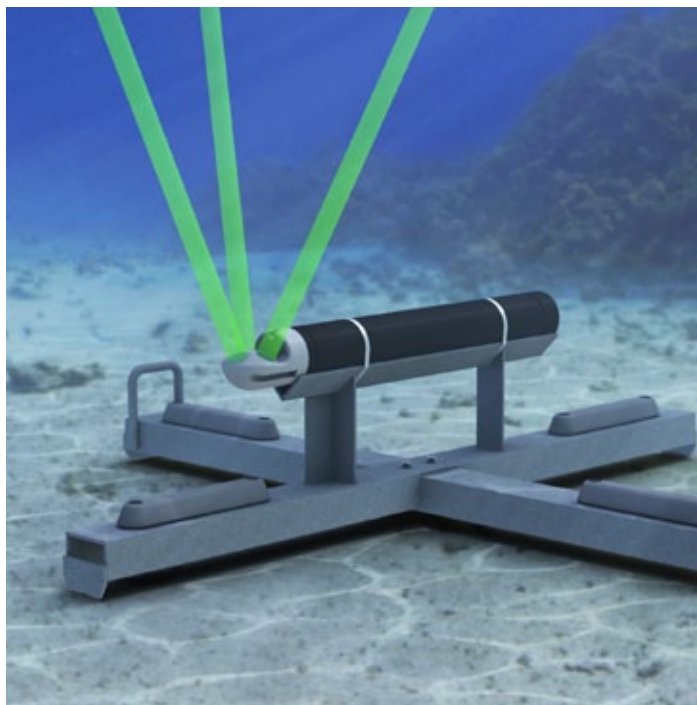


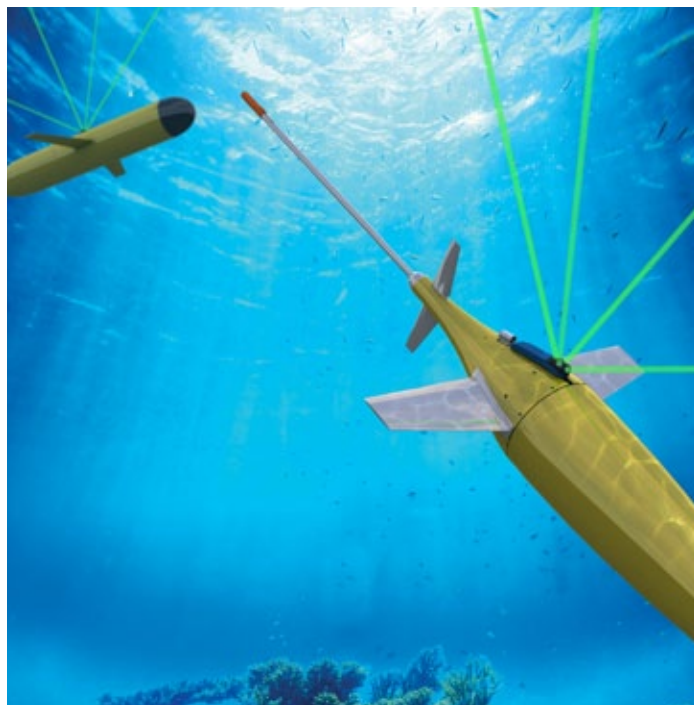
The Aquadopp® profiler measures the current profile in water using acoustic Doppler technology. It is designed for a wide range of applications and can be deployed on the bottom, on a mooring rig, buoy or on any other fixed structure. It is a complete system and includes all parts required for a self contained deployment with data stored to an internal data logger. The Aquadopp profiler is a small and lightweight profiler for use over profiling range from of 1 to 100m.

