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Let's Solve Water

AANDERAA® HYPACK SonTek YSI

Ocean & Coastal complete monitoring solutions

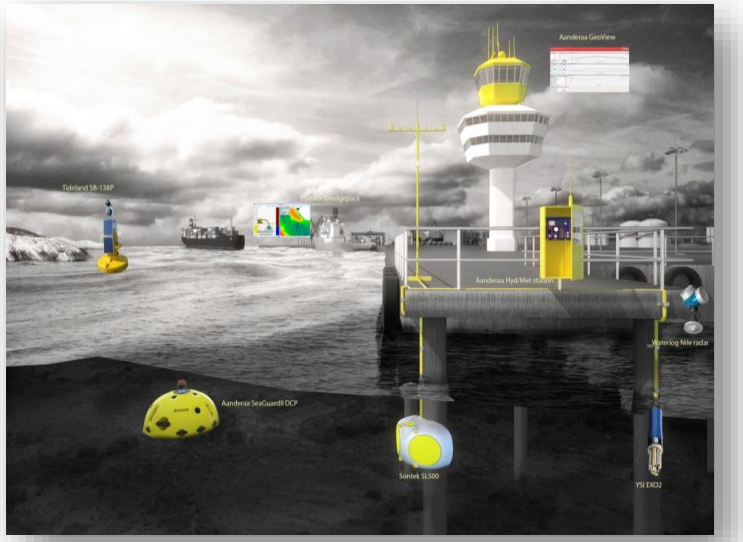
STIG OEN

3RD OF OCTOBER 2022

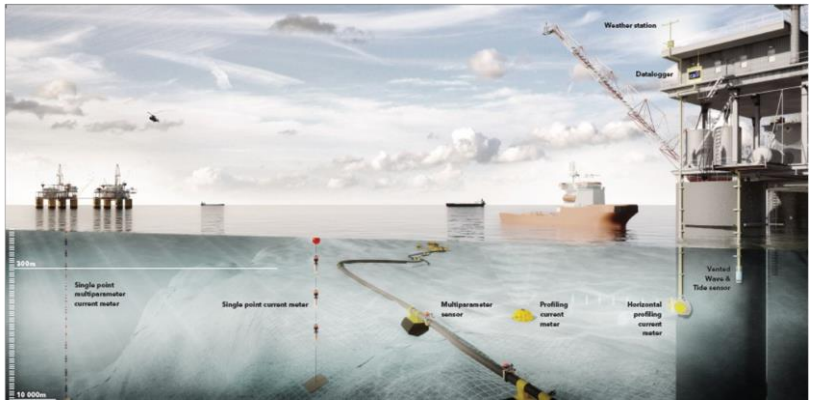
Environmental Monitoring Workshop '22

Currents and Waves Solutions

Site survey coastal for design dimensioning and water circulation



Ports and harbour for approach safety and efficiency



Pre-studies for offshore wind farms, oil & gas riser operations, and pipe/cable laying.

Operational planning based on conditions and safety of personnel

- Current measurements can be done from instruments on the surface, in the water column or bottom mounted.
- For applications in the water column and bottom mounted, the depth information is usually collected along with current measurements.
- Acoustic directional wave measurements are done from bottom-mounted locations.

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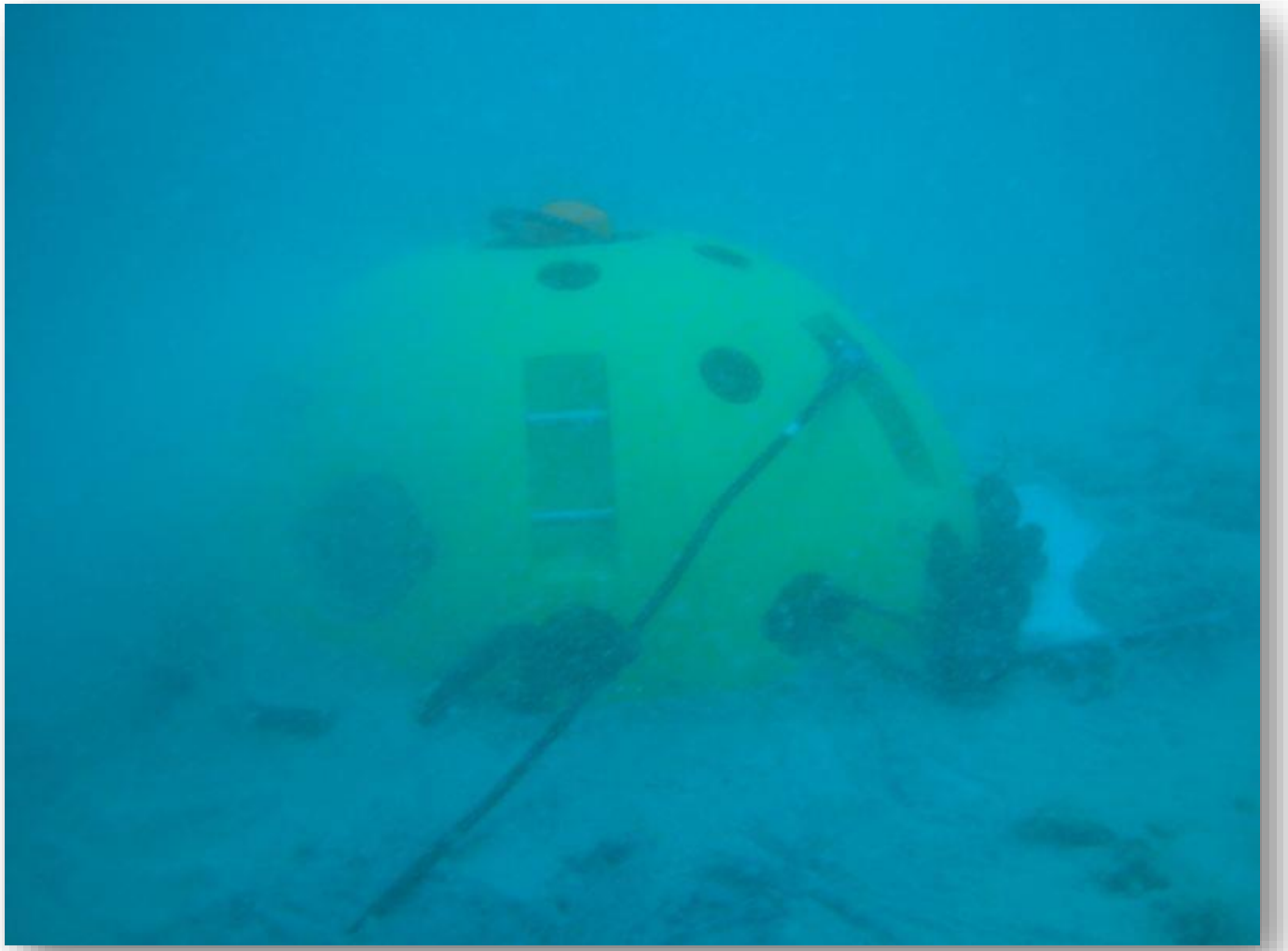
Instrument vs. Stand-alone Sensor



