

MSS 60

Microstructure/Turbulence Profiler

The MSS 60 is a multiparameter probe for measuring micro-scale water stratification as well as the intensity of small scale turbulence in water down to approx. 200m, preferably in coastal water, rivers, and lakes. The microstructure measuring system comprises the MSS profiler, a special winch, a probe interface and a data acquisition computer. The probe interface is adapted to the PC (laptop or desktop) via USB port.

The MSS is equipped with high resolution micro-structure and turbulence sensors (temperature, current shear) and standard CTD sensors (temperature, electrical conductivity, pressure). Additional sensors, e.g. light scattering, can be attached. Maximum 5 sensors can be plugged to the profiler. House keeping sensors control disturbing vibrations and tilt of the profiler itself.

The sinking velocity of the MSS 60 be adjusted between 0.1 and 0.8 m/s by different combinations of weight rings and buoyancy elements.



Main Features

- multiparameter measurements
- microstructure, turbulence and standard CTD Sensors
- additional optical sensors
- depth range 200 m
- free sinking or rising operation
- adjustable sinking or rising velocity
- 16 channels
- resolution 16 bit
- 1024 scans/s
- baud rate 614 kb
- easy data acquisition and evaluation software

Materials

- titanium
- stainless steel

Dimensions and Weights

L (housing)	800 mm
Ø (housing)	60 mm
L (overall)	1200 mm
W (in air)	approx. 6 kg

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MSS 60 standard sensor equipment

Sensors	Principle	Range	Accuracy	Resolution	Response time
Microstructure shear	PNS Airfoil lift force sensor	0 ...6 1/s (Dissipation rate $10^{-2} \dots 10^{-10}$ W/kg)	not specified	approx. 10^{-3} 1/s	3 ms
Microstructure Temperature	FP07 micro-thermistor	-2 ... + 32 °C	± 0.010 °C	500 μ K (linear) 50 μ K (pre-emph.10Hz) 5 μ K (pre-emph.100Hz)	10 ms
Pressure	piezo-resistive	10, 20, 50 bar	$\pm 0.1\%$ fs	0.002 % fs	30 ms
Precision Temperature	Pt 100	-2 ... +32 °C	± 0.005 °C	0.001 °C	150 ms at 1 m/s
Precision Conductivity	7-pole cell	0 ... 6 mS/cm 0 ... 60 mS/cm	± 0.005 mS/cm ± 0.010 mS/cm	0.0001 mS/cm 0.001 mS/cm	50 ms at 1m/s

Optional sensors:
Light scattering

The data acquisition and evaluation software run under Windows 95/98/2000/XP. Graphical quick-look functions are integrated into the data acquisition program. The data evaluation software has the structure of a tool-box. It consists of a management program and modules to perform various steps of computations. A hierarchy of different levels of data validation, parameter computation and data visualization can be carried out. Parameters like dissipation rate, Cox number, Thorpe scale and others can be calculated, which give information on occurrence and intensity of micro-scale stratification, mixing, and transport processes.

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