Vectrino

Sample 3D velocity at up to 200 Hz for use in hydraulic models and laboratory flumes

The Vectrino is a high-resolution acoustic velocimeter used to measure 3D water velocity fluctuations within a very small sampling volume and at sample rates of up to 200 Hz. It can be applied in a variety of environments, from hydraulic labs – where it is regarded as standard equipment – to the ocean. It is ideal for near-boundary flow measurements or to capture any highly dynamic phenomena in a hydraulic tank.

Highlights

- ✓ Hydraulic models and flumes
- ✓ Inexpensive alternative to laser Doppler velocimeter
- ✓ 200 Hz maximum sampling rate

Applications

- ✓ 3D flow measurements in laboratory flumes
- ✓ Flow measurements near boundaries and in areas that are difficult to access
- ✓ Flow measurements in physical models in hydraulic laboratories
- ✓ Measurements of laboratory flume bottom changes as a function of time

Technical specifications

→ Water velocity measurements

Maximum profiling range	N/A
Distance from probe	0.05 m, 0.1 m (field probe)
Sampling volume diameter	6 mm
Sampling volume height (user-selectable)	3-15 mm
Cell size	N/A
Velocity range*	±0.03, 0.1, 0.3, 1, 2.5, 4 m/s (software-selectable)
Adaptive ping interval	N/A
Accuracy	±0.5% of measured value ±1 mm/s
Velocity precision	N/A
Sampling rate (output)	1-25 Hz (Std firmware),1-200 Hz (Plus firmware)
Internal sampling rate	N/A

- 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	10 MHz
Resolution	Linear scale
Dynamic range	25 dB

→ Sensors

Temperature:	Thermistor embedded in probe
Temp. range	-4 to +32 °C
Temp. accuracy/resolution	1 °C/0.1 °C
Temp. time response	5 min
Compass:	N/A
Accuracy/resolution	N/A
Tilt:	N/A
Accuracy/resolution	N/A
Maximum tilt	N/A
Up or Down	N/A
Pressure:	N/A

→ Sensors

Standard range	N/A
Accuracy/precision	N/A

→ Analog inputs

No. of channels	N/A
Supply voltage to analog output devices	N/A

→ Data recording

Capacity (standard):	N/A
Data record	N/A

→ Real-time clock

Accuracy	N/A
Backup in absence of power	N/A

→ Data communications

I/O	RS-232
Communication baud rate	300-115 200 Bd
Recorder download baud rate	N/A
User control	Handled via "Vectrino" software, ActiveX® function calls, or direct commands
Analog outputs	3 channels standard, one for each velocity component
Output range	0–5 V, scaling is user-selectable0
Synchronization	RS-485, start on sync, sample on sync,transmit on sync (Plus Firmware)

→ Connectors

Bulkhead	MCBH-12-FS, bronze
Cable	PMCIL-12-MP – see also options below

→ Software

Functions	Deployment planning, instrument configuration, data retrieval and conversion (for Windows®)

→ Multi unit operation

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

→ Power

DC input	12-48 V DC
Maximum peak current	2.5 A at 12 V DC (user-selectable)
Max. consumption	1.5 W at 200 Hz
Typical consumption, 4 Hz	N/A
Sleep consumption	N/A
Transmit power	N/A

→ Batteries

Battery capacity	N/A
New battery voltage	N/A
Data collection capacity	N/A

→ Environmental

Operating temperature	-4 to +40 °C
Storage temperature	-15 to +60 °C
Vibration	IEC 60068-1/IEC60068-2-64
Depth rating	20 m

→ Materials

Standard model	POM housing. Stainless steel (316) probe and fasteners

→ Dimensions

Maximum diameter	66 mm
Maximum length	350 mm (housing only), 365 mm (fixed stem)

→ Weight

Weight in air	1.2 kg (1.3 kg with field probe)
Weight in water	Neutral (0.1 kg with field probe)

→ Options

4-beam down-looking probe or side-looking probe. Fixed stem or 1 m 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)

Standard or Vectrino Plus firmware

Combined transportation and storage case