

# Proline t-mass I 300 thermal mass flowmeter

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



## 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

More information and current pricing:

[www.endress.com/6I3B](http://www.endress.com/6I3B)

## 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

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