

# Proline Promass F 300 Coriolis flowmeter

Flowmeter with premium accuracy, robustness and a compact, easily accessible transmitter



More information and current pricing:

[www.de.endress.com/8F3B](http://www.de.endress.com/8F3B)

## Benefits:

- Highest process safety – immune to fluctuating and harsh environments
- Fewer process measuring points – multivariable measurement (flow, density, temperature)
- Space-saving installation – no in-/outlet run needs
- 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** Mass flow (liquid):  $\pm 0.10\%$  (standard),  $0.05\%$  (option) Volume flow (liquid):  $\pm 0.10\%$  Mass flow (gas):  $\pm 0.25\%$  Density (liquid):  $\pm 0.0005\text{ g/cm}^3$
- **Measuring range** 0 to 2 200 000 kg/h (0 to 80 840 lb/min)
- **Medium temperature range** Standard:  $-50$  to  $+150\text{ }^\circ\text{C}$  ( $-58\text{...}+302\text{ }^\circ\text{F}$ ) Option:  $-50$  to  $+240\text{ }^\circ\text{C}$  ( $-58\text{...}+464\text{ }^\circ\text{F}$ ) High temperature option:  $-50$  to  $+350\text{ }^\circ\text{C}$  ( $-58\text{...}+662\text{ }^\circ\text{F}$ ) Option:  $-196$  to  $+150\text{ }^\circ\text{C}$  ( $-320$  to  $+302\text{ }^\circ\text{F}$ )
- **Max. process pressure** PN 100, Class 600, 63K
- **Wetted materials** Measuring tube: 1.4539 (904L); 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022) Connection: 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022); 1.4301 (F304)

**Field of application:** Promass F has a long-standing reputation as a highly accurate sensor. Immune to fluctuating and harsh environments, it is suited for the broadest range of applications. With its compact

transmitter Promass F 300 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 enables extension of recalibration cycles.

## Features and specifications

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### Density

#### Measuring principle

Coriolis

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#### Product Headline

The flowmeter with premium accuracy, robustness and a compact, easily accessible transmitter. Highest measurement performance for liquids and gases under varying, demanding process conditions.

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### Density/Concentration

#### Measuring principle

Coriolis

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#### Product headline

Flowmeter with premium accuracy, robustness and a compact, easily accessible transmitter. Highest measurement performance for liquids and gases under varying, demanding process conditions.

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#### Sensor features

Highest process safety – immune to fluctuating and harsh environments. Fewer process measuring points – multivariable measurement (flow, density, temperature). Space-saving installation – no in/outlet run needs. Mass flow: measurement error  $\pm 0.05\%$  (PremiumCal). Medium temperature:  $-196$  to  $350\text{ }^{\circ}\text{C}$  ( $-320$  to  $662\text{ }^{\circ}\text{F}$ ).

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#### 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.

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**Density/Concentration****Nominal diameter range**DN 8 to 250 ( $\frac{3}{8}$  to 10")

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**Wetted materials**

Measuring tube: 1.4539 (904L); 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022)

Connection: 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022); 1.4301 (F304)

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**Measured variables**Mass flow, density, temperature, volume flow, corrected volume flow, reference density, concentration

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**Max. measurement error**Mass flow (liquid):  $\pm 0.10$  % (standard), 0.05 % (option)Volume flow (liquid):  $\pm 0.10$  %Mass flow (gas):  $\pm 0.25$  %Density (liquid):  $\pm 0.0005$  g/cm<sup>3</sup>

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**Measuring range**0 to 2 200 000 kg/h (0 to 80 840 lb/min)

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**Max. process pressure**PN 100, Class 600, 63K

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**Medium temperature range**Standard:  $-50$  to  $+150$  °C ( $-58$ ... $+302$  °F)Option:  $-50$  to  $+240$  °C ( $-58$ ... $+464$  °F)High temperature option:  $-50$  to  $+350$  °C ( $-58$ ... $+662$  °F)Option:  $-196$  to  $+150$  °C ( $-320$  to  $+302$  °F)

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**Ambient temperature range**Standard:  $-40$  to  $+60$  °C ( $-40$  to  $+140$  °F)Option:  $-50$  to  $+60$  °C ( $-58$  to  $+140$  °F)

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**Sensor housing material**

Standard: 1.4301 (304)

Option: 1.4404 (316/316L)

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## Density/Concentration

### Transmitter housing material

AlSi10Mg, coated; 1.4409 (CF3M) similar to 316L; stainless steel for hygienic transmitter design

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### Degree of protection

Compact version: IP66/67, type 4X enclosure.

