

# Vectrino

– A new generation  
3D water velocity sensor!

The Vectrino is a high-resolution acoustic velocimeter used to measure 3D water velocity in a wide variety of applications from the laboratory to the ocean. The basis measurement technology is coherent Doppler processing, which is characterized by accurate data with no appreciable zero offset.

## What Is New?

The Vectrino represents a leap forward in performance:

- ✓ Minimized size of the electronics makes it fit inside the base instrument.
- ✓ Reduced probe size minimizes the flow interference from the probe itself.
- ✓ Added a fourth receiver to improve turbulence measurements and provide redundancy.
- ✓ Increased internal sampling rate to reduce measurement noise.
- ✓ Increased maximum velocity range.
- ✓ Probe configuration file stored on probe board simplifies a change of probes.
- ✓ Integrated temperature sensor in the probe.
- ✓ Parallelized receiver increases the number of samples by four (Vectrino<sup>+</sup> firmware only).

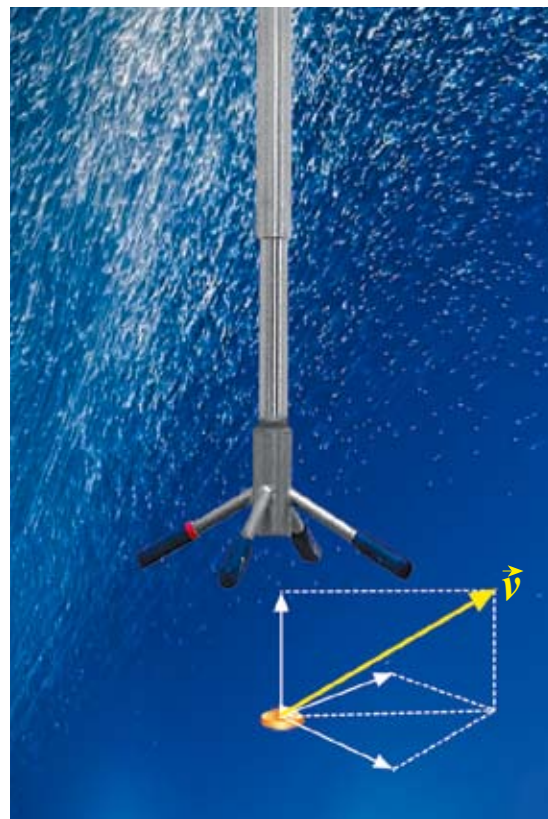
## Upgrade

You can upgrade your NDV or ADV<sup>®</sup> to a Vectrino. The upgrade consists of a new cable and a circuit board that fits inside your signal conditioning module. You can choose to upgrade to the standard or to the Vectrino<sup>+</sup> firmware.

ADV<sup>®</sup> is a registered trademark of SonTek/YSI, Inc.

## Multiple Systems

The Vectrino software is designed to test, configure, and collect data with a single Vectrino. To synchronize data collection from multiple Vectrinos and store all the data to a single file, you need the PolySync software.



## The Vectrino<sup>+</sup> Option

The Vectrino can be configured with the standard or the Vectrino<sup>+</sup> ("Vectrino Plus") firmware.

The standard firmware has a performance similar to that of the NDV/ADV<sup>®</sup>, with a maximum output rate of 25 Hz.

The Vectrino<sup>+</sup> firmware runs four receivers in parallel and allows data collection rates up to 200 Hz. Several enhancements are planned for the Vectrino<sup>+</sup> firmware, including a separate echo sounder mode.

## Configuration

The Vectrino can be configured to use a variety of probes and housings. To check what is best for your application, please visit our web site to see photographs of available options.

