



TIDE SENSOR 5217/5217R

A compact fully integrated sensor for measuring tidal conditions. The 5217 sensor is designed to be mounted on the Aanderaa SeaGuard top-end plate or connected to SmartGuard using AiCaP CANbus or in other measurement systems using the RS-232 interface. The 5217R sensor is designed for use with long cables by means of RS-422 full duplex interface.

Features:

- Smart sensor technology - plug and play
- Calibration coefficients are stored in the sensor
- Low maintenance needs
- Low current drain
- Output formats 5217: AiCaP CANbus, RS-232
- Output formats 5217R: RS-422
- Selectable interval from 1 sec. to 255 min.
- Tidal averaging period: 10 sec. to 8 min.
- 2Hz and 4Hz sampling frequency
- Output parameters: Pressure, Tide Pressure, Tide Level, Temperature
- Real-time XML output
- Maximum operating depth: 6000m

5217/5217R is based on a silicon piezoresistive pressure sensor. The pressure measurements are sampled and temperature compensated by an advanced Digital Signal Processor.

The sensor application areas are in fixed installations, either deployed in a seabed installation or mounted onto a fixed structure.

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 1 second and 255 minutes.

The Tide sensor 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

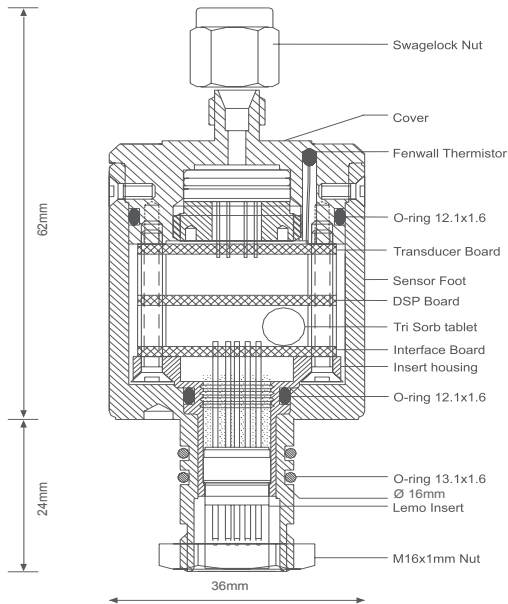
are by default presented directly in engineering units without any external calculation. The sensor also provides raw data of the pressure and the temperature measurements.

Tide Sensor 5217 is a compact yet intelligent sensor designed to be used with Aanderaa SmartGuard or SeaGuard as well as in other measuring systems.

The SmartGuard/SeaGuard and the smart sensors are interfaced by means of a reliable CANbus interface using an XML based protocol (AiCaP). The smart sensors can be mounted directly on the top-end plate of the Aanderaa SeaGuard and are automatically detected and recognized.

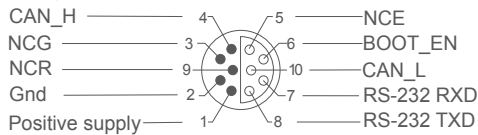
The output format of Tide Sensor 5217 are AiCaP CANbus and RS-232, while the output format of the 5217R version is RS-422. The sensor version must be specified when ordered as the two versions are not interchangeable. The R-version cannot be used in SeaGuard applications.

The Tide Sensor can be used as stand-alone sensor with Aanderaa Real-Time Collector for real-time data.



