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 in order to study rapid velocity fluctuations. The basis measurement technology is coherent Doppler processing, which is characterized by accurate data with no appreciable zero offset.

The acoustic sensor has one transmit transducer and four receive transducers. The sampling volume is located away from the sensor to provide undisturbed measurements. Acoustic Doppler Velocimeters work by sending out a short acoustic pulse from the transmit element. When the pulse travels through the focus point for the receiver beams, the echo is recorded in each of the acoustic receiver elements. The echo is then processed to find the Doppler shift, the scaling is adjusted with the measured speed of sound in the liquid (hence the temperature measurement), and the velocity vector is recorded or transmitted to a PC at a rapid rate. The Vectrino Lab Probe is used in a variety of laboratory applications for example in hydraulic laboratories to measure turbulence and 3D velocities in flumes and physical models.
Vectrino 2D-3D Sidelooking, Cable Probe

All dimensions in mm.
**Technical Specifications**

**Water Velocity Measurements**
- **Range:** ±0.01, 0.1, 0.3, 1, 2, 4 m/s (user selectable)
- **Accuracy:** ±1% of measured value ±1 mm/s
- **Sampling rate (output):** 1–25 Hz (standard firmware), 1–200 Hz (Plus 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:** 35 dB

**Sensors**
- **Temperature:** Thermistor embedded in probe
- **Range:** –4°C to 122°C
- **Accuracy/Resolution:** 1°C/0.1°C ± 5

**Data Communication**
- **I/O:** RS 232. The software supports most commercially available USB–RS 232 converters.
- **Communication Baud rate:** 300–115,200 Baud
- **User control:** Handled via Vectrino Win32® software, ActiveX® function calls, or direct commands.

**Multi Unit Operation**
- **Software:** Polysync
- **I/O:** RS 232–USB support for devices with 1, 2, 4, and 8 serial ports.

**Software (“Vectrino”)**
- **Operating system:** Windows® XP, Windows® 7
- **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:** MC8H-12-FS, bronze (Impulse)
- **Cable:** PMCIL-12-MP – see also options below.

**Materials**
- **Standard model:** Delrin® housing. Stainless steel (316) probe and screws.

**Environmental**
- **Operating temperature:** –4°C to 40°C
- **Storage temperature:** –15°C to 60°C
- **Shock and vibration:** IEC 721-3-2

**Dimensions**
- See drawings on page 2-3 for dimensions
- **Weight in air:** 1.2 kg
- **Weight in water:** Neutral

**Options**
- Standard or Vectrino Plus firmware
- 4-beam down-looking probe or side-looking probe. Fixed stem or flexible cable
- 10, 20, 30 or 50 m cable with Impulse underwater connector
- RS 232–USB converter (one-to-one, four-to-one or eight-to-one)
- Combined transportation and storage case

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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.