

HORIZONTAL CURRENT PROFILER

# 2D Horizontal Profiler - 400 kHz



Up to 130 m horizontal profiling range; ideal for side-wall applications

The 2D Horizontal Profiler is the ideal tool for current measurements from a physical structure in, for example, port entrances. This ADCP provides the two horizontal flow components at multiple distances from the mounting and is commonly used in online applications where immediate access to current data is critical.

This instrument is used to perform river discharge measurements by [River Insight](#).

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## Highlights

- ✓ Up to 130 m horizontal profiling range
- ✓ Ideal for wall-mounted applications
- ✓ Corrosion-free housing

## Applications

- ✓ Port entrances with challenging flow conditions
- ✓ Flow measurements upstream and downstream of tidal turbines
- ✓ Flow measurements from marine structures at draft depth

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## Technical specifications

### → Water velocity measurements

Maximum profiling range	100-130 m
Cell size	1.0-8.0 m
Number of cells	Typical 20-40, max. 128
Velocity range	±10 m/s horizontal, ±5 m/s along beam
Accuracy	±1% of measured value ±0.5 cm/s
Velocity precision	Consult instrument software
Maximum output rate	1 Hz
Internal sampling rate	3 Hz

### → Echo intensity

Sampling	Same as velocity
Resolution	0.45 dB
Dynamic range	90 dB
Transducer acoustic frequency	400 kHz
Number of beams	2, slanted at 25°
Beam width	1.7°
Beam width vertical beam	N/A

### → Wave measurement option (AST)

Maximum depth	N/A
Data types	N/A
Sampling rate velocity (output)	N/A
Sampling rate AST (output)	N/A
No. of samples per burst	N/A

### → Wave estimates

Range	N/A
Accuracy/resolution (Hs)	N/A
Accuracy/resolution (Dir)	N/A
Period range	N/A

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## → Wave estimates

Cut-off period (Hs) N/A

Cut-off period (dir) N/A

## → Sensors

Temperature: Thermistor embedded in housing

Temp. range -4 to +40 °C

Temp. accuracy/resolution 0.1 °C/0.01 °C

Temp. time response < 5 min

Compass: Magnetoresistive

Accuracy/resolution 2°/0.1° for tilt <15°

Tilt: Liquid level

Accuracy/resolution 0.2°/0.1°

Maximum tilt 30°

Up or Down Automatic detect

Pressure: Piezoresistive

Range 0-100 m

Accuracy 0.5% of full scale (optional 0.1% of full scale)

Resolution 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

Voltage input 0-5 V

Resolution 16-bit A/D

## → Data recording

Capacity 9 MB, can add 4/16 GB

Profile record Ncells\*9 + 120 bytes

Wave record N/A

Mode Stop when full (default) or wrap mode

## → Real-time clock

Accuracy ±1 min/year

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## → Real-time clock

Backup in absence of power 1 year

## → Data communications

I/O RS-232 or RS-422. Software supports most commercially available USB-RS-232 converters

Communication baud rate 300-115200 Bd

Recorder download baud rate 600/1200 kBd for both RS-232 and RS-422

User control Handled via "AWAC" software, or ActiveX® controls.

Output formats NMEA, Binary. Prolog provides same types also for processed wave and current data

## → Connectors

Bulkhead MCBH-2-FS, MCBH-8-FS, optional Souriau M-series metal connector for online use

Cable PMCIL-8-MP on 10 m polyurethane cable

## → Software

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

## → Power

DC input 9-18 V DC

Maximum peak current 3 A

Avg. power consumption Typical 1 W when sampling

Sleep current < 100 µA

Transmit power 1-30 W, 3 adjustable levels

## → Environmental

Operating temperature -4 to +40 °C

Storage temperature -20 to +60 °C

Shock and vibration IEC 721-3-2

EMC approval IEC 61000

Depth rating 300 m

## → Materials

Standard model POM and polyurethane plastics with titanium fasteners

## → Dimensions

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Maximum diameter	306 mm
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Maximum length	203 mm
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## → Weight

Weight in air	8.8 kg
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Weight in water	3.2 kg
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## → Online cable

Polyurethane jacket, Shore D hardness, 13 mm in diameter, max 2 km. Inquire for longer cables