Proline Promass F 300
Coriolis flowmeter

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

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 Ethernet
- Reduced complexity and variety – freely configurable I/O functionality
- Integrated verification – Heartbeat Technology

Specs at a glance
- **Max. measurement error** Mass flow (liquid): ±0.10 % (standard), 0.05 % (option) Volume flow (liquid): ±0.10 % Mass flow (gas): ±0.25 % Density (liquid): ±0.0005 g/cm³
- **Measuring range** 0 to 2 200 000 kg/h (0 to 80 840 lb/min)
- **Medium temperature range** Standard: −50 to +150 °C (−58 to +302 °F) Option: −50 to +240 °C (−58 to +464 °F) High temperatur option: −50 to +350 °C (−58 to +662 °F) Option: −196 to +150 °C (−320 to +302 °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**

### Liquids

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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.

**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 ±0.05 % (PremiumCal). Medium temperature: –196 to 350 °C (–320 to 662 °F). Nominal diameter: DN 8 to 250 (⅜ to 10”).

**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 8 to 250 (⅜ to 10”)
Liquids

**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)

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

**Max. measurement error**
Mass flow (liquid): ±0.10 % (standard), 0.05 % (option)
Volume flow (liquid): ±0.10 %
Mass flow (gas): ±0.25 %
Density (liquid): ±0.0005 g/cm³

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

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

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

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

**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 hygenic transmitter design
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<td><strong>Outputs</strong></td>
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<td><strong>Inputs</strong></td>
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<td>HART, PROFIBUS DP, PROFIBUS PA, FOUNDATION Fieldbus, Modbus RS485, PROFINET, PROFINET over Ethernet-APL, Ethernet/IP, OPC-UA</td>
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<td><strong>Power supply</strong></td>
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<td>ATEX, IECEx, cCSAus, NEPSI, INMETRO, EAC, UK Ex.</td>
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</table>
Liquids

**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 (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, gases, cryogenic liquids)
MI-002, PTB

**Marine approvals and certificates**
LR approval, DNV approval, ABS approval, BV approval, CCS approval

**Pressure approvals and certificates**
PED, CRN, AD 2000

**Material certificates**
3.1 material
NACE MR0175/MR0103, PMI; welding test acc. to EN ISO, ASME, NORSOK

**Hygienic approvals and certificates**
3-A, EHEDG, cGMP

Gas

**Measuring principle**
Coriolis

**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.
Gas

Sensor features
Mass flow: measurement error ±0.05 % (PremiumCal). Medium temperature: −196 to 350 °C (−320 to 662 °F). Nominal diameter: DN 8 to 250 (¾ to 10”).

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 8 to 250 (¾ to 10”)

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)

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

Max. measurement error
Mass flow (liquid): ±0.10 % (standard), 0.05 % (option)
Volume flow (liquid): ±0.10 %
Mass flow (gas): ±0.25 %
Density (liquid): ±0.0005 g/cm³

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

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

**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)

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

**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 hygenic transmitter design

**Degree of protection**
Compact version: IP66/67, type 4X enclosure.
External WLAN antenna: IP67
IP69

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

**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

**Inputs**
Status input
4-20 mA input

**Digital communication**
HART, PROFIBUS DP, PROFIBUS PA, FOUNDATION Fieldbus, Modbus RS485, PROFINET, PROFINET over Ethernet-APL, Ethernet/IP, OPC-UA

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

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

**Product safety**
CE, C-tick, EAC marking

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

**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, gases, cryogenic liquids)
MI-002, PTB

**Marine approvals and certificates**
LR approval, DNV approval, ABS approval, BV approval, CCS approval

**Pressure approvals and certificates**
PED, CRN, AD 2000

**Material certificates**
3.1 material
NACE MR0175/MR0103, PMI; welding test acc. to EN ISO, ASME, NORSOK

**Hygienic approvals and certificates**
3-A, EHEDG, cGMP

Steam

**Measuring principle**
Coriolis

**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.
Steam

**Sensor features**


Mass flow: measurement error ±0.05 % (PremiumCal). Medium temperature: –196 to 350 °C (–320 to 662 °F). Nominal diameter: DN 8 to 250 (⅜ to 10”).

