The Roxar Multiphase meter measures accurately the flow rates of oil, gas and water in oil wells without separation, mixing or moving parts. Field experience shows excellent long-term stability, high accuracy and very good repeatability. A large number of meters have been supplied for operations all over the world.

The MPFM 1900VI® combines all experience of the two products that pioneered the multiphase metering era, the MFI Multiphase meter and the Fluenta MPFM 1900VI®. Roxar offers high quality in multiphase metering characterized by:

- Extensive worldwide track record
- Simple installation
- Low maintenance requirements
- Reliable and rugged hardware
- Very low power consumption
- Dual Velocity method for powerful flow regime handling
- In-line – no mixer and no separator
- Low pressure loss
- Highly tolerant to variations in influencing parameters
- Redundancy and self verification
- Independent of changes in H₂S, CO₂ or viscosity

Development of the technology, based on experience from a wide range of different installations, has resulted in extensive improvements in the reliability and operating range of the meters. Repeat sales prove customer satisfaction, both in terms of the technology and of the levels of service and follow-up.

The non-intrusive design, together with the Dual Velocity method for handling of phase slip, means the MPFM 1900VI® does not require mixers to homogenize the flow, or separators to split the flow before measurement. This gives the meters a wide operating range, which is not limited by the efficiency of the upstream flow conditioner or splitter. Interruption to the flow is kept to a minimum, avoiding pressure drop, erosion, or creation of emulsions that may otherwise seriously affect the downstream process.

Applications
- Production well testing
- Exploration well testing
- Production monitoring
- Allocation metering

Key benefits
- Low investment cost
- Increased oil recovery
- Accelerated oil production

Installation
- Offshore or onshore
- Tropical, desert and harsh-marine environments
- Remote unmanned installations
- Fixed, skid- and truck mounted

Operating principle
Oil, gas and water fractions are determined by electrical impedance measurements and gamma-ray density measurements. Dual Velocity cross correlation of the signals is used to measure individual component flow rates. In addition, a venturi meter extends the range of the MPFM 1900VI® to cover single-phase liquid and gas. This provides extra redundancy for flowrate measurements.
### Specifications

#### System performance and characteristics

- **Operating range:**
  - 0-100% water in liquid ratio (WLR)
  - 0-100% gas void fraction (GVF)

- **Typical velocity range:**
  - Low GVF: 1.5–15 m/s
  - High GVF: 3.5–35 m/s

- **Pipe dimensions:** 2–12 in. (43–280 mm)

- **Typical uncertainty:**
  - Water cut: +3% abs.
  - Gas rate: +8% relative

- **Design pressure:** Up to 690 bar (10,000 psi)

- **Operating temperature:** Up to 150°C (302°F)

#### Mechanical and electrical components

**Measurement section**

- **Wetted parts materials:** Stainless steel 316, duplex or to customer specifications

- **Flange connections:** ANSI, API or clamp flanges

- **Length:** 1200 mm (typical for 3 in.)

- **Weight:** 600 kg (typical for 3 in.)

**Gamma ray densitometer**

- **Gamma source:** Caesium-137; typical 30 mCi,
  - Half-life: 30.1 years

- **Container:** Stainless-steel casing, lead-filled

- **Detector:** NaI scintillation detector
  - (Synetics Tracerco PRI 116)

- **Certification:** EEx d IIC T6

**Sensor electronics**

- **Type:** Electrical impedance

- **Certification:** EEx ia IIC T4

- **Secondary instruments:** Pressure, differential pressure, temperature

**Power supply**

- **Voltage:** 18-29 VDC, 100-240 VAC 50/60 Hz

- **Power consumption:** 12 W (Low-power version, excluding service console)

- **Installation:** Vertical upward flow

#### Flow computer

- **Operating system:** Windows CE

- **Com 1:** For service console PC
  - (RS-232/RS-485/TCP/IP)

- **Com 2:** For client interface
  - (RS232/RS485/TCP/IP)

- **Communication protocol:** Modbus ASCII/RTU

- **Installation:** Safe area (19-in. rack module)

- **Certification:** EEx d IIB

#### Service console PC

- **Operating system:** Windows 2000/XP

- **Software:** RFM service console software

- **Optional modules:**
  - PVT calculations
  - Multilingual support
  - Integrated sand detection
  - Roxar Fieldwatch/Fieldmanager
  - Roxar’s real-time well-data logging system

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For further information please contact your regional office or email: info@roxar.com or visit www.roxar.com