



Nortek History

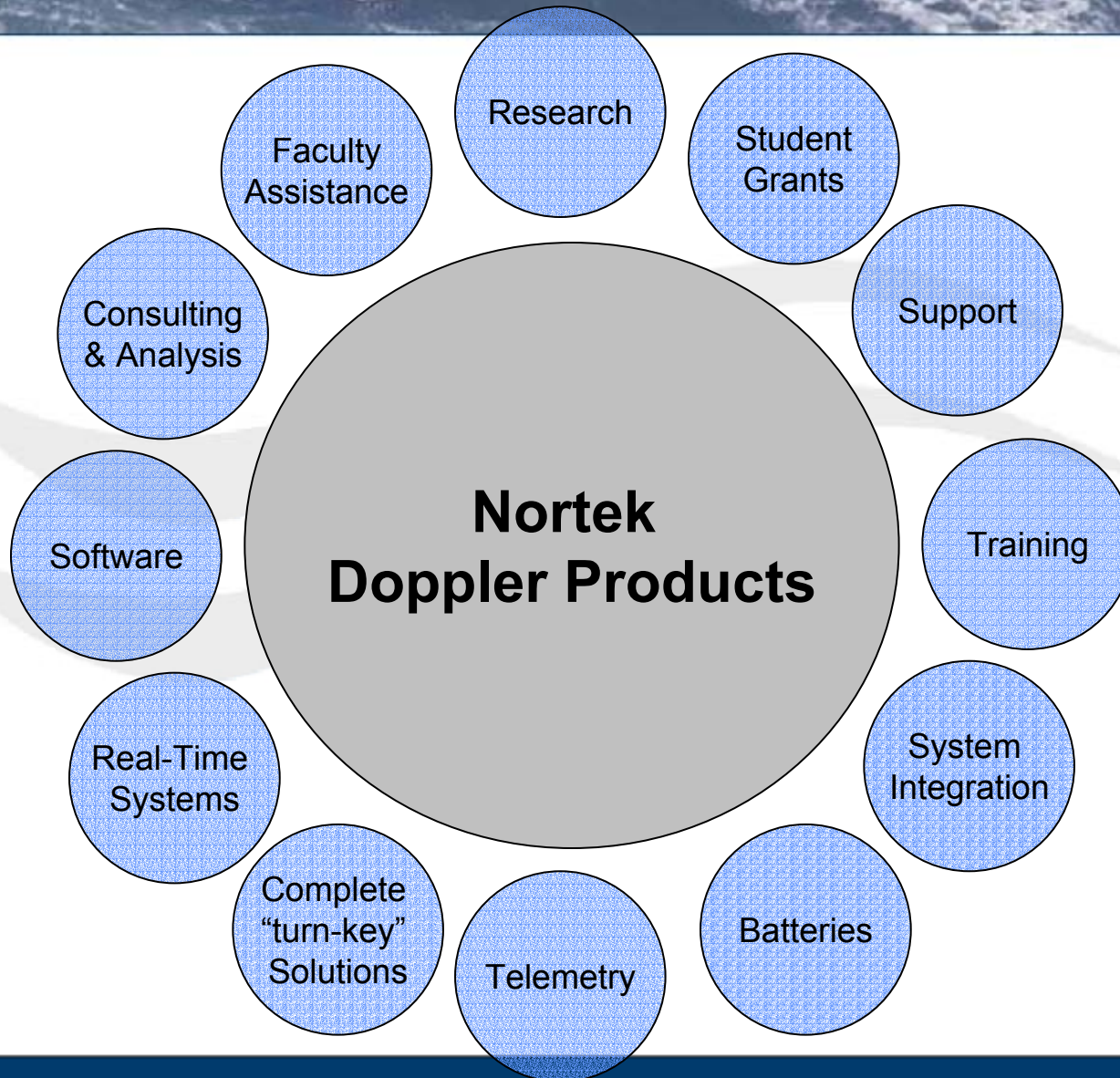
Nortek-AS (1996)
Oslo, Norway

NortekUSA (1999)
Annapolis, MD

- Current Meters
- Current Profilers
- Wave Gauges
- Velocimeters
- River Measurements