Use the SeaGuardII if you need:

Battery back-up: Provide battery back-up vs. using the DCPS stand-alone on the cable

Managed real-time data: SeaGuardII will control the dataflow and ensure retransmit and error detection.

Autonomous operation: For deployments where the instrument will work without connection to other systems.

Utilize the stand-alone sensor if you want:

Simpler system: If the application calls for just currents/waves and you want to power from shore via cable

If you are connecting to another subsurface system or logger: For example on a lander or ROV

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SeaGuard II

DATAHUB FOR USE UNDER WATER

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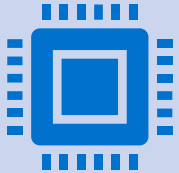
What is the SeaGuardII?



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

By design, it offers increased deployment time, optimized configuration flexibility, and unique features to cope with demanding upper ocean environments. It is available as **300m** depth rated, **3000m**, **4500m,** or **6000m**. Optional parameters are available using the 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.

Summary of SeaGuardII

Key Features	Benefits	Customer Values
Reduced power consumption	Increased deployment time	24 months deployment at 30 min sampling interval (depending on sensor load)
Expandable platform	Wide range of additional parameters available; wave, tide, temperature, conductivity, pressure, oxygen and turbidity, and integration from third party: ORP, pH, total algae, etc	Effective ocean observatory / subsea hub managing current and/or wave calculations while also measuring other parameters
Enhanced real-time functionality	Modem support with power control, supports different formats,	Independent configuration of the recording and transmissions interval. Automatic retransmission of missing data – ensuring no data is lost

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SmartGuard

DATAHUB FOR USE ON BUOYS OR LANDBASED INSTALLATIONS

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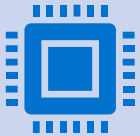
What is a SmartGuard?



The SmartGuard is a sensor and instrument HUB for ocean, lake, reservoir, estuary and river hydrometric stations.

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

Summary of the SmartGuard

Key Features	Benefits	Customer Values
Reduced power consumption	Individual power control for attached sensors	Sensors and logger goes in sleep mode in between operations especially important on buoy applications with limited power budget.
Expandable system	Full AiCaP Bus compability, up to 50 sensors. Interfaces for most 3rd party RS232/RS422 sensors, analog sensors, digital sensors.	Effective hub with a single data string for transmitting data to database and display programs.
User selectable Real-Time output protocols	XML,ASCII,NMEA, AIS Hyd/met message 8, Pseudo binary real-time data via Iriduium	Lower transmission costs

Currents Sensors Overview

Name	In-line DCS	DCS	DCPS	DCPS P
Profiling			X	X
Single point(horizontal)	X	X		
AiCaP	X	X	X	X
RS-232 (RS-422)	X (X)	X (X)	X (X)	X (X)
Embedded pressure sensor				X
For use on SeaGuardII		X	X	X
Wave direction			X	X
Depth rated	Max 4500m	Max 8000m	Max 6000m	300m

Smart sensors manage their recording and output complete data sets – all calculation is done internally in the sensor.

They need only a serial or Aicap connection (SmartGuard/SGII) + Power.

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Current Profiler

DCPS 5400

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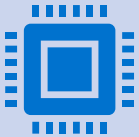
What is a DCPS 5400?



DCPS 5400 is a medium range 600kHz current profiler sensor featuring innovative development of the acoustic profiling ability to collect high quality current information also on moving and tilting platforms. In bottom mounted applications the DCPS can also measure Wave direction (requires pressure sensor)

The DCPS 5400 can be connected to a SeaGuardII or SmartGuard. It can also be connected to a PC or third-party systems through the RS-232 interface. Available as 300m depth rated, 4500m and 6000m . This makes the DCPS the ideal cost-effective solution for obtaining current profiles.

Summary of the DCPS 5400

Key Features	Benefits	Customer Values
Surface and instrument referred profiles from the same sensor.	Up to 3 columns, 75 cells for the first, 50 for the second and 25 for the third.	Address different applications scenarios using a single sensor; deals with 3 profiles simultaneously
Exceptional compensation in moving applications	Each ping is compensated. Sensor calculates distance to each cell	Measurements are compensated for instrument movement
Advanced Autobeam algorithm	Automatic selection of the best 3-beam combination.	Remove faulty cells in case of an object passing in front of one beam
Adaptive Pulse Technology	Adapting to different wave sizes by using 3 modes automatically without user intereference	Optimized wave measurement for lower noise, better accuracy and extended wave height range

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Sensor being launched officially 31st of October

Current profiler with pressure sensor

DCPS 5400P

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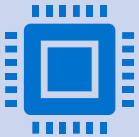
What is DCPS 5400P?



DCPS 5400P is a current profiler with an embedded pressure sensor for use on the Aanderaa SmartGuard, Aanderaa SeaGuard II or as a stand-alone sensor connected to a PC/3rd party datalogger as a serial sensor.

The proven DCPS with embedded pressure sensor is used for detecting the surface or to give position in the water column – It takes in all the features of the DCPS 5400 without adding a pressure sensor.

