

SEAGUARD® WLR

Water Level Recorder

D387 - November 2009



SEAGUARD® Water Level Recorder

The new AADI SEAGUARD® WLR is a robust instrument based on the SEAGUARD® Platform. It is a self contained instrument for measuring tide 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® WLR:

- High Resolution and low drift
- Low maintenance needs
- Selectable interval from 2 seconds to 2 hours
- SEAGUARD® Studio visualization software
- Smart sensor topology based on a reliable CANbus interface (AiCaP)
- Output parameters: *Pressure, Temperature, Tide pressure, Tide level.* The WLR 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 colour touch panel for configuration
- 3 Pressure ranges: 0 - 400 kPa / ~30m depth
 0 - 700 kPa / ~60m depth
 0 - 3100 kPa / ~300m depth

The SEAGUARD® Water Level Recorder measures hydrostatic pressure based on a silicon pressure sensor 4647. The pressure measurements are sampled and temperature compensated by an advanced Digital Signal Processor.

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

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

The SEAGUARD® WLR output parameters are Tide pressure, Tide level, Pressure and Temperature. Tide levels are preliminary, internally calculated estimates, based on fixed, user selectable values of atmospheric pressure and water salinity. Compensation for actual atmospheric pressure and salinity can be postprocessed if such data is available. Tide pressure is an average of hydrostatic pressure over the integration time.

Since all calibration and temperature compensation data are stored inside the sensor, the parameters are by default presented directly in engineering units without any external calculation. The WLR also provides raw data of the pressure and the temperature measurements.

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

The SEAGUARD® WLR 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 or connected via cable to an AADI SEAGUARD® and are automatically detected and recognized.

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

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

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

Specifications WLR

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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:	Up to 300 m depending on sensor (see sensor specification)
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.	2 sec	1 min	10 min	30 min
2 Hz:	25.1 mA	5.0 mA	1.4 mA	1.2 mA
4 Hz:	29.5 mA	8.0 mA	1.7 mA	1.3 mA

Tide sensor specifications:

Pressure:

4647A	Range:	0 – 400kPa (58 psia) ~30m depth
4647B	Range:	0 – 700kPa (101 psia) ~60m depth
4647C	Range:	0 – 3100kPa (449 psia) ~300m depth
Resolution:		0.0001% FSO
Accuracy:		±0.04% FSO
Pressure connection:		Swagelok™ 1/8 inch
Inlet port (reference):		top of the pressure port
Pressure parameters:		Pressure in kPa, Pressure raw data in LSB

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
Temperature parameters:	Temperature in °C, Temperature raw data in LSB

Tide:

Integration time:	10s - 8 minutes
Tide parameters:	Tide pressure in kPa, Tide level in meter

Latest version on internet

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ACCESSORIES

included:	SEAGUARD® Studio SD card: 2 GB 1 Alkaline Battery 3988 Documentation on CD Carrying handle 4132
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ACCESSORIES

not included:	SD card with capacity up to 4GB Electrical terminal 4784 Mooring frame 5031, 5031A In-line mooring frame 4044 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 <i>for Current measurements,</i> refer SEAGUARD® RCM (D368) <i>for Wave and Tide measurements,</i> refer SEAGUARD® WTR (D386)
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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 licence 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