

Wave and Tide Recorder



SEAGUARD® Wave and Tide Recorder

The new AADISEAGUARD® WTR is a robust instrument based on the SEAGUARD® Platform. It is a self contained instrument for measuring wave parameters, water level and temperature. The instrument can be used as a platform for additional measurements (like e.g. CTD, current, dissolved oxygen and turbidity).

Features of the SEAGUARD® WTR:

- High Resolution and low drift
- Low maintenance needs
- Selectable interval from 2 seconds to 2 hours
- SEAGUARD® Studio visualisation software
- Smart sensor topology based on a reliable CANbus interface (AiCaP)
- Output parameters: Pressure, Temperature, Tide, Significant wave height, Maximum wave height, Mean period, Peak period, Energy wave period, Mean zero crossing period, Wave steepness, and Irregularity of sea-state. The WTR also provides raw data of the Pressure and Temperature measurements.
- Real-Time XML Output on RS-422(optional)
- For use in sea and fresh water
- Windows CE based datalogger with TFT based colour touch panel for configuration
- Measurement range: 0 - 400 kPa / ~30m depth

The SEAGUARD® Wave and Tide Recorder measures wave and tide conditions based on a silicon pressure sensor 4648. The pressure measurements are sampled and temperature compensated by an advanced Digital Signal Processor.

The SEAGUARD® WTR 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 wave and tide in Ports and Harbors, Marine operations, Weather forecast, and Climate studies.

The recommended deployment depth for wave measurements is in the range 6 - 15 meters. The maximum deployment depth for tide measurements is 30m.

The tide measurement is an average of the hydrostatic pressure measured over a time period of 10 seconds to 8 minutes (configured by the user). The update interval is between 2 seconds and 255 minutes.

The wave measurements are based on the pressure time series

measured over a time period of 64 seconds to 17 minutes (configured by the user). The update interval is between 2 seconds and 255 minutes.

The output parameters from the SEAGUARD® WTR are easily presented in SEAGUARD Studio.

The SEAGUARD® WTR and the AADI smart sensors are interfaced by means of a reliable CANbus protocol (AiCaP) using XML for plug and play capabilities. The smart sensors can be mounted directly on the top end plate of an AADI SEAGUARD® and are automatically detected and recognized.

The SEAGUARD® WTR can be used with AADI Real-Time Collector for Real-Time data.

The SEAGUARD® WTR has 2 battery compartments for long deployment time.

The SEAGUARD® WTR can be equipped with a Conductivity sensor for calculation of Salinity, Density and Sound of speed.

Specifications WTR

D386 - November 2009

Top-End Plate:	Multiparameter platform
Recording system:	Data Storage on SD card
Storage Capacity:	≤ 4GB
Battery:	2 batteries inside the instrument
Alkaline 3988	9V, 15Ah (nominal 12.5Ah; 20W down to 6V at 4°C)
or Lithium 3908:	7V, 35Ah
Supply voltage:	6 to 14Vdc
Operating temperature:	-5 – +40°C (23 – 104°F)
Deployment depth:	0 - 30m
Dimensions:	OD: 139mm H: 356mm
Weight in air:	6.0kg
Weight in water:	1.5kg
Materials:	PET, Titanium, Stainless Steel 316, Epoxy

Average current drain(@ 9V): Tidal average period of 40s
Note! The instrument will calculate and present the average current drain based on the configuration, refer to TN 320.

Output Interval: freq. Samples	2 sec	1 min	10 min	30 min	
2 Hz:	1024	27.3 mA	6.5 mA	4.8 mA	2.3 mA
	2048	27.3 mA	6.5 mA	5.5 mA	3.5 mA
4 Hz:	1024	31.8 mA	11.0 mA	4.9 mA	2.3 mA
	2048	31.8 mA	11.0 mA	8.7 mA	3.6 mA

PRESSURE:

Operating Range:	0 – 400kPa (58 psia) (~30m depth)
Resolution:	<0.0001% FSO
Accuracy:	±0.04% FSO
Pressure connection:	Swagelok™ 1/8 inch
Inlet port (reference):	top of the pressure port

TEMPERATURE:

Range:	0 – 36°C (32 – 96.8°F)
Resolution:	<0.001°C (0.0018°F)
Accuracy:	±0.4°C (0.72°F)
Response Time (63%):	< 2 min.

WAVE:

Sampling rate:	2 Hz, 4 Hz
Number of samples:	256, 512, 1024, or 2048
Wave parameters:	Significant wave height, Maximum wave height, Mean period, Peak period, Energy wave period, Mean zero-crossing period, Wave steepness, Irregularity of sea-state, Cut-off frequency, Pressure Series, and Wave spectrum.

TIDE:

Average interval:	10s - 8 minutes
Tide parameters:	Tide pressure, Tide level

Measurement units:	Engineering units (pressure and temperature also in raw data)
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Latest version on internet

Post Box 34 SLÅTTHAUG
5851 BERGEN, NORWAY
TEL. +47 55 60 48 00
FAX. +47 55 60 48 01

<http://www.aadi.no>
e-mail: info@aadi.no



ACCESSORIES

included:	SEAGUARD® Studio SD card: 2 GB 1 Alkaline Battery 3988 Documentation on CD Carrying handle 4132
not included:	SD card with capacity up to 4GB Electrical terminal 4784 Mooring frame 5031, 5031A In-line mooring frame 4044 Bottom mooring frame 3448 Internal Lithium battery 3908 Internal Alkaline battery 3988 Internal battery shell 4513 Maintenance kit 3813 Tools kit 3986A Real-Time license and Collector 4715 Offline configuration software 4811 Conductivity sensor 4319, refer D369 Temperature sensor 4880, refer D391 Oxygen optode 4835, refer D385 Turbidity sensor 4112 (analog), refer D377 for Current measurements, refer SEAGUARD® RCM (D368)

Specifications subject to change without prior notice.

AADI Real-Time

The data message from the instrument is in XML format. A user application can access the AADI 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 AADI Real-Time Collector, AADI Real-Time Viewer, Style Sheets and example application (refer B163).

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).

Representative's Stamp