



**HOSKIN**  
SCIENTIFIC

**AANDERAA**

OCEANOGRAPHIC PLATFORMS



**hoskin.ca**

Supplying Testing & Monitoring Instruments Since 1946

For over seventy years, Hoskin Scientific has been a supplier of testing and monitoring instrumentation to the Canadian market. With offices in Vancouver, Edmonton, Oakville and Montréal our customers are able to receive local sales and technical support in our three major departments.

Our Environmental Department provides solutions for monitoring and sampling biological and chemical parameters in the environment. Our team of environmental sales representatives and diverse product range guarantee that you will find the right products for your application. Specific areas include: water quality, water quantity, soil moisture, plant science, weather stations, indoor air quality, aquatic sampling, and oceanography.

Our Materials Testing Department offers testing equipment for soil, asphalt, petroleum, concrete and cement. Our qualified sales associates focus on providing a sophisticated range of testing equipment complying with the various test methods, ensuring that accurate and consistent test results are always obtained.

Our Instrumentation Department focuses on a wide range of products including optical camera systems, transducers and transmitters, data acquisitions and loggers, signal conditioners and indicators, automation sensors and measurement systems. We have technical sales associates that are trained in various areas and willing to help you with your instrumentation requirements.

## RENTALS

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We offer high quality, proven equipment that will provide the user with valuable data as well as numerous ways of retrieving, filtering and viewing that data. We carry a wide range of instrumentation, including: water quality, portable gas monitors, soil sampling instruments and more.

Rental Equipment:

- Single and multi-parameter instruments that can be setup for spot checks or extended deployment/data logging
- Water sampling instruments
- Water velocity and stream profiling instruments
- Soil sampling instruments
- Soil vapour sampling instruments
- Portable gas monitoring instruments

Customer satisfaction is our goal and we make an effort to ensure that all our customers are satisfied with their rental. All rental instruments are cleaned and calibrated before being sent to the user (please note that we also require equipment to be returned clean). If a rental instrument requires recalibration, please return the instrument to us and we will recalibrate at no charge. Any instrument not functioning properly can be exchanged at no cost.

Hoskin Scientific offers technical support over the phone and can also provide hands on demonstrations.

We are constantly expanding and looking for new equipment to add to the rental inventory and welcome all suggestions.

Check our website [www.hoskin.ca](http://www.hoskin.ca) for current offerings.

Daily, weekly and monthly rental rates available – please call for a quote.

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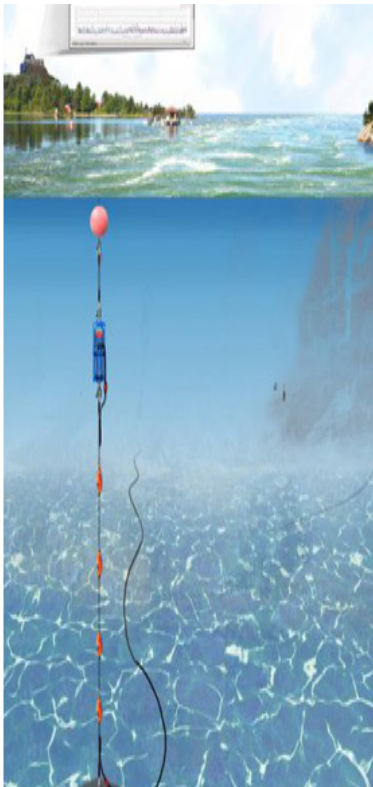
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### SeaGuard® String

The Aanderaa SEAGUARD® String System is a complete and flexible subsea observatory, for measurements of e.g. dissolved oxygen, conductivity, temperature, current, pressure and tide.

#### SEAGUARD® String Logger

The Aanderaa SEAGUARD® String Logger is the basic module of the SEAGUARD® String System. The SEAGUARD® String Logger is capable of handling a large number of sensors. Data is stored on an internal SD-card or transferred in real-time via cable.

#### SEAGUARD® Sensor String

The new Aanderaa SEAGUARD® Sensor String is designed to be connected to the SEAGUARD® String Logger. The SEAGUARD® String System can hold up to 25 AiCaP Sensors. Real-time communication and control is available using the Aanderaa Real-Time Collector.

