

NOW AVAILABLE AS STAND-ALONE:  
**MOTUS Directional**  
**Wave Sensor**



3 features making the MOTUS particularly suitable for integration to different buoys and loggers:

- For larger buoys, the response to short wavelengths may be suppressed. This can to some extent be compensated for by activating and tuning the build in transfer function.
- The sensor can be placed in non-ideal location on the buoy. The off-center compensation can be enabled to remove the errors that in some cases may be significant.
- Buoys may have magnetic parts affecting wave sensors and other sensors requiring a magnetometer or compass. The MOTUS can receive an external compass directly and utilize this to ensure correct wave direction data.

The MOTUS Wave Sensor differentiates between wind driven waves and swells and the separation between these frequencies are user configurable.

All parameters in the time and frequency domain are calculated internally in the sensor. The sensor is capable of measuring the waves continuously without gaps, even when calculating the wave parameters. The time series record length and the frequency domain record length can be set up independently.

The MOTUS Wave Sensor can be used for integration into existing systems, as well as new systems and the small footprint in combination with the low weight and low power consumption makes it integration friendly also in smaller compartments.

**Parameters:**

The MOTUS Wave Sensor has direct output on the following wave parameters:

**Frequency Based Parameters**

- Significant Wave Height, **H<sub>mo</sub>**
- Wave Height Swell/Wind, **H<sub>mo</sub>**
- Peak Wave Direction Height, **θ**
- Peak Wave Direction Swell/Wind, **θ**
- First Order Spread, **σ**
- Mean Spreading Angle, **θ<sub>k</sub>**
- Peak Wave Period, **T<sub>p</sub>**
- Mean Wave Period, **T<sub>m02</sub>**
- Long Crestedness Parameter, **T**
- Mean Wave Direction, **θ<sub>avg</sub>**
- Wave Energy Spectrum, **E(f)**
- Directional Wave Spectrum, **DWS<sub>m</sub>(f)**
- Principal Wave Directional Spectrum, **DWS<sub>p</sub>(f)**
- Orbital Ratio Spectrum, **K(f)**
- Fourier Coefficients Spectra, **A1(f), B1(f), A2(f), B2(f)**

**Time Based Parameters**

- Significant Wave Height, **H<sub>1/3</sub>, H<sub>1/10</sub>**
- Mean Wave Period, **T<sub>z</sub>, T<sub>1/3</sub>, T<sub>1/10</sub>**
- Maximum Wave Height, **H<sub>max</sub>**
- Wave Period, **T<sub>max</sub>**
- Wave Height Max Crest, **C<sub>max</sub>**
- Wave Height Max Trough, **T<sub>rmax</sub>**
- Heave Timeseries, **H(t)**

# Combine MOTUS Directional Wave Sensor with:

For the integrator utilizing his own datalogger:

## STAND ALONE SENSORS

Open protocols for integration to most loggers:



### ZPulse® Doppler Current Sensor

For measurement of surface currents



### Doppler Current Profiler Sensor

For profiling currents below the buoy



For the integrator utilizing SmartGuard Sensor HUB:

## FULLY INTEGRATED SYSTEM

For a fully integrated system with cross sensor compensation and communication management via Mobile, Iridium, radio, GOES and AIS:



### ZPulse® Doppler Current Sensor & SmartGuard Sensor HUB



### Doppler Current Profiler Sensor & SmartGuard Sensor HUB

**xylem**  
Let's Solve Water

Aanderaa Data Instruments AS  
Sanddalsringen 5b  
P.O. Box 103 Midtun  
5843 Bergen, Norway  
Tel +47 55 60 48 00  
Fax +47 55 60 48 01

© 2019 Xylem. All rights reserved. Aanderaa is a trademark of Xylem or one of its subsidiaries. F101 MOTUS STAND-ALONE

## COMPASS



For installations on steel buoys and buoys with magnetism an external compass can be connected directly to the MOTUS Sensor. Example of compass from AIRMAR Technology Corporation.

[www.aanderaa.com](http://www.aanderaa.com)