## Aquadopp® Profiler

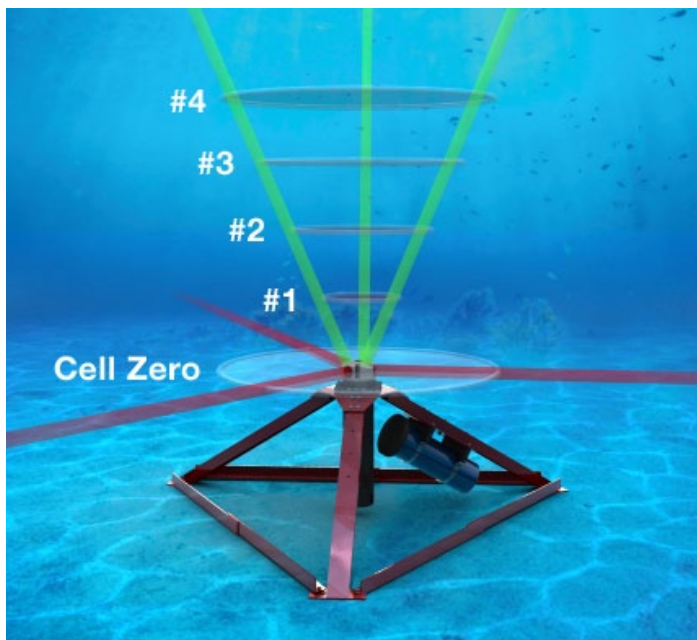
400kHz, 600kHz, 1/2MHz  
with Z-Cell option



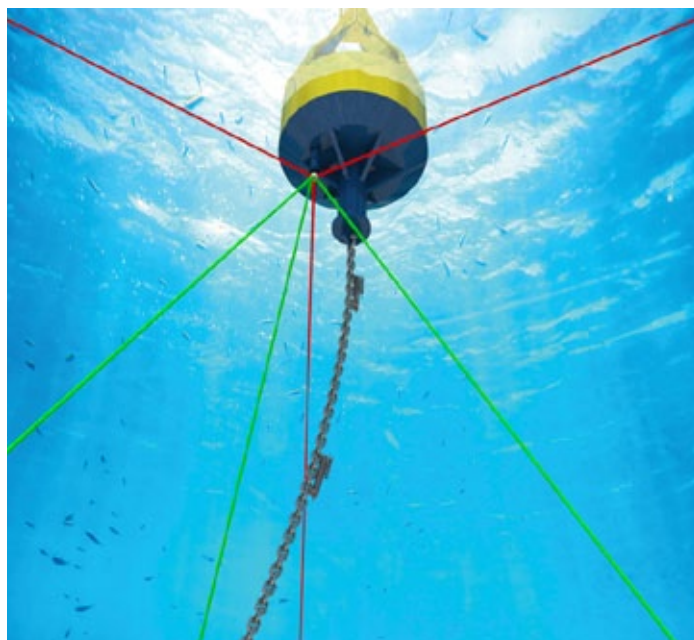
Bottom framed Aquadopp Profiler: Typical applications include coastal studies, online monitoring and scientific studies in rivers, lakes, and channels. The Aquadopp Profiler works equally well in typical ocean surface water and in the high sediment suspensions found near the coast or in rivers.



The Aquadopp current profiler can be mounted on moving structures and will measure the relative motion between the structure and the water.



A standard current profiler cannot measure the complete profile from the bottom to the surface. Instead, it loses data close to the instrument and close to the far boundary. The Aquadopp Z-Cell extends the profiling range by introducing a «Cell Zero». The data is generated by an extra set of horizontal transducers. The transducers operate at a different frequency (2 MHz) and provide the 2D current velocity at the level of the instrument. This is to the benefit of anyone who is interested in the detailed current velocity in the boundary layer.