Summary of the DCPS 5400P

Key Features	Benefits	Customer Values
Embedded pressure and temperature sensor	Detect the surface or give position in the water column	Cost effective profiler sensor with pressure sensor. Sensor vs complete instrument
Acoustic wave direction software combined with pressure sensor	Makes it possible to measure waves down to 40 meters depth	Onboard complete wave measurements in the sensor. No need for post processing
Advanced Autobeam algorithm	Automatic selection of the best 3-beam combination.	Remove faulty cells in case of an object passing in front of one beam
Adaptive Pulse Technology	Adapting to different wave sizes by using 3 modes automatically without user intereference	Optimized wave measurement for lower noise, better accuracy and extended wave height range

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In-line DCS

5800/5810

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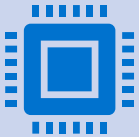
What is an In-line DCS?



The In-line Doppler Current Sensor hub is a robust and compact solution available for measuring Ocean current or Ocean current combined with other environmental parameters from Aanderaa.

The In-line DCS can be connected to a SmartGuard or to a PC or third-party system through the RS-232 interface. When combined with the Aanderaa SmartGuard up to 6 additional Aanderaa smart sensors can be added.

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MOTUS

5729/4729/6729

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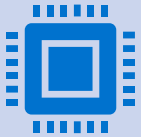
What is MOTUS?



MOTUS Directional Wave Sensor is suitable for integration on different buoy types. It is intended for commercial as well as research use. The directional stand-alone Sensor processes wave data and is configurable to directly present parameters and wave spectrum.

The sensor can be connected to a SmartGuard or most other 3rd party loggers through a serial interface.

In October we are launching 2 new versions of the MOTUS sensor, the MOTUS Lite OEM and the MOTUS Wave height sensor. Look out for the invite to join the online launch.

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Smart sensors

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New technology from Aanderaa

5730 optode
Open sales

All optodes
40 p calibrated

Turbidity
0-2500 NTU
6000 m

Cond/Sal
0.002 mS/cm

Ultrastable O2
WTW foils, deep
0.2 % drift/year

Wave/Tide
cm waves
from 40 m

Field trials in Bergen and Singapore 2022-2023

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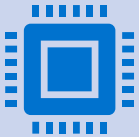
What is Smart sensors?



At Aanderaa, we develop long-term stable, accurate Smart Sensors. All water sensors are multipoint calibrated, include high-quality temperature measurements, and convert raw data to calibrated measurements internally on the fly.

The smart sensors can be connected to a SmartGuard or to a PC or third-party system through the RS-232 /RS-422 interface.

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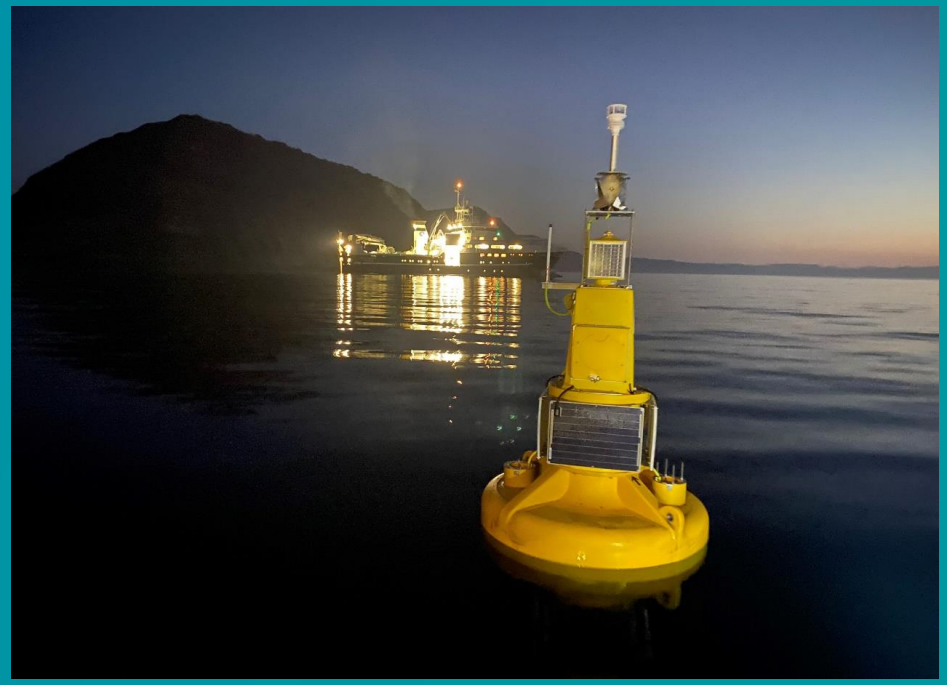
MOTUS BUOY