Product Flower





Aquadopp Current Meter

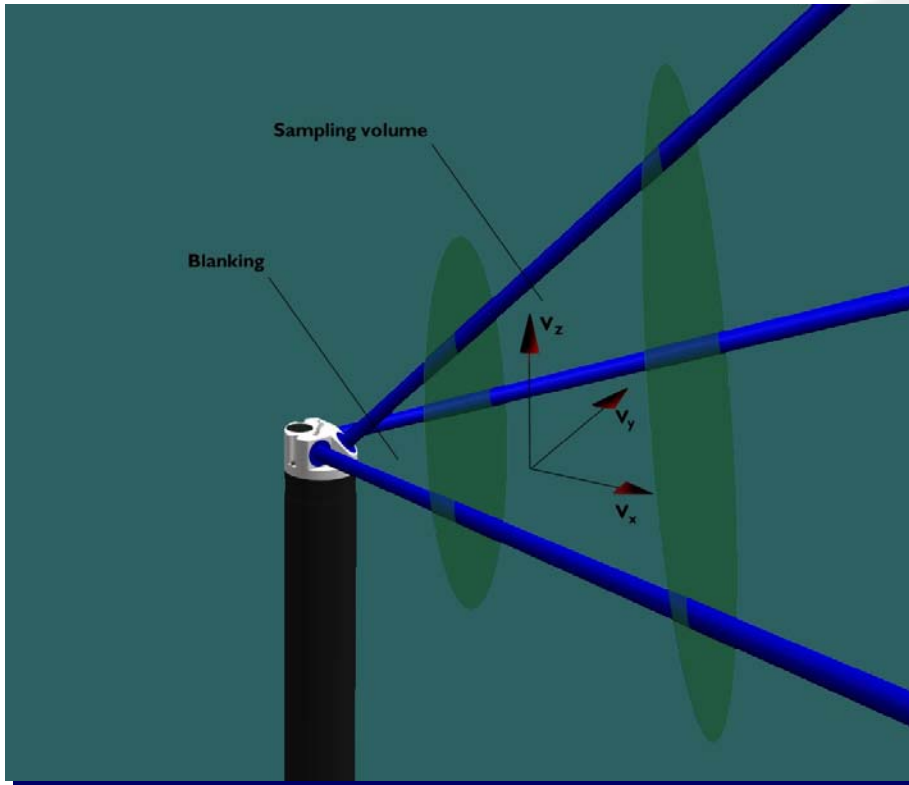
Aquadopp single point current meter

Meas. cell position: 0.3 - 5 m
Velocity range: ± 5 m/s
Accuracy: 1% ± 0.5 cm/s
PUV wave mode: Yes
Max sampling rate: 1 Hz
Length: 55 cm
Diameter: 7.5 cm
Weight: 2.4 kg
Depth ranges: 300, 2000, 6000 m
analog inputs: 2



Aquadopp features

- Adjustable (by user) positioning of sampling volume



Velocity along 2 or 3 beams combined with sensor geometry is used to calculate 2 or 3 geographical velocity components

The user can decide how far away from the sensor the sampling volume shall be positioned (up to 5 meters from the sensor)



