

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
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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 μ A

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)