- For use in sea and fresh water
- Plug and play sensor configuration
- Up to 4 Analog sensor inputs (0-5V) (optional)
- Up to 300m cable length
- SEAGUARD® Studio visualization software
- 300m/2000m/6000m versions
- External power supply 12 - 30V internally regulated to 11.6V



### SeaGuard® Recorder Platforms

SeaGuard Recorder platforms provides the user with the possibility to perform long term monitoring of sea and inland water using the latest technology for measurement.

- SeaGuard Platform SW - 300m
- SeaGuard Platform IW - 3000m
- SeaGuard Platform DW - 6000m
- It employs AADI sensors known for their long term calibration stability and unique non-stirring sensitive construction. The user may select between a wide range of framing and deployment features, real-time communication facilities and storage capabilities.



### SeaGuard® CTD - Conductivity, Temperature and Depth

SeaGuard CTD Recorders may be used as a multi-parameter instrument in the sea and in freshwater and feature a modular plug-and-play architecture.

- Large storage capacity on SD card
- Selectable interval from 2 seconds to 2 hours
- Up to 4 Analog sensor input (0-5V)
- Low current drain
- SEAGUARD® Studio visualization software included
- Real-Time XML Output included in high power version
- Smart sensor topology based on a reliable CANbus interface (AiCaP)
- Windows CE based datalogger with color touch panel for local configuration



### SeaGuard® WLR (water level recorder) and WTR (wave and tide recorder)



The Seaguard® WLR is designed to measure tide (depth) and pressure. This instrument is available with different pressure ranges. The instrument itself is capable of withstanding 300m, 3000m or 6000m.

The Seaguard® WTR is designed to operate down to 30m depth and is available only with the 400 kPa (30m depth) pressure sensor. The Seaguard WTR will measure wave height and period, tide (depth) and pressure information

Deployment times could be several years using the same internal battery.

- Standard version/Self-recording is instrument with internal data storage and battery power.
- Real-time version can be used with internal data storage and battery power and/or with cable to shore with real-time data connection and external power.

Optional Sensors:

Oxygen - Turbidity - Conductivity - Temperature - Sensors on Cable



### SeaGuard® O2

Provides the user with the possibility to perform long term monitoring of sea and inland water oxygen content using the latest technology for oxygen measurement.

It may be used as a multi-parameter instrument in the sea and in freshwater and feature a modular plug-and-play architecture using CANBus based AiCap smart sensor technology. It employs our optical oxygen sensor (Optode) known for its long term calibration stability and unique non-stirring sensitive construction.

- Down to 2 second recording interval
- Up to 4 Analog sensor input (0-5V)
- Low current drain
- SEAGUARD® Studio visualization software included
- Real-Time XML Output included in high power version
- Windows CE based datalogger with color touch panel for local configuration
- 300 m, 2000 m and 6000 meter versions

### SeaGuard® RCM



The single-point SEAGUARD® RCM series is a completely new generation of current meters based on the SEAGUARD® datalogger platform and the ZPulse® multi-frequency Doppler Current Sensor (DCS).

The new single-point, Recording Current Meter(RCM) series featuring the new ZPulse™, multi-frequency Doppler Current Sensor and CANBus based AiCap smart sensor technology. Each platform may be equipped with a wide range of optional smart sensors, such as temperature, conductivity, pressure, turbidity and oxygen. Different mooring and battery solutions are also available.

## SmartGuard

The next generation sensor and instrument HUB for Ocean, Lake, Reservoir, Estuary and River Hydrometric stations.

Monitoring water and weather conditions is essential in many operations and the SmartGuard node is well suited for stand-alone stations powered by battery and solar power utilizing wireless real-time data communication.

Designed for ease of integration of new and existing sensor technologies into a single Aanderaa observatory node with modern self-describing XML data output formats. SmartGuard interfaces with all Aanderaa atmospheric and in water sensors, along with most 3rd party sensors.



## SEAGUARD PLATFORM APPLICATIONS AND SOFTWARE

### SeaGuard® Studio Software

- Import deployment data collected by the SeaGuard RCM from a SD card
- Display configuration settings used in the deployment
- Display listed data
- Possible to show data from several instruments at the same time for comparative studies
- Export data to Matlab and ASCII text files
- Print or export graphs in different formats
- Copy graphs to the clipboard for inclusion into other programs such as Word, Excel or similar
- Save edited sessions
- Calculate virtual parameters

### Aanderaa Real-Time Collector

The data message from the instrument is in XML format. A user application can access the Aanderaa Real-Time Collector over the Internet or Intranet.

