



FISCAL MEASUREMENT

“Uncertainty isn’t an option in our operation. Partners, authorities and customers all calculate payments based on our custody transfer measurement system.”

“Performance requirements have become more stringent – with unrelenting pressure for improved reliability, accuracy, linearity, repeatability and rangeability”

Industrial Flow Measurement, 2009

What if...

- You could rely on your measurement system to provide the accuracy and reliability stated within the sales contract or by the standards – day in and day out?
- You could maximize the efficiency of the whole system and control costs?
- You could ensure the system sustainability and reliability for all its lifetime?

Flow measurement accuracy is critical in your operation because of its widespread use for accounting purposes, such as the custody transfer of oil or gas from supplier to consumer, many of which are regulated by contractual agreements. Fiscal measurement systems are also heavily relied upon in other upstream and pipeline operations, including leak detection systems, batch operations, and loss/gain balance, to ensure an overall reliable operation.

Asset and production managers we talk to tell us about challenges like these:

“I need the best accuracy and reliability from the measuring system to ensure compliance to commercial requirements and industry standards.”

A wide variety of fluids and operating conditions mean it’s essential to choose the right technology that will help make sure your system is accountable for contract and regulation requirements. This accuracy and reliability has to be in every part of complex systems from flowmeters to pressure regulation and overpressure protections, fluid composition analysis to proving and calibration systems.

“I’ve got to have insight into the actual operating conditions of my measurement system to optimize performances and control costs.”

Real-time insight into fluid and line parameters is the best way to ensure fiscal measurement system health between formal validations and proving. Your operation can’t risk issues that cause malfunction or the time and manpower needed to troubleshoot, maintain, or localize problems. Accurate diagnostics and insight in the field is key to uptime and reliable measurement performance, and localize better and faster possible malfunctioning.

“My measurement system must be sustainable and reliable for all its lifetime.”

You can’t afford upsets in your measurement system that can quickly inflate costs, jeopardize the accuracy of custody transfer measurements, or allow for any leak to go unnoticed. Instrumentation in the flow measurement system has got to seamlessly and reliably work together without extra oversight while providing insight that can flag problems or any unusual activity, and reassure accuracy transactions. Effective maintenance procedures and programs will also help to keep the system working and efficient for all its lifetime, reducing the total ownership costs.

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Fiscal Measurement systems owners and operators are choosing to partner with Emerson Process Management to maximize efficiency and reduce fiscal risk and exposure. With a wide range of technologies, application experience, and engineering support, you will realize true operational improvements from accurate measurement and operating conditions, robust and reliable devices, and remote diagnostics and insight.

IMPROVE CUSTODY TRANSFER COMPLIANCE

Many operational challenges are connected to the reliability and accuracy of the measurement system. Fiscal measurement system design must account for fluid characteristics, operating conditions, maintenance regimes, and the environment to assure performance and accuracy. Choosing the right technology is key to ensure the system output delivers reliable and repeatable measurement. Emerson's wide range of solutions, and proven fiscal measurement expertise, delivers best performance for all the components and improves your overall compliance with contractual requests.

INCREASE OPERATIONAL EFFICIENCY AND REDUCE COSTS

There are many parameters of vital importance in a measurement system: fluid density and viscosity, temperature, static and differential pressure. The accurate measurement of all these parameters, together with advanced device diagnostics, will allow insight to the whole measurement system. This, in turn, increases operator and accounting confidence in the reported figures and decreases the need of additional maintenance, verification and data validation, keeping ownership costs lower.

ENSURE LIFECYCLE RELIABILITY AND SUSTAINABILITY

Understand what's happening in the field with real-time insight so any corrective actions or operational changes can be made immediately. Fiscal measurement systems can be maintained and supported with a broad range of lifecycle and metrology services to help ensure the best performance of your measurement system. All of these elements allow you to achieve an overall lower cost of ownership over the lifetime of the system.

EMERSON FLOW SOLUTIONS

Take advantage of Emerson's wide range of Flow Solutions technologies and measurement experience to select the right instrumentation, capitalize on industry proven "best practices", and enhance the utilization of data to improve fiscal measurement and enable early insight into operational problems.

1. Metering

- Flowmeters

2. Proving & Calibration

- Provers, Master Meters, Metrology Services, Flow Laboratories

3. Gas Composition

- Gas Chromatograph

4. Pressure Regulation

- Pressure Regulators, Monitors, Relief Valves, Slam Shut Valves
- Odorant Injection

