Operators today more than ever seek solutions for good quality multiphase flow measurements directly from the wellhead.

The Roxar 2600 MPFM is suitable for a large variety of multiphase and wetgas metering applications. Applications include oil and wet gas wells, direct wellhead monitoring, multi-well testing, allocation and fiscal metering, as well as shale well flow back monitoring. The Roxar 2600 MPFM helps operators manage costs and increase efficiencies while enhancing production and making marginal fields more viable.
Challenging economic environments

With the cost value balance being a critical factor in progression of investments, oil and gas operators often struggle to justify the investment of a single multiphase or wetgas flow meter per well. The need is for individual well flow rate information with field proven technology while also being cost effective.

The Roxar 2600 MPFM is one of the most compact and light-weight solutions on the market, which enables easy installations.

Configuration flexibility

Based on the well profile, operators often need a multiphase metering solution that can evolve and provide flexibility over time. The fields and their flow conditions continue to change, and often no single optimum measuring method or meter size is applicable for all situations.

There is a need for a flexible technology platform that can form the basis for the flow measurement requirements, but can be customized to meet varying field conditions:

The Roxar 2600 MPFM is the solution to those challenges. The modularity concept ensures customers only pay for the features that they require. The meter has a high degree of freedom available regarding the components that can be separated and recombined to meet the specific requirements of the field or the well.

As flow conditions and measurement requirements change over the lifetime of the field and well, additional modules can be retrofitted at any time.

As only modules required are supplied, this simplifies the metering solution, reducing risk of failure and maintenance requirements.

Measurement principle

The Roxar 2600 MPFM platform applies a combination of electrical impedance measurements and single high energy gamma for determining phase fractions, combined with venturi and cross correlation for velocity measurements.

The full version meter employs all of these sensors and measurement techniques, in other versions one or more are omitted. All versions include the advanced signal processing, field electronics, and electrode geometry utilizing 8 electrodes in two different planes.

The result is a meter that accurately characterizes flow and provides a cost-effective and flexible solution for a range of applications, from measurement at the wellhead to complex well testing.
## Roxar 2600 MPFM model selector

<table>
<thead>
<tr>
<th>Roxar 2600 M</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The base model Roxar 2600 M is designed for permanent, single well installations, and is a well monitoring tool for trending watercut, gas/oil ratio, and flow rates. This meter is ideal for detecting gradual or sudden changes, for example, indicating gas break-through.</td>
</tr>
<tr>
<td>Roxar 2600 MPFM Non-Gamma</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Figure 1: Hub Version</strong></td>
<td>The Roxar 2600 MPFM Non-Gamma can be used for both oil and gas wells. This version provides good accuracy flow rates for oil, water and gas over a broader range of applications. Roxar 2600 Non Gamma is typically suitable for low- to medium-high GVF applications. The Roxar 2600 MPFM Non Gamma can be configured with wetgas mode to cover 95% - 100% Gas Volume Fraction. The meter body is available with ANSI flanges up to Class 1500# and Hub flanges (5000 psi).</td>
</tr>
<tr>
<td><strong>Figure 2: ANSI Flange Version</strong></td>
<td></td>
</tr>
</tbody>
</table>

www.Emerson.com/Roxar
The Roxar 2600 MPFM has all three main modules. This includes the electrical impedance, venturi and gamma. This meter can be used for both single well and multi-well applications such as flow back measurements, well testing, and allocation metering with the best accuracy.

The meter can be configured with wetgas mode to cover 95% - 100% Gas Volume Fraction. The meter body is available with ANSI flanges up to Class 1500# and Hub flanges (5000 psi).

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**Added value for the operator**

Emerson has built the Roxar 2600 MPFM based on modularity, with a high degree of freedom to which a system’s components may be separated and recombined. In this way our customers are able to obtain a 2600 MPFM tailored specifically to their requirements.

This separation of the 2600 MPFM modules and features into separate scalable, reusable modules consisting of isolated, self-contained functional elements also eases repair and maintenance as required - a highly cost-effective and field-proven metering solution.
# Specifications - Roxar 2600 MPFM