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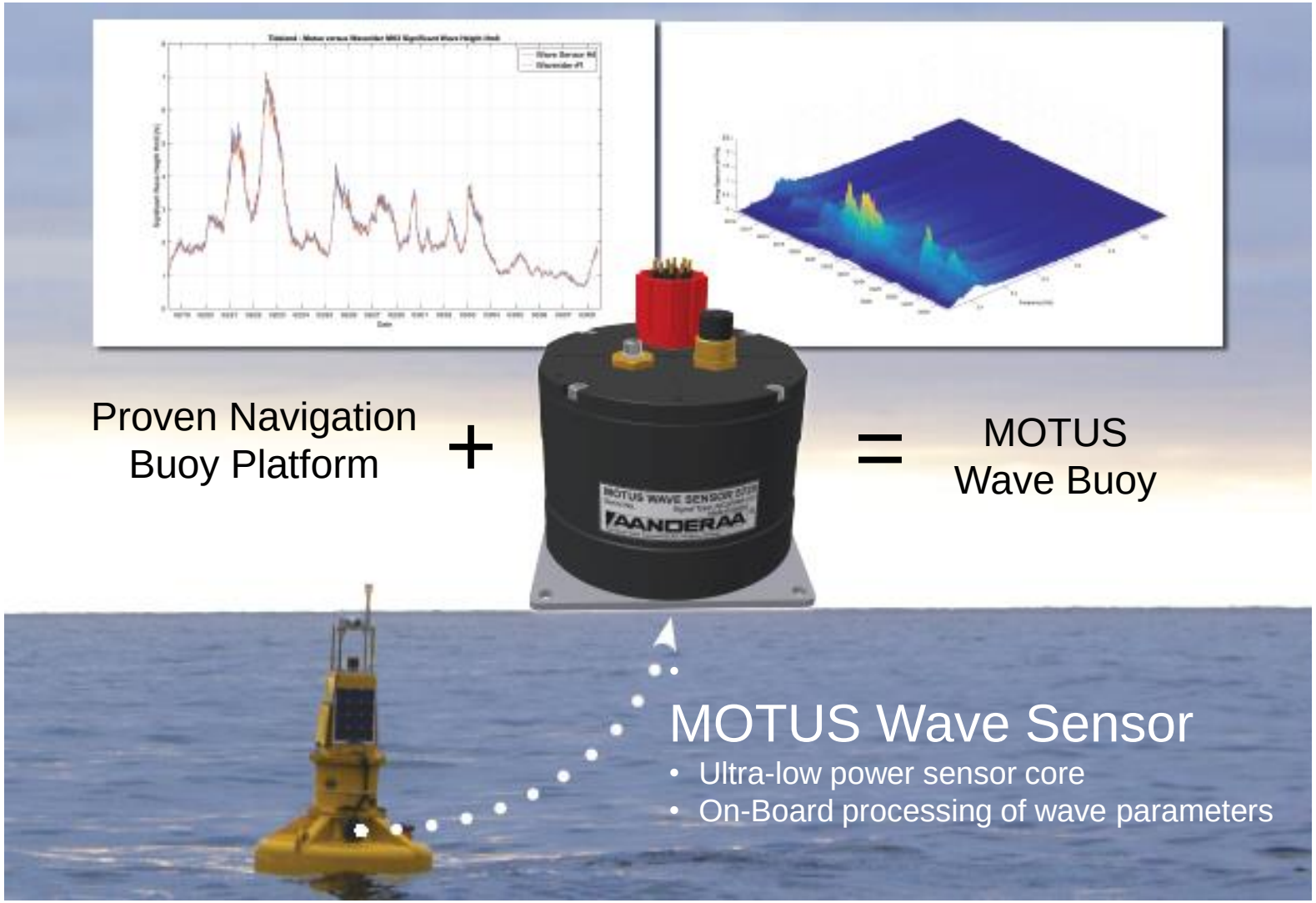
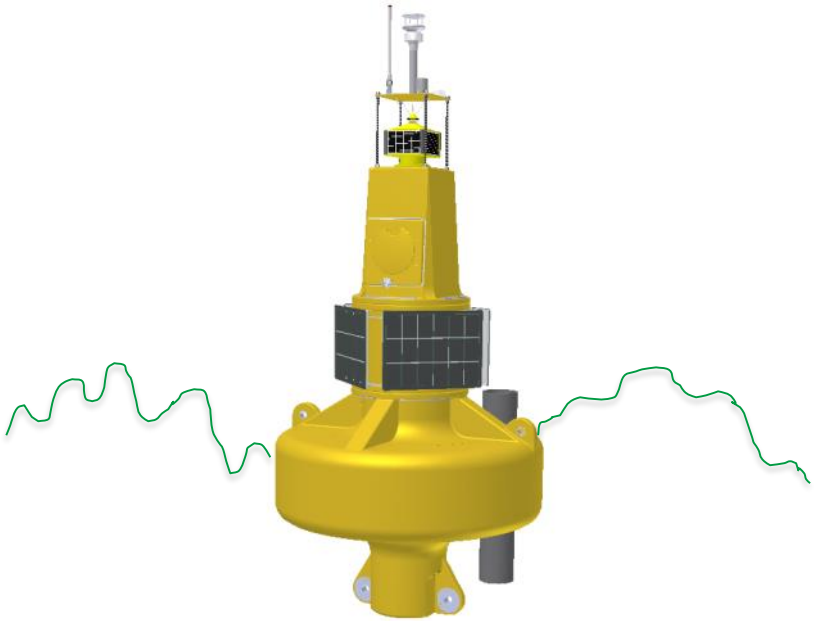
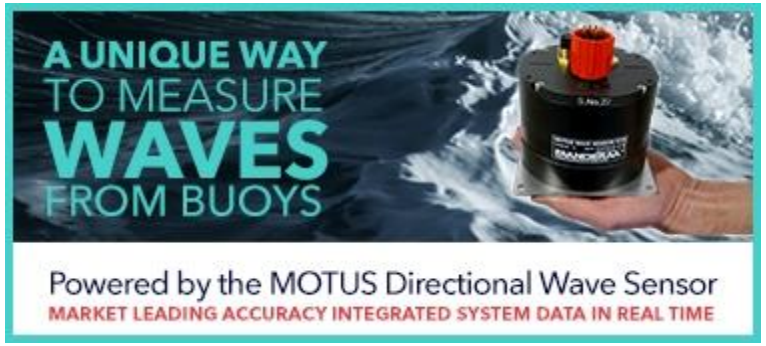
MOTUS WAVE BUOY







