# 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.

## 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
- River turbulence
- Low flow 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) | 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 |
| **→ 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 | 0.45 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 |
| Standard range | 0-10 m (inquire for options) |
| Accuracy/precision | 0.5% FS / Better than 0.005% of full scale |

| → Analog 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 |
| **→ Data recording** | |
| Capacity (standard): | 16 GB |
| Data record (Standard) | 24 bytes at sampling rate + 28 bytes/second |
| Data record (IMU) | 72 bytes at sampling rate |
| **→ Real-time clock** | |
| Accuracy | ±1 min/year |
| Backup in absence of power | 4 weeks |
| **→ 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** | |
| Bulkhead | 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** | |
| Software | N/A |
| I/O | N/A |
| **→ Power** | |
| DC input | 9-15V DC |
| Maximum peak current | 3 A |
| Max. consumption | 1.5 W at 64 Hz |
| Typical consumption, 4 Hz | 0.6 - 1 W |
| Sleep consumption | < 100 µA |
| Transmit power | 2 adjustable levels |
| **→ Batteries** | |
| Battery capacity | 50 Wh (alkaline or Li-ion),165 Wh (lithium), single or dual |

| → Batteries | |
|---|---|
| New battery voltage | 13.5 V DC (alkaline) |
| Data collection capacity | Refer to planning section in software |
| **→ Environmental** | |
| Operating temperature | -4 to +40 °C |
| Storage temperature | -20 to +60 °C |
| Vibration | IEC 60068-1/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 |
| **→ Options** | |
| Probe mounted on fixed stem or on 2 m cable | |
| Vertical or horizontal probes | |
| Alkaline, lithium or Li-ion external batteries | |
| IMU - Inertial Measurement Unit | |