Nortek Aquadopp™
Open water Current Meter (3D)

Features
The Aquadopp has several significant advantages when compared to other open water current meters:
- All plastic and titanium parts stop corrosion
- Small and light weight (less than 3kg!)
- No moving parts that can be blocked or sensitive parts that are easily damaged
- Biological fouling does not affect accuracy
- Low power consumption for long deployments
- A variety of sensor heads and the ability to move the sampling volume away from the mounting structure assure undisturbed measurements in all situations

Software
The Aquadopp comes standard with Windows software both for real time data collection and for controlling autonomous deployments. Different views and menus guide you through the process from configuration to data conversion. The software has an online help section and requires no special skills.

In the final analyses, the Aquadopp offers great value through the combined use of advanced Doppler technology and a flexible system design. The warranty is two years on material defects and workmanship.

The Aquadopp
The Aquadopp is designed both for real-time data collection and self-contained deployments. The instrument uses Doppler technology to achieve accurate and non-intrusive measurements and it comes standard with compass, tilt, pressure, and temperature sensors.

Leading oceanographers and engineers all over the world use the Aquadopp. Typical applications are:
- Self-contained deployments on mooring lines, bottom frames or fixed structures
- Permanent monitoring stations in coastal areas or rivers
- Real-time data collection on buoys, ROVs, offshore platforms, etc.

The Aquadopp is usually configured and controlled from a PC but it can be operated from any third-party controller using the RS-232 or RS-422 interface.

Wave directional spectra
The Aquadopp can be configured to collect wave directional data at the same time as it measures the mean current. At this time Nortek does not provide software for wave directional analyses but the procedure is documented in the Technical note: “Aquadopp and Vector wave measurement near Scripps Pier”.

Diagnostic mode
The diagnostic mode is unique for the Aquadopp. It allows the user to intersperse the average data with periods of rapid sampling (1Hz). Diagnostic data are typically used to analyze the mooring motion or to gather information about surface waves or internal waves.

www.NortekUSA.com
**Water Velocity Measurement**

**Range**  
± 5 m/s (inquire for higher ranges)

**Accuracy**  
1% of measured value ± 0.5 cm/s

**Maximum sampling rate (output)**  
1 s

**Internal sampling rate**  
23 Hz

**Measurement area**

- **Measurement cell size**  
  (user selectable) 0.75 m

- **Measurement cell position**  
  (user selectable) 0.3 - 5.0 m

- **Default position**  
  (along beam) 0.3 - 1.8 m

**Doppler uncertainty (noise)**

- Typical uncertainty for default configurations 0.5 - 1.0 cm/s

- Uncertainty in U,V at 1 Hz sampling rate 1.5 cm/s

**Echo Intensity**

- **Acoustic frequency**  
  2 MHz

- **Resolution**  
  0.45 dB

- **Dynamic range**  
  90 dB

**Sensors**

- **Temperature**  
  Thermistor embedded in head
  - Range: -4°C to 40°C
  - Accuracy/Resolution: 0.1°C/0.01°C
  - Time response: 10 min

- **Compass**  
  Flux-gate with liquid tilt
  - Maximum tilt: 30°
  - Accuracy/Resolution: 2°/0.1°

- **Tilt**  
  Liquid level
  - Accuracy/Resolution: 0.2°/0.1°
  - Up or down: Automatic detect

- **Pressure**  
  Piezoresistive
  - Range: 0-200 m (standard)
  - Accuracy/Resolution: 0.25% / Better than 0.005% of full scale per sample

**Power**

- **DC input**  
  9-16 VDC

- **Peak current**  
  2 amp at 12VDC (user adjustable)

- **Max consumption at 1 Hz**  
  0.2-1.0 W

- **Avg. consumption at 0.02 Hz**  
  0.1 W

- **Avg. consumption at 0.002 Hz**  
  0.01 W

- **Sleep consumption**  
  0.0013 W

- **Battery capacity**  
  50 Wh

- **New battery voltage**  
  13.5 VDC

- **Data collection (alkaline)**  
  6 months at 10-min, ± 1.0 cm/s noise

- **Data collection (lithium)**  
  12 months at 10-min, ± 1.0 cm/s noise

**Connectors**

- **Bulkhead (Impulse)**  
  LPMBH-5-FS (bronze, titanium optional)

- **Cable**  
  LPMIL-5-MP on 5-m neoprene cable

**Materials**

- **Standard model**  
  Delrin and polyurethane plastics with titanium screws

**Environmental**

- **Operating temperature**  
  -5°C to 45°C

- **Storage temperature**  
  -15°C to 60°C

- **Shock and vibration**  
  IEC 721 - 3 - 2

- **Pressure rating**  
  300 m
  (pressure sensor OK to 1.5×range)

**Antifouling paint**

- May be applied to all surfaces

**Dimensions**

- **Cylinder**  
  Diameter: 75mm
  Length: 550 mm or 450 mm

- **Weight in air**  
  3.5 kg

- **Weight in water**  
  Neutral

**Options**

- **Acoustic beams**  
  Several different sensor heads available.
  See separate specification sheet.

- **Battery**  
  Rechargeable Ni-Mn and Lithium available

- **Connectors**  
  LPMBH-8-FS with LPMIL-5-MP on 10-m polyurethane cable for optional RS422 systems.

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**Data Communication**

- **I/O**  
  RS-232 or RS-422

- **Baud rate**  
  300 - 115200

- **User control**  
  Handled via Win 32 software, ActiveX function calls, or direct commands

**Software ("Aquadopp")**

- **Operating system**  
  Win 95, Win 98, NT 4.0

- **Functions**  
  Deployment planning, start with alarm, data retrieval, ASCII conversion, online data collection and graphical display. Test modes.

**Data Recording**

- **Capacity (standard)**  
  2 MB, expandable to 21MB or 78MB

- **Data record**  
  40 bytes

- **Diagnostic record**  
  40 bytes

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