External WLAN antenna: IP67

IP69

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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

3 outputs:

4-20 mA HART (active/passive)

4-20 mA WirelessHART

4-20 mA (active/passive)

Pulse/frequency/switch output (active/passive)

Double pulse output (active/passive)

Relay output

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### Inputs

Status input

4-20 mA input

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### Digital communication

HART, PROFIBUS DP, PROFIBUS PA, FOUNDATION Fieldbus, Modbus

RS485, Profinet, Ethernet/IP, OPC-UA

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### Power supply

DC 24 V

AC 100 to 230 V

AC 100 to 230 V / DC 24 V (non-hazardous area)

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### Hazardous area approvals

ATEX, IECEx, cCSAus, NEPSI, INMETRO, EAC

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**Density/Concentration****Product safety**

CE, C-tick, EAC marking

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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 (TÜV SÜD attestation)

MI-005 (Liquids other than water, Hydrocarbons, LPG, cryogenic liquids)

NTEP (Liquids other than water, LPG, cryogenic liquids)

MC (Liquids other than water, cryogenic liquids)

MI-002, PTB

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**Marine approvals and certificates**

LR approval, DNV GL approval, ABS approval, BV approval

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**Pressure approvals and certificates**

PED, CRN, AD 2000

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**Material certificates**

3.1 material

NACE MR0175/MR0103, PMI; welding test acc. to EN ISO, ASME, NORSOK

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**Hygienic approvals and certificates**

3-A, EHEDG, cGMP

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**Liquids****Measuring principle**

Coriolis

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## Liquids

### **Product headline**

Flowmeter with premium accuracy, robustness and a compact, easily accessible transmitter. Highest measurement performance for liquids and gases under varying, demanding process conditions.

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### **Sensor features**

Highest process safety – immune to fluctuating and harsh environments. Fewer process measuring points – multivariable measurement (flow, density, temperature). Space-saving installation – no in/outlet run needs. Mass flow: measurement error  $\pm 0.05\%$  (PremiumCal). Medium temperature: -196 to 350 °C (-320 to 662 °F).

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### **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.

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### **Nominal diameter range**

DN 8 to 250 ( $\frac{3}{8}$  to 10")

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### **Wetted materials**

Measuring tube: 1.4539 (904L); 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022)

Connection: 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022); 1.4301 (F304)

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### **Measured variables**

Mass flow, density, temperature, volume flow, corrected volume flow, reference density, concentration

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## Liquids

**Max. measurement error**

Mass flow (liquid):  $\pm 0.10$  % (standard), 0.05 % (option)

Volume flow (liquid):  $\pm 0.10$  %

Mass flow (gas):  $\pm 0.25$  %

Density (liquid):  $\pm 0.0005$  g/cm<sup>3</sup>

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**Measuring range**

0 to 2 200 000 kg/h (0 to 80 840 lb/min)

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**Max. process pressure**

PN 100, Class 600, 63K

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**Medium temperature range**

Standard:  $-50$  to  $+150$  °C ( $-58$  to  $+302$  °F)

Option:  $-50$  to  $+240$  °C ( $-58$  to  $+464$  °F)

High temperature option:  $-50$  to  $+350$  °C ( $-58$  to  $+662$  °F)

Option:  $-196$  to  $+150$  °C ( $-320$  to  $+302$  °F)

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**Ambient temperature range**

Standard:  $-40$  to  $+60$  °C ( $-40$  to  $+140$  °F)

Option:  $-50$  to  $+60$  °C ( $-58$  to  $+140$  °F)

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**Sensor housing material**

Standard: 1.4301 (304)

Option: 1.4404 (316/316L)

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**Transmitter housing material**

AlSi10Mg, coated; 1.4409 (CF3M) similar to 316L; stainless steel for hygienic transmitter design

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## Liquids

### Degree of protection

Compact version: IP66/67, type 4X enclosure.