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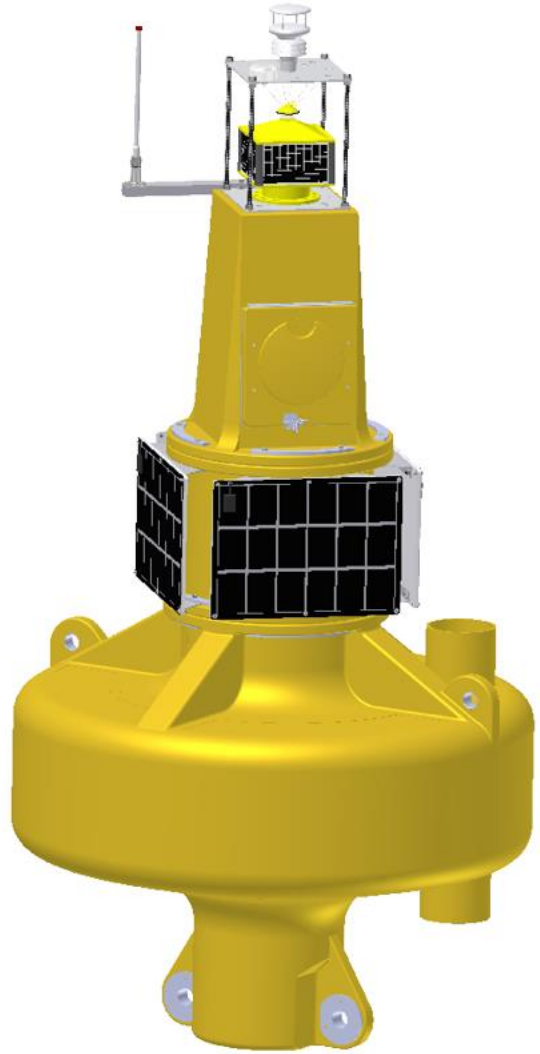
MOTUS Wave Buoy Solutions



MOTUS Wave Buoy Solutions

METEOROLOGICAL MEASUREMENTS

Wind, atmospheric pressure,
air temperature, humidity.

MOTUS Wave Buoy Solutions

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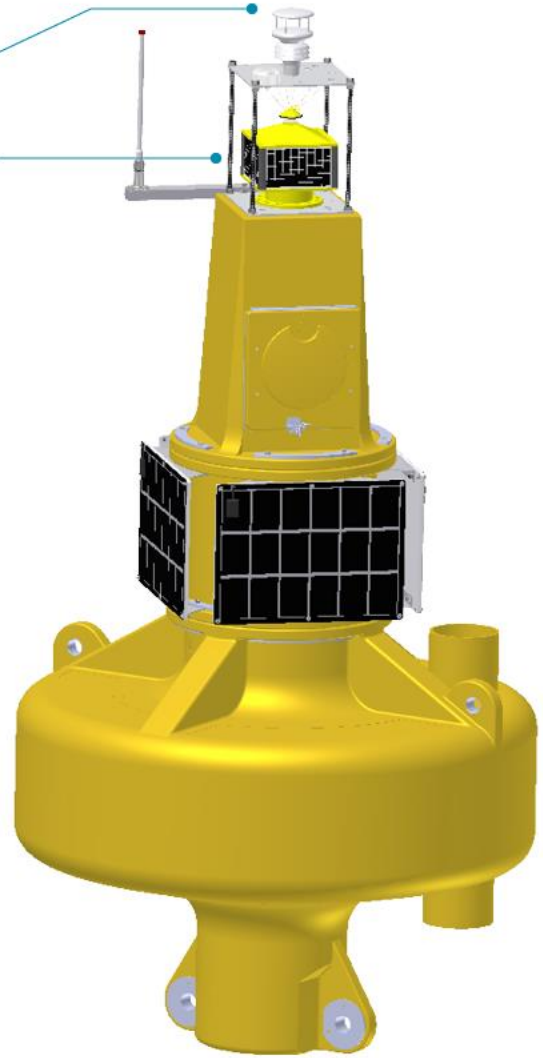
AIDS TO NAVIGATION
Radar reflector, Lanterns,
E-NAVCON, RACON, AIS
Transponders



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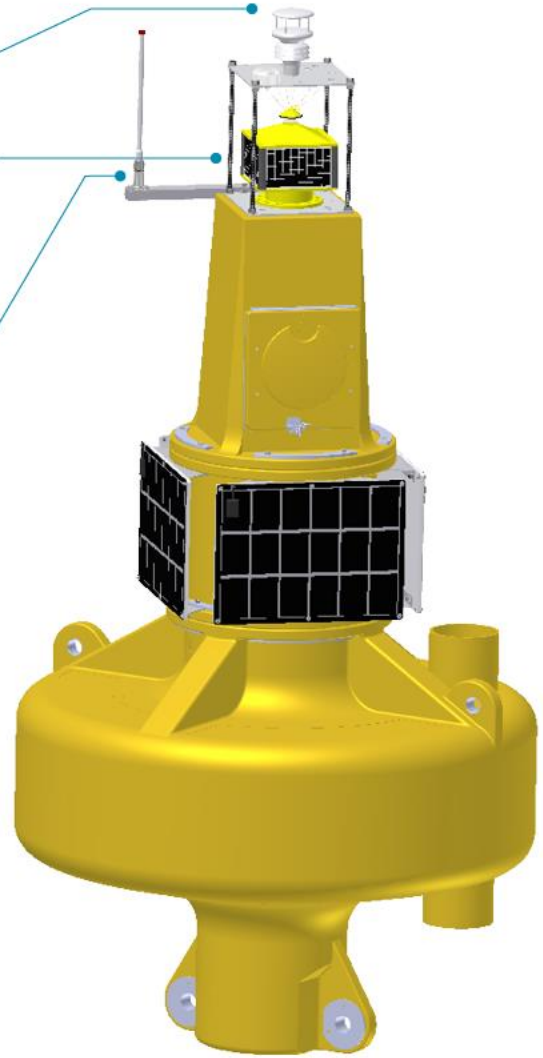
REAL-TIME DATA DELIVERY
GeoView, Storm Central, general interface to 3rd party data delivery solutions