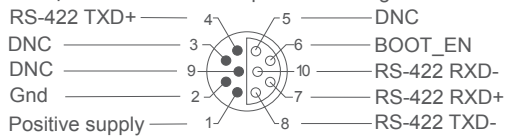
PIN CONFIGURATION FOR 5217

Receptacle, exterior view; pin = ● bushing = ○



PIN CONFIGURATION FOR 5217R

Receptacle, exterior view; pin = ● bushing = ○



| Output Interval | 2 sec | 1 min | 10 min | 30 min | |
|-----------------|--------|--------|--------|--------|--------|
| 2 Hz: | AiCaP | 5.4 mA | 3.3 mA | 0.7 mA | 0.5 mA |
| | RS-232 | 120mA | 3.7 mA | 0.7 mA | 0.5 mA |
| | RS-422 | 120mA | 4.3 mA | 1.4 mA | 1.2 mA |
| 4 Hz: | AiCaP | 10.0mA | 6.3 mA | 1.0 mA | 0.6 mA |
| | RS-232 | 16.5mA | 7.1 mA | 1.1 mA | 0.6 mA |
| | RS-422 | 16.5mA | 7.5 mA | 1.7 mA | 1.3 mA |

Table 1: 40 seconds tidal average

Sensor versions:

| | |
|---------------|--------------------------------------|
| 5217/5217R: | 0 – 400kPa (58psia) ~30m depth |
| 5217A/5217AR: | 0 – 1000kPa (145psia) ~90m depth |
| 5217B/5217BR: | 0 – 4000kPa (580psia) ~390m depth |
| 5217C/5217CR: | 0 – 10000kPa (1450psia) ~1000m depth |
| 5217D/5217DR: | 0 – 20000kPa (2900psia) ~2000m depth |
| 5217E/5217ER: | 0 – 40000kPa (5800psia) ~4000m depth |
| 5217F/5217FR: | 0 – 60000kPa (8700psia) ~6000m depth |

Pressure:

| | |
|--------------------|---|
| Resolution: | <0.0001% FSO |
| Accuracy: | ±0.02% FSO standard ±0.01% FSO on request for sensors 0-10MPa, requires enhanced calibration, additional fee apply |
| Output parameters: | Pressure in kPa, Pressure raw data in LSB |

Tide:

| | |
|-------------------|---|
| Sampling rate: | 2Hz, 4Hz |
| Integration time: | 10 sec. - 8 min. |
| Tide Parameters: | Tide pressure in kPa, Tide level in meter |

Temperature:

| | |
|-------------------------|--|
| Range: | 0 – 36°C (32 – 96.8°F) |
| Resolution: | <0.001°C (0.0018°F) |
| Accuracy: | ±0.05°C(0.9°F) ¹⁾ |
| Response Time (63%): | <10 sec. |
| Temperature parameters: | Temperature in °C, Temperature raw data in LSB |

Output format:

5217 version: AiCaP CANbus, RS-232²⁾
5217R-version: RS-422²⁾

Output interval:

RS232/RS422: 1 sec. – 255 min.
AiCaP: Controlled by data logger

Supply voltage:

5 to 14Vdc

Current drain (@ 9V)³⁾:

| | |
|----------------------|--------|
| Max.(RS-232/RS-422): | 50 mA |
| Quiescent: | 0.4 mA |

Average:

See table 1

Operating temperature:

-5 – +40°C (23 – 104°F)

Operating depth:

Within pressure range

Electrical connection:

10-pin receptacle mating plug RS

Pressure connection:

Swagelok™ 1/8 inch

Dimensions:

OD: 36 x 86mm (OD:1.4"x3.4")

Weight:

160g (5.47oz)

Materials:

Titanium, epoxy coating

ACCESSORIES

not included: RS-232 Sensor Cable 4762⁴⁾/4865⁵⁾
RS-422 Sensor Cable 4763⁴⁾/4799⁵⁾

¹⁾ Requires the use of standard configuration, tide enabled and sampling rate 2Hz. To obtain same temperature accuracy with other configurations, contact factory for special calibration when ordered.

²⁾ 9600 baud, 8 data bits, 1 stop bit, no parity, Xon/Xoff Flow control

³⁾ With tide disabled. See D362 for Pressure current drain

⁴⁾ SP Cable with free end for real-time data

⁵⁾ SP Cable to PC with 9pin D-sub for real-time data

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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