5. Flow Computers

- Flow Computers

6. Data Management

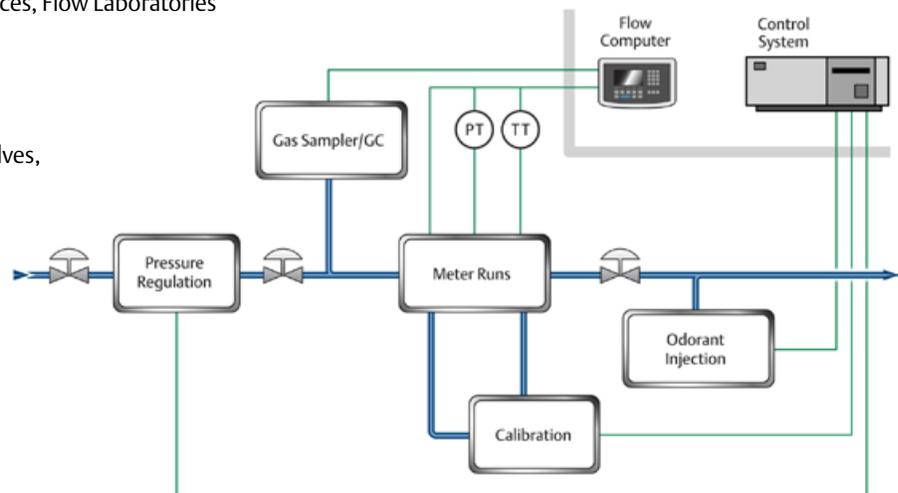
- PLC, RTU, SCADA

7. Turnkey Solutions

- Measurement Systems, Meter Runs

8. Instrumentation

- Density, Viscosity, Static/Differential Pressure, Temperature



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MEASURE & ANALYZE	UNIQUE FEATURES	OUTCOMES
 <p>Daniel Orifice Meters</p>  <p>Daniel Ultrasonic Meters</p>  <p>Daniel Turbine Meters</p>  <p>Micro Motion Coriolis Flowmeters</p>  <p>Roxar Multi Phase Flowmeters</p>	<ul style="list-style-type: none"> • Field verification • High turndown • Enhanced flow conditions diagnostics • Less sensitivity to changing flow parameters and fluid properties • Advanced sensor diagnostics • Plug-free design • Field replaceable sensor • Multivariable measurements • Entrained gas & liquids detection 	<ul style="list-style-type: none"> • Right technology for the application • Higher accuracy for regulatory compliance • Diminished fiscal risk • Reduced operation and maintenance events • Early insight into operational problems • Reduced size and weight, reduced overall uncertainties
PROVING/CALIBRATION	UNIQUE FEATURES	OUTCOMES
 <p>Provers</p>  <p>Master Meters</p>	<ul style="list-style-type: none"> • High accuracy meters • Different solutions 	<ul style="list-style-type: none"> • Maintain accuracy and repeatability of the meters during their lifetime • Reduced operational costs • Reduced fiscal risk • Cost effective solutions
FLUID COMPOSITION	UNIQUE FEATURES	OUTCOMES
 <p>Gas Chromatograph</p>	<ul style="list-style-type: none"> • Components of interest (energy) • Analysis time • Gas specification 	<ul style="list-style-type: none"> • Accurate value of latent energy content • Detection of contaminants presence to ensure equipment integrity • Choice of correct equipment depending on gas quality
PRESSURE REGULATION	UNIQUE FEATURES	OUTCOMES
 <p>Pressure Regulators & Monitors</p>  <p>Relief Valves</p>  <p>Slam Shut Valves</p>  <p>Odorant Injection</p>	<ul style="list-style-type: none"> • Superior material compatibility • Sustainable operations in contaminated fluids • Verification of field performances • Wireless indication and estimated volumes of pressure relief events • Easy maintenance automated odorizing system 	<ul style="list-style-type: none"> • Reliable and accurate measurement • Avoid internal/external audits • Fast reaction to any unusual event in the measurement system • Reduced inflated operation costs and ownership costs • Metrology service • Lifecycle management

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CONTROL & DATA MANAGEMENT	UNIQUE FEATURES	OUTCOMES
 <p>FloBoss Flow Computers</p>  <p>ROC Remote Operation Controller</p>  <p>SCADA System</p>	<ul style="list-style-type: none"> • Configurable systems • Intuitive applications software • HART pass through • Simple device/data interfacing • Comprehensive, multi-platform software for NG fiscal measurement • Flexible data management options 	<ul style="list-style-type: none"> • Reliable and accurate measurement • Avoid internal/external audits • Fast reaction to any unusual event in the measurement system • Reduced inflated operation costs and ownership costs • Metrology service • Lifecycle management
TURNKEY SOLUTIONS	UNIQUE FEATURES	OUTCOMES
 <p>Measurement skids, Meter runs</p>	<ul style="list-style-type: none"> • Choice of best technology depending of unique operating conditions • Tailored solutions for each application 	<ul style="list-style-type: none"> • Best performances of the whole system in all its components • Regulatory compliance • Avoid dealing with many suppliers and unclear responsibilities
INSTRUMENTATION	UNIQUE FEATURES	OUTCOMES
 <p>Density</p>  <p>Viscosity</p>	<ul style="list-style-type: none"> • High accuracy and performance for a wide range of fluids • On-line, real time measurement 	<ul style="list-style-type: none"> • Better insight into system conditions • Decreased maintenance • Easier troubleshooting