



## SEAGUARD® WTR Wave and Tide Recorder

The new Aanderaa SeaGuard 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 (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  
0 - 1000kPa / ~90m depth

The SeaGuard Wave and Tide Recorder measures wave and tide conditions based on a silicon pressure sensor 5218. 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 harbours, marine operations, weather forecast, and climate studies.

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

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 Aanderaa 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 Aanderaa SeaGuard and are automatically detected and recognized.

The SeaGuard WTR can be used with Aanderaa 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.

**Top-End Plate:** Multiparameter platform  
**Recording system:** Data Storage on SD card  
**Storage Capacity:** ≤ 2GB  
**Battery:** 2 batteries inside the instrument  
 Alkaline 3988  
 or Lithium 3908:  
**Supply voltage:** 6 to 14Vdc  
**Operating temperature:** -5 - +40°C (23 - 104°F)  
**Deployment depth:** 0 - 30m/0 - 90m  
**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 40 sec  
*Note! The instrument will calculate and present the average current drain based on the configuration, refer to TN 320.*

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

**Available ranges:**

5218 Range: 0 - 400kPa(58psia)  
 5218A Range: 0 - 1000kPa(145psia)

**Pressure:**

**Resolution:** <0.0001% FSO  
**Accuracy:** ±0.02% FSO  
**Pressure connection:** Swagelok™ 1/8 inch  
**Pressure parameters:** Pressure in kPa, Pressure raw data in LSB  
**Inlet port (reference):** Top of the pressure port

**Tide:**

**Average interval:** 10 sec - 8 min  
**Tide parameters:** Tide pressure, Tide level, Pressure Seies

**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.

**Temperature:**

**Range:** 0 - 36°C (32 - 96.8°F)  
**Resolution:** <0.001°C (0.0018°F)  
**Accuracy:** ±0.2°C (0.72°F)  
**Response Time (63%):** < 10sec.

**Accessories included:**

SeaGuard Studio  
 SD card: 2 GB  
 1 Alkaline Battery 3988  
 Documentation on CD  
 Carrying handle 4132

**Accessories not included:**

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  
 Conductivity sensor 4319, refer D369  
 Temperature sensor 4060, refer D363  
 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.*

## Aanderaa Real Time

The data message from the instrument is in XML format. A user application can access the Aanderaa 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 licence per SeaGuard instrument serves multiple user applications, including Aanderaa Real-Time Collector, Aanderaa Real-Time Viewer, Style Sheets and example application (refer B163).



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