AANDERAA

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SEAGUARDII DCP Doppler Current Profiler

The SeaGuardII DCP is the latest acoustic profiler joining the SeaGuard family. It features innovative development of the acoustic profiling capacity and an exceptional ability to collect high quality current information even on moving and tilting moorings.

Available as a self recording instrument, it also integrates unique real time features to meet each application needs.

The SeaGuardII is a smart data hub that combines the SeaGuard electronics with the advanced management firmware of Aanderaa SmartGuard data hub.

SeaGuardII DCP is a 600kHz profiler with multi-sensor capability. By design, it offers increased deployment time, optimized configuration flexibility and unique features to cope with demanding upper ocean environments.

The SeaGuardII DCP is available as 300m depth rated, 3000m, 4500m or 6000m.

Optional parameters are available using Aanderaa range of smart sensors that include temperature, pressure, conductivity, oxygen, wave, tide and turbidity. In addition the SeaGuardII has 4 analog inputs, 2 serial ports with power control and direct connection for real time data transmission.

Applications:

- *Buoy mounted*
- *Hyd/Met systems*
- *In mooring line with upside down possibility*
- *SeaGuardII DCP Dual Head (Two DCPS connected)*
- *Ocean observatory with sensors string*
- *Bottom mounted*
- *Multiparameter ocean observations*

Unique expendable platform
Easy connection of additional sensors

- Wide range of additional parameters available; wave, tide, temperature, conductivity, pressure, oxygen and turbidity, and integration from third party: ORP, pH, total algae, etc
- Can easily be extended to an effective ocean observatory.
- Double the measuring range using two DCPS transducer heads connected to one instrument
- Measure in the blanking zone or boundary layer by combining with a single point Doppler Current Sensor
- LED indicator; visual confirmation of the status of the instrument

Exceptional compensation for environment interference

- Tilt compensation of each ping to correct data for dynamic movements
- Advanced tilt compensation algorithm with cell position adjustment; achieve true horizontal current measurements

Optimal flexibility

- User selectable broadband or narrowband modes
- Address different applications scenarios using a single instrument; set up to three configurations simultaneously
- Surface current feature; measure in the top centimeters layer
- Surface referred columns; follow water level changes

Increased deployment time

- 24 months deployment at 30min sampling interval
- Reduced power consumption with broadband technology
- Increased internal battery capacity
- Optional user assembled battery

Smart Data quality control

- Increased data quality control
- Automatic flagging of bad data; status report for each cell
- User selectable advanced autobeam algorithm; automatic selection of the best 3-beams combination to remove faulty cells

Enhanced real time functionality

- Modem support with power control
- Support AIS, GOES, pseudo binary formats
- Flexible configuration allows optimal limitation of transmitted data
- Independent configuration of the recording and transmission intervals
- Automatic retransmission of missing data

User friendly set up and data analyzing

- Predeployment configuration software; RT Collector
- Modern post processing software Data Studio 3D
- Geoview web based display for real time application

Specifications

Velocity profile measurement

Acoustic frequency:	600 kHz
Typical profiling range:	Broadband: 30-70m Narrowband 35-80m[1]
Cell size:	0.5m - 5m
Cell overlap:	0-90%
Velocity range:	Narrowband: 0-500 cm/s – (1000cm/s with max tilt ± 5°) Broadband: 0-400cm/s
Velocity accuracy:	0.3cm/s or ±1,5% of reading
Velocity resolution:	0.1cm/s
Velocity precision:	<3,3cm[2]
Ping rate:	Up to 10Hz (config dependent)
Cell positioning:	Static (instrument referred) Dynamic (surface referred)[3]
Multiple columns:	3 simultaneous columns + Surface cell[3]
Max. number of cells:	150 total, 75 for first column, 50 for second and 25 for third
Blanking zone:	1m

Transducers

Number of beams:	4
Beam angle:	25°
Beam width:	2.5°

Echo intensity

Dynamic range:	> 50dB
Resolution:	< 0.01dB
Precision:	< 0.01dB

Tilt and compass

Type:	Internal solid state
Pitch / roll range:	± 90°[5] / ± 180°[4]
Tilt / Heading accuracy:	± 1.5° / ± 3.5°
Tilt / Heading resolution:	< 0.1°