## System performance and characteristics

<table>
<thead>
<tr>
<th>Item</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating range</strong></td>
<td>2600 MPFM</td>
</tr>
<tr>
<td></td>
<td>■ 0-100% water in liquid ratio (WLR): 0-70% WLR in wetgas mode</td>
</tr>
<tr>
<td></td>
<td>■ 0-100% gas volume fraction (GVF): 0-98% GVF without wetgas mode</td>
</tr>
<tr>
<td></td>
<td>For the 2600 MPFM Non-Gamma the operating range depends on the application and use.</td>
</tr>
<tr>
<td></td>
<td>Wetgas mode operating range covers 95%-100% GVF and 0-70% WLR. Contact Roxar for more information.</td>
</tr>
<tr>
<td>2600 M</td>
<td>■ 0-100% water in liquid ratio (WLR)</td>
</tr>
<tr>
<td></td>
<td>■ 0-85% gas volume fraction (GVF)</td>
</tr>
<tr>
<td></td>
<td>For the 2600 M, if the GVF is &lt; 15%, or &gt; 85%, the quality and accuracy of the flow rates will be reduced, but the meters will still provide flow fractions.</td>
</tr>
<tr>
<td><strong>Meter sizes</strong></td>
<td>1 ½ in to 8 in</td>
</tr>
<tr>
<td><strong>Installation</strong></td>
<td>Vertical upwards flow</td>
</tr>
<tr>
<td><strong>Design temperature</strong></td>
<td>-4 °F (-20 °C) to 266 °F (130 °C)</td>
</tr>
<tr>
<td><strong>Input requirements</strong></td>
<td>2600 M:</td>
</tr>
<tr>
<td></td>
<td>Oil permittivity for low water cut wells, water salinity and temperature for high water cut wells, pressure and temperature to convert to standard conditions, set up value of WLR or GOR for inline calibration.</td>
</tr>
<tr>
<td></td>
<td>2600 MPFM:</td>
</tr>
<tr>
<td></td>
<td>Oil Permittivity, Water Salinity, PVT phase densities. Wetgas mode requires gas-condensate PVT characterization to determine condensate ratios at measured pressure and temperature.</td>
</tr>
<tr>
<td><strong>Typical uncertainty</strong></td>
<td>2600 M</td>
</tr>
<tr>
<td>(95% confidence interval)</td>
<td>Multiphase operating mode:</td>
</tr>
<tr>
<td></td>
<td>■ Liquid rate: +/- 8-10% relative</td>
</tr>
<tr>
<td></td>
<td>■ Gas rate: +/- 8-10% relative</td>
</tr>
<tr>
<td></td>
<td>■ Water cut: +/-3-5% absolute</td>
</tr>
<tr>
<td></td>
<td>2600 MPFM</td>
</tr>
<tr>
<td></td>
<td>Multiphase operating mode:</td>
</tr>
<tr>
<td></td>
<td>■ Liquid rate: +/-3-5% relative</td>
</tr>
<tr>
<td></td>
<td>■ Gas rate: +/-5-8% relative</td>
</tr>
<tr>
<td></td>
<td>■ Water cut: +/-2-4% absolute</td>
</tr>
<tr>
<td></td>
<td>Wetgas operating mode:</td>
</tr>
<tr>
<td></td>
<td>■ Total Hydrocarbon: +/-5% relative</td>
</tr>
<tr>
<td></td>
<td>■ Water Volume fraction: +/-0.002 absolute</td>
</tr>
</tbody>
</table>

**Note**
Measurement uncertainties can be improved with inline calibration.
### Mechanical and electrical components

<table>
<thead>
<tr>
<th>Item</th>
<th>Characteristics</th>
</tr>
</thead>
</table>
| Meter body wetted parts materials | Duplex UNS 31803  
Super Duplex UNS 32760  
Stainless Steel UNS 31600  
Alloy 625 UNS N06625 |
| Flange connection                 | ANSI flanges or Grayloc® hubs or Techlok® hubs                                |
| Length (M)                        | 730 mm for a 3 in meter size (approximately, depending on the flange rating)   |
| Venturi                           | Insert design, field replaceable, with a compact isolation valve and manifold   |
|                                   | Rosemount Multivariable™ Transmitter (dP, P & T)                               |
| Density measurements              | Roxar Non-Gamma or wetgas software                                            |
|                                   | or Compact gamma system: Source: Cs-137, 2-5 mCi, Half-life 30.1 years         |
| Sensor technology                 | Electrical impedance and Roxar ZECTOR™ technology                              |
| Power supply                      | 10-36 VDC, 85-264 VAC  
Power consumption: 20 W                                                        |
| Communication interface           | RS-232/RS-485/Ethernet  
Communication protocol: Modbus RTU or TCP                                     |
| Flow computer mounting            | SS 316 or Aluminum Ex d housing for hazardous area installations               |
|                                   | Rack mountable or wall mountable stainless steel enclosure for outdoor use and  |
|                                   | safe area installations                                                       |
| Electrical certification          | ATEX, IECEx, CSA C/US and EAC                                                 |
| Software                          | Roxar GUI                                                                      |