OFFSHORE ON-DEMAND FLOW MEASUREMENT SERVICES

Non-Intrusive Ultrasonic Flow Measurement Technologies

Meter Verification | Calibration

FLEXIM

EMERSON™

Improving Performance and Efficiencies

Check Metering

Improving Performance and Efficiencies — Check Metering

Flow monitoring in oil and gas is critical in terms of process efficiency and optimization but especially crucial regarding safety in many offshore environments. Reliability and performance checks of process equipment is a crucial task for operators to ensure optimal performance and increase efficiencies. Even if the systems are already equipped with metering devices, it is mandatory to monitor the correct functionality of fire pumps, gas compressors and metering equipment via independent external measurement systems. As fields mature and the production profiles change it is important to verify meter performance at the edge of their turndown range.

Emerson provides an easy and cost-efficient metering service using a range of hazardous area approved portable flow meters and trained personal. Once onsite, our clamp on meters are installed onto the pipe wall and measurement is ready within minutes without the need to shut down processes or defer production.

FLUXUS® portable flow meters are highly accurate and reliable and provide zero-point stable and drift free measurement right off the box, making them the perfect solution for on demand monitoring. Our meters are calibrated according to traceable national standards. Each unit is capable of both gas and liquid metering and provides a set of diagnostic data to verify the measurements success.

Offshore meter checks and fire pump flow performance surveys are routine for our service engineers, who carry our highly portable measuring system as carry-on hand-luggage. Emerson's service engineers provide you with precise measurement data and fully detailed reports.

Application Versatility

Flow Audits

Pump Monitoring

Mass Balances

Compressor Efficiency Checks

Valve Leak Test

Fire Water Pump Testing

Leak Detection

Hydraulics (Water & Oil)

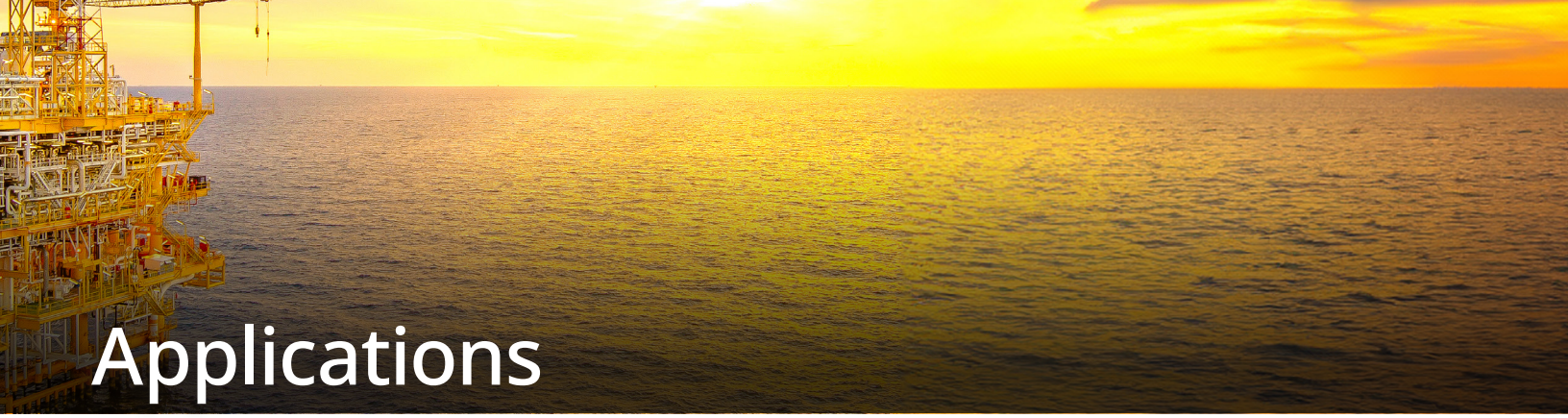
Verification & Calibration of legacy metering Systems (DPs, Turbines, Magmeters, Coriolis)

- Stabilized Oil
- Gas export lines
- High pressure water Injection
- Gas Lift
- Gas Injection
- Produced & Sea Water
- Fuel systems

Rental Services

- Short & Long Term non-intrusive metering

Technical Product Training



Applications

Water Stewardship– Fixed and Portable Meters to Evolve with the Mine

Large OD Pipe Mag Meter Replacement – Water Balances – Tailings – Water Abstraction – Water Treatment Plants

Once at the surface, production from individual wells is sent to a series of separators to be divided into single phase flows — oil, gas, and water. Dehydrated oil is then sent to storage and processing via export pipelines and shuttle tankers. Dehydrated gas is compressed and exported via pipeline. Injection wells are used for enhancing oil recovery and to store gas safely in a reservoir for potential production in the future. Produced water is treated to required levels and then, depending on the location and regulations either discharged overboard, pumped into disposal wells, or injected into the reservoir as a pressurizing system for further oil recovery. Besides production flow lines, oil rigs have extensive fire and safety systems installed throughout the platform, including equipment that automatically shuts down oil and gas production in the event of an emergency. All flows must be monitored and evaluated for field management, optimization, and compliance. There are also the fuel and power systems that need to be checked.

FPSO - Process Control Metering Services

Riser and turret measurement, High pressure injection monitoring (gas & water) — Sea Water — Fire Pump Monitoring

Like offshore platforms, FPSOs -floating production systems- receive fluids (crude oil, gas and water) from subsea reservoir through risers but unlike oil platforms, FPSOs are capable of further separating and treating crude oil, natural gas, water and impurities within the topsides production facilities onboard, therefore providing a cost-effective production set up for deep water reservoirs. Crude oil is stored in the storage tanks of the FPSO and then offloaded onto shuttle tankers to go to market or for further refining onshore. Diverse and complex networks in combination with abrasive flows, high pressures and high flow rates are typical challenges for traditional technologies resulting in high maintenance costs and production downtime. Emerson's metering services can help minimize downtime related to metering issues by providing an integrated and economical solution to evaluate, calibrate and check meter performance during normal operations. Flexim meters have an inbuilt flow profile correction allowing installation on short pipe runs common in the restricted space on an FPSO.

What Makes Us Different

Unrivaled Performance — Emerson's Flexim non-intrusive ultrasonic flow meters offer exceptional reliability and accuracy at high and low flows due to their matched, calibrated and temperature compensated transducers, advanced signal processing capabilities and diagnostics.

Operational Safety — ATEX/IECEx Zone 2 Transmitters & ATEX/IECEx Zone 1, IP68 rated Transducers. The measurement system can't cause potential pipe leaks, be prone to clogging or any other related issues that can hinder process integrity.

Flexible Technology — Suited for multiple applications (liquids & gases) in a wide range of pipe sizes, orientations, and materials.

Economical Solution — An externally mounted system means no need for process interruptions or additional engineering costs.

Calibrated and auditable — Traceable calibration and diagnostic data embedded into the flow reports gives confidence in the data.

Emerson offers scalable measurement services ranging from the check metering of a single measurement point up to a complete measurement audits of complex networks with a multitude of measurement points such as gas and water injection applications offshore.

Our services can be used either to measure at points that are not equipped with a flow meters, to check existing flow meters (Independent of the employed technology and manufacturer) and evaluate their performance, certificate existing flow devices and to care for the regulatory compliance.

Emerson's measurement services are arranged according to your individual needs:

- From the flow measurement of liquids and gas volumetric and mass flows over a wide range of applications, media, temperature, and pressures.
- Pump performance and valve leak detection
- Calibration and evaluation of legacy metering
- Process control and balance

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CERTIFICATE #3791.01

For more information, visit
Emerson.com/Flexim

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