



Wave Height Sensor 3595

A sensor designed for installation on the Aanderaa Data Buoy 4700. The output from the sensor is significant wave height and wave period.



When calculating the dimensions of structures and installations along the coast and in the open sea, the force of waves, which can be tremendous, must always be given careful thought.

Moles and off-shore drilling platforms are structures that obviously are exposed to these forces. Wave height is also a very important parameter for seagoing traffic as well as for coastal and harbour authorities. The Wave Height Sensor 3595 is designed to measure this parameter when installed on the Data Buoy 4700.

The sensor is shaped as a cylinder with O.D. 79mm, height 123mm and it is furnished with a standard Aanderaa 10 pin sensor foot. The sensor contains an accelerometer, a pendulum, an electronic board and it is watertight.

The sensor is mounted on a buoy that will follow the movement of the waves. The accelerometer, mounted on the pendulum senses the movement of the buoy.

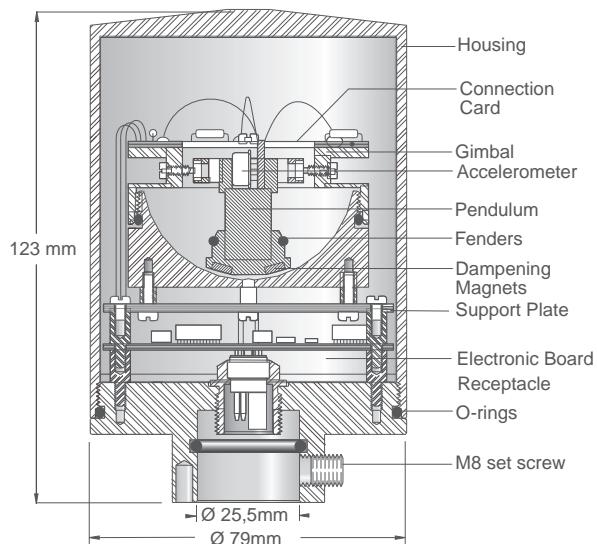
The accelerometer's sensitive axis is kept vertical, plus or minus the pendulum's displacement angle. Since the accelerometer also senses gravity, the variation of the maximum acceleration measured during the pendulum's oscillation period is a measure of the vertical acceleration caused by the waves.

The acceleration is sampled four times a second and then integrated twice to give the vertical distance the accelerometer has traveled. This is the distance from the top to the bottom of a wave.

The output from the sensor is the significant wave height which is the average height of the upper third of all waves during the measuring interval and wave period.

The measuring interval, typically every 10 minutes, is determined by the Datalogger 3860 placed in the buoy superstructure. The outputs are two 10-bit digital words (SR10).

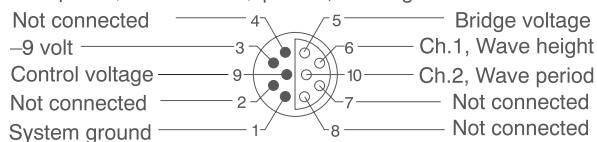
Specifications



Output 1:	Significant Wave Height, 1/3H.
Range:	0 - 5m (for a wave period of 3 to 8 sec)
Accuracy:	$\pm 15\%$ or ± 0.2 m (whichever is greater)
Output 2:	Average wave period (SR10)
Range:	3 - 8 sec
Operating Temp.:	-30 to +40°C
Electrical Connection:	Receptacle 3267 fitting standard sensor outlet in Central Buoy Module for Data Buoy 4700
Supply Voltage:	7 - 14VDC.
Current Consumption:	3.5 mA average
Material and Finish:	Hard anodized aluminum
Weight:	550 g
Packing:	Cardboard box (for separate shipment)

PIN CONFIGURATION

Receptacle, exterior view; pin = ●; bushing = ○



CALIBRATION

SerialNo:

1. Wave Height, Significant:

The sensor has been calibrated as follows.

Height (5 second period)	Reading (N)

The calibration gives the following coefficients:

A	B

C = 0; D = 0.

To convert the raw data signal to engineering units use the formula below.

$$\text{Significant wave height (meters)} = A + BN + CN^2 + DN^3.$$

N = Raw data reading.

2. Period Time:

$$B = 1.000E-1; A, C \text{ and } D = 0.$$

$$\text{Wave period, seconds} = A + BN + CN^2 + DN^3.$$

Date:

Sign:



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