Proline t-mass I 500
thermal mass flowmeter

Insertion flowmeter with long-term stability as remote version with up to 4 I/Os

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

More information and current pricing: [www.us.endress.com/6I5B](http://www.us.endress.com/6I5B)
**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. The innovative remote transmitter of t-mass I 500 maximizes installation flexibility and operational safety in demanding environments. Heartbeat Technology ensures measurement reliability and compliant verification.

**Features and specifications**

### Gas

**Measuring principle**
Thermal

**Product headline**
Insertion flowmeter with long-term stability as remote version with up to 4 I/Os.
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.

**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.
Remote version with up to 4 I/Os. Backlit display with touch control and WLAN access. Standard cable between sensor and transmitter.
Gas

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.)

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)
## Gas

**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
Sensor: IP68, Type 6P (optional)

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

**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

**Digital communication**
HART, Modbus RS485

**Power supply**
- DC 24V
- AC 100 to 240V
Gas

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

**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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