

CARBONSTREAM™



Achieving Net Zero with Carbonstream™ CO₂ Flow Meter

As the world accelerates towards Net Zero through Clean Energy solutions, Carbon Capture and Storage (CCS) plays a pivotal role in sequestering large quantities of Carbon Dioxide (CO₂) in underground geological formations. Accurate CO₂ measurement at each stage of capture, transport and storage is essential for success.

Introducing Carbonstream™ by Solartron ISA

Solartron ISA, a world-renowned supplier of flow measurement solutions, proudly presents the Carbonstream™ range of CO₂ flow meters. Designed for the complex and technically demanding CCS market, Carbonstream™ offers:

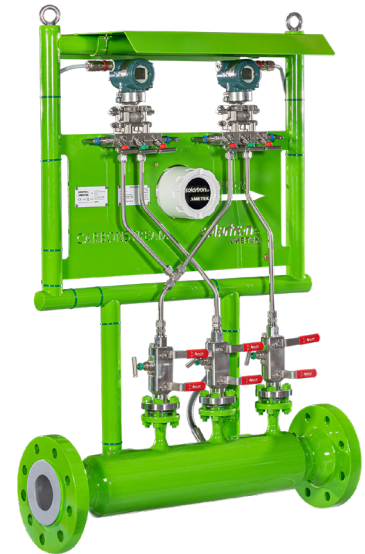
Versatility: Suitable for both gas phase and dense phase applications.

Real-Time Accuracy: Provides precise flow measurement data from startup to maximum operating conditions.

Scalable Technology: Eliminates the need for multiple meter streams, covering broad operational ranges. Line size up to 24”.

Compliance: Meets current Emissions Trading Schemes (ETS) uncertainty requirements (2.5%) and is prepared for future reductions below 1.5%.

With decades of experience in designing and manufacturing high-accuracy flow meters, Solartron ISA ensures that Carbonstream™ delivers reliable data even in the harshest environments, making it the perfect partner for CO₂ Transport and Storage projects.

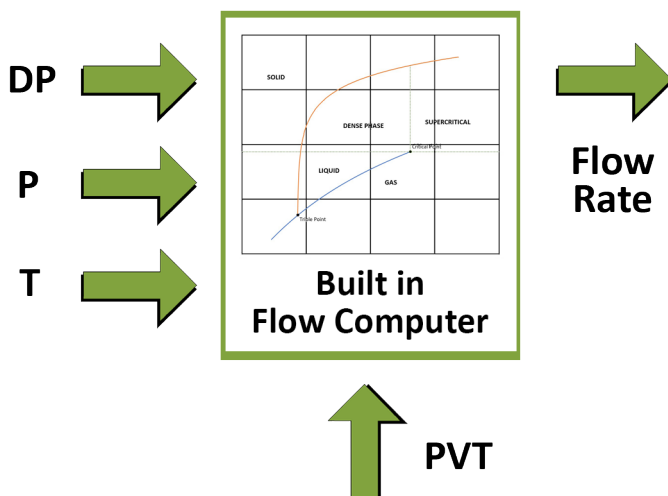


Measurement Applications

- ✓ Carbon Capture and Storage (CCS)
- ✓ Enhanced Oil Recovery using CO₂
- ✓ Hazardous Area
- ✓ Remote Locations
- ✓ Ideal for High Pressure Applications
- ✓ Liquid Detection (Gas Applications)

Key Benefits

- ✓ Plug and Play Design
- ✓ Real Time Mass Flow Output
- ✓ High Accuracy
- ✓ Uncomplicated and Robust
- ✓ Low Opex
- ✓ Low Permanent Pressure Drop
- ✓ Equations of State Calculations
- ✓ No Recalibrations Required
- ✓ Ideal for Well Management
- ✓ Ideal for Fiscal Allocation Applications
- ✓ PED-2014/68/EU



CARBONSTREAM™

Standard Specifications

Measurement Technique

Venturi

Pressure Loss Ratio (CO₂ gas applications)

Typical Operating Range

Turndown >8:1

Process temperature range -40 to 120°C

Typical Performance

Uncertainty (95% confidence level)

Mass flow rate <1%

Typical Repeatability

Mass flow rate 0.15%

Permanent Pressure Loss

Pressure loss specific to application <1 bar

Mechanical Specifications

Standard line sizes 2" through 24" nominal bore

Pressure class ANSI class 300# to 2500#
(API ratings on request)

Meter body material Duplex UNS31803 as standard

Alternative pressure ratings (ANSI/API 15K), temperature rating, sizes and material available on request

Instrumentation

Standard field instrumentation comprising:

Differential pressure – class-leading digital sensor

Gauge pressure – secondary variable from DP sensor

Temperature – non-intrusive sensor

Installation Requirements

Horizontal installation (vertical on request)

Upstream straight length: calibrated spool available for allocation systems when specified

Downstream straight length: None required

Data Acquisition Options and Power Requirements

1. Carbonstream Hazardous Area Flow Computer

Power supply 16V to 32V DC – Full Load < 10W

Signal Output RS485

Ethernet Modbus RTU

2. Ultra Low Power Hazardous Area FloCalculator

Power supply 16V to 32V DC – Full Load < 2W

Signal Output RS485 Modbus

User Required Inputs

Rich Stream CO₂ Composition

Hazardous Area Approval

ATEX  / IECEx / UKCA

II 2G Ex db IIB T6 Gb -40°C ≤ Ta ≤ 60°C



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