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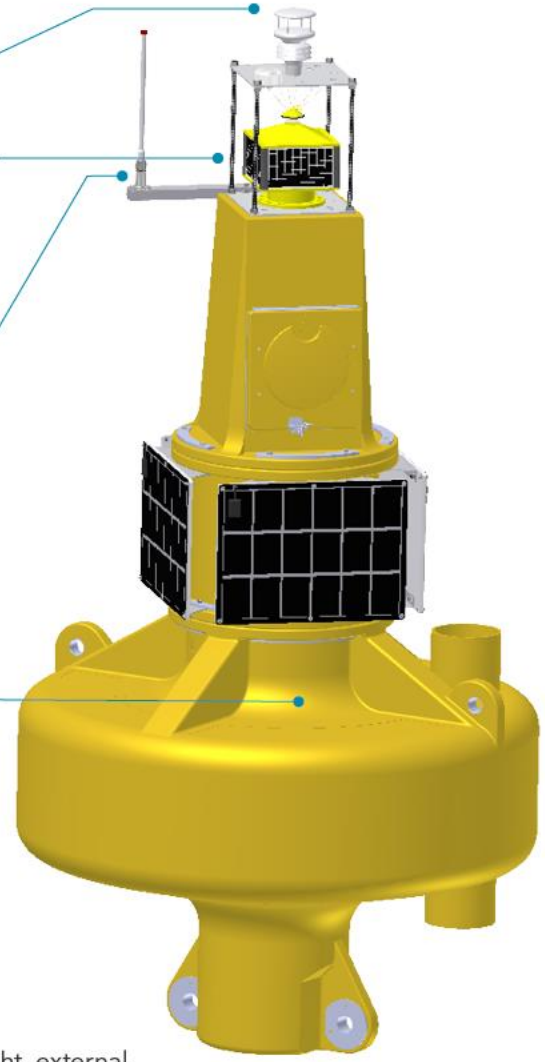
Wave direction, wave height, external or internal compass, correction for buoys made of magnetic material.



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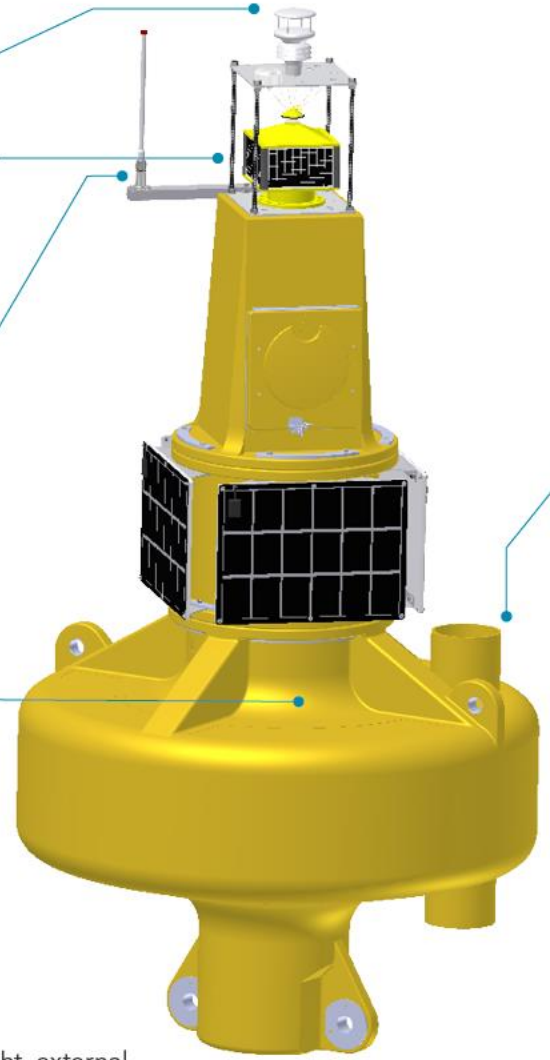
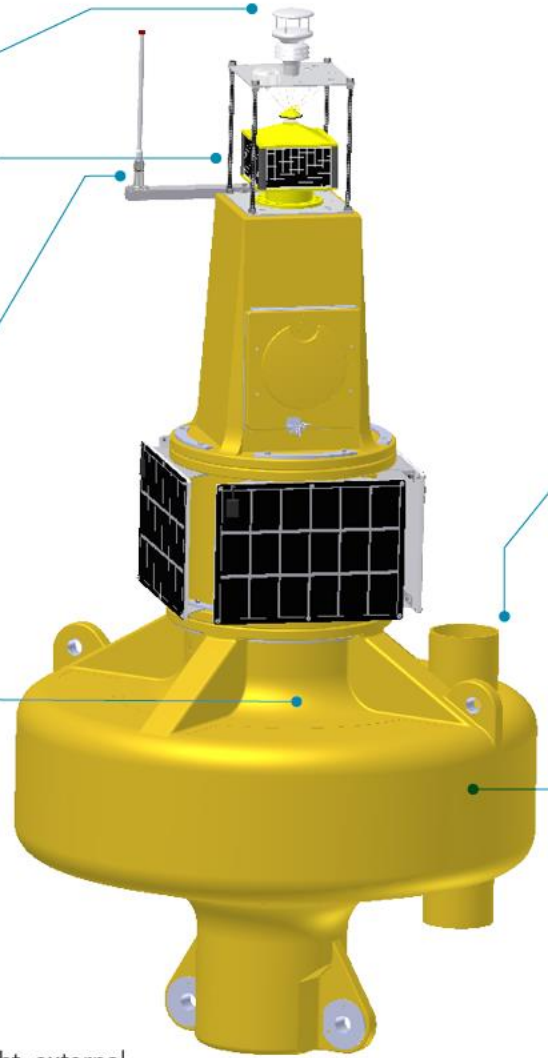


WATER QUALITY SENSORS
Dissolved Oxygen, pH, Temperature, Conductivity, Salinity, Turbidity, Chlorophyll, Blue-Green Algae and Hydrocarbons

