

*Instrument*

## 2-dimensional ultrasonic sand transport meter

### Application

The 2-dimensional ultrasonic sand transport meter (2-D USTM) is used for in-situ measurement of suspended sand transport. Main operational ranges are: grain size 50 to 500  $\mu\text{m}$ , concentration 50 to 5,000 mg/l, velocity 0.03 to 3 m/s.

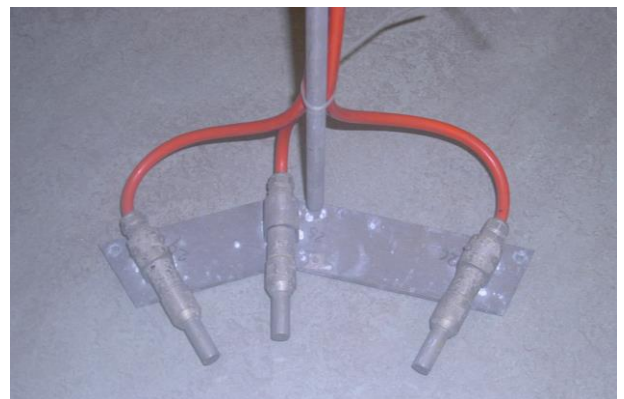
### Features

- Simultaneous measurement of concentration and velocity
- Measures velocity and direction
- Not sensitive to fine silt (turbidity)
- Wide velocity and concentration range
- Concentration calibration is approximately constant for 100 to 200  $\mu\text{m}$  grain size range
- Vertical resolution 20 mm
- RS-232C communication
- Field proven reliability

### Operating principle

The measuring principle of the 2D USTM is based on the scattering and attenuation of ultrasound waves by suspended sand particles. Concentration and velocity of these particles are simultaneously and continuously derived from the measured amplitude and the frequency shift of the scattered signal.

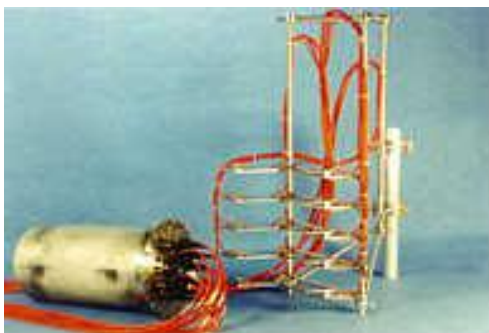
By using a special compensating method for the attenuation by the sand particles, based on two scatter measurements with different sound paths, the linear concentration range extends up to 5,000 mg/l.



*Single channel probe*

## Technical specifications

<b>Range</b>	
Grain size	50 – 500 µm
Concentration	50 – 5,000 mg/l
Velocity	0.03 – 3 m/s omnidirectional
<b>Transducers</b>	
Frequency	4.5 MHz
Materials	stainless steel 316, epoxy
Conditions	fully immersible (max 20m) temperature +5 / +30 °C
Cable	5 m
<b>Electronics</b>	
Update rate	2 readings / s
Digital output	RS232
Analogue output	concentration 0-10 V velocity -10 / 0 / +10 V
Housing	immersible down to 20 m or UCC-cabinet
Power	24 Vdc or 230 / 110 Vac
Cable	power / communication cable 25 m



Immersible 5 channel system



UCC-cabinet

**More information:**  
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