Aquadopp Profiler

Aquadopp Profilers

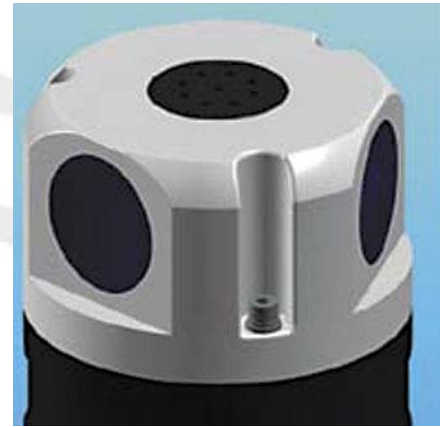
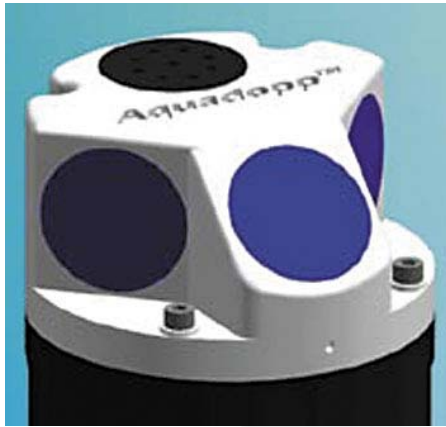
Maximum ranges: 10, 20, 50, 80 m
Velocity range: ± 10 m/s
Accuracy: 1% ± 0.5 cm/s
PUV wave mode: Yes
Max sampling rate: 1 Hz
Length: 55 cm
Diameter: 7.5 cm
Weight: 2.4/2.6 kg
Depth ranges: 300, 2000, 6000 m
analog inputs: 2





Custom Transducer Heads

Molded heads enable custom design to be made on request





Continental Profiler

Long Range Profilers

470 kHz

190 kHz

100 m

250 m



Vertical Profiles



Horizontal Profiles

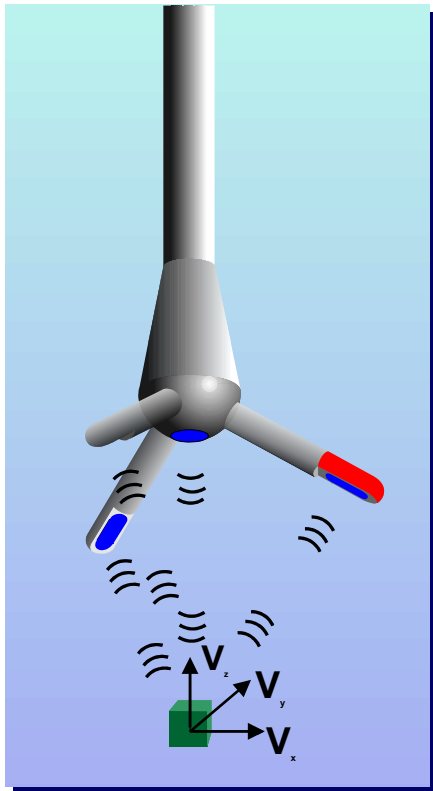


Vector Field Velocimeter

Vector Field Velocimeter



Velocimeter working principle



- Focused acoustic beams for true 3D measurements
- Signal scattering from small particles
- High frequency (64 Hz) and small sampling volume ($\sim 1 \text{ cm}^3$)
- Coherent Doppler technology gives precise data



Vector Field Velocimeter

Vector Applications



- Near bottom turbulence
- PUV directional waves
- Surf zone
- Bio-physical interactions



