

## Proline Prowirl F 200 / 7F2B



More information and current pricing:

[www.us.endress.com/7F2B](http://www.us.endress.com/7F2B)

### Benefits:

- Integrated temperature measuring for mass/ energy flow of saturated steam
- Highest process safety – dualsens version enables redundant measurement
- High availability – proven robustness, resistance to vibrations, temperature shocks & water hammer
- No maintenance – lifetime calibration
- Convenient device wiring – separate connection compartment
- Safe operation – no need to open the device due to display with touch control, background lighting
- Integrated verification – Heartbeat Technology

### Specs at a glance

- **Max. measurement error** Volume flow (liquid):  $\pm 0.75\%$  Volume flow (steam, gas):  $\pm 1.00\%$  Mass flow (liquid):  $\pm 0.85\%$  Mass flow (steam, gas):  $\pm 1.7\%$
- **Measuring range** Liquid: 0.16 to 2412 m<sup>3</sup>/h (0.09 to 1420 ft<sup>3</sup>/min) depending on medium: water with 1 bar a, 20 °C (14.5 psi a, 68 °F) Steam, gas: 2 to 32 166 m<sup>3</sup>/h (1.18 to 18 932 ft<sup>3</sup>/min) depending on medium: steam with 180 °C, 10 bar a (356 °F, 145 psi a); air with 25 °C, 4.4 bar a (77 °F, 63.8 psi a)
- **Medium temperature range** Standard: -40 to +260 °C (-40 to +500 °F) High/low temperature (option): -200 to +400 °C (-328 to +752 °F) High/low temperature (on request): -200 to +450 °C (-328 to +842 °F)
- **Max. process pressure** PN 40, Class 300, 20K
- **Wetted materials** Measuring tube: 1.4408 (C3FM); CX2MW similar to Alloy C22, 2.4602 DSC sensor: 1.4435 (316/316L); UNS N06022 similar to Alloy C22, 2.4602 Connection: 1.4404 (F316/F316L); CX2MW similar to Alloy C22, 2.4602; 1.4408 (CF3M)

**Field of application:** The Prowirl F measuring tube is the first choice in heavy duty applications. The proven and patented capacitive DSC sensor ensures high precision measured values even under the toughest process conditions. Prowirl F 200 offers wetsteam detection and industry-compliant two-wire technology for seamless integration into existing infrastructures and control systems, as well as high operational safety in hazardous areas thanks to an intrinsically safe design, and a familiar installation procedure.

## Features and specifications

### Liquids

#### Measuring principle

Vortex

#### Product headline

The flowmeter with detection of wet steam conditions, available as compact or remote version.

Integrated temperature measurement for mass/energy flow of saturated steam.

Suitable for a wide range of applications; optimized for steam applications.

#### Sensor features

Highest process safety – dualsens version enables redundant measurement. High availability – proven robustness, resistance to vibrations, temperature shocks & water hammer. No maintenance – lifetime calibration.

Wet steam detection and measurement for DN 25 to 100 (1 to 4"). Inlet run compensation. Face-to-face length according to industry standard.

#### Transmitter features

Convenient device wiring – separate connection compartment. Safe operation – no need to open the device due to display with touch control, background lighting. Integrated verification – Heartbeat Technology. Display module with data transfer function. Robust dual-compartment housing. Plant safety: worldwide approvals (SIL, Haz. area).

## Liquids

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**Nominal diameter range**

DN 15 to 300 (½ to 12")

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**Wetted materials**

Measuring tube: 1.4408 (C3FM); CX2MW similar to Alloy C22, 2.4602  
DSC sensor: 1.4435 (316/316L); UNS N06022 similar to Alloy C22,  
2.4602

Connection: 1.4404 (F316/F316L); CX2MW similar to Alloy C22,  
2.4602; 1.4408 (CF3M)

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**Measured variables**

Volume flow, mass flow, corrected volume flow, energy flow, heat flow  
difference, temperature

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**Max. measurement error**

Volume flow (liquid): ±0.75 %

Volume flow (steam, gas): ±1.00 %

Mass flow (liquid): ±0.85%

Mass flow (steam, gas): ±1.7 %

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**Measuring range**

Liquid: 0.16 to 2412 m<sup>3</sup>/h (0.09 to 1420 ft<sup>3</sup>/min)

depending on medium: water with 1 bar a, 20 °C (14.5 psi a, 68 °F)

Steam, gas: 2 to 32 166 m<sup>3</sup>/h (1.18 to 18 932 ft<sup>3</sup>/min)

depending on medium: steam with 180 °C, 10 bar a (356 °F, 145 psi a);

air with 25 °C, 4.4 bar a (77 °F, 63.8 psi a)

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**Max. process pressure**

PN 40, Class 300, 20K

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**Medium temperature range**

Standard: -40 to +260 °C (-40 to +500 °F)

High/low temperature (option): -200 to +400 °C (-328 to +752 °F)

