VELOCIMETER

Vector - 300 m





Sample 3D velocity at up to 64 Hz for small-scale research in coastal areas

The Vector is a high-accuracy single-point current meter that is capable of acquiring 3D velocity in a very small volume at rates up to 64 Hz. It is widely used for sediment transport applications, small-scale turbulence measurements and coastal engineering studies. It has an excellent track record of delivering outstanding data quality in a variety of applications. This version is suitable for use down to a depth of 300 m. The Vector's titanium version is suitable for investigating deep- water currents.

Vector - 300 m



Highlights

- ✓ Small-scale turbulence
- ✓ Sampling up to 64 Hz
- Small sampling volume for measurements close to boundaries

Applications

- ✓ Wave orbital studies
- Studies of bottom boundary layers
- ✓ Ocean engineering projects
- Coastal studies
- River turbulence
- Low flow measurements
- Flux measurements

Vector - 300 m



Technical specifications

→ Water velocity measurements	
Maximum profiling range	N/A
Distance from probe	0.15 m
Sampling volume diameter	15 mm
Sampling volume height (user-selectable)	5-20 mm
Cell size	N/A
Velocity range	±0.01, 0.1, 0.3, 1, 2, 4, 7 m/s (software-selectable)
Adaptive ping interval	N/A
Accuracy	±0.5% of measured value ±1 mm/s
Velocity precision	typ. 1% of velocity range (at 16 Hz)
Sampling rate (output)	1-64 Hz
Internal sampling rate	100-250 Hz
\longrightarrow Distance measurements	
Minimum range	N/A
Maximum range	N/A
Cell size	N/A
Accuracy	N/A
Sampling rate	N/A
\longrightarrow Echo intensity	
Acoustic frequency	6 MHz
Resolution	0.45 dB
Dynamic range	90 dB
→ Sensors	
Temperature:	Thermistor embedded in end bell
Temp. range	-4 to +40 °C
Temp. accuracy/resolution	0.1 °C/0.01 °C
Temp. time response	10 min
Compass:	Magnetometer
Accuracy/resolution	2º/0.1º for tilt < 20°
Tilt:	Liquid level
Accuracy/resolution	0.2°/0.1°
Maximum tilt	30°
Up or Down	Automatic detect
Pressure:	Piezoresistive

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Standard range 0-20 m (inquire for options) Accuracy/precision 0.5% FS / Better than 0.005% of full scale → Analog inputs 2 Supply voltage to analog output devices Three options selectable through firmware commands:1) Battery voltage/500 mA, 2) +5 V/250 mA, 3) +12 V/100 mA → Data recording 2 Capacity (standard): 9 MB, can add 4/16 GB Data record (IMU) 72 bytes at sampling rate + 28 bytes/second Data record (IMU) 72 bytes at sampling rate + 28 bytes/second Data record (IMU) 72 bytes at sampling rate → Real-time clock 2 Communications 4 weeks → Data communications 4 V/O RS-232 or RS-422 Communication baud rate 600/1200 kBd for both RS-232 and RS-422 User control Handled via "Vector" software, ActiveX® function calls, or direct commands. Analog outputs 3 channels standard, one for each velocity component or two velocities and pressure. Output range 0-5 V, scaling is user-selectable. Synchronization TTL (SV tolerant) sync in/sync out, start on sync, sample on sync → Connectors 5 Bulkhead MCBH-8-FS Cable PMCIL-8-MP on 10 m polyurethane cable → Software N/A V/O N/A V/O	> Sensors	
Accuracy/precision 0.5% FS / Better than 0.005% of full scale Image inputs Image inputs No. of channels 2 Supply voltage to analog output devices Three options selectable through firmware commands:1) Battery voltage/500 mA, 2) +5 V/250 mA, 3) +12 V/100 mA Image inputs Image inputs Image inputs 9 MB, can add 4/16 GB Data record (Standard) 24 bytes at sampling rate + 28 bytes/second Data record (MU) 72 bytes at sampling rate + 28 bytes/second Data record (MU) 72 bytes at sampling rate Image in absence of power 4 weeks Image in absence of power 4 secka Image in absence of power 4 weeks Image in absence of power 500 Had Image in absence of power 500 Had Image in absence of power 500 Had Image i	Standard range	0-20 m (inquire for options)
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Accuracy ±1 min/year Backup in absence of power 4 weeks → Data communications	Data record (IMU)	72 bytes at sampling rate
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→ Data communications I/O RS-232 or RS-422 Communication baud rate 300-115 200 Bd Recorder download baud rate 600/1200 kBd for both RS-232 and RS-422 User control Handled via "Vector" software, ActiveX® function calls, or direct commands. Analog outputs 3 channels standard, one for each velocity component or two velocities and pressure. Output range 0–5 V, scaling is user-selectable. Synchronization TTL (5V tolerant) sync in/sync out, start on sync, sample on sync → Connectors Eulkhead MCBH-8-FS Cable PMCIL-8-MP on 10 m polyurethane cable → Software Functions Deployment planning, instrument configuration, data retrieval and conversion (for Windows®). → Multi unit operation N/A V/O N/A → Power Deployment planning, instrument configuration, data retrieval and conversion (for Windows®).	Accuracy	±1 min/year
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Analog outputsvelocities and pressure.Output range0–5 V, scaling is user-selectable.SynchronizationTTL (5V tolerant) sync in/sync out, start on sync, sample on sync-> ConnectorsBulkheadMCBH-8-FSCablePMCIL-8-MP on 10 m polyurethane cable-> SoftwareFunctionsDeployment planning, instrument configuration, data retrieval and conversion (for Windows®)> Multi unit operationSoftwareN/AI/ON/A-> PowerDC input9-15V DC	User control	
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Functions conversion (for Windows®). → Multi unit operation N/A Software N/A I/O N/A → Power VO DC input 9-15V DC	\longrightarrow Software	
Software N/A I/O N/A Power JC input 9-15V DC	Functions	
I/O N/A → Power DC input 9-15V DC	\longrightarrow Multi unit operation	
→ Power DC input 9-15V DC	Software	N/A
DC input 9-15V DC	I/O	N/A
•	> Power	
Maximum peak current 3 A	DC input	9-15V DC
	Maximum peak current	3 A
Max. consumption 1.5 W at 64 Hz	Max. consumption	1.5 W at 64 Hz
Typical consumption, 4 Hz 0.6 - 1 W	Typical consumption, 4 Hz	0.6 - 1 W

VELOCIMETER

Vector - 300 m



→ Power	
Sleep consumption	< 100 ?A
Transmit power	2 adjustable levels
> Batteries	
Battery capacity	50 Wh (alkaline or Li-ion),165 Wh (lithium), single or dual
New battery voltage	13.5 V DC (alkaline)
Data collection capacity	Refer to planning section in software
\longrightarrow Environmental	
Operating temperature	-4 to +40 °C
Storage temperature	-20 to +60 °C
Vibration	IEC 60068-1/IEC60068-2-64
Depth rating	300m
→ Materials	
Standard model	POM housing, titanium probe and fasteners
→ Dimensions	
Maximum diameter	75 mm
Maximum length	468 mm (housing only), 246 mm (fixed stem) add 110 mm for double battery
→ Weight	
No batteries	Weight in air: 2.32 kg, in water: buoyant
2 batteries	Weight in air: 3.20 kg, in water: 0.54 kg
\longrightarrow Options	
Probe mounted on fixed stem or on 2 m cable	
Vertical or horizontal probes	
Alkaline, lithium or Li-ion external batteries	
INALL IN Antial Management of the it	

IMU - Inertial Measurement Unit