MOTUS Wave Buoy Solutions



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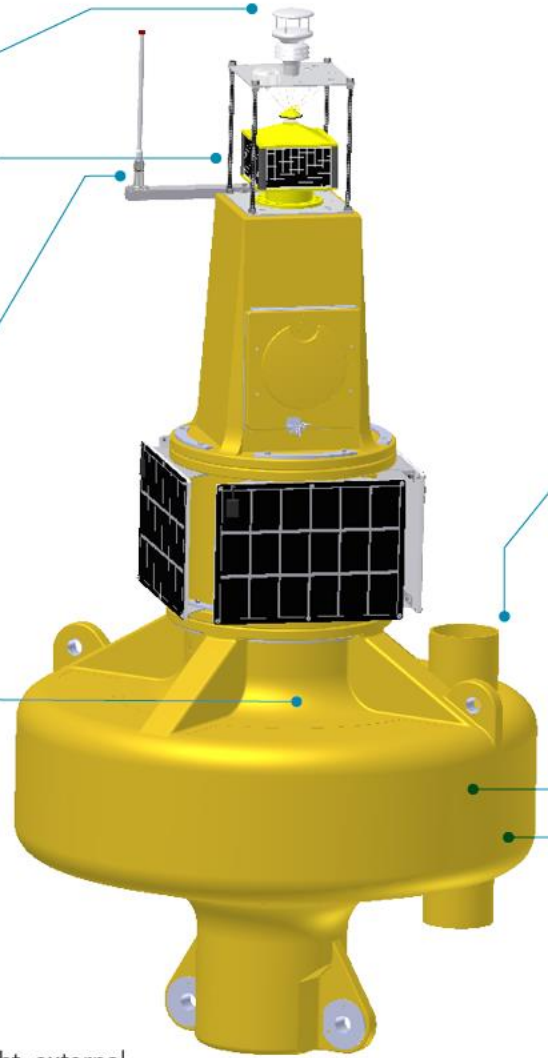
DATA MANAGEMENT
SmartGuard, Storm logger, 3rd party logger

MOTUS Wave Buoy Solutions



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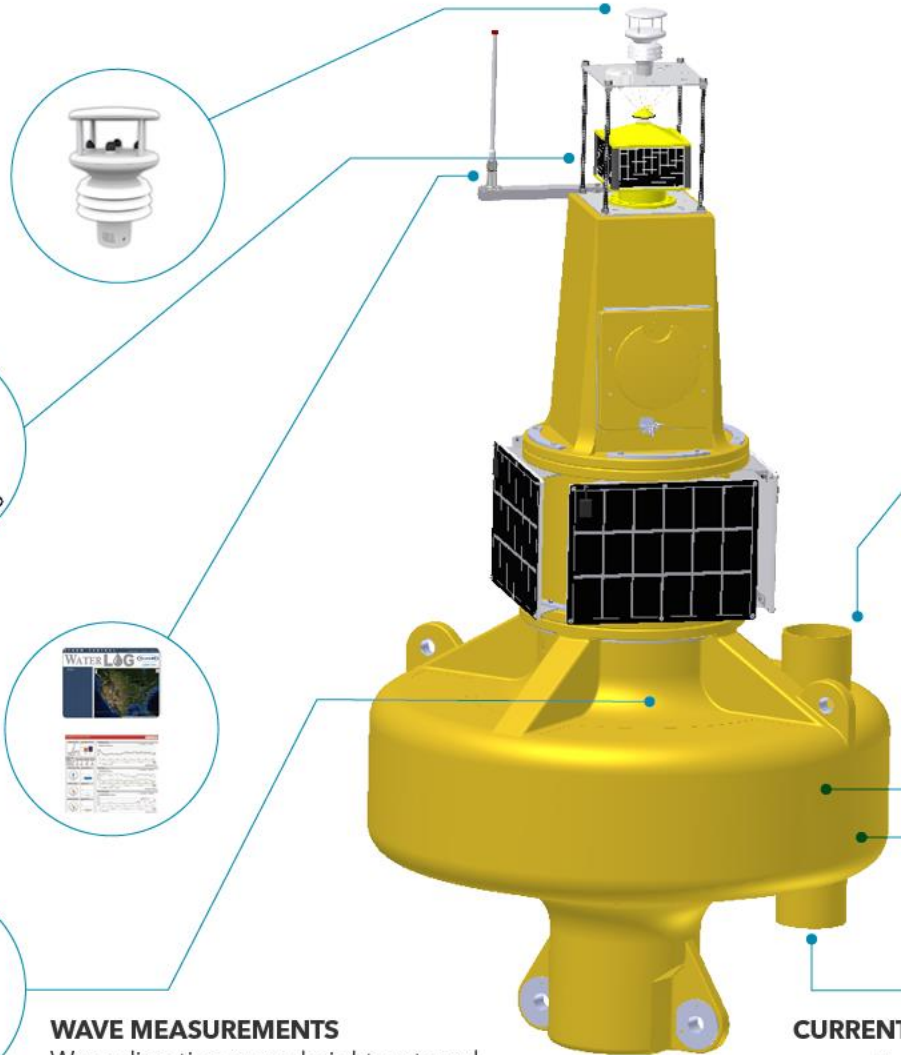
DATA MANAGEMENT
SmartGuard, Storm logger, 3rd party logger

TELEMETRY OPTIONS
2G/3G modem, AIS, VHF/UHF, radio, iridium, GOES

MOTUS Wave Buoy Solutions



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DATA MANAGEMENT
SmartGuard, Storm logger, 3rd party logger

TELEMETRY OPTIONS
2G/3G modem, AIS, VHF/UHF, radio, iridium, GOES

CURRENT DIRECTION AND SPEED
Broadband Doppler Current Profiler, Z-pulse single point current sensor

