



Dualstream Venturi Subsea

The Original Wet Gas Metering Solution

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 300 gas condensate fields. Dualstream is considered the benchmark for wet gas metering.



Measurement Application

Dualstream Venturi is a low CAPEX solution for allocation or monitoring of gas flow rate. 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 intervention during the life of the field topside.

Common applications include tie-ins to existing infrastructure or large multi-well fields where production fluids remain relatively constant throughout field life.

Mode of Operation

When using a differential pressure (DP) device to measure wet gas the presence of liquids will cause the gas rate to over-read in the gas flow rate. A correction, typically the de Leeuw algorithm, is required to generate the 'true' gas flow rate. The liquid flow rates are assumed constant or must be derived periodically from well testing.

Real time measurement of the liquid flow rates is available using the Dualstream 1, Dualstream 2 and Dualstream 3.

Measurement Applications

- ✓ Royal Allocation
- ✓ Flow Line Monitoring

Key Benefits

- ✓ Uses Existing Infrastructure
- ✓ Low CAPEX
- ✓ Uncomplicated and Robust
- ✓ Compact Design
- ✓ Low Power
- ✓ Industry Standard Computer
- ✓ Large Installed Base
- ✓ Regulatory Body Approval

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Standard Specifications

Measurement Technique

- Dualstream Venturi
- Wet gas correction algorithm
- Liquid fraction from periodic well test

Typical Operating Range

Gas mass fraction	50-100%
Turndown	>8:1
Water liquid ratio	0-100%

Typical Performance

Typical Uncertainty (95% confidence level):

- Gas mass flow rate <5%
- Liquid mass flow rate from well test

Repeatability

- Gas mass flow rate <0.15%

Permanent Pressure Loss

Pressure loss specific to application (<1 bar)

Subsea Sensors

Solartron ISA SST range subsea sensors comprising

- Venturi Differential pressure sensor with Diaphragm Seals (gauge pressure as secondary variable)
- Temperature Optional

Output options: MODBUS, SIIS Level 2 (CANBUS) or IWIS

Subsea Power Requirement 24VDC < 10W

(includes redundant sensors supplied as standard)

Instrumentation

Standard field instrumentation comprising:

- Differential pressure – class leading true digital sensor
- Gauge pressure – secondary variable from DP sensor
- Temperature – non intrusive sensor

Installation Requirements

Horizontal or Vertical Installation

Compact flowmeter design options are available for applications where installation envelope is restricted, please contact Solartron ISA for details.

Data Acquisition

Options available include

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

User Required Inputs

- Compositional Data
- Liquid Density
- Liquid Fraction (from well test)

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