CURRENT AND WAVE MEASUREMENTS IN THE OCEAN, LAKE AND LABORATORY



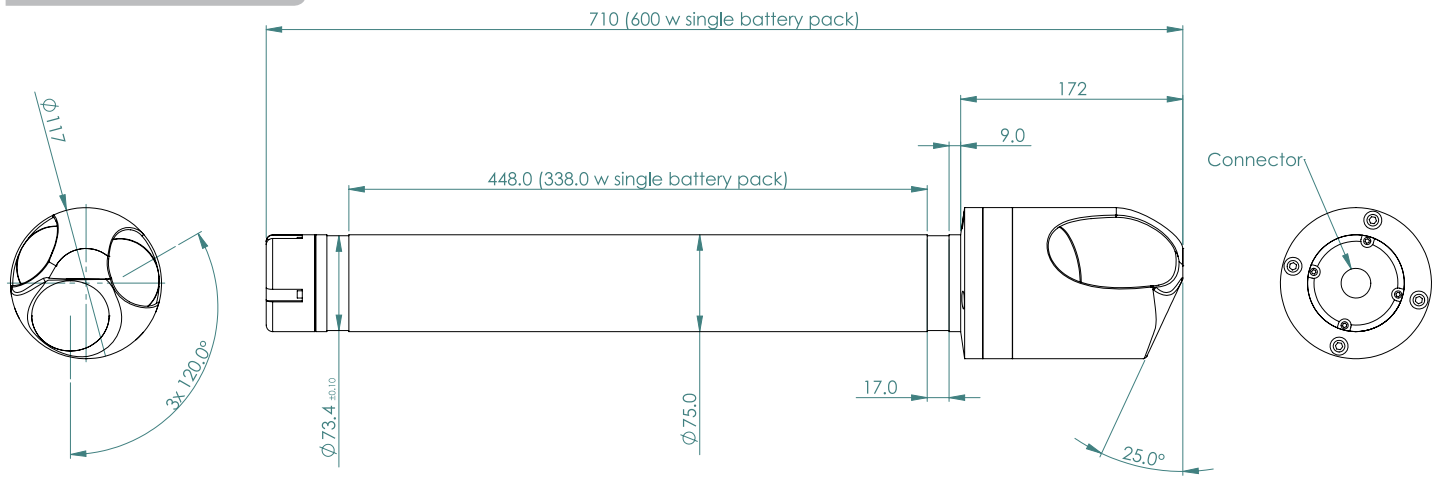
Nortek AS  
Vangskroken 2  
1351 Rud, Norway  
Tel: +47 6717 4500  
Fax: +47 6713 6770  
E-mail: [inquiry@nortek.no](mailto:inquiry@nortek.no)



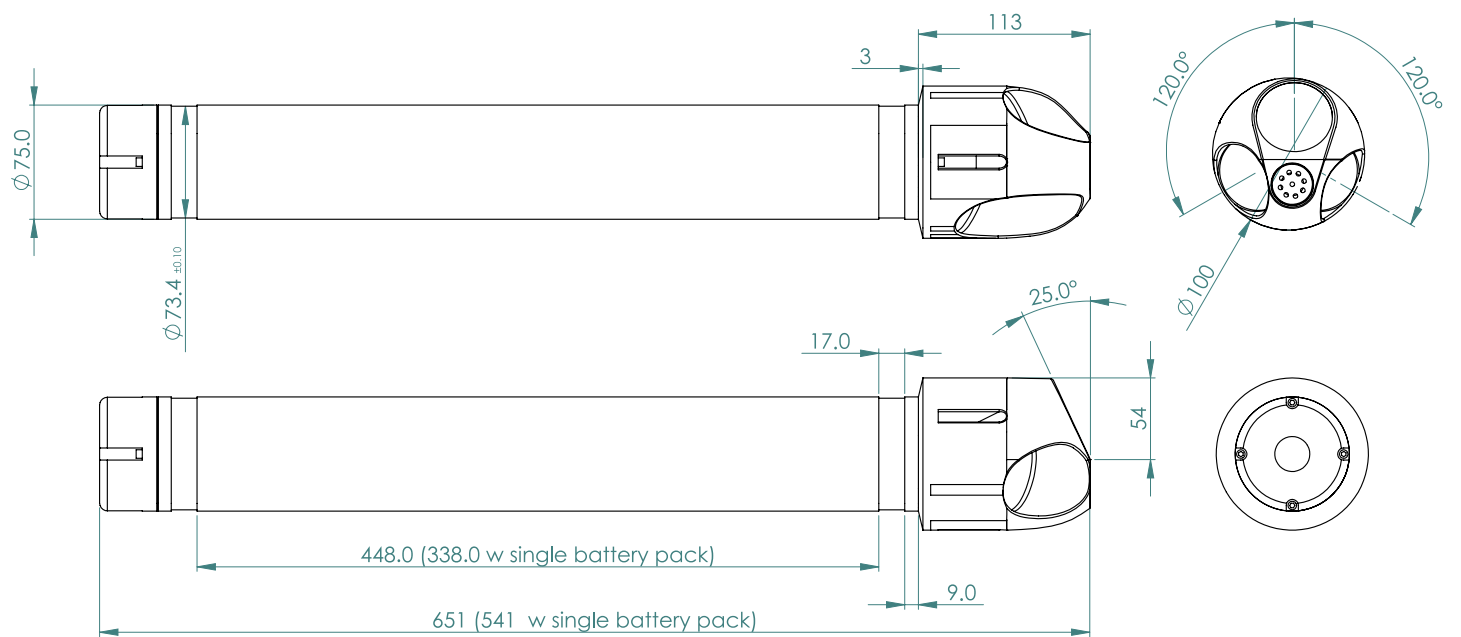
[www.nortek-as.com](http://www.nortek-as.com)

