

# Ultrasonic measurement

## Time-of-Flight

### Prosonic FDU95

Ultrasonic sensor for level measurement for connection to FMU9x (measuring range up to 45m)



Thông tin thêm và mức tính giá hiện tại:

[www.apsc.endress.com/FDU95](http://www.apsc.endress.com/FDU95)

#### Lợi ích:

- 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

#### Tổng quan về thông số kỹ thuật

- **Process temperature** -40 °C ... 80 °C or 150 °C (-40 °F ... 176 °F or 302 °F)
- **Process pressure absolute / max. overpressure limit** 0.7 bar...1.5 bar abs (10 psi...22 psi)
- **Max. measurement distance** 45 m (148 ft)
- **Accuracy** +/- 2mm + 0.17% of measured distance
- **Main wetted parts** UP (unsaturated polyester) Silicon / PE foam (80°C / 176°F) Silicon / stainless steel (150°C / 302°F)

**Phạm vi ứng dụng:** The FDU95 ultrasonic sensor for continuous, non-contact and maintenance-free level measurement of powdery to coarse bulk materials. 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 solids 45m (148ft).

## Tín năng và thông số kỹ thuật

### Continuous / Solids

#### Measuring principle

Ultrasonic

#### Characteristic / Application

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

#### Supply / Communication

4-wire (HART , Profibus DP)

#### Accuracy

+/- 2mm + 0.17% of measured distance

#### Ambient temperature

-40 °C ... 80 °C

or 150 °C

(-40 °F ... 176 °F

or 302 °F)

#### Process temperature

-40 °C ... 80 °C

or 150 °C

(-40 °F ... 176 °F

or 302 °F)

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

0.7 bar...1.5 bar abs

(10 psi...22 psi)

#### Main wetted parts

UP (unsaturated polyester)

Silicon / PE foam (80°C / 176°F)

Silicon / stainless steal (150°C / 302°F))

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**Continuous / Solids****Process connection**

G / NPT 1"

**Blocking distance**

0.7 m / 80 °C  
(2.3 ft / 176 °F)  
0.9 m / 150 °C  
(2.9 ft / 302 °F)

**Max. measurement distance**

45 m (148 ft)

**Communication**

Transmitter:  
4 ... 20 mA HART  
Profibus DP

**Certificates / Approvals**

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

**Options**

Second 4...20mA output

**Components**

Transmitter:  
FMU90

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**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)

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**Continuous / Liquids****Accuracy**

+/- 2 mm + 0.17% of measured distance

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**Ambient temperature**

-40 °C...80 °C

or 150 °C,

(-40 °F...176 °F

or 302 °F)

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**Process temperature**

-40 °C...80 °C

or 150 °C,

(-40 °F...176 °F

or 302 °F)

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

0.7 bar...1.5 bar abs

(10 psi...22 psi)

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

0.7 m / 80 °C,

(2.3 ft / 176 °F),

0.9 m / 150 °C,

(2.9 ft / 302 °F)

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**Max. measurement distance**

45 m (148 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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Thông tin bổ sung [www.apsc.endress.com/FDU95](http://www.apsc.endress.com/FDU95)