

# Ultrasonic measurement Time-of-Flight Prosonic FDU92

Ultrasonic sensor for level and flow measurement for connection to FMU9x (measuring range up to 20m)



## Benefits:

- Integrated temperature sensor for Time-of-Flight correction. Accurate measurements are possible, even if temperature changes are present
- Hermetically welded PVDF sensor for highest chemical resistance
- 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)
- International Dust-Ex and Gas-Ex certificates available

More information and current pricing:

[www.be.endress.com/FDU92](http://www.be.endress.com/FDU92)

## Specs at a glance

- **Process temperature** -40 °C ... 95 °C (-40 °F ... 203 °F)
- **Process pressure / max. overpressure limit** 0.7 bar ... 4 bar abs (10 psi ... 58 psi)
- **Max. measurement distance** Liquids: 20 m (65 ft), Solids: 10 m (33 ft)
- **Accuracy** +/- 2mm + 0.17% of measured distance
- **Main wetted parts** PVDF (fully welded IP68 / NEMA 6P)

**Field of application:** The FDU92 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 20m (65ft), solids 10m (33ft).

## 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 mm in-between sensor and transmitter

**Supply / Communication**

4-wire (HART, Profibus DP)

**Accuracy**

+/- 2mm + 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 / max. overpressure limit**

0.7 bar ... 4 bar abs  
(10 psi ... 58 psi)

**Main wetted parts**

PVDF (fully welded IP68 / NEMA 6P)

**Process connection**

G / NPT 1"

**Blocking distance**

0.4 m (1.3 ft)

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**Continuous / Liquids****Max. measurement distance**

Liquids: 20 m (65 ft),

Solids: 10 m (33 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...20 mA output

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**Components**

Transmitter:

FMU90, FMU95

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**Application limits**

For tank farms scanner:

FMU95

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

Ultrasonic

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**Characteristic / Application**

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**Supply / Communication**

4-wire (HART , Profibus DP)

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**Accuracy**

+/- 2mm + 0.17% of measured distance

## Continuous / Solids

**Ambient temperature**

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

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**Process temperature**

-40 °C ... 95 °C  
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**Process pressure / max. overpressure limit**

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PVDF (fully welded IP68 / NEMA 6P)

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**Process connection**

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**Blocking distance**

0.4 m (1.3 ft)

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**Max. measurement distance**

Liquids: 20 m (65 ft),  
Solids: 10 m (33 ft)

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**Communication**

Transmitter:  
4 ... 20 mA HART  
Profibus DP

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**Certificates / Approvals**

ATEX, FM, CSA, IEC Ex, JPN 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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## Liquids

### Measuring principle

Ultrasonic

### Product headline

Version with separate transmitter in field housing or top hat rail housing  
Cost effective solution for open channel flow measurement in water /  
wastewater plants

### Max. measurement error

accuracy:

distance measurement: +/- 2mm + 0.17%

### Measuring range

max measuring distance up to 20m / 65ft

### Max. process pressure

atm.

### Medium temperature range

-40...95°C

(-40...203°F)

### Degree of protection

IP68

### Display/Operation

Transmitter

### Outputs

Transmitter:

4...20mA HART

Option: second 4...20mA output

### Inputs

Transmitter

### Digital communication

HART, PROFIBUS DP

## Liquids

### Hazardous area approvals

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

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More information [www.be.endress.com/FDU92](http://www.be.endress.com/FDU92)