MicroRider-1000

Modular, Self-contained Turbulence Profiler

DESCRIPTION

The **MicroRider** is a versatile instrument package for turbulence measurements. It can be easily installed on a variety of platforms, such as AUV, ROV, CTD rosettes, ocean gliders, and floats. The integrated data logger makes the instrument independent from external hardware while allowing high-speed sampling of all sensors to resolve turbulent time scales.

The **MicroRider** carries a full suite of standard turbulence sensors and supports simultaneous logging of external instrument packages, such as acoustic Doppler velocimeters, CTDs, etc. The **MicroRider** also features an integrated, fast-response inertial navigation unit that is used for removing contamination of platform motion and vibrations from the measured turbulence and velocity signals.

Supply (by platform)
- 9 – 18 VDC, ~1W
- Trigger signal (data on/off)

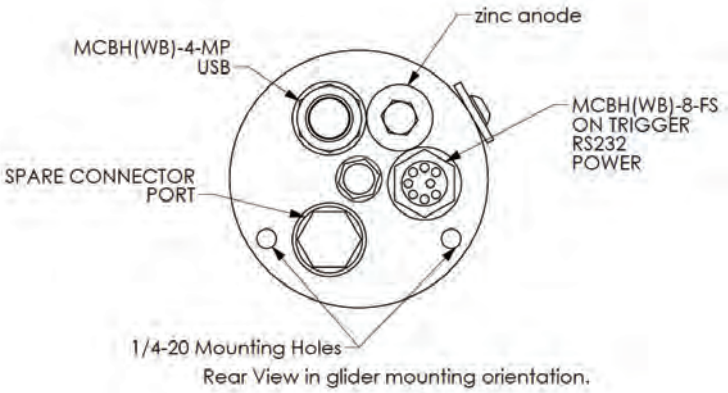
inputs (options)
- 0 – 5 V analog
- Frequency input (e.g.SBE3)

Outputs (by platform)
- USB data read-out
- RS-232 for “snippet” data

Turbulence Sensors
- Shear probes (2x)
- Fast thermistors (1x)
- Micro conductivity (1x option)

Supporting Sensors
- Pressure
- Tilt
- Vibration (2x)
- Gyro sensors

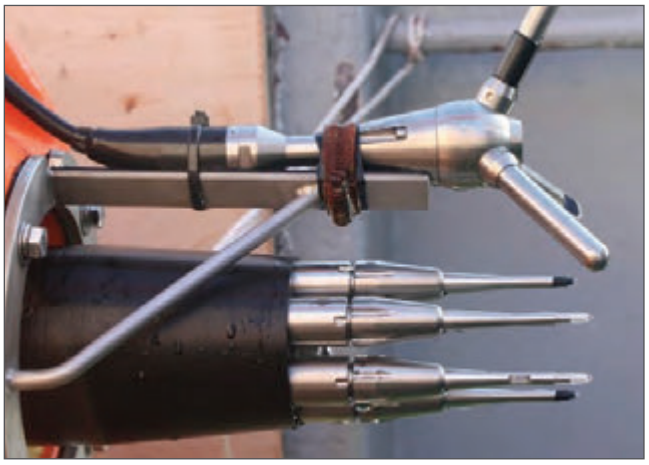
Data Recording
- Up to 64GB memory



Rear View in glider mounting orientation.

CONFIGURATION

Standard Turbulence Sensors	Velocity shear probes Fast response thermistors Micro conductivity probe
Supporting Sensors	High-resolution pressure High-resolution acceleration Tilt Six-degree-of-freedom motion
External Instrument Support	ADV CTD Bio-optical



All specifications subject to change without notice.

Rockland Scientific International Inc.
520 Dupplin Road,
Victoria BC V8Z 1C1 Canada

tel +1-250-370-1688
fax +1-250-370-1688
toll free 1-877-370-1688

email info@RocklandScientific.com
web www.RocklandScientific.com

Business No.: 82695-5544

ROCKLAND SCIENTIFIC

MicroRider-1000

Modular, Self-contained Turbulence Profiler

GENERAL SPECIFICATIONS

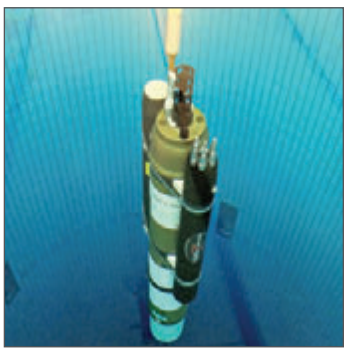
Pressure Rating	1000 dbar (up to 6,000 dbar available)
Analog input (optional)	-2.5V ... +2.5V or 0 ... + 5VDC
Frequency input (optional)	for SBE3/SBE4 sensors
Power	9 – 18 VDC supply. Consumption: ~ 1W operating, 10^{-5}W sleep.
Signals provided (depends on configuration)	Turbulence Shear (2x), T (2x), T+dT/dt (2x), C (2x), C+dC/dt (2x), P, P+dP/dt, Acceleration (2x), Tilt (2x)

Sampling Rate	Nominal 512 Hz for turbulence sensors, 64 Hz for slow-response sensors. User configurable via setup file.
Weight	~5.5 kg in air ~ 0 kg in water
Length	0.85 m (pressure case) 1.02 m (with probes)

SPECIFICATIONS

	Range	Accuracy	Resolution	Time Response
Velocity Shear	3 x 10^{-10} – 10^{-4} W kg^{-1}	5%	2.5 x 10^{-3} s^{-1}	
Water temperature (SBE 3F)*	-5 – 35 °C	1 x 10^{-3} °C (NIST traceable)	1 x 10^{-4} °C	0.070 s ± 0.010
Micro Temperature (FP07)	5 – 35 °C	N/A	1 x 10^{-5} °C (using signal + derivative technique)	0.007 s ± 0.003
Conductivity (SBE 4C)*	0 – 7 S/m	0.0003 S/m	0.00004 S/m at 24 Hz	0.060 seconds (pumped)
Pressure (Keller)	0 – 1000 dbar	0.1 %	0.0005 dbar (using signal + derivative technique)	
Micro Conductivity (SBE7)*	0 – 7 S/m	N/A	~ 5 mm	infinite
Tilt Sensor	Dual axis ± 90°	0.1°	0.025°	
Vibration Sensors (Piezo-ceramic)	±2 g	uncalibrated / unspecified	10^{-5} g (1 – 20 Hz)	**Stability/Linearity** ±5% **Frequency response** 0.1– 300 Hz
	# of Channels		**Resolution**	**Linearity**
Analog/Digital Converter	15 + 1 (ground)		16 bits (true)	15 ppm

* optional



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