Embedded temp sensor 4080 (optional, on request)

Range	-4- +40°C
Resolution	0,001°C
Accuracy	± 0,05°C
Response Time (63%):	<5 sec

Communication and recording

Data storage:	2GB SD Card /remote download
Remote operation:	Device layout Configuration Recording start/stop Status monitoring
Available telemetry	Cable, radio modem, GPRS, GOES, Iridium
Configuration and real time data software:	Real Time Collector
Configuration interface:	USB / RS232 / RS422
Recording system:	Multiple sensors groups with individual recording interval.
Recording interval:	From 30 sec to 3 hrs

Power options

External power supply:	12-30V
Internal battery:	2 batteries inside the instrument: Alkaline 3988: 9V, 15Ah[5] Lithium 3908: 7V, 35Ah
Current drain example:	4,2mA[6]

Environmental

Depth rating:	300m, 3000m, 4500m, 6000m	
Operating temperature:	-5 to +40°C	
Dimensions:	D: 160mm	H: 585mm
Weight:	In Air	In Water
SW	10.8 kg	3.6kg
IW	14.3 kg	6.6kg
DW	15kg	7.2kg
Materials:	PET, PUR, Titanium, Stainless steel 316, polyurethane	

Optional sensors

Temperature Sensor 4060

Range:	-4-36°C (32-96.8°F)[7]
Resolution:	0.001°C (0.0018°F)
Accuracy:	±0.03°C (0.054°F)
Response Time 63%:	< 2 sec

Conductivity Sensor 4319

Range:	0-7.5 S/m
Resolution:	0.0002 S/m
Accuracy	
4319 A:	±0.005 S/m
4319 B:	±0.0018 S/m
Response Time:	<3 sec[8]

Pressure Sensor 4117

Range:	Several range available to 60MPa
Resolution:	<0.0001% FSO
Accuracy:	±0.02% FSO standard ±0,01% FSO on request for sensors 0-10MPa

Wave and Tide Sensor 5217/5218

Range:	Several range available to 60MPa Wave max 1000kPa
Resolution :	<0,0001% FSO
Accuracy:	±0,02% FSO standard ±0,01% FSO on request for sensors 0-10MPa
Wave:	Sampling rate: 2Hz, 4Hz Samples: 256, 512, 1024, 2048

Turbidity Sensor 4112: 0-5V Analog Output
4 models: 0-25, 0-125, 0-500, 0-2000FTU

Oxygen Optode 4835/4330[8]:

	O_2-Concentration	Air Saturation
Measurement Range:	0 – 500 µM	0 - 150%
Resolution:	< 1 µM	0.4 %
Accuracy:	<8 µM or 5%[9] whichever is greater	<5 %[10]

With multipoint calibration[11] :<±2 µM or ±1.5%

Response Time (63%):
4330F (fast response foil) <8 sec
4835/4330 (standard foil) <25 sec

Analog and serial inputs:

Analog:	4 channels 0-5V
Serial:	2 channels with sensor and power switching one RS232 port and one RS422[12]

[1] Typical range with normal backscatter conditions. The measurement range is highly dependent on the scattering conditions. For waters with low amount of scatters, expect a shorter range than for waters with a high amount of scatters
[2] Standard deviation for the horizontal velocity in broadband mode, 3m cell size
[3] Requires information from pressure sensor 4117 / 5217 / 5218
[4] Compensation calibrated up to ± 35°
[5] It is not recommended to use alkaline battery in the upper compartment of the instrument, as it may interfere with the compass
[6] In Broadband mode, 30min interval, 20*2 pings, 2m cell size, 20 cells
[7] Extended range available on request.
[8] Dependent on flow through cell bore
[9] Requires salinity compensation for salinity < 1mS/cm
[10] Within calibrated range 0-120%
[11] Multipoint calibration available on request: 40 points at 5 temperatures and 8 oxygen concentrations
[12] The serial ports may be used either as serial sensor inputs or serial real-time outputs

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