True innovation makes a difference

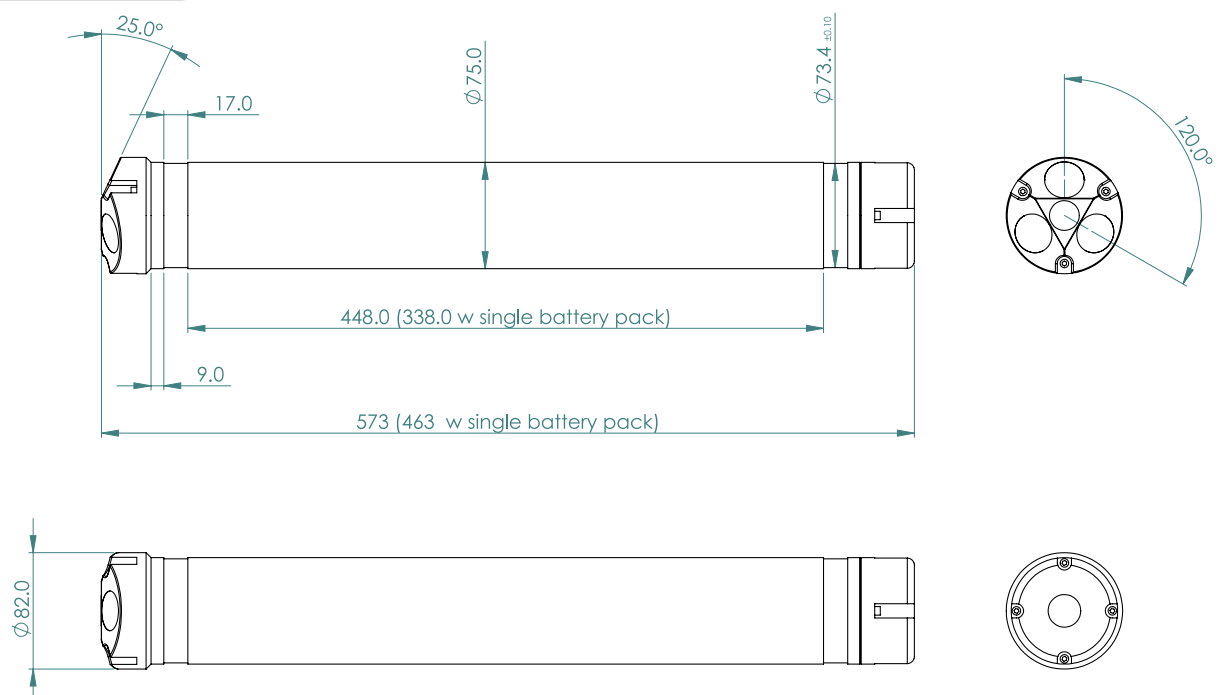
## 400kHz



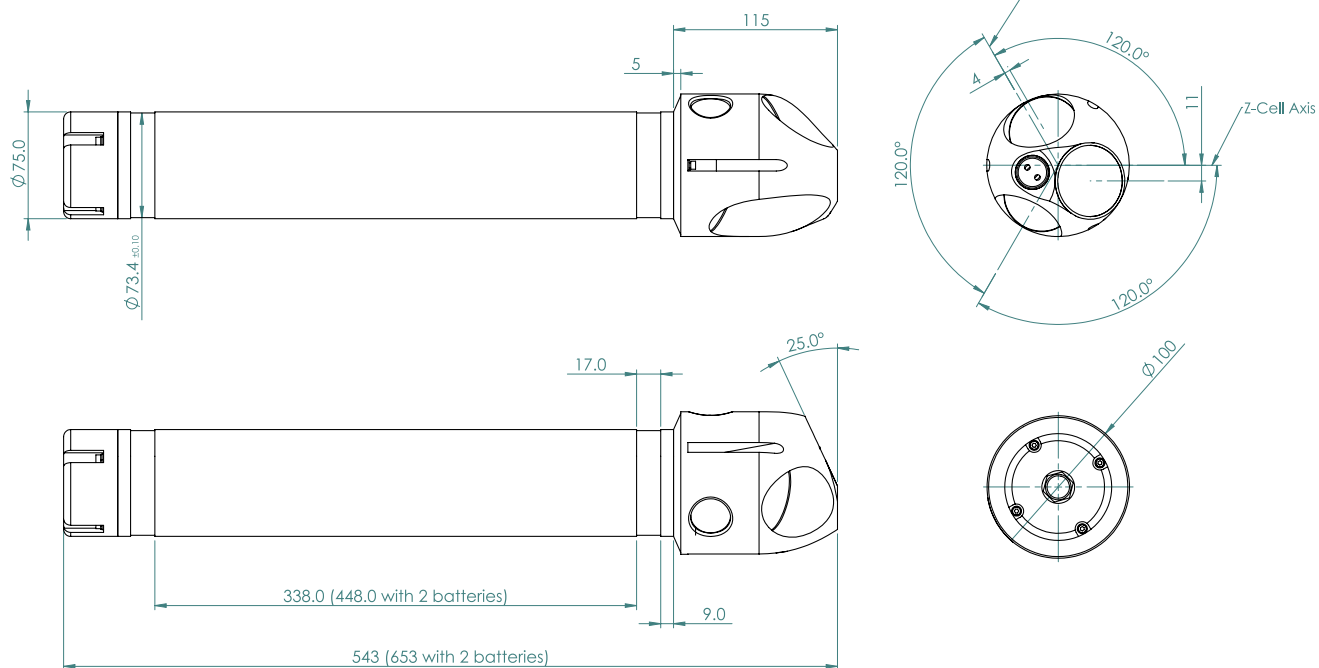
## 600kHz



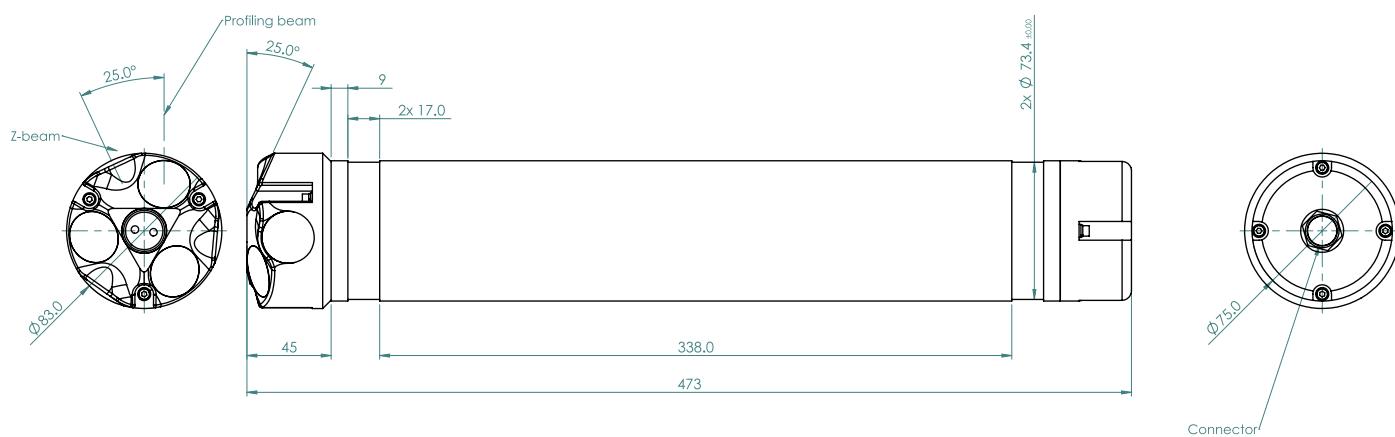
## 1/2 MHz



## Z-Cell 600kHz



## Z-Cell 1MHz



## Sidelooking



## Water velocity measurement

| Acoustic frequency:       | 0.4MHz                              | 0.6MHz | 1.0MHz | 2.0MHz |
|---------------------------|-------------------------------------|--------|--------|--------|
| Maximum profiling range*: | 60–90m                              | 30–40m | 12–20m | 4–10m  |
| Cell size:                | 2–8m                                | 1–4m   | 0.3–4m | 0.1–2m |
| Beam width:               | 3.7°                                | 3.0°   | 3.4°   | 1.7°   |
| Minimum blanking:         | 1m                                  | 0.50m  | 0.20m  | 0.05m  |
| Number of beams:          | 3                                   |        |        |        |
| Maximum # cells:          | 128                                 |        |        |        |
