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MicroRider-1000

Microstructure Sensor Module

High-Resolution Turbulence Module for Autonomous Vehicles

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The **MicroRider-1000** is a sensor package designed to integrate onto autonomous platforms and vehicles – such as gliders, AUVs, ROVs and moorings – providing for **persistent direct measurements of micro-scale turbulence** from remotely operated assets. When combined with Rockland's **In-Situ Data Processing (ISDP)**, such systems can deliver near real-time estimates of TKE dissipation and ocean mixing to inform researchers for mission critical decisions.

ε to 10^{-10} W/kg

Measure low epsilon

Proven results in peer-reviewed publications.

ISDP

In-Situ Data Processing

On-board processing enables satellite transmission of turbulence data.

512 Hz

Fast sample rate

Optional sample rates up to 2048 Hz available.

1,000 m

Depth rating

Optional 6,000 m depth rating available.

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APPLICATIONS

Turbulence measurements – including velocity shear and dissipation of TKE, from remote, autonomous vehicles improves the spatial and temporal resolution of ocean mixing dynamics. With different form-factor and configuration designs available, the MicroRider-1000 product line is a standard offering from leading glider manufacturers, and easily integrates onto a variety of stationary and moving platforms. Options such as an Electro-Magnetic (EM) velocity sensor and the Extended Mission Configuration aid researchers in obtaining high quality turbulence measurements during prolonged deployments in remote locations. Contact the Rockland sales team to discuss which configuration will meet your mission objectives.

GENERAL SPECIFICATIONS

Length housing / overall **Diameter housing**	0.88 m / 1.1 m 89 mm
Weight in air / water	5.5 kg / ~0 kg
Depth rating	1,000 m (6,000 m as option)
Sampling rate	512 Hz microstructure sensors 64 Hz other sensors
Power	Supply 9 - 18 VDC Consumption ~1 W

CONFIGURATIONS

Standard Sensors	2x Shear probes 1x FP07 micro-temperature probe 1x Pressure sensor 1x Tilt sensor 2x Vibration sensors
Optional Sensors	Additional FP07 micro-temperature EM velocity sensor Micro-conductivity sensor
Available models	MicroRider-1000 MicroRider-1000-EM MicroRider-1000-G MicroRider-6000

SENSOR SPECIFICATIONS

All specifications subject to change without notice

	Range	Accuracy	Resolution
Velocity Shear Probe	0 - 10 s^{-1}	5%	10^{-3} s^{-1}
FP07 micro-temperature	-5 - 35 °C	0.005 °C	10^{-5} °C
Pressure	0 - 100 bar	0.1% FS	5×10^{-4} bar
Micro-Conductivity	0 - 70 mS/cm	0.005 mS/cm	0.001 mS/cm
EM velocity sensor	0 - 500 cm/s	0.5 cm/s or 2% of full scale	0.01 cm/s

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