

Rapid Adaptive Measurement™ Software – Trustworthy Real-Time Measurement Supporting Automation in Dynamic Multiphase Flow

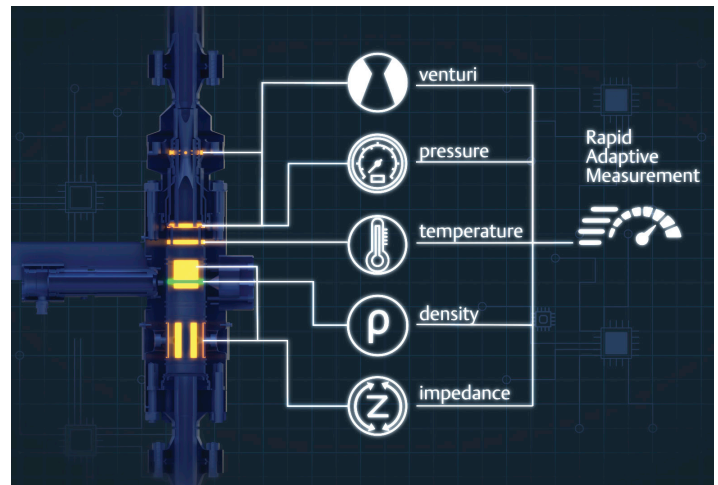
Emerson's latest Roxar 2600 Multiphase Flow Meter embedded software platform Rapid Adaptive Measurement boosts your measurement confidence, enabling efficient operations and optimized well management through increased automation.

Background

Traditionally, multiphase flow metering measurement technologies were innovated to meet the conventional market needs, with typically more stable flow regimes and less fluctuation in temperature, pressure and flow rates. As oil and gas operators worldwide adjust their production methodologies and target more challenging reservoirs, the flow profiles from the wells are becoming significantly more varied and dynamic, and the demands on the instrumentation increase.

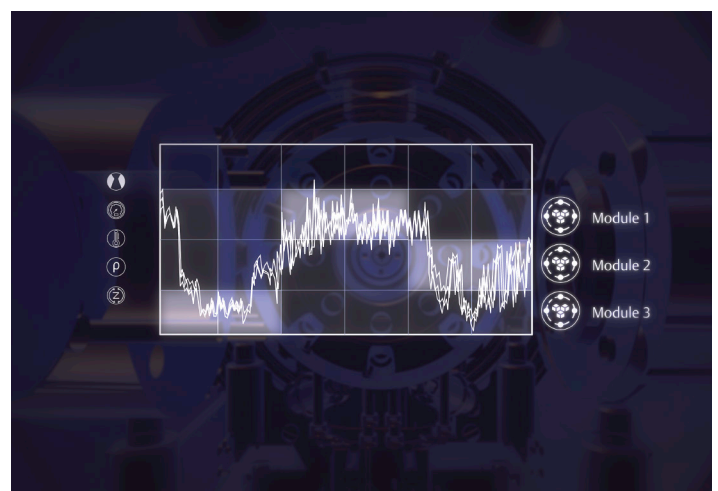
The unconventional shale market pushes the envelope even further. These wells see rapidly declining production rates and pressures, ever-increasing gas fractions and varied assisted production methods that impact the flow profile in different ways and, in some cases, add additional properties to the flow. In general, there are quite rapidly changing, unstable flow profiles throughout the well's lifetime. Therefore, the multiphase flow metering technology must be robust and reliable in very demanding conditions, like never before.

To address these demands in multiphase measurement, Emerson set forth to innovate the measurement approach of the Roxar 2600 Multiphase Flow Meter, meeting and exceeding market needs. To accomplish that, we restructured how the Roxar 2600 Multiphase Flow Meter now processes sensor signals, self-verifies calculation modules and automatically selects the best-suited measurement modes at any given moment. This ensures that operators receive reliable oil, water and gas measurement, without the need for frequent reconfiguration, even in the most challenging field conditions.



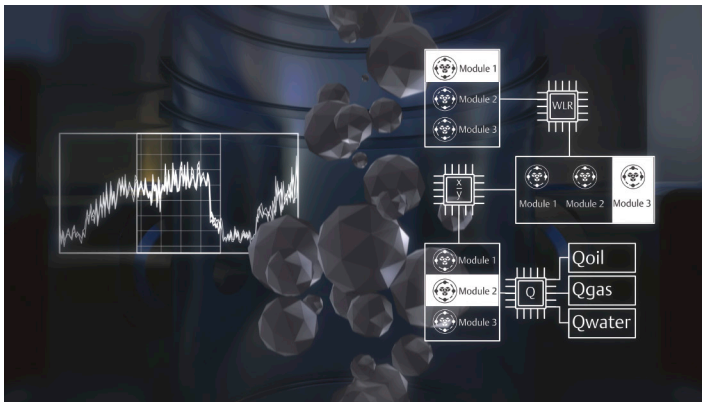
Parallel computation

With the Rapid Adaptive Measurement software architecture, the meter flow computer conducts parallel computation with multiple calculation modules providing the same output parameter. Based on the sensor signals, the meter recognizes the current flow regime and the arbitrator in the software selects the most suitable output at any time.



Automated configuration

As the flow and fractions fluctuate, certain approaches are more effective than others to calculate fractions and rates at any given moment. The calculation modules in Rapid Adaptive Measurement all provide a live confidence output of their calculations based on the flow regime the meter sees. The arbitrator then selects the calculation module with the highest quality at that time. In this way, the parallel computation allows the meter to utilize specialized calculation modules for the flow regime it has identified, leading to higher quality and increased confidence in output.



Rapid processing

The flow computer runs through the calculation algorithms, selects the highest quality calculation modules and provides the measurement output 10 times a second.

This high-speed processing enables the meter to continuously capture changes in the flow, whether subtle, substantial, rapid or slow.

Synchronized sensor signals and trend analysis

To add to the quality of the meter output, the sensor signals are synchronized before being utilized in the software calculation modules.

Further, by utilizing millisecond sample intervals, the calculation modules buffer samples to qualify results through trend analysis before releasing the output – again, adding to the measurement’s robustness.

Agile and future proof

Another benefit from the modular architecture is the agility this provides in technology development. The calculation modules run independently of each other and can easily be individually enhanced, and new modules can be added without interfering with the rest of the software structure.



The Roxar 2600 MPFM with Rapid Adaptive Measurement software

Rapid Adaptive Measurement advances operators’ journeys further towards automated and digitized oil and gas fields, allowing for enhanced meter performance and confidence in outputs, cost-efficient operations, agility for future technology advances, and ultimately increased reservoir recovery.

To learn more, visit us at: [Emerson.com/RoxarRapidAdaptiveMeasurement](https://www.emerson.com/RoxarRapidAdaptiveMeasurement)

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