

# 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	
Distance from probe	0.15 m
Sampling volume diameter	15 mm
Sampling volume height (user-selectable)	8 mm
Velocity range	$\pm 0.01, 0.1, 0.3, 1, 2, 4, 7$ m/s (software-selectable) *
Accuracy	$\pm 0.5\%$ of measured value $\pm 1$ 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.

Echo intensity	
Acoustic frequency	6 MHz
Resolution	0.01 dB

## Echo intensity

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 or RS232 \*

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

Synchronization Trigg/sync A and B (RS485). Sync in/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 $\mu$ 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.
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## 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)

## Distance measurements

Distance measurements	Not yet released
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