Dualstream 1 Advanced

The Smart Subsea Solution For High GVF Wet Gas Wells

Each gas condensate development has its own unique challenges. These may include measuring gas rates to allocation standard, accurately detecting low levels of water for hydrate mitigation, or optimizing production recovery from marginal fields.

The Dualstream family of wet gas meters is uniquely positioned to provide the operator with the optimum "Life-of-Field" solution.

Solartron ISA's unrivalled global experience ensures user confidence in the data that Dualstream provide. Successfully installed and operated on over 200 gas condensate fields, Dualstream is considered the benchmark for wet gas metering.

Measurement Application

Dualstream I Advanced is a 3-phase measurement for allocation or monitoring of flow rates in gas condensate wells. It is typically used on a per well basis. Installed either in the Xmas tree, removable choke bridge, jumper or manifold it is ideal for high GVF applications. By only deploying standard sensor systems subsea, all flow computation is carried out topside, ensuring minimum subsea intervention during the life of the field.

Common applications include tie-ins to existing infrastructure or new field development where real time high accuracy gas measurement is a fundamental operator requirement and water measurement accuracy is required for efficient well operation.

Mode of Operation

When using a differential pressure (DP) device to measure wet gas flow rates, the presence of liquids will cause the gas rate to over-read. In addition the pressure loss across the DP device is a highly complex function of the properties of the fluid stream. The Pressure Loss Ratio (PLR) is the ratio of these DP's.

The water rate is measured using a proprietary PLR correlation. Together with condensate to gas ratio generated via a PVT calculation, the gas rate can be corrected to output a real time 3-phase measurement.

Applications

- ✓ *Royalty Allocation*
- ✓ *Hydrate Mitigation*
- ✓ *Flow Line Monitoring*

Key Benefits

- ✓ *Real Time 3-Phase Data*
- ✓ *High GVF Operation*
- ✓ *High Accuracy*
- ✓ *Uncomplicated & Robust*
- ✓ *Compact Design*
- ✓ *Low Power*
- ✓ *Industry Standard Computer*
- ✓ *Large Installed base*
- ✓ *Regulatory Body Approval*

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AMETEK® OIL & GAS

Dualstream 1 Advanced Subsea

Specifications

Measurement Technique

Dualstream wet gas Venturi

PLR Measurement

Proprietary wet gas algorithms

Operating Range

Gas mass fraction: 80-100% (High GVF)

Water Liquid Ratio: 0-100%

Turndown: >8:1 typical

Performance

Typical Uncertainty (95% confidence level):

- Gas mass flow rate: ± 2%
- Condensate mass flow rate: ± 10%
- Water Volume Flowrate: ± 1am3/h

Repeatability

- Gas mass flow rate: <0.15%
- Liquid mass flow rate: <1.5%
- Water sensitivity: ± 0.2am3/h

Permanent Pressure Loss

Pressure loss specific to application (<1bar)

Mechanical Specification

Meter size: 2”NB to 14”NB (larger sizes on request)

End Connection: As per Operator requirements

Design Pressure: API 10,000psi (689bar)

(extended pressure rating on request)

Process Temperature Range: -20°C to 120°C (-29°F to 248°F) (extended temperature ranges on request)

Flow meter body material: Duplex UNS S31803 (alternative materials on request)

Overall Length: 5D (typical)

Weight: Dependent on NB/Pressure rating

Subsea Sensors

Solartron ISA SST range subsea sensors comprising:

- Venturi Differential pressure Gauge Pressure /c/w Diaphragm Seal
- PLR Differential pressure Gauge Pressure /c/w Diaphragm Seal
- Temperature

Communication options : MODBUS, SIIS Level II (CANBUS) or IWIS

Subsea Power Requirement 24VDC < 10W

(includes redundant sensors supplied as standard)

Installation Requirements

Horizontal or Vertical installation

Data Acquisition (Topside)

Options available include:

- Dualstream Flow Computer (safe area)
- Dualstream PC (safe area)

User required Inputs

- Hydrocarbon Composition

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