

Upstream Production Measurement Solutions

Superior flow and density measurement

Best-in-class measurement



“It’s challenging to keep a balance between operations, maintenance and compliance, while delivering production targets on budget and schedule.”



As a production manager, it’s your job to run your operations as cost-effectively and smoothly as possible. There are many challenges you face everyday including information barriers, production concerns, maintenance problems, regulatory compliance, etc.

Your flow measurement technology must stay up-to-date and you must avoid time-consuming and cost-absorbing problems. Older flow technologies, such as orifice plates and turbine meters, do not provide the efficiency or measurement reliability your operation demands. You need a measurement technology that can deliver flexibility and accuracy to compete safely and cost-effectively in this environment.

What if you could ...

Reduce OPEX and operational risk in your asset

- ✓ No wearing parts provides robust meters for oilfield conditions
- ✓ Minimal calibration requirements eliminates unnecessary maintenance
- ✓ Less replacement and less calibration equates to less personnel visits to the wellsite which reduces operational risk exposure

Optimize production for a well or asset based on accurate, timely information

- ✓ Wide turndown accommodates the entire range of production and injection requirements
- ✓ Capture more production earlier with less down time on maintenance and trouble-shooting
- ✓ Accurately measure injection of liquid, gas or super-critical fluids for EOR applications

Identify process upsets and anticipate replacement needs via meter diagnostics

- ✓ Critical alarms alert you to process upsets so you can take corrective action quickly
- ✓ Smart Meter Verification assures meter performance remotely and provides early warning on replacement needs

Measurements in Oil & Gas Production

- Liquid Mass and Volume Flow
- Gas Flow
- Net Oil Measurement
- Gas Density and Specific Gravity
- Liquid Density and Liquid Viscosity
- Net Volume Correction
- Steam Volume and Mass Flow



Upstream asset and production managers worldwide are choosing Micro Motion® and Rosemount® measurement technology from Emerson. With our meters, you'll gain an exceptional degree of flexibility, accuracy, and measurement precision while, at the same time, minimizing the risk to your workers, the environment, and the surrounding community.

- You won't need additional instrumentation to calculate flow rate, nor will you have to take your process down for unnecessary calibration.
- You can accommodate a wider range of customer demands without placing undue pressure on your infrastructure.
- You will be better able to maximize production while keeping risk and cost to a minimum!

Production Management

Direct Well Measurement

- Most reliable and accurate measurement of production rates and fluid quality
- Reduce operations cost with in-situ Smart Meter Verification and maintenance free meters

Test and Production Separation Measurement

- Flow, density, net oil and water cut measurement in one device for reliable, real time production surveillance
- Early detection of well problems and separator efficiency with more accurate, reliable well production data
- Sand level detection in separator with density meter for proactive maintenance

Water Cut and Net Oil Measurement

- Flow and density based water cut measurement
- Simplified integration with single electronics and flow computer packages

Gas Lift Production Measurement

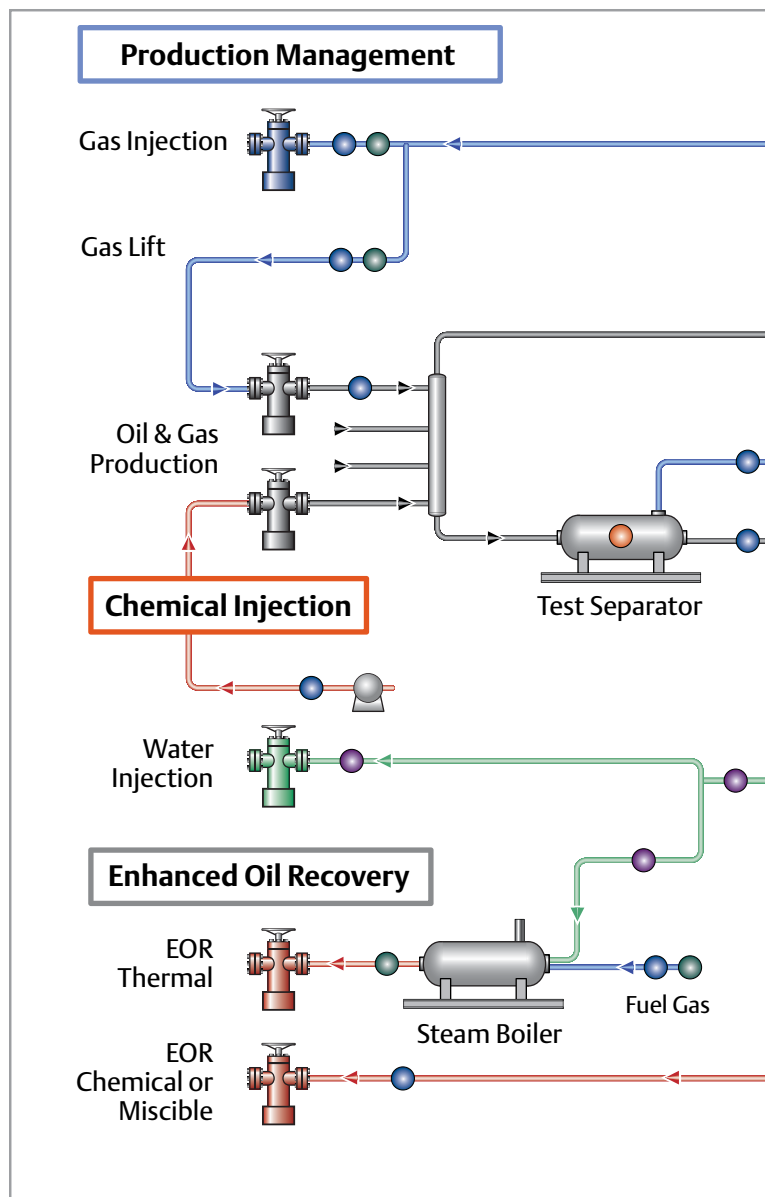
- Increase hydrocarbon liquids production
- Reduce lift costs and cost of ownership with simplified, accurate measurement