For lab and field measurements

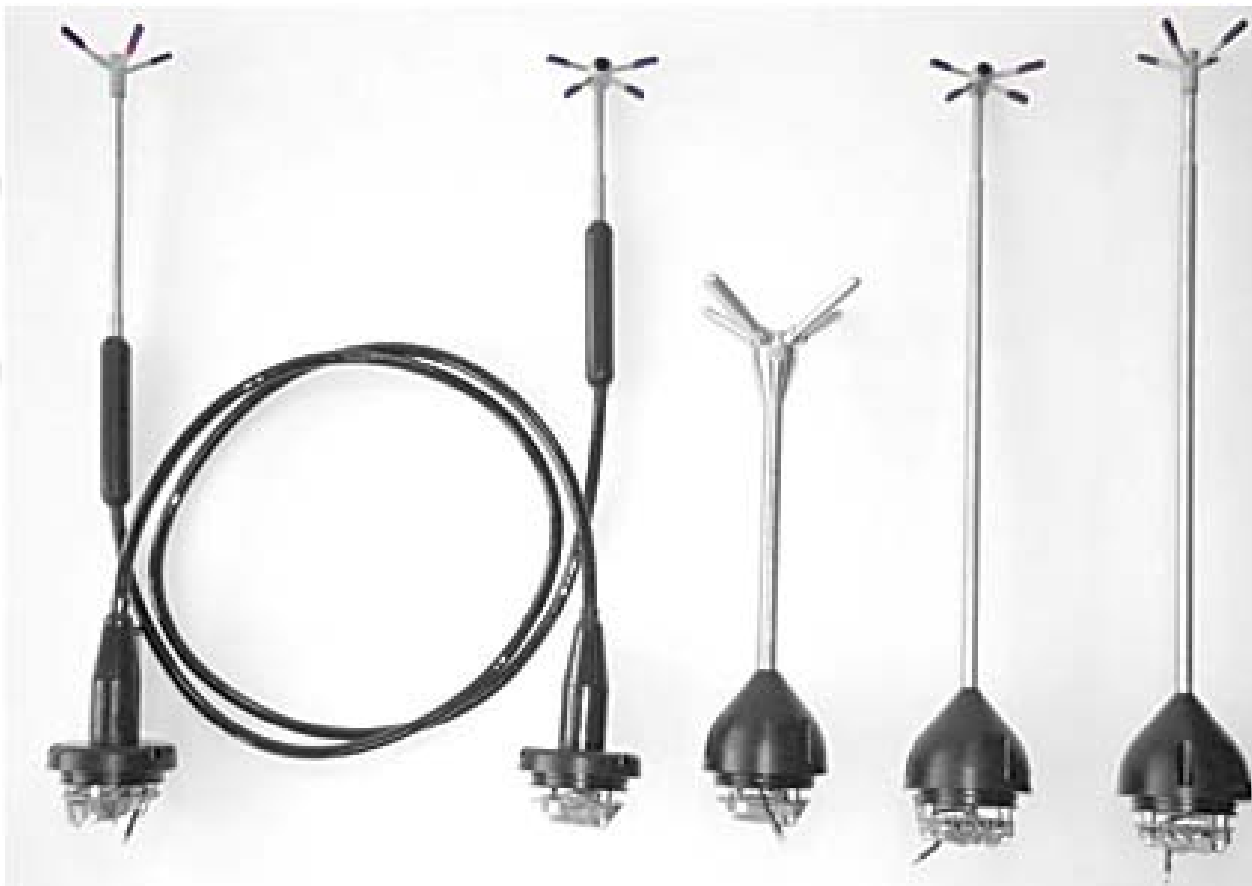


- Smaller than Vector
- Higher sampling rate (200 Hz)
- No internal memory or batteries
- May be connected to "node" or data logger for real-time use
- Less expensive than Vector

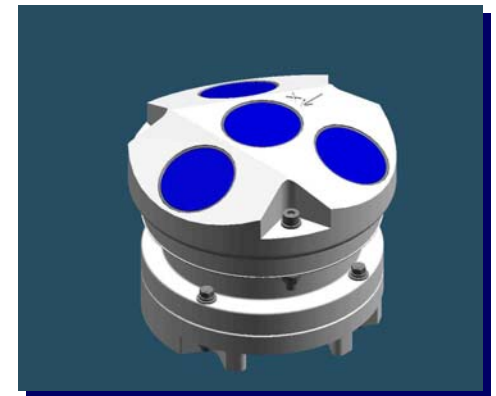
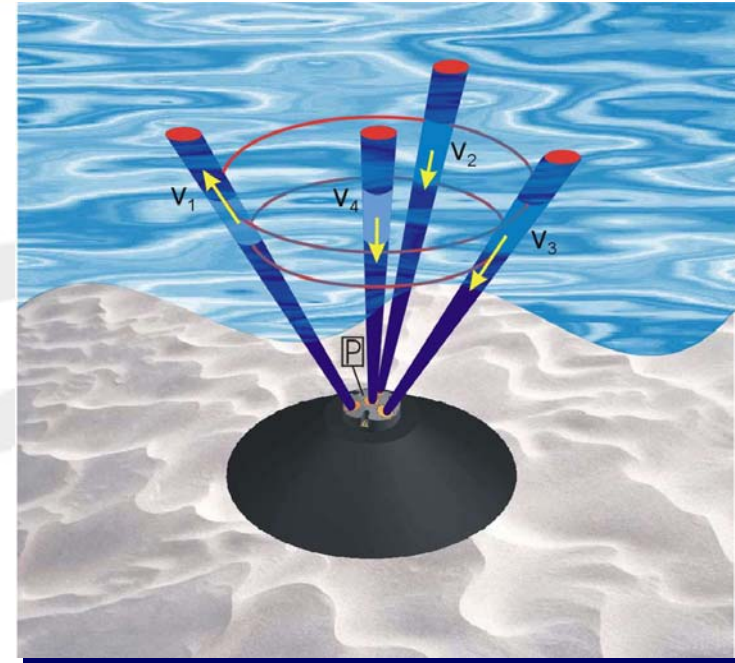