External WLAN antenna: IP67

IP69

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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

3 outputs:

4-20 mA HART (active/passive)

4-20 mA WirelessHART

4-20 mA (active/passive)

Pulse/frequency/switch output (active/passive)

Double pulse output (active/passive)

Relay output

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### Inputs

Status input

4-20 mA input

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### Digital communication

HART, PROFIBUS DP, PROFIBUS PA, FOUNDATION Fieldbus, Modbus

RS485, Profinet, Ethernet/IP, OPC-UA

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### Power supply

DC 24 V

AC 100 to 230 V

AC 100 to 230 V / DC 24 V (non-hazardous area)

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### Hazardous area approvals

ATEX, IECEx, cCSAus, NEPSI, INMETRO, EAC

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## Liquids

### Product safety

CE, C-tick, EAC marking

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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 (TÜV SÜD attestation)

MI-005 (Liquids other than water, Hydrocarbons, LPG, cryogenic liquids)

NTEP (Liquids other than water, LPG, cryogenic liquids)

MC (Liquids other than water, cryogenic liquids)

MI-002, PTB

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### Marine approvals and certificates

LR approval, DNV GL approval, ABS approval, BV approval

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### Pressure approvals and certificates

PED, CRN, AD 2000

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### Material certificates

3.1 material

NACE MR0175/MR0103, PMI; welding test acc. to EN ISO, ASME, NORSOK

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### Hygienic approvals and certificates

3-A, EHEDG, cGMP

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## Gas

### Measuring principle

Coriolis

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## Gas

**Product headline**

Flowmeter with premium accuracy, robustness and a compact, easily accessible transmitter. Highest measurement performance for liquids and gases under varying, demanding process conditions.

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**Sensor features**

Highest process safety – immune to fluctuating and harsh environments. Fewer process measuring points – multivariable measurement (flow, density, temperature). Space-saving installation – no in/outlet run needs. Mass flow: measurement error  $\pm 0.05\%$  (PremiumCal). Medium temperature: -196 to 350 °C (-320 to 662 °F).

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**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.

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**Nominal diameter range**

DN 8 to 250 ( $\frac{3}{8}$  to 10")

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**Wetted materials**

Measuring tube: 1.4539 (904L); 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022)

Connection: 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022); 1.4301 (F304)

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**Measured variables**

Mass flow, density, temperature, volume flow, corrected volume flow, reference density, concentration

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## Gas

**Max. measurement error**

Mass flow (liquid):  $\pm 0.10$  % (standard), 0.05 % (option)

Volume flow (liquid):  $\pm 0.10$  %

Mass flow (gas):  $\pm 0.25$  %

Density (liquid):  $\pm 0.0005$  g/cm<sup>3</sup>

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**Measuring range**

0 to 2 200 000 kg/h (0 to 80 840 lb/min)

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**Max. process pressure**

PN 100, Class 600, 63K

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**Medium temperature range**

Standard:  $-50$  to  $+150$  °C ( $-58$  to  $+302$  °F)

Option:  $-50$  to  $+240$  °C ( $-58$  to  $+464$  °F)

High temperature option:  $-50$  to  $+350$  °C ( $-58$  to  $+662$  °F)

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**Ambient temperature range**

Standard:  $-40$  to  $+60$  °C ( $-40$  to  $+140$  °F)

Option:  $-50$  to  $+60$  °C ( $-58$  to  $+140$  °F)

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**Sensor housing material**

Standard: 1.4301 (304)

Option: 1.4404 (316/316L)

---

**Transmitter housing material**

AlSi10Mg, coated; 1.4409 (CF3M) similar to 316L; stainless steel for hygienic transmitter design

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**Gas****Degree of protection**

Compact version: IP66/67, type 4X enclosure.

External WLAN antenna: IP67

IP69

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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**

3 outputs:

4-20 mA HART (active/passive)

4-20 mA WirelessHART

4-20 mA (active/passive)

Pulse/frequency/switch output (active/passive)

Double pulse output (active/passive)

Relay output

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**Inputs**

Status input

4-20 mA input

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**Digital communication**

HART, PROFIBUS DP, PROFIBUS PA, FOUNDATION Fieldbus, Modbus

RS485, Profinet, Ethernet/IP, OPC-UA

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**Power supply**

DC 24 V

AC 100 to 230 V

AC 100 to 230 V / DC 24 V (non-hazardous area)

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## Gas

**Hazardous area approvals**

ATEX, IECEx, cCSAus, NEPSI, INMETRO, EAC

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**Product safety**

CE, C-tick, EAC marking

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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 (TÜV SÜD attestation)

MI-005 (Liquids other than water, Hydrocarbons, LPG, cryogenic liquids)

NTEP (Liquids other than water, LPG, cryogenic liquids)

MC (Liquids other than water, cryogenic liquids)

MI-002, PTB

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**Marine approvals and certificates**

LR approval, DNV GL approval, ABS approval, BV approval

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**Pressure approvals and certificates**

PED, CRN, AD 2000

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**Material certificates**

3.1 material

NACE MR0175/MR0103, PMI; welding test acc. to EN ISO, ASME, NORSOK

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**Hygienic approvals and certificates**

3-A, EHEDG, cGMP

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## Steam

### Measuring principle

Coriolis

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### Product headline

Flowmeter with premium accuracy, robustness and a compact, easily accessible transmitter. Highest measurement performance for liquids and gases under varying, demanding process conditions.