| Velocity Range:           | ±10m/s (inquire for extended range) |        |        |        |
| Accuracy:                 | 1% of measured value ±0.5cm/s       |        |        |        |
| Max. Sampling rate:       | 1Hz                                 |        |        |        |
| Velocity uncertainty:     | Consult software program            |        |        |        |

\*) The Aquadopp profiler measures the current profile in a user specified number of cells from the instrument out to a maximum range that depends on the acoustic scattering conditions. The lower range should be expected with clear water and small cells and the higher range with large cells and acoustically turbid water.

## Cell zero (optional for 0.6MHz and 1MHz transducers)

|                               |          |
|-------------------------------|----------|
| Cell zero acoustic frequency: | 2Mz      |
| Maximum profiling range*:     | 0.4–0.9m |
| Number of beams:              | 3        |

## Echo intensity

|                |                  |
|----------------|------------------|
| Sampling:      | Same as velocity |
| Resolution:    | 0.45dB           |
| Dynamic range: | 90dB             |

## Standard sensors

|                      |                           |
|----------------------|---------------------------|
| <b>Temperature:</b>  | Thermistor embedded       |
| Range:               | –4°C to 30°C              |
| Accuracy/resolution: | 0.1°C/0.01°C              |
| Time response:       | 10 min                    |
| <b>Compass:</b>      | Magnetometer              |
| Accuracy/resolution: | 2°/0.1° for tilt <20°     |
| <b>Tilt:</b>         | Liquid level              |
| Accuracy/resolution: | 0.2°/0.1°                 |
| Maximum tilt:        | 30°                       |
| Up or down:          | Automatic detect          |
| <b>Pressure:</b>     | Piezoresistive            |
| Range:               | 0–100m (standard)         |
| Accuracy/resolution: | 0.5%/0.005% of full scale |

