Vector

300 m, Generation 2

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



The Vector Generation 2 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.

View Release Notes for the Generation 2 Vector.

Highlights

- Small-scale turbulence
- Sampling up to 64 Hz
- Small sampling volume for measurements close to boundaries
- Optional echosounder mode

Applications

- Wave orbital studies
- Studies of bottom boundary layers
- Turbulence studies
- Large flume measurements

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)	8 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	1-703 Hz

* The velocity range is not the same in the horizontal and vertical direction. Please refer to the configuration software.

Distance measurements

Minimum range	N/A
Maximum range	N/A
Cell size	N/A
Accuracy	N/A
Sampling rate	N/A

Echo intensity

Acoustic frequency	6 MHz
Resolution	0.01 dB
Dynamic range	84 dB

Sensors

Temperature:	I2C temperature sensor in probe head
Temp. range	-4 to +40 °C
Temp. accuracy/resolution	0.1 °C/0.01 °C
Temp. time response	10 min
Compass:	Magnetometer
Accuracy/resolution	2°/0.1° for tilt < 20°
Tilt:	Solid state, full 3D
Accuracy/resolution	0.2°/0.1°
Maximum tilt	Full 3D
Up or Down	Automatic detect
Pressure:	Piezoresistive
Standard range	0-300 m (inquire for options)
Accuracy/precision	0.5% FS / Better than 0.005% of full scale

External inputs

No. of analog channels	None
Digital channels	1x RS485*
Supply voltage to external sensors	Fixed 5V or 12V

*Pyroscience Aquaphox supported

Data recording

Capacity (standard):	16/64/128/256 GB SD card

Real-time clock

Accuracy	±1 min/year
Backup in absence of power	4 weeks

Data communications

I/O	RS-422 or Ethernet, user-selectable
Communication baud rate	115200-921600 Baud
Recorder download baud rate	Fast Ethernet 100BASE-TX (90 s per GB)
User control	Nortek Deployment software
Analog outputs	None
Output range	None

Data communications

Synchronization	RS-485 sync out

Connectors

Bulkhead (Impulse)	MCBH-8-FS + MCBH-6-FS for Communication and external sensor
Cable	PMCIL-8-MP on 5m polyurethane cable (inquire for options)

Software

Functions	Nortek Deployment SW, instrument configuration, live display, export to ASCII and MATLAB. Data view in Nortek Insight

Power

DC input	9-24V DC
Maximum peak current	2 A
Max. consumption	2.7 W at 64 Hz
Typical consumption, 4 Hz	2 W
Sleep consumption	< 150 µA
Transmit power	12 dB in 1 dB adjustable levels

Batteries

Battery capacity	External 76 Wh Li-ion battery pack (inquire for options)
New battery voltage	12.6 V
Data collection capacity	Refer to planning section in software

Environmental

Operating temperature	-4 to +40 °C
Storage temperature	-20 to +60 °C
Vibration	IEC 60068-2-64, IEC 60068-2-27
Depth rating	300m

Materials

Standard model	Delrin® housing. Titanium probe and screws.

Dimensions (see drawings for details)

Maximum diameter	48 mm
Maximum length	250 mm total

Weight

Weight in air	690 g (instrument only), 1410 g (instrument with small battery canister for rechargeable battery)
Weight in water	275 g (instrument only), 505 g (instrument with small battery canister for rechargeable battery)

Options

Alkaline, lithium or Li-ion external batteries

Single frequency echosounder mode: 6Mhz, 80 cm max range, 2 mm resolution (not simultaneous with velocity measurement)