

# Ultrasonic measurement Time-of-Flight Prosonic FDU93

Ultrasonic sensor for level and flow measurement for connection to FMU9x (measuring range up to 25m)



More information and current pricing:

[www.ch.endress.com/FDU93](http://www.ch.endress.com/FDU93)

## Benefits:

- Integrated temperature sensor for Time-of-Flight correction. Accurate measurements are possible, even if temperature changes are present
- Suited for rough ambient conditions thanks to separate installation from the transmitter (up to 300m)
- Reduced build-up formation because of the self-cleaning effect
- Integrated automatic sensor detection for transmitters FMU90/ FMU95 for simple commissioning
- Weather resistant and flood-proof (IP 68)
- Non-contact measurement method minimizes service requirements
- International Dust-Ex and Gas-Ex certificates available

## Specs at a glance

- **Process temperature** -40 °C ... 95 °C (-40 °F ... 203 °F)
- **Process pressure absolute / max. overpressure limit** 0.7 bar ... 3 bar abs (10 psi ... 43 psi)
- **Max. measurement distance** Max. measurement distance
- **Accuracy** +/- 2 mm + 0.17% of measured distance
- **Main wetted parts** UP (unsaturated polyester) Silicon / Al PTFE coated

**Field of application:** The FDU93 ultrasonic sensor for continuous, non-contact and maintenance-free level measurement of fluids, pastes, sludges and powdery to coarse bulk materials. But also for flow measurement in open channels and measuring weirs. The measurement is unaffected by dielectric constant, density or humidity and also

unaffected by build-up due to the self-cleaning effect of sensors. Suited for explosion hazardous areas. Maximum measuring range in liquids 25m (85ft), solids 15m (50ft).

## Features and specifications

### Continuous / Liquids

**Measuring principle**

Ultrasonic

**Characteristic / Application**

Separated version with field housing or top hat rail housing for control cabinet instrumentation, 300 m in-between sensor and transmitter

**Supply / Communication**

4-wire (HART, Profibus DP)

**Accuracy**

+/- 2 mm + 0.17% of measured distance

**Ambient temperature**

-40 °C ... 95 °C  
(-40 °F ... 203 °F)

**Process temperature**

-40 °C ... 95 °C  
(-40 °F ... 203 °F)

**Process pressure absolute / max. overpressure limit**

0.7 bar ... 3 bar abs  
(10 psi ... 43 psi)

**Main wetted parts**

UP (unsaturated polyester)  
Silicon / Al PTFE coated

**Process connection**

G / NPT 1"

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**Continuous / Liquids****Blocking distance**

0.6 m (2 ft)

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**Application**

Application

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**Max. measurement distance**

Max. measurement distance

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**Communication**

Transmitter:

4...20 mA HART

Profibus DP

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**Certificates / Approvals**

ATEX, FM, CSA, IEC Ex, INMETRO, NEPSI, EAC Ex

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**Options**

Second 4...20 mA output

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**Components**

Transmitter:

FMU90, FMU95

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**Continuous / Solids****Measuring principle**

Ultrasonic

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**Characteristic / Application**

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**Supply / Communication**

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## Continuous / Solids

**Ambient temperature**

-40 °C ... 95 °C  
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**Main wetted parts**

UP (unsaturated polyester)  
Silicon / Al PTFE coated

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**Process connection**

G / NPT 1"

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**Blocking distance**

0.6 m (2 ft)

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**Max. measurement distance**

15 m (50 ft)

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**Communication**

Transmitter:  
4 ... 20 mA HART  
Profibus DP

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**Certificates / Approvals**

ATEX, FM, CSA, IEC Ex, INMETRO, NEPSI, EAC Ex

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**Options**

Second 4...20mA output

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**Components**

Transmitter:  
FMU90

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