## Analog inputs

|                     |                                                                                                                        |
|---------------------|------------------------------------------------------------------------------------------------------------------------|
| Number of channels: | 2                                                                                                                      |
| Voltage supply:     | Three options selectable through firmware commands:<br>• Battery voltage / 500 mA<br>• +5V / 250 mA<br>• +12V / 100 mA |
| Voltage input:      | 0–5V                                                                                                                   |
| Resolution:         | 16 bit A/D                                                                                                             |

## Data communication

|                              |                                                                                     |
|------------------------------|-------------------------------------------------------------------------------------|
| I/O:                         | RS232, RS422.<br>Software supports most commercially available USB–RS232 converters |
| Communication Baud rate:     | 300–115200 (baud)                                                                   |
| Recorder download baud rate: | 600/1200 k.Baud for both RS232 and RS422                                            |

## Data recording

|                   |                                                                                                      |
|-------------------|------------------------------------------------------------------------------------------------------|
| Capacity:         | 9 MB, can add 32/176/352/MB & 4GB Prolog                                                             |
| Data record:      | 32 bytes + 9xNcells                                                                                  |
| Mode:             | Stop when full (default) or wrap mode                                                                |
| Software:         | AquaPro                                                                                              |
| Operating system: | Windows®XP, Windows® 7                                                                               |
| Functions:        | Deployment planning, data retrieval, ASCII conversion, online data collection, and graphical display |

## Power

|                                 |                                     |
|---------------------------------|-------------------------------------|
| DC Input:                       | 9–15VDC                             |
| Peak current:                   | 3A                                  |
| Max average consumption at 1Hz: | 0.2–1.5W                            |
| Sleep consumption:              | 0.0003 mW (RS232), 0.005 mW (RS422) |
| Transmit power:                 | 0.3–20W, 3 adjustable levels        |

## Real time clock

|                             |               |
|-----------------------------|---------------|
| Accuracy:                   | +/- 1min/year |
| Backup in absence of power: | 4 weeks       |

## Internal batteries

|                            |                                                              |
|----------------------------|--------------------------------------------------------------|
| Type/capacity:             | 18 AA Alkaline cells/50Wh                                    |
| New battery voltage:       | 13.5VDC                                                      |
| Duration (10-minute avg.): | 80 days for 2MHz, 0.5m cells<br>50 days for 1MHz, 1.0m cells |

Exact battery consumption and velocity uncertainty are complex functions of the deployment configuration. Please consult the AquaPro software for more exact predictions.

## Materials

|                                    |                                                       |
|------------------------------------|-------------------------------------------------------|
| Standard:                          | Delrin and polyurethane plastics with titanium screws |
| Intermediate and deepwater models: | Titanium and Delrin plastics                          |

## Connectors

|                     |                                       |
|---------------------|---------------------------------------|
| Bulkhead (Impulse): | MCBH-8-FS                             |
| Cable:              | PMCIL-8-MP on 10-m polyurethane cable |

## Environmental

|                        |               |
|------------------------|---------------|
| Operating temperature: | –5°C to 35°C  |
| Storage temperature:   | –20°C to 60°C |
| Shock and vibration:   | IEC 721–3–2   |
| Depth rating:          | 300m          |

## Dimensions

|                  | 0.4MHz                   | 0.6MHz | 1MHz/2MHz |
|------------------|--------------------------|--------|-----------|
| Weight in air:   | 3.4 kg                   | 2.9 kg | 2.2 kg    |
| Weight in water: | 0.2 kg                   | 0.4 kg | 0.2 kg    |
| Length:          | see dimensional drawings |        |           |
| Diameter:        | see dimensional drawings |        |           |

## Options

|                     |                                                                       |
|---------------------|-----------------------------------------------------------------------|
| Batteries:          | Lithium, Li-Io rechargeable                                           |
| External batteries: | Alkaline, Lithium or Lithium Ion.<br>See battery brochure for details |
| Transducer head:    | Right angle head for 1 or 2MHz.<br>Inquire for special configurations |
| Deep water systems: | Inquire for 3000m & 6000m versions                                    |
| Communication:      | Request special harness for RS422                                     |

