Dualstream Elite

Wet Gas Combined With Water Fraction Measurement

The Dualstream Elite is the latest development in wet gas measurement for the upstream oil and gas market. Solartron ISA engineers have taken 20 years of experience and knowledge in wet gas flow behavior and added a water fraction measurement to the Dualstream family of meters. Dualstream meters have been successfully used around the world in over 200 gas fields for solutions in hydrocarbon allocation and reservoir optimization.

The water fraction measurement utilizes a new unique approach developed especially for wet gas applications. Using multipath sensors the water fraction meter can obtain an extremely accurate record of the liquid phase fractions for virtually any flow regime. There are no probes or dead volume traps to worry about. The measurement sensor is the only non-intrusive sensor available that can detect the water fraction across the entire pipe diameter for wet gas flow.

The water fraction measurement coupled with Dualstream venturi offers the simplest, reliable method for wet gas. This makes it ideal for harsh or remote locations. There are no regulative concerns as with sensors with radioactive sources.

Whether needed for allocation, reservoir optimization or detecting water breakthrough, the Dualstream Elite is the new standard for a reliable solution to everyday problems in wet gas measurement.

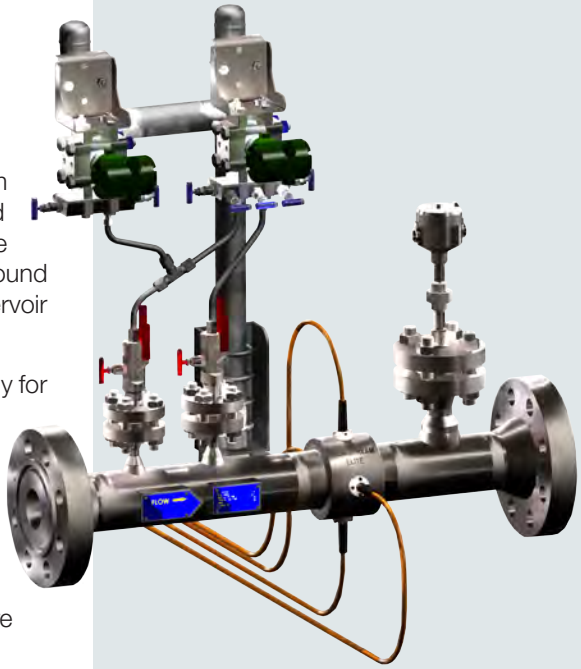
Water Fraction Measurement

The next generation of the Dualstream meter development incorporates the newest water fraction technology using multipath sensors to derive the phase fractions of the fluid. Its designed to maintain accuracy in both oil and water continuous fluids and to operate across the full liquid range of a gas condensate well.

Two Modes of Operation

- **Enhanced Dual-phase Mode** in which paired sensors are used to derive the water fraction. This measurement in combination with a PVT model provides gas, water and condensate flow rates.
- **Full Multiphase Mode** in which multiple sensor measurements are used to derive the water and condensate fractions. The Dualstream Elite meter provides gas, water and condensate flow rates which are independent of any PVT modelling. [Future Release]

By metering the multiphase fractions in real time the Dualstream Elite multi-path sensor technology provides the gas, water and condensate flow rates for use in allocation of hydrocarbon royalties and for economic optimisation of gas reserves through generation of real time production data including early measurement of water breakthrough for inhibitor management.



Key Applications

- ✓ *Water breakthrough*
- ✓ *Production optimization*
- ✓ *Hydrocarbon allocation*

Key Features

- ✓ *Real time measurement of phase fractions*
- ✓ *Excellent performance in oil & water continuous flow*
- ✓ *No radioactive sources*
- ✓ *Non-intrusive, no probes*
- ✓ *Reduced size and weight*
- ✓ *Reduced operational costs*
- ✓ *Salinity detection*
- ✓ *Simple and robust flow spool*
- ✓ *Health check*
- ✓ *Simple data acquisition system*

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AMETEK® OIL & GAS

Dualstream Elite

Specifications

Measurement Technique

Full Multi-phase version: Dualstream venturi, electromagnetic resonant cavity employing 16 path sensor combinations

Enhanced dual-phase version: Dualstream venturi, electromagnetic resonant cavity employing paired sensor combinations plus PVT model

Mechanical Spec

Standard Line Sizes 4” NB to 8” NB, larger sizes on request

Pressure Class ANSI Class 150 lb – 2500 lb

Process Temperature Range -20 to 120°C / -4 to 248°F

Meter Body Material Duplex UNS31803 as standard

Weight dependent on NB pressure rating

Overall length 6D, typical

Installation Requirements

Upstream straight lengths – nominally 3D

Downstream - none

Horizontal or vertical orientation

Performance

Uncertainty 95% confidence

Multi-phase Mode Performance [Future Release]

Gas Mass Flow Rate ± 2% relative (typical)

Water Volume Fraction ± 0.1% abs

Condensate Volume Fraction ± 0.25% abs

Dual-phase Mode Performance

Gas Mass Flow Rate ± 2% relative (typical)

Water Volume Fraction ± 0.1% abs

Condensate Mass Flow Rate ± 10% relative

Repeatability

Gas Mass Flow Rate < 0.4% relative

Water Volume Fraction <0.02% abs

Condensate Mass Flow Rate <0.4% relative

Operating Range

GVF range 90 – 100%

Watercut range 0 to 100%

Turndown 8:1

Permanent Pressure Loss

Pressure loss specific to application <1 bar

Additional Features

Salinity detection

Data Acquisition

Maximum power requirement	50 W
Power supply	Nominal 24 V DC (16 V – 42 V)
Signal output format	RS485 Modbus (standard)
	Ethernet (optional)

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