**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 8 to 250 (⅜ to 10”)

**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)

**Measured variables**

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

**Max. measurement error**

Mass flow (liquid): ±0.10 % (standard), 0.05 % (option)

Volume flow (liquid): ±0.10 %

Mass flow (gas): ±0.25 %

Density (liquid): ±0.0005 g/cm³

**Measuring range**

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

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

**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)

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

**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

**Degree of protection**
Compact version: IP66/67, type 4X enclosure.
External WLAN antenna: IP67
IP69

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

### 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

### Inputs
- Status input
- 4-20 mA input

### Digital communication
- HART, PROFIBUS DP, PROFIBUS PA, FOUNDATION Fieldbus, Modbus
- RS485, PROFINET, PROFINET over Ethernet-APL, Ethernet/IP, OPC-UA

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

### Hazardous area approvals
- ATEX, IECEx, cCSAus, NEPSI, INMETRO, EAC, UK Ex

### Product safety
- CE, C-tick, EAC marking

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

**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, gases, cryogenic liquids)
MI-002, PTB

**Marine approvals and certificates**
LR approval, DNV approval, ABS approval, BV approval, CCS approval

**Pressure approvals and certificates**
PED, CRN, AD 2000

**Material certificates**
3.1 material
NACE MR0175/MR0103, PMI; welding test acc. to EN ISO, ASME, NORSOK

**Hygienic approvals and certificates**
3-A, EHEDG, cGMP

Density

**Measuring principle**
Coriolis

**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.
Density

**Sensor features**
Mass flow: measurement error ±0.05 % (PremiumCal). Medium temperature: −196 to 350 °C (−320 to 662 °F). Nominal diameter: DN 8 to 250 (⅜ to 10”).

**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 8 to 250 (⅜ to 10”)

**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)

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

**Max. measurement error**
Mass flow (liquid): ±0.10 % (standard), 0.05 % (option)
Volume flow (liquid): ±0.10 %
Mass flow (gas): ±0.25 %
Density (liquid): ±0.0005 g/cm³

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

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

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

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

**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

**Degree of protection**
Compact version: IP66/67, type 4X enclosure.
External WLAN antenna: IP67
IP69

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

**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

**Inputs**
- Status input
- 4-20 mA input

**Digital communication**
- HART, PROFIBUS DP, PROFIBUS PA, FOUNDATION Fieldbus, Modbus
- RS485, PROFINET, PROFINET over Ethernet-APL, Ethernet/IP, OPC-UA

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

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

### Density/Concentration

**Measuring principle**
- Coriolis

**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.
Density/Concentration

**Sensor features**
Mass flow: measurement error ±0.05 % (PremiumCal). Medium temperature: −196 to 350 °C (−320 to 662 °F). Nominal diameter: DN 8 to 250 (⅜ to 10”).

**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 8 to 250 (⅜ to 10”)

**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)

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

**Max. measurement error**
Mass flow (liquid): ±0.10 % (standard), 0.05 % (option)
Volume flow (liquid): ±0.10 %
Mass flow (gas): ±0.25 %
Density (liquid): ±0.0005 g/cm³

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

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

**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)

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

**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

**Degree of protection**
Compact version: IP66/67, type 4X enclosure.
External WLAN antenna: IP67
IP69

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

### 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

### Inputs
- Status input
- 4-20 mA input

### Digital communication
- HART, PROFIBUS DP, PROFIBUS PA, FOUNDATION Fieldbus, Modbus RS485, PROFINET, PROFINET over Ethernet-APL, Ethernet/IP, OPC-UA

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

### Hazardous area approvals
- ATEX, IECEx, cCSAus, NEPSI, INMETRO, EAC, UK Ex

### Product safety
- CE, C-tick, EAC marking

### Functional safety
- Functional safety according to IEC 61508, applicable in safety-relevant applications in accordance with IEC 61511
Density/Concentration

**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, gases, cryogenic liquids)
MI-002, PTB

**Marine approvals and certificates**
LR approval, DNV approval, ABS approval, BV approval, CCS approval

**Pressure approvals and certificates**
PED, CRN, AD 2000

**Material certificates**
3.1 material
NACE MR0175/MR0103, PMI; welding test acc. to EN ISO, ASME, NORSOK

**Hygienic approvals and certificates**
3-A, EHEDG, cGMP

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