Proline t-mass I 300
thermal mass flowmeter

Insertion flowmeter with long-term stability and a compact, easily accessible transmitter

More information and current pricing:
www.au.endress.com/6I3B

Benefits:

- Flexible, convenient programming based on 21 standard gases or freely definable gas mixtures thereof
- High level of process control – premium measurement accuracy and repeatability
- Reliable monitoring – detection of process disturbances and reverse flow
- Flexible installation – suitable for large dimensional range and circular pipes or rectangular ducts
- Full access to process and diagnostic information – numerous, freely combinable I/Os and fieldbuses
- Reduced complexity and variety – freely configurable I/O functionality
- Integrated verification – Heartbeat Technology

Specs at a glance

- **Max. measurement error** Gas: 1.0% o.r. (10 to 100% o.f.s.), 0.1% o.f.s. (1 to 10% o.f.s.)
- **Measuring range** 20 to 733501 kg/h (44 to 1669340 lb/h)
- **Medium temperature range** -40 °C to +180°C (-40 °F to +356°F)
- **Max. process pressure** -0.5 to 20 bar_g (-7.25 to 290 psi_g)
- **Wetted materials** Materials for insertion tube Stainless steel, 1.4404 (316/316L) Process connections, process coupling Stainless steel, 1.4404 (316/316L) Sensing element Unidirectional Stainless steel, 1.4404 (316/316L) Alloy C22, 2.4602 (UNS N06022); Bidirectional Stainless steel, 1.4404 (316/316L) Reverse flow detection Stainless steel, 1.4404 (316/316L) Clamping rings PEEK PVDF 1.4404 (316/316L) Flat ring seal EPDM FKM

Field of application: The patented sensor design of t-mass I provides unprecedented measurement stability in thermal insertion mass flow measurement. It compensates in real time for changes of process conditions: temperature, pressure, flow direction and gas type. Its compact transmitter offers high flexibility in terms of operation and system integration: access from one side, remote display and improved connectivity options. Heartbeat Technology ensures measurement reliability and compliant verification.

Features and specifications

Gas

Measuring principle

Thermal

Product headline

Insertion flowmeter with long-term stability and a compact, easily accessible transmitter.
Flexible, convenient programming based on 21 standard gases or freely definable gas mixtures thereof.
Measurement of utility and process gases as well as gas mixtures in circular piping or rectangular ducts.

Sensor features

High level of process control – premium measurement accuracy and repeatability. Reliable monitoring – detection of process disturbances and reverse flow. Flexible installation – suitable for large dimensional range and circular pipes or rectangular ducts.
Insertion version for DN 80 to 1500 (3 to 60"). Bidirectional measurement; high measuring performance. Patented drift-free sensor with SIL 2.

Gas

Transmitter features

Full access to process and diagnostic information – numerous, freely combinable I/Os and fieldbuses. Reduced complexity and variety – freely configurable I/O functionality. Integrated verification – Heartbeat Technology.
Compact dual-compartment housing with up to 3 I/Os. Backlit display with touch control and WLAN access. Remote display available.

Nominal diameter range

DN 80 to 1500 (3 to 60")

Wetted materials

Materials for insertion tube
Stainless steel, 1.4404 (316/316L)
Process connections, process coupling
Stainless steel, 1.4404 (316/316L)
Sensing element
Unidirectional
Stainless steel, 1.4404 (316/316L)
Alloy C22, 2.4602 (UNS N06022);
Bidirectional
Stainless steel, 1.4404 (316/316L)
Reverse flow detection
Stainless steel, 1.4404 (316/316L)
Clamping rings
PEEK
PVDF
1.4404 (316/316L)
Flat ring seal
EPDM
FKM

Measured variables

Massflow, temperature, standard volume flow, volume flow, Free air delivery, velocity, heat flow, energy flow, density

Max. measurement error

Gas: 1.0% o.r. (10 to 100% o.f.s.), 0.1% o.f.s. (1 to 10% o.f.s.)

Gas

Measuring range
20 to 733501 kg/h (44 to 1669340 lb/h)

Max. process pressure
-0.5 to 20 bar_g (-7.25 to 290 psi_g)

Medium temperature range
-40 °C to +180°C (-40 °F to +356°F)

Ambient temperature range
-40 to 60°C (-40 to 140°F)
Optional:
Transmitter: -50 to 60°C (-50 to 140°F),
Sensor: -60 to 60°C (-60 to 140°F)

Transmitter housing material
Aluminium, AlSi10Mg, coated
Polycarbonate

Degree of protection
IP66/67, Type 4X enclosure

Display/Operation
4-line backlit display with touch control (operation from outside)
Configuration via local display and operating tools possible
Remote display available

Outputs
3 outputs:
4-20 mA HART (active/passive)
4-20 mA (active/passive)
Pulse/frequency/switch output (active/passive)
Relay output

Inputs
Status input
4-20 mA input

Gas

Digital communication
HART, Modbus RS485

Power supply
DC 24V
AC 100 to 240V

Hazardous area approvals
ATEX, cCSAus, IECEx, NEPSI, JPN, UK Ex

Product safety
CE, C-tick

Functional safety
Functional safety according to IEC 61508, applicable in safety-relevant applications in accordance with IEC 61511

Metrological approvals and certificates
Calibration performed on accredited calibration facilities (acc. to ISO/IEC 17025)
Heartbeat Technology complies with the requirements for measurement traceability according to ISO 9001:2015 – Section 7.1.5.2 a

Pressure approvals and certificates
CRN

Material certificates
3.1 material
NACE MR0175/MR0103

More information **www.au.endress.com/6I3B**