Each user application will experience an individual connection to the instrument data due to a queue management system in the collector. One license per SeaGuard instrument serves multiple user applications including Aanderaa Real-Time Collector, Aanderaa Real-Time Viewer, StyleSheets and example application (Refer B163)Offline Configuration

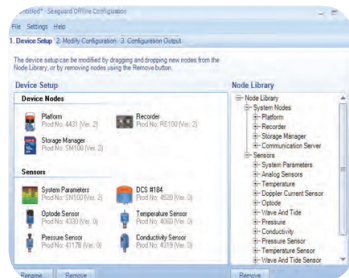
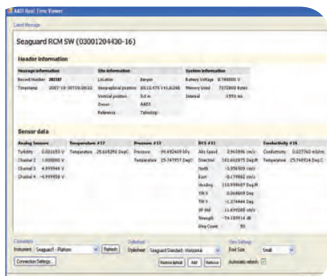
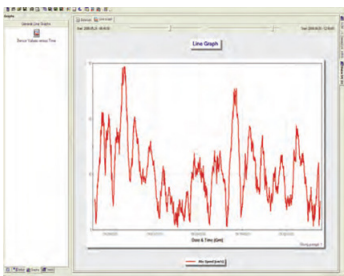
### Offline Configuration

The SeaGuard Offline Configuration is a PC application used to create and modify configuration files for the SeaGuard. The configuration files can be imported to one or multiple SeaGuard instruments using a compatible memory card (SD card). (Refer TD 275).

### DQ Manager Monitoring System for Aquaculture

The system is a major improvement in providing fish farmers with more useful data about oxygen levels, current, temperature, salinity and other met-ocean parameters.

The innovative software conducts quality control of real-time data and includes an automated report generator system that is flexible with respect to user demands. The system is very cost-effective in use, and enables reduction of operational risks at fish farms. Also the system reduces the cost of data administration and reporting for internal and external parties, e.g. authorities.



**Oxygen Optodes**



The AADI Oxygen optode was the first and only to measure dissolved oxygen for years without drift - now it is one of the fastest!

The Oxygen optode is designed to measure absolute oxygen concentration and % saturation. The optode can be used from streams to deep sea, from fish farms to waste water and from polar ice areas to hydrothermal vents. The lifetime-based luminescence quenching principle offers the following benefits:

- Response time <8 sec (63%)
- High accuracy
- Not stirring sensitive (it consumes no oxygen)
- Lower fouling sensitivity
- Measures absolute oxygen concentrations without repeated calibrations
- Better long-term stability
- Hot water monitoring
- Less affected by pressure
- Not sensitive to H2S
- Not freezing sensitive

	4835	4831/4831F	4330/4831F	4531
Shallow Water	X	X	X	X
Intermediate Water		X	X	
Deep Water		X	X	
Used with Seaguard: on top-end plate, on string or connected via cable	X			X*
Analog output, 0-5V		X		X
Analog output, 4-20mA				X
Real-time RS-232 output *	X	X	X	X
Electrical connection: 10-pin Lemo	X		X	X
Electrical connection: 8-pin Subconn		X		

**ACOUSTIC PROFILER**

**SeaGuardII DCP**



The SeaGuardII DCP features innovative development of the acoustic profiling capacity and an exceptional ability to collect high quality current information on moving and tilting moorings.

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

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 unit.



### Wave and Tide Sensors

Wave & Tide Sensor 5218/5218R is for measuring the wave and/or tide conditions. The sensor is designed to be mounted on the Aanderaa SEAGUARD® Platform or via cable connected to SmartGuard Datalogger. The sensor may also be used as stand alone with RS-232 output. The 5218R sensor is designed for use with long cables by means of an RS-422 full duplex interface. The R-version can not be used in SeaGuard applications.

The sensor is also available in a vented version. This means that the sensor is automatically compensated for air pressure. This is done by use of a compensating unit placed in air and an air-pipe in the cable between the sensor and compensating unit.

