

Ultrasonic measurement Time-of-Flight Prosonic FDU91F

Hygienic sensor for level and flow
measurement for connection to FMU9x
(measuring range up to 10m)



Benefits:

- Integrated temperature sensor for Time-of-Flight correction. Accurate measurements are possible, even if temperature changes are present
- Hermetically welded sensors (316L, 1.4404, 1.4435) 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)
- Hygienic process connections available

More information and current pricing:

www.de.endress.com/FDU91F

Specs at a glance

- **Process temperature** -40 °C ... 105 °C (-40 °F ... 221 °F) 30 min: 135 °C / 275 °F)
- **Process pressure absolute / max. overpressure limit** 0.7 bar ... 4 bar abs (10 psi ... 58 psi)
- **Max. measurement distance** 5 m (16 ft)
- **Accuracy** +/- 2mm + 0.17% of measured distance
- **Main wetted parts** 316L (fully welded IP68 / NEMA 6P)

Field of application: The FDU91F ultrasonic sensor for continuous, non-contact and maintenance-free level measurement of fluids, pastes, sludges and powdery to coarse bulk materials. Also for flow measurement in open channels and at weirs. Measurement is unaffected

by dielectric constant, density or humidity and also unaffected by build-up due to the self-cleaning effect of sensors. Fully welded 316L with hygienic process connection available. Maximum measuring range in liquids 10m (33ft), solids 5m (16ft).

Features and specifications

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 ... 105 °C
(-40 °F ... 221 °F)

Process temperature

-40 °C ... 105 °C
(-40 °F ... 221 °F)
30 min: 135 °C / 275 °F)

Process pressure absolute / max. overpressure limit

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

Main wetted parts

316L (fully welded IP68 / NEMA 6P)

Process connection

G / NPT 1", DN80 / 100, ASME 3" / 4"

Continuous / Solids**Process connection hygienic**

Tri-Clamp ISO2852, DN80 (3 1/2"), DN100 (4")

Blocking distance

0.3 m (1 ft)

Max. measurement distance

5 m (16 ft)

Communication

Transmitter:

4 ... 20 mA HART

Profibus DP

Certificates / Approvals

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

Design approvals

EN 10204-3.1

Options

Second 4...20 mA output

Components

Transmitter:

FMU90

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

Specialities

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Continuous / Liquids**Supply / Communication**4-wire (HART, Profibus DP)

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Ambient temperature

-40 °C ... 105 °C

(-40 °F ... 221 °F)

Process temperature

-40 °C ... 105 °C

(-40 °F ... 221 °F)

CIP: 30 min: 135 °C

(30 min: 275 °F)

Process pressure absolute / max. overpressure limit

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(10 psi ... 58 psi)

Main wetted parts316L (fully welded IP68 / NEMA 6P)

Process connectionG / NPT 1", DN80 / 100, ASME 3" / 4"

Process connection hygienicTri-Clamp ISO2852, DN80 3 1/2", DN100 4"

Blocking distance0.3 m (1 ft)

ApplicationApplication

Max. measurement distanceMax. measurement distance

Continuous / Liquids

Communication

Transmitter:
4 ... 20 mA HART
Profibus DP

Certificates / Approvals

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

Design approvals

EN 10204-3.1

Hygienic approvals

3A

Options

Options

Components

Transmitter:
FMU90, FMU95

Application limits

Application limits

More information www.de.endress.com/FDU91F