Water Injection

- Maintain efficient sweep pattern
- Avoid fluid breakthrough or channeling

Chemical Injection

- Reliable and accurate mass dosing for down hole, pipeline and oil and water treatment to minimize chemical usage and maximize effectiveness
- Direct density measurement for quality assurance and blend optimization



Enhanced Oil Recovery

Miscible, Immiscible, and Chemical Injection

- CO2 Breakthrough Detection on gas wells
- Reduce complexity with wide flow rate monitoring and single meter for WAG injection wells

Flood Fluid Material Supply and Recovery

- Optimize recovery of EOR fluids and diluents
- Accurately monitor and account for flood materials

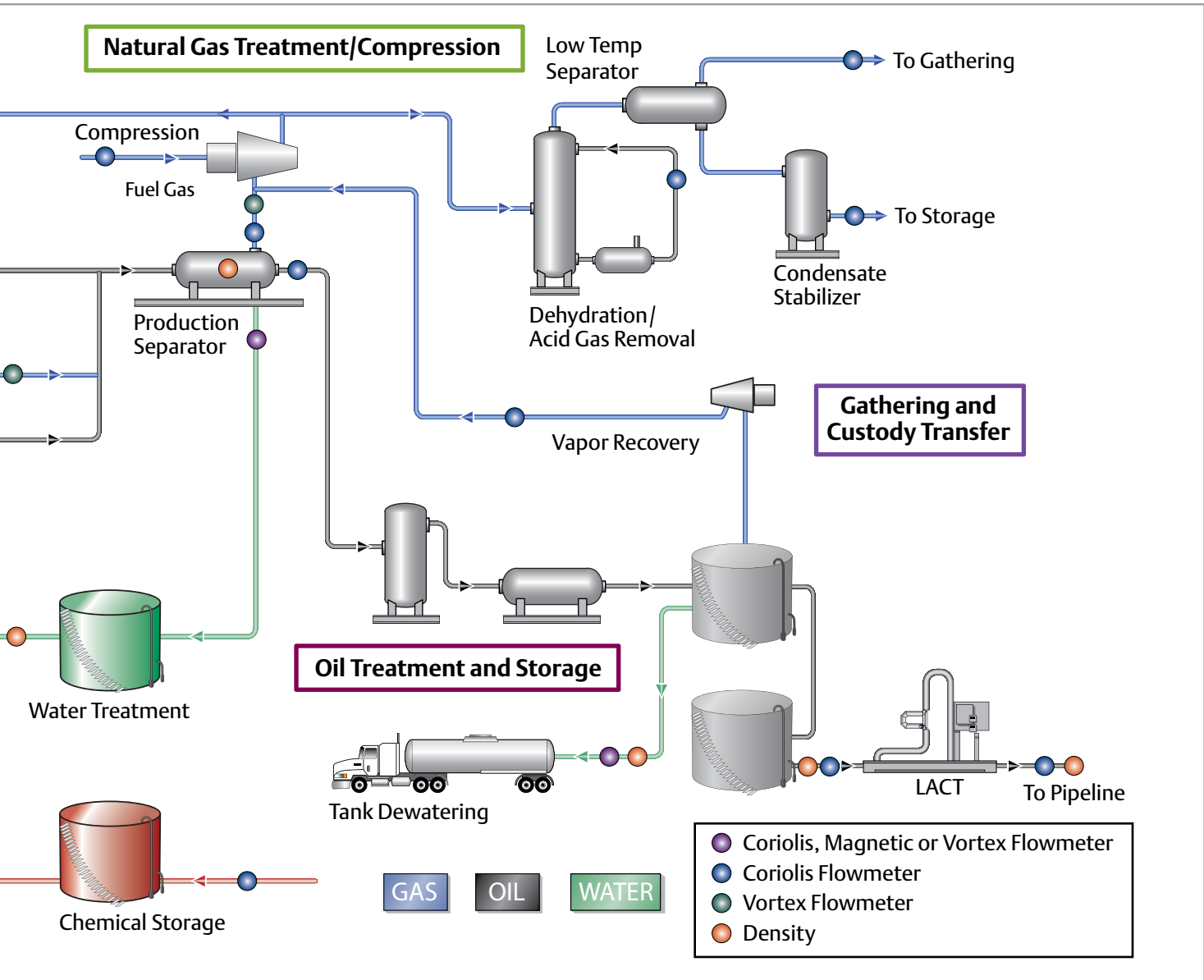
Thermal

- Optimize steam injection rate to maximize effectiveness
- Reduce steam and energy waste with accurate injection rates

Gathering and Custody Transfer

Pipeline Custody Transfer Measurement

- Continuous, accurate measurement of crude oil, natural gas and NGLs minimizes sources of error and accounting liability
- Lower cost of ownership with comparable capital costs and minimal maintenance requirements



Natural Gas Treatment / Compression

NGL Recovery and Stabilization

- Accurate control and mass balance
- Improve condensate quality and reduce operating expense

Dehydrator Control

- Optimize glycol regeneration and recirculation rates
- Eliminate glycol losses and improve environmental compliance

Compressor Fuel Management

- Direct mass measurement enables inferred energy rate for optimal air to fuel mix
- Improve environmental emissions compliance and reduce fuel consumption

Oil Treatment and Storage

Oil Treatment

- Maximize oil recovery and product quality by optimizing treatment system performance with improved measurement and control
- Improve mass balance and treatment efficiency with continuous process information and abnormal situation detection

Vapor Recovery

- Meet regulatory and internal requirements while capturing rich hydrocarbon gases
- Low maintenance and reduced operator intervention to improve payback on VRU installations

