

# Термально-массовые расходомеры t-mass I 500

## Технические характеристики

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Якутск (4112)23-90-97  
Ярославль (4852)69-52-93

Россия +7(495)268-04-70

Казахстан +7(7172)727-132

Киргизия +996(312)96-26-47

эл.почта: [ehr@nt-rt.ru](mailto:ehr@nt-rt.ru) || сайт: <https://endcounters.nt-rt.ru/>

# 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

**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 enables 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<sub>g</sub> (-7.25 to 290 psi<sub>g</sub>)

## Gas

**Medium temperature range**

-40 °C to +180°C (-40 °F to +356°F)

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**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)

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**Transmitter housing material**

Aluminium, AlSi10Mg, coated

Polycarbonate

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**Degree of protection**

IP66/67, Type 4X enclosure Sensor: IP68, Type 6P (optional)

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**Display/Operation**

4-line backlit display with touch control (operation from outside)

Configuration via local display and operating tools possible

Remote display available

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**Outputs**

4-20 mA HART (active/passive)

4-20 mA (active/passive)

Pulse/frequency/switch output (active/passive)

Relay output

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**Inputs**

Status input

4-20 mA input

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**Digital communication**

HART, Modbus RS485

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**Power supply**

DC 24V

AC 100 to 240V

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Gas

**Hazardous area approvals**

ATEX, cCSAus, IECEx, NEPSI, JPN, UK Ex, EAC, KC

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**Product safety**

CE, C-tick

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**Functional safety**

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

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**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

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**Pressure approvals and certificates**

CRN

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**Material certificates**

3.1 material

NACE MR0175/MR0103

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