for each separator, improving safety, reducing emissions by 35,000 cubic feet, and saving more than $2 million annually.

Decisions without delays—for better production management

Test and production separators provide critical field-management information. With Emerson’s separator solutions, you’ll be able to reduce uncertainty when you have the right measurements, better control, more effective maintenance, and a clear, up-to-date view of the whole picture—from the reservoir to the point of sale.

Get reliable and immediate insight into your reservoir and wells

• Get representative production allocations
• Reduce measurement uncertainty from liquid carryover and gas carry-under
• Get production data you can act upon

“The new system gives me daily diagnostics into separator operations so I can catch issues before they become problems.” – Measurement Foreman, global oil company in the Eagle Ford

Improve the health and performance of your well and separator

• Prevent equipment failures from deferring production
• Stop anomalies from triggering reactive troubleshooting
• Reduce maintenance-related well shut-ins

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.

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With Emerson, you can overcome your separation challenges

**Pressure Relief and Other Emission Sources**
- Receive alerts when a pressure relief valve is activated. Process p5
- Log and report the duration of pressure relief emissions for improved regulatory compliance. Process p5
- Detect and limit over-pressures for better regulatory compliance and efficiency. Process p5

**Field Management**
- Get clear, up-to-date process information, including sand accumulation, temperature, pressure, and emissions. Process p5
- Maintain production with reliable data on reservoir production. Process p5

**Liquid Levels and Interfaces**
- Identify control phase heights and damp cyclic levels. Process p5
- Limit processing costs, losses, and environmental hazards related to gas and liquid contamination. Process p5
- Improve allocation measurements. Level p5

**Gas Outlet**
- Maximize production and curtail emissions by stabilizing pressure and reducing flares. Pressure p7
- Detect and prevent liquid carryover to maintain product quality and reduce costs. Flow p11
- Improve allocation measurement accuracy. Flow p11

**Oil Outlet**
- Reduce costs and environmental risks by detecting contamination and entrained gas. Flow p9
- Improve measurement and allocation measurement accuracy. Flow p11

**Water Outlet**
- Reduce costs and environmental risks by detecting contamination and entrained gas. Flow p9
- Improve measurement and allocation measurement accuracy. Flow p11

**Process Monitoring and Data Management**
With the right monitoring devices and data management, you can minimize HSE risks and burdens while improving efficiency throughout the site. Learn more. p5

**Level Measurement and Control**
Accurate, reliable level measurement and control are crucial for separator efficiency. Your choice of solutions can have a major effect on later emissions and maintenance. Learn more. p9

**Pressure Monitoring and Control**
For faster, cleaner production that keeps HSE risks low, you need responsive, reliable pressure monitoring and control. Learn more. p7

**Flow Metering**
With well-suited flow meters, you can create useful reservoir models for optimal recovery while appropriately accounting for contamination. Learn more. p11
Process Monitoring and Data Management

Process control devices—such as remote operations controllers linked to a SCADA system—keep your separators working efficiently while relaying up-to-date data to you about reservoir and well dynamics. Properly tuned devices and appropriate control logic help to keep your separator stations and efficient, even as well production changes. At the same time, process and production data play crucial roles in improving HSE monitoring and regulatory compliance. With preconfigured Remote Terminal Units (RTUs), specialized monitoring, and other Emerson solutions, you can consistently run your operation at its peak.

What’s your opportunity?
• Cost-effectively connect all the wells in a wide area using wireless RTUs that pass through HART process data.
• Carefully manage separator dynamics automatically and constantly to reduce the need for maintenance and other resources.

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

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

Services offered...
• Critical and local support during commissioning, startup, and post-startup phases
• Comprehensive, RTU-level technical and troubleshooting support
• User training
• Custom process control software programming

For more information, visit EmersonProcess.com/Onshore
Pressure Monitoring and Control

Regulators—or gas valves with pneumatic controllers—keep separator pressure in the best range for optimal production. At the same time, pressure relief valves provide protection by venting excess pressure to defuse dangerous conditions. With Emerson’s pressure transmitters, regulators, control valves, and monitoring devices, you’ll have the ability to optimize production while improving safety and environmental regulatory compliance.

What’s your opportunity?
• Prevent contamination in liquid and gas outflows by keeping pressure in the ideal range—even with dirty fluids.
• Reduce emissions for regulatory compliance.

Protect your process and people. Connect with a pressure and control expert now.
You need to know whether you’re getting maximum safety and performance from your pressure-control instruments. Get in touch with a local expert now.

Services offered...
• On-site visits
• Commissioning, configuration, and device testing
• Verification of mechanical and electrical device installations
• Spare parts

Related products
Fisher Wireless Position Monitor
Fisher Pressure-Reducing Regulators
Fisher Pneumatic Backpressure Control Valves
Fisher Pneumatic Pressure Controllers

For more information, visit EmersonProcess.com/Onshore

Fisher Wireless Position Monitor
Fisher 3051S Transmitter
Fisher Backpressure Regulators
Fisher Pneumatic Backpressure Control Valves
Fisher Pneumatic Pressure Controllers

Rosemount 3051S Transmitter
Fisher Backpressure Regulators

Measure pressure accurately and consistently for stable separator control.
• High, all-welded hermetic design for consistent performance in dynamic environments
• Ultimate pressure range for over a decade with 0.5% stability and 15-year limited warranty
• SC-5251H (WirelessHART®) technology allows extended and affordable monitoring
• Advanced diagnostic technology for proactively monitoring transducer health and electrical loop integrity