Vectrino Lab Velocimeter

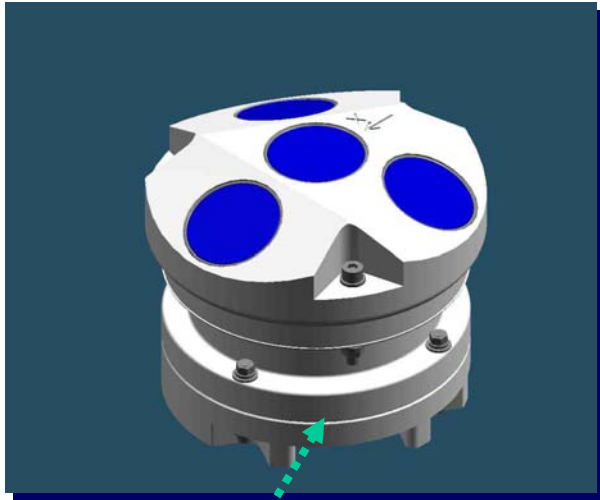
Several probe options



- Acoustic Waves And Currents
- Combined profiler and wave gauge
- 1 MHz or 600 kHz frequencies
- Measure current profile to 25 or 50 m range
- Measure waves with Acoustic Surface Tracking (AST)
- Sample at up to 4 Hz
- Self-contained w/ internal recorder & batteries
- Online real-time data collection (with NIP option)

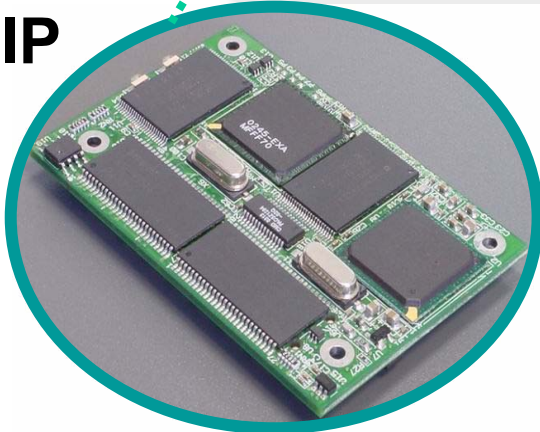


Nortek Internal Processor (NIP)



- Processor reduces wave data prior to telemetry
- Low power
- Fits within AWAC housing
- Standard estimates: H_s T_{peak} Dir
- Configurable output (Spectra, Estimates, Velocity Profile, AST time series, Sensors, etc)
- Modular design allows for custom projects (Vector, HR Profiler, etc)

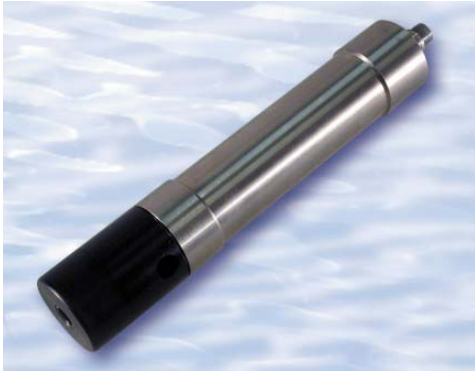
NIP



External Analog Sensors

The current meter and profilers be interfaced to two analog sensors and the Seabird SBE 37 CT sensor (current meter only)

Valeport CT sensor



WET Labs ECO's



Seapoint turbidity sensor



D&A OBS-3



SBE 37 SI CT sensor