Dualstream 1
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 300 gas condensate fields, Dualstream is considered the benchmark for wet gas metering.

Measurement Application
Dualstream I 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
The pressure loss across a differential pressure (DP) device in wet gas is a highly complex function of the properties of the fluid stream. By measuring the total differential pressure (DPT) across the Venturi and the standard Venturi differential pressure (DPv), the pressure loss ratio (PLR) can be calculated. Solartron ISA use the PLR together with the condensate to gas ratio (CGR) to measure multiphase flow rates of gas, condensate and water in real time.

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
Dualstream 1 Subsea

Standard Specifications

Measurement Technique
- Dualstream wet gas Venturi
- Wet gas correction algorithms
- Liquid fraction from periodic well test

Typical Operating Range
- Turndown: >8:1
- Gas mass fraction: 80-100%
- Water liquid ratio: 0-100%

Typical Performance
Typical Uncertainty (95% confidence level):
- Gas mass flow rate: ±2%
- Condensate mass flow rate: ±10%
- Water volume flow rate: ±1 am³/h

Repeatability
- Gas mass flow rate: <0.40%
- Condensate mass flow rate: <2.0%
- Water sensitivity: ±0.2 am³/h

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)
  - PLR Differential pressure sensor with Diaphragm Seals (gauge pressure as secondary variable)
  - Temperature
- Output options: MODBUS, SIIS Level 2 (CANBUS) or IWIS

Subsea Power Requirement 24VDC < 10W
(includes redundant sensors supplied as standard)

Installation Requirements
- Horizontal or Vertical Installation

Data Acquisition
Options available include:
- Dualstream Flow Computer (safe area)
- Dualstream PC (safe area)
- Dualstream PC (hazardous area)

User Required Inputs
- Hydrocarbon composition

Subsea Wet Gas Metering