MOTUS WAVE BUOY – complete end to end solution

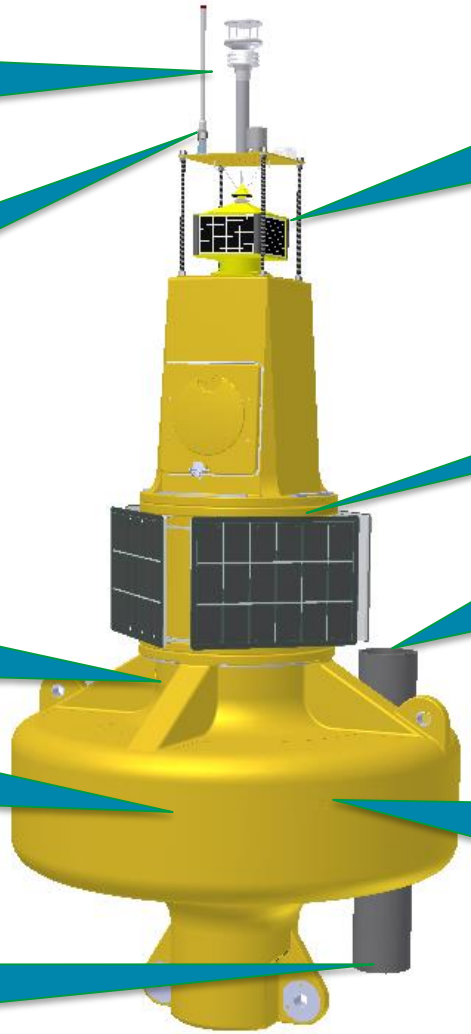
Meteorology

Real Time Communications

Wave Measurement Sensor

Data Management

Current Measurement Sensor

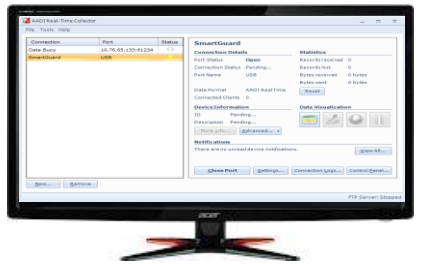


Aid to Navigation

Long Term Power Solutions

Customizable Water Quality Sensor Payload

Internationally Proven Buoy



Control & Display solutions

HydroSphere Data flow – hosted solutions

Aanderaa Cloud

Real-Time Collector

Xylem Cloud

HydroSphere

END USER

View anytime/anywhere

Configure your dashboard

Secure data storing

Alarms/Escalating Path

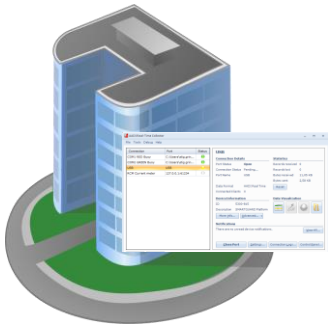
Data Export

4G or Iridium satellite

Aanderaa Cloud Solution

Aanderaa Service & Support

On premise Cloud Solution



Local Real-Time Collector

Radio 4G Iridium

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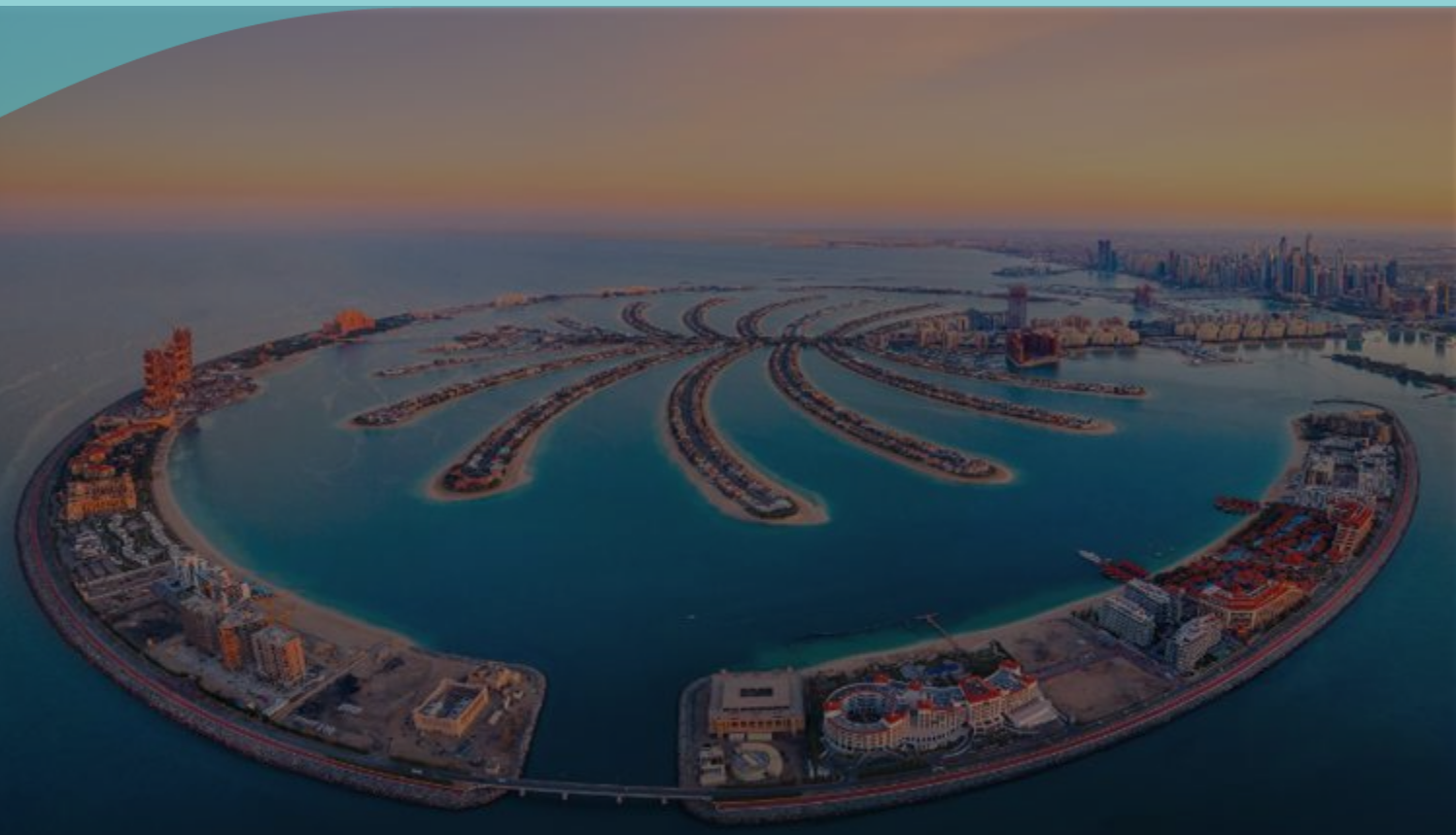
Questions?



CONTACT US

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Environmental
Monitoring
Workshop