



# Aquadopp Profiler 2 MHz



Small and compact, short-range current profiling; option for PUV wave measurements

The Aquadopp Profiler is a highly versatile Acoustic Doppler Current Profiler (ADCP) available in four profiling range options, from  $< 1$  m to  $> 85$  m. Designed for simple yet powerful operation, this current profiler is packed with features used by engineers and researchers to enable accurate and effective hydrodynamic data collection in a variety of environmental conditions.



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## Highlights

- ✓ Up to 10 m current profiling range
- ✓ Optional right-angle head
- ✓ PUV-based directional wave measurements

## Applications

- ✓ Near-bed current profiles with fine vertical resolution
- ✓ Mean flow measurements with high focus on ease of use and simplicity
- ✓ Measurements in flow regimes with strong variations in flow speeds
- ✓ Projects with needs for both high-resolution and normal-range current measurements
- ✓ Measurements of combinations of waves and currents
- ✓ Studies of deep-water currents
- ✓ Studies of tidal currents
- ✓ Mounted on surface buoys
- ✓ Suitable for wave buoys



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## Technical specifications

### ➡ Water velocity measurements

|                               |                                 |
|-------------------------------|---------------------------------|
| Maximum profiling range       | 4-10 m                          |
| Cell size                     | 0.1-2 m                         |
| Minimum blanking              | 0.05 m                          |
| Maximum number of cells       | 128                             |
| Measurement cell position     | N/A                             |
| Default position (along beam) | N/A                             |
| Velocity range                | ±10 m/s                         |
| Accuracy                      | ±1% of measured value ±0.5 cm/s |
| Velocity precision            | Consult instrument software     |
| Maximum sampling rate(output) | 1 Hz                            |
| Internal sampling rate        | 23 Hz                           |

### ➡ Echo intensity (along slanted beams)

|                               |                  |
|-------------------------------|------------------|
| Sampling                      | Same as velocity |
| Resolution                    | 0.45 dB          |
| Dynamic range                 | 90 dB            |
| Transducer acoustic frequency | 2 MHz            |
| Number of beams               | 3                |
| Beam width                    | 1.7°             |

### ➡ HR option

|                         |          |
|-------------------------|----------|
| Maximum profiling range | 3 m      |
| Cell size               | 7-150 mm |
| Minimum blanking        | 0.03 m   |
| Maximum number of cells | 128      |



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## ⇒ HR option

|                            |  |
|----------------------------|--|
| Range/Velocity limitations | Product of profiling range and velocity should not exceed 0.5 m <sup>2</sup> /s (2 MHz system) |
| Accuracy                   | ±1% of measured value ±0.5 cm/s  |
| Max. sampling rate         | 1 Hz (continuous mode, )8 Hz (burst mode)"   |

## ⇒ Z-Cell option

|                              |     |
|------------------------------|-----|
| Cell zero acoustic frequency | N/A |
| Maximum profiling range      | N/A |
| Number of beams              | N/A |

## ⇒ Sensors

|                           |                                |
|---------------------------|--------------------------------|
| Temperature:              | Thermistor embedded in head    |
| Temp. range               | -4 to +40 °C                   |
| Temp. accuracy/resolution | 0.1 °C/0.01 °C                 |
| Temp. time response       | 10 min                         |
| Compass:                  | Magnetometer                   |
| Accuracy/resolution       | 2°/0.1° for tilt < 20°         |
| Tilt:                     | Liquid level                   |
| Accuracy/resolution       | 0.2°/0.1°                      |
| Maximum tilt              | 30°                            |
| Up or Down                | Automatic detect               |
| Pressure:                 | Piezoresistive                 |
| Range                     | 0-100 m (inquire for options)  |
| Accuracy/precision        | 0.5% FS / 0.005% of full scale |

## ⇒ Analog inputs

|  |  |
|--|--|
| No. of channels                        | 2  |
| Supply voltage to analogoutput 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  |



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## ⇒ Analog inputs

|            |            |
|------------|------------|
| Resolution | 16-bit A/D |
|------------|------------|

## ⇒ Data recording

|                    |                                       |
|--------------------|---------------------------------------|
| Capacity           | 9 MB, can add 4/16 GB                 |
| Data record        | 9*Ncells + 32 bytes                   |
| Diagnostics record | N/A                                   |
| Wave record        | Nsamples * 24 + 60 bytes              |
| Mode               | Stop when full (default) or wrap mode |

## ⇒ 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     | 300-115200 Bd  |
| Recorder download baud rate | 600/1200 kBd for both RS-232 and RS-422  |
| User control                | Handled via "Aquadopp" software, ActiveX®function calls, or direct commands with binary or ASCII data output |

## ⇒ 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®) |
|-----------|---|

## ⇒ Power

|                        |           |
|------------------------|-----------|
| DC input               | 9-15 V DC |
| Maximum peak current   | 3 A       |
| Avg. power consumption | 0.03 W    |
| Sleep current          | < 100 µA  |



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## Power

Transmit power 0.3-20 W, 3 adjustable levels

## Batteries

Battery capacity 1) 50 Wh (alkaline or Li-ion), 2) 165 Wh (lithium), 3) Single or dual

New battery voltage 13.5 V DC (alkaline)

## Environmental

Operating temperature -5 to +40 °C

Storage temperature -20 to +60 °C

Shock and vibration IEC 721-3-8

EMC approval IEC 61000

Depth rating 300 m, (3000 m and 6000 m option)

## Materials

Standard model POM and polyurethane plastics with titanium fasteners

## Dimensions

Maximum diameter 75 mm

Maximum length ~550 mm (single battery), +110 mm (double battery) depending on head configuration

## Weight

Weight in air 2.2 kg

Weight in water 0.2 kg

## Options

1) Alkaline, lithium or Li-ion external batteries, 2) Inquire for different head configurations

**We represent this supplier.  
For more information contact  
Observator Instruments:**

**T: +31 (0)180 463411  
E: [info@observator.com](mailto:info@observator.com)**

Rietdekkerstraat 6  
2984 BM Ridderkerk  
The Netherlands

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