Dewatering and Product Transfer

- Reduce regulatory risk, operator exposure and operating expenses
- Accurate interface and product transfer measurement from a single device

Micro Motion® and Rosemount® Flow and Density Meters



Micro Motion® ELITE® Coriolis Flow and Density Meters

Flow range	0.01 to 120,000 lb/min (0.35 – 3,266,000 kg/hr)
Liquid mass flow accuracy	±0.05% or ±0.1%
Liquid volume flow accuracy	±0.05% or ±0.1%
Gas flow accuracy	±0.25% or ±0.35%
Liquid density accuracy	±0.2 kg/m ³ , ±0.5 kg/m ³ or ±2.0 kg/m ³
Nominal line size	1/12" to 16" (2 to 400 mm)



Micro Motion® F-Series Coriolis Flow and Density Meters

Flow range	6.5 to 10,000 lb/min (180 to 272,000 kg/hr)
Liquid mass flow accuracy	±0.10%, ±0.15% or ±0.20%
Liquid volume flow accuracy	±0.15% or ±0.30%
Gas flow accuracy	±0.50%
Liquid density accuracy	±1.0 kg/m ³ or ±2.0 kg/m ³
Nominal line sizes	¼" to 4" (6 to 100 mm)



Micro Motion® 7812 Gas Density Meter

Gas specific gravity accuracy	Up to ±0.1% of reading
Density range	0.06 - 25 lb/ft ³ (1 - 400 kg/m ³)



Micro Motion® 7835 Peak Performance Density Meters

Gas specific gravity accuracy	Up to ±0.1% of reading
Density range	0.06 - 25 lb/ft ³ (1 - 400 kg/m ³)



Micro Motion® 7828 Direct Insertion Meter

Density accuracy	±0.001 g/cm ³ (±1.0kg/m ³) (±0.06 lb/ft ³)
Density range	0 – 3 g/cm ³ (0 – 3000 kg/m ³) (0 – 187.4 lb/ft ³)
Viscosity range	up to 20,000cP



Rosemount® 8800 Vortex Flowmeter

Liquid flow accuracy	±0.65%
Gas flow accuracy	±1.0%
Saturated steam mass flow accuracy	±2.0%
Nominal line size	0.5" to 12" (12 to 300 mm)



Rosemount® 8700 Magnetic Flowmeter

Liquid flow accuracy	±0.15%
Nominal line size	0.15" to 48"

See product data sheets for complete technical specifications



EMERSON WORLD-LEADING
FLOW AND DENSITY
technology

SETS THE STANDARD FOR
RELIABLE, REPEATABLE,
HIGH PERFORMANCE
MEASUREMENT



Emerson's Micro Motion and Rosemount devices are known globally in over 85 countries for quality, reliability, application expertise, and support not available elsewhere.

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