

# MOTUS Wave Sensor 5729



A directional wave sensor module for use on surface buoys. The MOTUS Wave Sensor is an integrated part of the DB 1750 MOTUS Wave Buoy but also suitable for other third party buoys. It is intended for commercial as well as research use.

#### Advantages:

- User flexibility for compensating on third-party buoys on frequency response and installation of sensor outside of buoy center.
- Built-in solid state 9-axis accelerometer/gyroscope/magnetometer.
- Options for external compass ensuring high directional accuracy, even if the wave sensor is installed close to magnetic components.
- A compact field friendly low power multi-parameter wave sensor.
- Wide range of parameters are calculated inside the sensor, configurable output.
- Direct readout of engineering data.
- RS-232 output for integration to most third party Dataloggers.
- Configurable separation between wind and swell waves.
- Extremely rugged and watertight. Handles 30 meter knockdown.

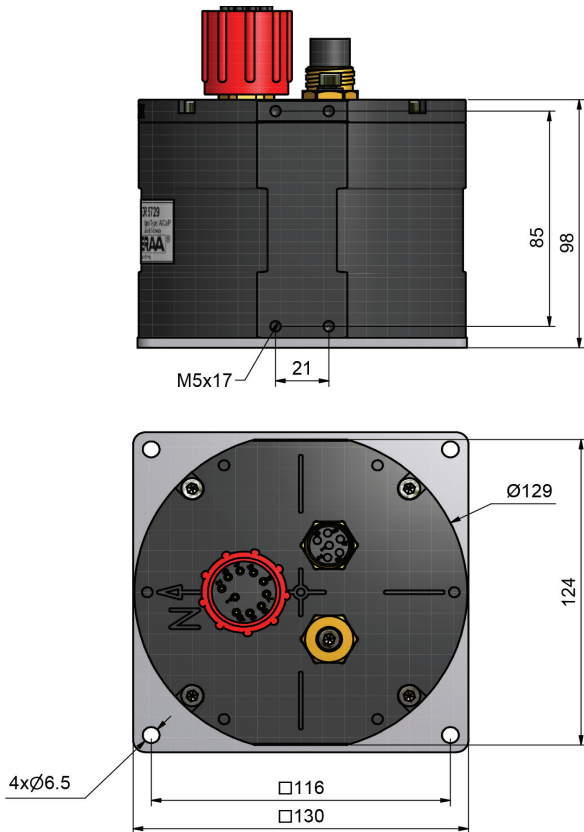
#### Applications:

- Oceanographic research, Ports & Harbours, Offshore / Oil & Gas, Aquaculture / fisheries, Environmental management, Infrastructure design / Survey companies, Offshore wind.

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# Specifications MOTUS WAVE SENSOR

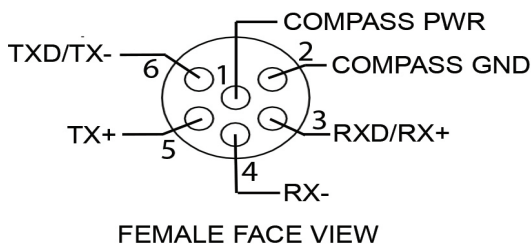


## Technical Details

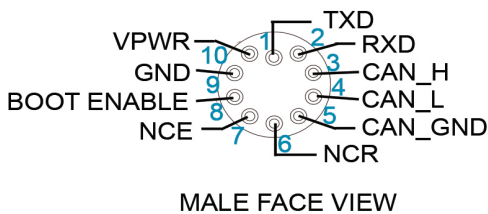
Wave Height:	
Range:	30m
Resolution:	< 0.001m
Accuracy:	< ±0.05m or 1% of reading <sup>(1)</sup>
Wave Period:	
Range:	1.42 - 33s
Resolution:	< 0.05s
Accuracy:	< 1% <sup>(1)</sup>
Wave Direction:	
Range:	0 to 360°
Resolution:	< 0.5° <sup>(2)</sup>
Accuracy:	< 2° <sup>(1)(2)</sup>
Integration Time:	5 - 60 minutes
Wave Calculation Update Rate:	2 minutes
Sampling Frequency:	
IMU output rate:	100Hz
Interfaces:	AiCaP, RS-232
Power:	
Supply voltage:	6-30 Vdc
Power Consumption:	125mW @ 12V
Environmental:	
Depth rating:	30m
Operating Temperature:	-40 to +70°C
Dimensions:	130x130x110mm
Weight including bracket:	1.23kg
Materials:	POM, Stainless steel 316, Brass

SPECIFICATIONS XAD417-R4-NOR

### PIN CONFIGURATION WET-CON MCBH6F EXTERNAL COMPASS INPUT



### PIN CONFIGURATION WET-CON MCBH10M AiCaP / RS-232



Frequency Based Parameters:	
Significant Wave Height:	$H_{m0}$
Wave Height Swell/Wind:	$H_{m0}$
Peak Wave Direction Height:	$\theta$
PeakWaveDirectionSwell/Wind:	$\theta$
First Order Spread:	$\sigma$
Mean Spreading Angle:	$\theta_k$
Peak Wave Period:	$T_p$
Mean Wave Period:	$T_{m02}$
Long Crestedness Parameter:	$T$
Mean Wave Direction:	$\theta_{avg}$
Wave Energy Spectrum:	$E(f)$
Directional Wave Spectrum:	$DWS_m(f)$
PrincipaWaveDirectionalSpectrum:	$DWSp(f)$
Orbital Ratio Spectrum:	$K(f)$
Fourier Coefficients Spectra:	$A1(f), B1(f), A2(f), B2(f)$

Time Based Parameters:	
Significant Wave Height:	$H_{1/3}, H_{1/10}$
Mean Wave Period:	$T_z, T_{1/3}, T_{1/10}$
Maximum Wave Height:	$H_{max}$
Wave Period:	$T_{max}$
Wave Height Max Crest:	$C_{max}$
Wave Height Max Trough:	$T_{rmax}$
Heave Timeseries:	$H(t)$

<sup>(1)</sup> Accuracy achieved under temperature from -5 to +40°C

<sup>(2)</sup> Rms 5-60 min.

The above specifications are for the stand-alone sensor only, not the installation it is utilized with.

Specifications subject to change without prior notice.

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