The sensor application areas are in fixed installations, either deployed in a seabed installation in shallow waters, or mounted onto a fixed structure in the upper water column. Typical applications for the sensor are measurements of tide and wave in ports and harbors, marine operations, weather forecast, and climate studies.

- Smart Sensor technology Plug and Play
- Sensor Calibration coefficients are stored in the sensor
- Minimal and simple maintenance needs
- Low current drain
- Power: 5 to 14VDC, 50mA max
- Output formats: AiCaP CANbus, RS-232/RS-422
- Short update interval: 1 seconds to 255 minutes
- 2Hz and 4Hz sampling frequency
- New updated wave parameters every 1 second
- 256, 512, 1024 & 2048 samples
- Outputs: Pressure, Temperature, Tide pressure, Tide Level, Significant wave height, Maximum wave height, Mean Period, Mean Zero-crossing Period, Energy Period, Steepness, Irregularity of sea state, Cut-off frequency, Pressure time series, Last pressure sample index, Wave spectrum
- Real-time XML output

#### **5218/5218R:**

- Measurement range: 400kPa, 1000kPa
- Max operating depth: 30m, 90m

#### **4428/4428R/4429/4429R:**

- Compensate for air pressure
- Measurement range: 50kPa, 100kPa
- Max operating depth: 5m, 10m

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### Tide Sensors



Tide Sensors 5217/5217R are compact fully integrated sensors for measuring the tide conditions. The sensor is designed to be mounted on the Aanderaa multiparameter SeaGuard® Platform or via cable connected to SmartGuard datalogger. The standard version has AiCaP CANbus and RS-232 output. R-version has RS-422 output for longer cable length.

#### **5217/5217R:**

- Measurement range: 400kPa, 1000kPa, 4000kPa, 10MPa, 20MPa, 40MPa, 60MPa

#### **4445/4446/4447:**

- Measurement range: 50kPa, 100kPa, 200kPa



## Current Sensors



The Aanderaa Current Sensors are based on the backscatter acoustic Doppler principle.

### Doppler Current Sensor (DCS)

The Aanderaa Doppler Current Sensor is a rugged, true vector averaging sensor for measuring current speed and direction in the sea. The sensor has built-in compass and tilt sensor and may also output sea temperature. The speed range is 0 to 300 cm/s. Low current drain and flexible sampling schemes. New multi-frequency Doppler Current Sensor (DCS) with ZPulse technology achieves better performance using only half the power than previous models. The new, fast response compass and tilt circuitry has no moving parts achieving excellent performance in unstable areas such as in the wave zone close to surface.

### In-line ZPulse DCS Doppler Current Sensor - 5800/5810

The inline ZPulse DCS has been designed in order to easily integrate into systems offering a compact and elegant solution. It is based on a modified version of the ZPulse Doppler Current Sensor 4520. The unit connects to a combined mooring and signal cable in one end and allow for connection of a continuation cable at the opposite end. It can hold a load of up to 1300 kg. It has been developed to replace the previous Aanderaa DCS 4100 using newer technology and extending capabilities.

### Doppler Current Profiler Sensor - DCPS 5400/5400R/5402/5402R/5403/5403R

The Doppler Current Profiler Sensor (DCPS) is a medium range, 600kHz current profiler smart sensor. It features innovative development of the acoustic profiling ability to collect high quality current information also on moving and tilting platforms. The 5400/5400R version is 300m depth rated, the 5402/5402R version is 4500m depth rated and the 5403/5403R version is 6000m depth rated and is intended for commercial as well as research use. It comes with an integrated temperature sensor that can be calibrated on request.

	4420/4420R	4520/4520R	4830/4830R	4930/4930R	5800/5800R/ 5800RR	5810/5810E	5400/5402/ 5403/5400R
Shallow Water	X		X		X	X	X/-/-/X
Intermediate Water		X		X	X <sup>5</sup>	X <sup>5</sup>	-/X/-/-
Deep Water		X		X			-/-/-/X
AiCaP <sup>1</sup>	X/-	X/-	X/-	X/-	X/-/-	X/-	X/X/X/-
RS-232	X/-	X/-	X/-	X/-	-/-/X	-/X	X/X/X/-
RS-422 <sup>2</sup>	-/X	-/X	-/X	-/X	-/X/-	-/X	-/-/-/X
In-Line					X	X	
Temperature			X	X			X <sup>3</sup>
Z-Pulse <sup>4</sup>	X	X	X	X	X	X	
Profiler							X
Single Point	X	X	X	X	X	X	
Extra Sensor Connection						X	

