

Proline Prosonic Flow P 500 ultrasonic clamp-on flowmeter

Reliable, flexible, zero maintenance –
noninvasive flow measurement, consistently
accurate, even under challenging conditions



Benefits:

- **Flexible mounting** – FlowDC reduces inlet runs to a minimum
- **High safety standards** – Prosonic Flow P 500 is developed according to IEC 61508 functional safety requirements and holds international approvals for hazardous area, Zone 1 and Class I, Division 1
- **Reliable measurement performance** – proven sensors in combination with maintenance-free mounting system deliver long-term stable signals, also in high-temperature applications ($\leq 550^{\circ}\text{C}/1022^{\circ}\text{F}$)
- **User-friendly operation** – the web server offers full remote access, while the device's touch display offers convenient on-site interaction
- **Transparent process insights** – Heartbeat Technology with its integrated diagnostics, verification and monitoring functions enable compliance and process safety at all times
- **Low capital investment** – cost-effectiveness increases with the pipe diameter (up to DN 4000/160")

Specs at a glance

- **Max. measurement error** Volume flow: $\pm 3\%$ o.r. for DN 15 $\pm 2\%$ o.r. for DN 25 to DN 200 $\pm 2\%$ o.r. above DN 200
- **Measuring range** 0 to 15 m/s (0 to 50 ft/s)
- **Medium temperature range** DN 15 to 65 ($\frac{1}{2}$ " to $2\frac{1}{2}$ "): -40 to $+150^{\circ}\text{C}$ (-40 to $+302^{\circ}\text{F}$) DN 50 to 4000 (2 to 160"): -40 to $+170^{\circ}\text{C}$ (-40 to $+338^{\circ}\text{F}$) DN 50 to 600 (2" to 24"): 150°C to 550°C ($+302$ to $+1022^{\circ}\text{F}$)
- **Max. process pressure** N/A

Field of application: Prosonic Flow P 500 is the ultrasonic clamp-on flowmeter of choice for safe and maintenance-free measurement of conductive and non-conductive liquids, even in challenging applications. It measures flow noninvasively and bidirectionally, independent of pressure, density and conductivity, and without process interruption. FlowDC makes mounting as flexible as never before. The specified accuracy is maintained at an inlet run of only 2 x DN, even in the case of disturbed flow profiles.

Features and specifications

Liquids

Measuring principle

Ultrasonic flow

Product headline

Clamp-on flowmeter for limited spaces in process industries with up to 3 I/Os.

Constant accuracy even when mounted with short inlet run thanks to FlowDC.

Bidirectional measurement of various fluids, e.g. liquid hydrocarbons and chemicals.

Sensor features

High safety standards – SIL by design, international hazardous area approvals. Long-term stable signal – maintenance-free

permanent mounting from outside with coupling pads. Reliable measurement on various pipe materials – sensor for GRP and plastic pipes available.

Mounting without process interruption. Wide nominal diameter range: DN 15 to 4000 (½ to 160"). Medium temperature: -40 to +550 °C (-40 to +1022 °F).

Liquids

Transmitter features

Full access to process and diagnostic information – numerous, freely combinable I/Os. Reduced complexity and variety – freely configurable I/O functionality. Integrated verification – Heartbeat Technology.

Remote version with up to 3 I/Os. Backlit display with touch control and WLAN access. Standard cable between sensor and transmitter.

Nominal diameter range

Dual channel, 1 or 2 paths : DN 15 to 4000 (1/2 to 160")

Sensor materials

Clamp on system:

Sensor holder 1.4301/304, 1.4404/316L

Sensor housing 1.4301/304, 1.4404/316L

Strapping bands 1.4301/304, 1.4404/316L

Measured variables

Volume flow, sound velocity, flow velocity, totalizer

Max. measurement error

Volume flow:

±3% o.r. for DN 15

±2% o.r. for DN 25 to DN 200

±2% o.r. above DN 200

Measuring range

0 to 15 m/s (0 to 50 ft/s)

Max. process pressure

N/A

Medium temperature range

DN 15 to 65 (1/2 to 2 1/2"): -40 to +150°C (-40 to +302 °F)

DN 50 to 4000 (2 to 160"): -40 to +170°C (-40 to +338 °F)

DN 50 to 600 (2" to 24"): 150°C to 550°C (+302 to +1022 °F)

Liquids

Ambient temperature range

–40 to +60 °C (–40 to +140 °F)

–50 to +60 °C (–58 to +140 °F) optional

Sensor housing material

N/A

Transmitter housing material

AlSi10Mg, coated; 1.4409 (CF3M) similar to 316L

Degree of protection

Sensor remote version: IP68 type 6P

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

Display/Operation

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

Optional: WLAN

Configuration via local display and operating tools possible

Outputs

3 outputs:

4–20 mA HART (active/passive)

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, Modbus RS485

Power supply

DC 24 V

AC 100 to 230 V

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

Liquids

Hazardous area approvals

ATEX, FM/CSA, EAC, UK Ex, KC

Other approvals and certificates

Other approvals and certificates

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

Metrological approvals and certificates

Flowmeter verification for all frequencies except 0.3 MHz, reference line size: 5 MHz DN 50, all other frequencies DN 100

Verification 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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