

# Teqwave F – Ultrasonic concentration meter

Smart, flexible inline measuring device – individually for your process



More information and current pricing:

[www.ch.endress.com/D9FB](http://www.ch.endress.com/D9FB)

## Benefits:

- Easy and efficient – real-time in situ liquid analysis
- Full transparency – constant monitoring of product quality without sampling
- Highest process safety – reliable metering due to robust, maintenance-free sensor
- Cost-saving – fewer measuring points due to multivariable measurement
- Customized usage – innovative application concept, expendable for changing measuring tasks
- Simplified process control – user-friendly operation and clear status visualization
- Local data backup – integrated data storage for measured values up to 7,5 years

## Specs at a glance

- **Max. measurement error** Density:  $\pm 0.01 \text{ g/cm}^3$  Temperature:  $\pm 0.5 \text{ K}$  Sound velocity:  $2 \text{ m/s}$
- **Measuring range** Concentration According to concentration app data sheet, maximum 0 to 100 % Sound velocity 600 to 2000 m/s Temperature concentration app data sheet, maximum 0 to  $+100 \text{ }^\circ\text{C}$  ( $32$  to  $+212 \text{ }^\circ\text{F}$ ) Density  $0.7$  to  $1.5 \text{ g/cm}^3$
- **Medium temperature range**  $0$  to  $100 \text{ }^\circ\text{C}$  ( $32$  to  $212 \text{ }^\circ\text{F}$ )
- **Max. process pressure** max. 16 bar at  $20 \text{ }^\circ\text{C}$  (232 psi at  $68 \text{ }^\circ\text{F}$ )

**Field of application:** Teqwave F is ideal for real-time liquid analysis in pipes, particularly in skids. Equipment manufacturers and end customers value the inline device for its accurate in situ concentration measurement. Teqwave reduces the operational expenditure by

monitoring various measuring parameters at once. Match your Teqwave transmitter perfectly to your production needs: You can flexibly define and extend your application range.

## Features and specifications

### Density/Concentration

#### Measuring principle

Ultrasonic concentration

#### Product headline

Smart, flexible inline measuring device – individually for your process. Easy and efficient – real-time in situ liquid analysis. Continuous concentration measurement of liquids in pipes.

#### Sensor features

Full transparency – constant monitoring of product quality without sampling. Highest process safety – reliable metering due to robust, maintenance-free sensor. Cost-saving – fewer measuring points due to multivariable measurement.

Nominal diameter: DN 8 to 25 ( $\frac{3}{8}$  to 1"). Full-bore design without pressure loss.

#### Transmitter features

Customized usage – innovative application concept, expendable for changing measuring tasks. Simplified process control – user-friendly operation and clear status visualization. Local data backup – integrated data storage for measured values up to 7,5 years.

Industry-compliant, easy installation via DIN rail. 3.5" TFT color touch screen or LED indication. 4-20 mA, Modbus TCP.

#### Nominal diameter range

DN 8 (3/8") to DN 25 (1")

#### Measured variables

Concentration, density, sound velocity, temperature

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**Density/Concentration****Max. measurement error**Density:  $\pm 0.01 \text{g/cm}^3$ Temperature:  $\pm 0.5 \text{K}$ Sound velocity:  $2 \text{m/s}$ 

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**Measuring range**

Concentration According to concentration app data sheet, maximum 0 to 100 %

Sound velocity 600 to 2000 m/s

Temperature concentration app data sheet, maximum 0 to  $+100 \text{ }^\circ\text{C}$  ( $32$  to  $+212 \text{ }^\circ\text{F}$ )Density 0.7 to  $1.5 \text{ g/cm}^3$ 

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**Max. process pressure**max. 16 bar at  $20 \text{ }^\circ\text{C}$  (232 psi at  $68 \text{ }^\circ\text{F}$ )

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**Medium temperature range**0 to  $100 \text{ }^\circ\text{C}$  ( $32$  to  $212 \text{ }^\circ\text{F}$ )

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**Ambient temperature range**0 to  $50 \text{ }^\circ\text{C}$  ( $32$  to  $122 \text{ }^\circ\text{F}$ )

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**Sensor housing material**Stainless steel V4A 1.4571

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**Degree of protection**

Sensor: IP68 (with cable plugged in), IP66 (without cable connector)

Transmitter: IP40

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**Display/Operation**

LED status indication

TFT color touch display

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**Outputs**4-20mA / Modbus TCP

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**Power supply**DC 24 V ( $18$  to  $35 \text{ V}$ )

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Density/Concentration

**Hazardous area approvals**

Non-hazardous area  
UK; Non-hazardous area

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**Product safety**

CE, C-tick

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