High/low temperature (on request): -200 to +450 °C (-328 to +842 °F)

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## Liquids

### Ambient temperature range

Compact version (standard): -40 to +80 °C (-40 to +176 °F)

Compact version (option): -50 to +80 °C (-58 to +176 °F)

Remote version (standard): -40 to +85 °C (-40 to +185 °F)

Remote version (option): -50 to +85 °C (-58 to +185 °F)

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### Sensor housing material

Sensor connection housing: AlSi10Mg, coated; 1.4408 (CF3M)

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### Transmitter housing material

AlSi10Mg, coated; 1.4404 (316L)

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### Degree of protection

Compact version: IP66/67, type 4X enclosure

Sensor remote version: IP66/67, type 4X enclosure

Transmitter remote version: IP66/67, type 4X enclosure

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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 (passive)

4 - 20 mA (passive)

Pulse/frequency/switch output (passive)

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### Inputs

Current Input 4 - 20 mA (passive)

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### Digital communication

HART, PROFIBUS PA, FOUNDATION Fieldbus

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## Liquids

### Power supply

DC 12 to 35 V (4 - 20 mA HART with/without pulse/frequency/switch output)

DC 12 to 30 V (4 - 20 mA HART, 4 - 20 mA)

DC 12 to 35 V (4 - 20 mA HART, pulse/frequency/switch output, 4 - 20 mA input)

DC 9 to 32 V (PROFIBUS PA, pulse/frequency/switch output)

### Hazardous area approvals

ATEX, IECEx, cCSAus, EAC

### Other approvals and certificates

### 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)

### Pressure approvals and certificates

PED, CRN, AD 2000

### Material certificates

3.1 material

NACE MR0175/MR0103, PMI (on request); welding test acc. to ISO 15614 - 1, similar to ASME IX (on request)

## Gas

### Measuring principle

Vortex

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**Gas****Product headline**

The flowmeter with detection of wet steam conditions, available as compact or remote version.

Integrated temperature measurement for mass/energy flow of saturated steam.

Suitable for a wide range of applications; optimized for steam applications.

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**Sensor features**

Highest process safety – dualsens version enables redundant measurement. High availability – proven robustness, resistance to vibrations, temperature shocks & water hammer. No maintenance – lifetime calibration.

Wet steam detection and measurement for DN 25 to 100 (1 to 4"). Inlet run compensation. Face-to-face length according to industry standard.

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**Transmitter features**

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**Nominal diameter range**

DN 15 to 300 (½ to 12")

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**Wetted materials**

Measuring tube: 1.4408 (C3FM); CX2MW similar to Alloy C22, 2.4602  
DSC sensor: 1.4435 (316/316L); UNS N06022 similar to Alloy C22, 2.4602

Connection: 1.4404 (F316/F316L); CX2MW similar to Alloy C22, 2.4602; 1.4408 (CF3M)

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**Measured variables**

Volume flow, mass flow, corrected volume flow, energy flow, heat flow difference, temperature

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## Gas

**Max. measurement error**

Volume flow (liquid):  $\pm 0.75\%$

Volume flow (steam, gas):  $\pm 1.00\%$

Mass flow (liquid):  $\pm 0.85\%$

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**Measuring range**

Liquid: 0.16 to 2412 m<sup>3</sup>/h (0.09 to 1420 ft<sup>3</sup>/min)

depending on medium: water with 1 bar a, 20 °C (14.5 psi a, 68 °F)

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**Max. process pressure**

PN 40, Class 300, 20K

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**Medium temperature range**

Standard: -40 to +260 °C (-40 to +500 °F)

High/low temperature (option): -200 to +400 °C (-328 to +752 °F)

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**Sensor housing material**

Sensor connection housing: AlSi10Mg, coated; 1.4408 (CF3M)

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**Transmitter housing material**

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**Degree of protection**

Compact version: IP66/67, type 4X enclosure

Sensor remote version: IP66/67, type 4X enclosure

Transmitter remote version: IP66/67, type 4X enclosure

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## Gas

**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 (passive)  
4 - 20 mA (passive)  
Pulse/frequency/switch output (passive)

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**Inputs**

Current input 4 - 20 mA (passive)

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**Digital communication**

HART, PROFIBUS PA, FOUNDATION Fieldbus

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**Power supply**

DC 12 to 35 V (4 - 20 mA HART with/without pulse/frequency/switch output)  
DC 12 to 30 V (4 - 20 mA HART, 4 - 20 mA)  
DC 12 to 35 V (4 - 20 mA HART, pulse/frequency/switch output, 4 - 20 mA input)  
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**Hazardous area approvals**

ATEX, IECEx, cCSAus, EAC

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**Other approvals and certificates****Functional safety**

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**Metrological approvals and certificates**

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**Gas****Pressure approvals and certificates**

PED, CRN, AD 2000

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**Material certificates**

3.1 material

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## Steam

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**Steam****Sensor housing material**

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**Transmitter housing material**

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## Steam

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