Control separator backpressure at a tight setpoint over large flow ranges.
• Precise pressure control and instant response to pressure changes
• Low pressure build-up helps improve separation and efficiency
• Self-contained design provides simple installation, startup, and maintenance
• Zero emissions and no external pneumatic or electric power required

Manage separator backpressure for stable operation.
• Ideal for throttling gritty or sticky gases or liquids
• User-loaded packing system reduces fugitive emissions
• Optional tungsten carbide trim for erosive applications
• U.S. “Quad-O” compliant

Keep separator pressure at a set-point value using pneumatic communication with a control valve.
• Low gas consumption
• High output and easy tuning
• U.S. “Quad-O” compliant
• Ideal for a wide range of control valves

Additional products
• Rosemount Wireless Acoustic Transmitter
• Incus Ultrasonic Gas Leak Detector
With accurate level measurement, your separators can precisely regulate liquid volumes, encouraging proper phase separation and outflow control. With the right choice of Emerson level controllers, level transmitters, and dump valves, you'll be able to keep processing costs down while maintaining hydrocarbon quality, reducing lost production, and preventing overflows.

What's your opportunity?

- Measure liquids and interfaces and independently of density or flow-rate changes.
- Extend the life of your equipment with reliable control valves designed for harsh oil field environments.

For more information, visit EmersonProcess.com/Onshore

Tune level control for optimal retention time and reliability. Connect with a local expert.

For the most reliable level measurement and control, you need to select the most appropriate technology. Emerson level experts can help you choose from our comprehensive portfolio of level devices to identify the best solution for your level application.

Services offered...

- On-site field services
- Diagnostic testing, calibration, loop checks, and valve tuning
- Recommended spares
- As-built serial card
- Diagnostic reports
- Emergency equipment

Related products...

- Rosemount Guided Wave Radar
- Fisher Electric Liquid Dump Valves
- Fisher L2e Level Controller

Featured level measurement and control solutions...

- Monitor separator liquid levels and controls dump cycles through a control valve.
  - Quick response time with "fast drip" fork design
  - Unaffected by flow disturbances
  - Requires no calibration
  - No moving parts or crevices—virtually maintenance-free

- Control separator outflow with low power, electrically actuated valves and flexible control signal interface.
  - Remote monitoring and diagnostics
  - Failure mode operation of signal
  - U.S. "Quad-O" compliant (gas line less than 500 ppm)

- Monitor separator interface levels accurately and reliably.
  - Cost effective
  - No moving parts—virtually maintenance-free
  - Unaffected by changes in oil density, conductivity, temperature, pressure, ph, or humidity
  - Advanced diagnostics and Verification Reflector function check transmitter integrity simply and safely

Related products...

- Rosemount Vibrating Fork Level Switch
- Fisher Pneumatic Liquid Dump Valves
- Fisher Pneumatic Level Controllers

- Monitor liquid levels and control dump cycles through a control valve.
  - All electric operation
  - Zero bleed
  - Simple zeroing and span tuning for fast and easy setup
  - U.S. "Quad-O" compliant

- Monitor separator liquid levels and controls dump cycles through a control valve.
  - Quick response time with "fast drip" fork design
  - Unaffected by flow disturbances
  - Requires no calibration
  - No moving parts or crevices—virtually maintenance-free

- Monitor separator liquid levels and controls dump cycles through a control valve.
  - Ideal for throttling gritty or viscid gases or liquids
  - Live-loaded packing system minimizes gas loss
  - Tunable self-trimming option for viscous applications, such as crude oil and gas production

- Monitor liquid levels and control dump cycles through control valves.
  - Keep rating, or throttling control
  - Dependable control performance
  - U.S. "Quad-O" compliant

For more information, visit EmersonProcess.com/Onshore

Additional products...

- Fisher DLC3000 Digital Level Controller
- Fisher 2100/2100e Hi-Lo Liquid Level Switch
- TopWorx D-series discrete valve controller
Flow Metering

Flow meters installed on individual separator outlets measure gas, water, and oil, providing data that helps you manage reserves. Meters can also flag gas and liquid contamination resulting from inefficient separation. With Emerson’s versatile line of accurate flow metering technologies, you can properly allocate revenue, reduce reprocessing, and optimize recovery throughout a reservoir’s lifetime.

What’s your opportunity?

- Expand accurate measurement to a wider range of fluid flow rates—even while saving on maintenance and installed costs.
- Detect contamination—such as liquid carryover or gas carry-under—immediately for quick correction.

For more information, visit EmersonProcess.com/Onshore

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 your earnings at your peak, while helping you get the most out of your people and processes.
Enhance your field’s lifetime performance with expert support

With Emerson Lifecycle Services, you’ll have the support you need for setting up and sustaining efficient and reliable onshore production, while minimizing risks to health, safety, and the environment.

With our broad network of local service centers, you’ll have quick access to experts who can help you plan, commission, and maintain an automation strategy that enhances your insight into field operations and minimizes trips to the field. You’ll be able to keep your investments performing at their best—throughout the life of your field.

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With locations all over the world, we’re always nearby to help you solve your problems—no matter where you are. Contact us today!
Emerson Process Management delivers time-tested and innovative separator solutions designed to help you improve the performance, reliability and safety of your overall operations. Contact us now for world-class technologies, expertise, and services that can maximize your production return and process availability. Getting started is easy. Visit EmersonProcess.com/Separator