

# Teqwave I – Ultrasonic concentration meter

Smart, flexible insertion measuring device – individually for your process



## 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

More information and current pricing:

[www.be.endress.com/D9IB](http://www.be.endress.com/D9IB)

## 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:** The insertion measuring device Teqwave I was developed for accurate real-time liquid analysis in vessels and larger pipes. Dedicated to in situ concentration measurement, Teqwave monitors various measuring parameters at once, and thus reduces

operational expenditure. 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 insertion measuring device – individually for your process. Easy and efficient – real-time in situ liquid analysis. Continuous concentration measurement of liquids in vessels or large 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. Insertion length: 180 mm (7 in) or 500 mm (20 in). Accurate and independent of flow profile.

#### 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

Insertion length: 180 mm (7") or 500 mm (20")

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**Density/Concentration****Measured variables**

Concentration  
Density  
Sound velocity  
Temperature

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**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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Density/Concentration

**Outputs**

4-20mA / Modbus TCP

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**Power supply**

DC 24 V (18 to 35 V)

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**Hazardous area approvals**

Non-hazardous area

UK; Non-hazardous area

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**Product safety**

CE, C-Tick

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