# Specifications

## Water Velocity Measurements

Range	±0.01, 0.1, 0.3, 1, 2, 4 m/s*) (user selectable)
Accuracy	±0.5% of measured value
±1 mm/s	
Sampling rate (output)	1–25 Hz
	1–200 Hz (Vectrino <sup>+</sup> firmware)

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

## Sampling Volume

Distance from probe	0.05 m
Diameter	6 mm
Height (user selectable)	3–15 mm

## Echo Intensity

Acoustic frequency	10 MHz
Resolution	Linear scale
Dynamic range	25 dB

## Sensors

Temperature	Thermistor embedded in probe
• Range	–4°C to 40°C
• Accuracy/Resolution	1°C/0.1°C
• Time response	5 min

## Data Communication

I/O	RS 232. The software supports commercially available converters.
USB–RS 232	
Baud rate	300–115 200
User control	Handled via Vectrino Win32 <sup>®</sup> software, ActiveX <sup>®</sup> function calls, direct commands.
or	
Analog outputs each	3 channels standard, one for velocity component.
Output range is	0–5V, scaling is user



The Vectrino consists of two basic elements: the probe attached to a cylindrical housing and the processor inside the housing. From here the processed data is sent over a serial line or analog signals can be sent to an A/D converter.

selectable.  
Synchronization      SynchIn and SynchOut

## Multi Unit Operation

Software	CollectV™ software
I/O	RS 232–USB support for devices with 1, 2, 4, and 8 serial ports.

## Software (“Vectrino”)

Operating system	Windows <sup>®</sup> 2000, Windows <sup>®</sup> XP
Functions	Instrument configuration, data collection, data storage. Probe test modes.

## Power

DC Input	12–48 VDC
Peak current	2.5 A at 12 VDC (user selectable)
Max. consumption, 200 Hz	1.5 W

## Connectors

Bulkhead	IP 68 connector or MCBH-12-FS, bronze (Impulse) – see also options below.
Cable	IP 68 or PMCIL-12-MP – see also options below.

## Materials

Standard model (316)	Delrin <sup>®</sup> housing. Stainles steel probe and screws.
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## Environmental

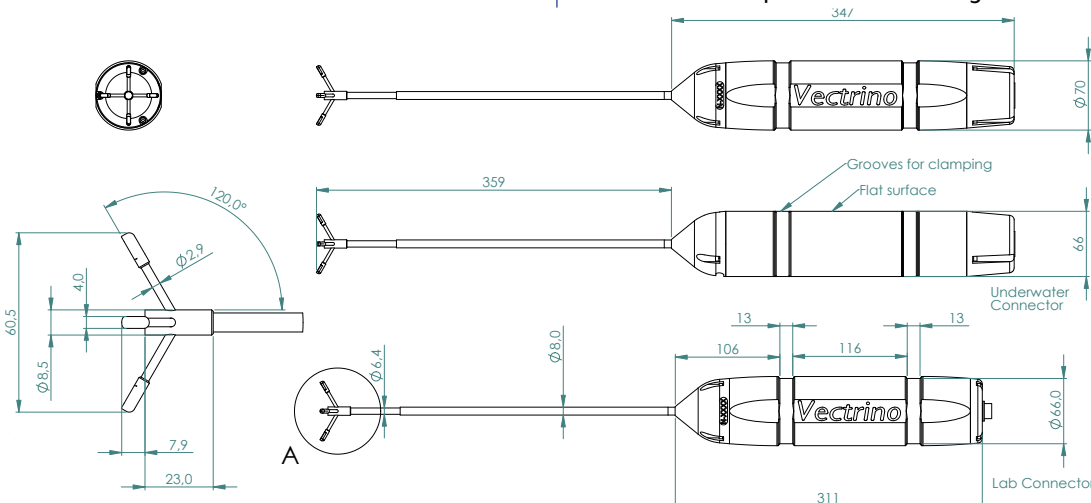
Operating temperature	–5°C to 45°C
Storage temperature	–15°C to 60°C
Shock and vibration	IEC 721-3-2

## Dimensions

See drawing below

## Options

- Standard or Vectrino<sup>+</sup> firmware (upgrade to Vectrino<sup>+</sup> firmware is also available as retrofit)
- 4-beam down-looking probe or side-looking probe. Fixed stem or flexible cable
- 12-pin IP 68 waterproof connector (1h at 20m) or Impulse 12-pin underwater connector
- 10, 20, 30 or 50m cable with choice of IP 68 or Impulse underwater connector
- RS 232–USB converter (one-to-one, four-to-one or eight-to-one)
- Combined transportation and storage case



The Vectrino replaces the line of Nortek NDV Velocimeters. All specifications subject to change without notice.

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