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### Sensor features

Highest process safety – immune to fluctuating and harsh environments. Fewer process measuring points – multivariable measurement (flow, density, temperature). Space-saving installation – no in/outlet run needs. Mass flow: measurement error  $\pm 0.05\%$  (PremiumCal). Medium temperature:  $-196$  to  $350\text{ °C}$  ( $-320$  to  $662\text{ °F}$ ).

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### 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.

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### Nominal diameter range

DN 8 to 250 ( $\frac{3}{8}$  to 10")

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### Wetted materials

Measuring tube: 1.4539 (904L); 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022)

Connection: 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022); 1.4301 (F304)

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### Measured variables

Mass flow, density, temperature, volume flow, corrected volume flow, reference density, concentration

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**Steam****Max. measurement error**Mass flow (liquid):  $\pm 0.10\%$  (standard),  $0.05\%$  (option)Volume flow (liquid):  $\pm 0.10\%$ Mass flow (gas):  $\pm 0.25\%$ Density (liquid):  $\pm 0.0005\text{ g/cm}^3$ 

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**Measuring range**0 to 2 200 000 kg/h (0 to 80 840 lb/min)

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**Max. process pressure**PN 100, Class 600, 63K

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**Medium temperature range**Standard:  $-50$  to  $+150\text{ }^\circ\text{C}$  ( $-58$  to  $+302\text{ }^\circ\text{F}$ )Option:  $-50$  to  $+240\text{ }^\circ\text{C}$  ( $-58$  to  $+464\text{ }^\circ\text{F}$ )High temperature option:  $-50$  to  $+350\text{ }^\circ\text{C}$  ( $-58$  to  $+662\text{ }^\circ\text{F}$ )Option:  $-196$  to  $+150\text{ }^\circ\text{C}$  ( $-320$  to  $+302\text{ }^\circ\text{F}$ )

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**Ambient temperature range**Standard:  $-40$  to  $+60\text{ }^\circ\text{C}$  ( $-40$  to  $+140\text{ }^\circ\text{F}$ )Option:  $-50$  to  $+60\text{ }^\circ\text{C}$  ( $-58$  to  $+140\text{ }^\circ\text{F}$ )

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**Sensor housing material**

Standard: 1.4301 (304)

Option: 1.4404 (316/316L)

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**Transmitter housing material**AlSi10Mg, coated; 1.4409 (CF3M) similar to 316L; stainless steel for hygienic transmitter design

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**Steam****Degree of protection**

Compact version: IP66/67, type 4X enclosure.

External WLAN antenna: IP67

IP69

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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**

3 outputs:

4-20 mA HART (active/passive)

4-20 mA WirelessHART

4-20 mA (active/passive)

Pulse/frequency/switch output (active/passive)

Double pulse output (active/passive)

Relay output

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**Inputs**

Status input

4-20 mA input

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**Digital communication**

HART, PROFIBUS DP, PROFIBUS PA, FOUNDATION Fieldbus, Modbus RS485, Profinet, Ethernet/IP, OPC-UA

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**Power supply**

DC 24 V

AC 100 to 230 V

AC 100 to 230 V / DC 24 V (non-hazardous area)

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**Hazardous area approvals**

ATEX, IECEx, cCSAus, NEPSI, INMETRO, EAC

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## Steam

### **Product safety**

CE, C-tick, EAC marking

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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 (TÜV SÜD attestation)

MI-005 (Liquids other than water, Hydrocarbons, LPG, cryogenic liquids)

NTEP (Liquids other than water, LPG, cryogenic liquids)

MC (Liquids other than water, cryogenic liquids)

MI-002, PTB

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### **Marine approvals and certificates**

LR approval, DNV GL approval, ABS approval, BV approval

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### **Pressure approvals and certificates**

PED, CRN, AD 2000

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### **Material certificates**

3.1 material

NACE MR0175/MR0103, PMI; welding test acc. to EN ISO, ASME, NORSOK

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### **Hygienic approvals and certificates**

3-A, EHEDG, cGMP

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More information [www.de.endress.com/8F3B](http://www.de.endress.com/8F3B)