

DATASHEET

AQUAscat[®] 1000L

Acoustic suspended sediment profiler - lab model



KEY FEATURES

- Observe load and mean particle size
- Uses acoustic backscatter method
- Up to 4 cabled transducers
- Profiles of 2.5 m (options to upgrade)
- Vertical resolution of 10 mm (options to upgrade)

- Deploy in laboratory experiments
- Optional cabled temperature and turbidity sensors

APPLICATIONS

- Suspended sediment research
- Lab based sediment transport studies
- Flume tanks

MODELS

- Lab model has up to 4 cabled transducers
- Also available: research, survey and lite models (for field studies)

Specification

Sediment range	Sensitive to a wide range of grain sizes Size inversion typically feasible for 20 µm to 500 µm radius Typically 0.01 g/l to 20 g/l over 1 m, or more over shorter range
Frequencies	Up to 4 frequencies - from 500 kHz to 4 MHz
Transducers	Typically Ø10-25mm ceramic discs (beam width according to frequency), with other optional configurations
Transducer arrangement	Individual cabled transducers
Gain	Software controlled transmitter and receiver gain adjustment
Range	150 cm (typical), up to 10 m below 2 MHz depending on options
Transmitted signal	1 W rms typical transmit CW pulse, pulse length to match cell size.
Transmission rate	128 Hz max pulse rate for each frequency (i.e. 512 pulses per second for four), subject to acoustic range limits. Minimum rate 1 Hz for calibration.
Data averaging	Cell ensembles averaged over time by powers of 2 up to 64 before storage
Range cells	256 cells. 10 mm standard (at 1500 m/s speed of sound). Options for 2.5 mm, 5 mm, 20 mm and 40 mm. Start/end range set by software.
Burst duration	Defined by number of profiles requested
Burst trigger	Either external hardware trigger when required or internal software trigger at regular intervals
Burst interval	Internally generated from once every minute to once every 255 minutes, user definable start time of first burst.
Trigger output	A digital output allows triggering of external instruments
Power requirement	12 V power supply.
Additional sensors	Cabled temperature, pressure, turbidity
Disk storage	Compact Flash (proprietary format). 8 GB standard.
Data comms	RS232 up to 115 kbaud, USB 1.1 typically 2-3 Mbaud
Housing options	Plastic IP68 weatherproof instrument case
Software	AQUA <i>talk</i> for AQUA <i>scat</i> for logger interaction AQUA <i>scat</i> toolkit for data processing

Models

AQUA<i>scat</i> 1000L	Lab model - 3 cabled transducers, laboratory use
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Also available

AQUA<i>scat</i> 1000R	Research model - 4 cabled transducers, multiple range and resolution, maximum 1000 m depth
AQUA<i>scat</i> 1000S	Survey model - 4 fixed transducers, multiple range and resolution, maximum 1000 m depth
AQUA<i>scat</i> 1000LT	Lite model -2 fixed transducers, 10 mm resolution, maximum 200 m depth

Contact us

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