## CURRENT SENSORS

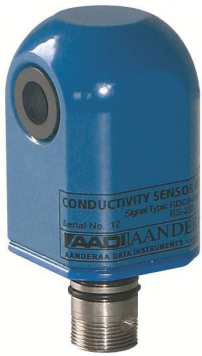


### RCM Blue

The RCM Blue is a self-recording Current Meter which also measures water temperature in salt or fresh water, and a battery container with battery capacity up to 70Ah. RCM Blue has now been upgraded with the possibility to integrate a pressure sensor with a 0,01% accuracy. This simplifies your work significantly as you will know exactly where you are in the water column.

The DCS is an upgraded version of the proven SeaGuard ZPulse sensor. The instrument configuration and data retrieval is done via Bluetooth which eliminates the need to open the pressure case for repeated deployments.

## CONDUCTIVITY SENSORS



### Conductivity Sensors

Conductivity sensors from Aanderaa are compact, fully integrated sensors for measuring the electrical conductivity of seawater. Conductivity is a key parameter for in-situ measurements of several fundamental physical properties of seawater.

For seawater, the ability to conduct electrical current is mostly dependent on temperature and the amount of inorganic dissolved solids. Salinity is defined as the concentration of dissolved solids. This means that, together with temperature and depth information, a good estimate of the salinity may be determined. By using the inductive principle, stable measurement can be obtained without utilizing electrodes that are easily fouled and may wear out in the field.

	4319	4419R
Shallow Water	X	X
Intermediate Water	X	X
Deep Water	X	X
Used with Seaguard: on top-end plate, on string or connected via cable. Output: AiCap	X	
AiCaP output	X	
RS-232 output	X	
RS-422 output		X

## TURBIDITY SENSORS



### 4112 Turbidity Sensor

The Aanderaa Turbidity sensors detects infra-red light scattered by particles suspended in water.

This measurement is known to have a good correlation to the amount of suspended matter in water and can be used to monitor e.g. sediment, algae or particle pollution. The sensor generates an output voltage proportional to the turbidity or suspended solids. The low power consumption makes it ideal for applications where battery drain is a concern.

- Fits directly onto the top end plate of the Seaguard® platform
- Depth range is 2000m

**Pressure Sensors**



Aanderaa pressure sensors are compact, intelligent pressure sensors designed for use on Aanderaa Data Instruments dataloggers as well as in other measuring systems.

The sensors are based on a silicon piezoresistive bridge sampled and temperature compensated by an advanced Digital Signal Processor. Since all calibration and temperature compensation data is stored internally, pressure can be presented directly in engineering units without any external calculation. The range on both SR10 outputs is user configurable, i.e. confine the range to get optimal resolution.

The sensor is also available in a vented version. This means that the sensor is automatically compensated for air pressure. This is done by use of a compensating unit placed in air and an air-pipe in the cable between the sensor and compensating unit.

	4117/4117R	4425/4426/4427	4425R/4426R /4427R
Shallow Water	X	X	X
Intermediate Water	X		
Deep Water	X		
Used with Seaguard: on top-end plate, on string or connected via cable	X/-		
Used with RCM9/11, RCDP or AADI datalogger, on top-end plate via cable			
Real-time RS-232 output	X/-	X	
Real-time RS-422 output	-/X		X
Vented sensor with automatic compensation for air pressure		X	X

TEMPERATURE SENSORS

**4060 Temperature Sensor**



A compact fully integrated sensor for measuring the water temperature. The sensor is designed to be mounted on Aanderaa Recording Instruments and Dataloggers. The sensor can also be used as stand alone, and is easily integrated in other measurement systems with third party dataloggers.

- Shallow water
- Intermediate water
- Deep water
- Use with SeaGuard® or SmartGuard
- RS-232 via cable

Hoskin Scientific Limited has been supplying testing and monitoring instruments since 1946. Although our range is broad, we focus on three major markets including:

Geotechnical & Materials Testing  
Environmental Monitoring  
Test & Measurement Instrumentation

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