# PRESSURE SENSOR 4646/4646R

## PRESSURE SENSOR 4646/4646R

*is a compact fully integrated sensor for measuring the pressure level and the water temperature. The 4646 sensor is designed to be mounted on the AADI SEAGUARD® using AiCap CANbus, or in other measurement systems using the RS-232 interface.*
*The 4646R sensor is designed for use with long cables by means of an RS-422 full duplex interface. The R-version can not be used in SEAGUARD® applications.*

**Pressure Sensor 4646/4646R advantages:**

- Smart Sensor technology - plug and play
- Sensor calibration coefficients are stored in the sensor
- Low maintenance needs
- Low current drain
- Output formats 4646: AiCaP CANbus, RS-232
- Output formats 4646R: RS-422
- Selectable interval from 1 second to 255 minutes
- Output parameters: Pressure, Temperature
- Real-Time XML output
- Measurement range: 400 kPa, 700 kPa, or 3100 kPa
- Maximum operating depth: 300m

Pressure is a vital parameter in most measuring system used in the sea. For pelagic moored instruments the pressure can be used for determining the actual depth of the instrument. For instrumentation on the seabed the pressure can be used for deriving water level. The pressure is also vital when deriving other parameters as density and speed of sound.

The Pressure Sensor 4646/4646R is a silicon piezoresistive pressure sensor. Pressure measurements are sampled and temperature compensated by an advanced Digital Signal Processor.

Two parameters are available; Pressure and Temperature. Since all calibration and temperature compensation data are stored inside the sensor, the pressure is by default presented directly in engineering units without any external calculation. Raw data can be selected as additonal output.

Pressure sensor 4646 is a compact yet intelligent sensor designed to be used on the AADI SEAGUARD® as well as in other measuring systems.

The 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 AADI SEAGUARD® and are automatically detected and recognized.

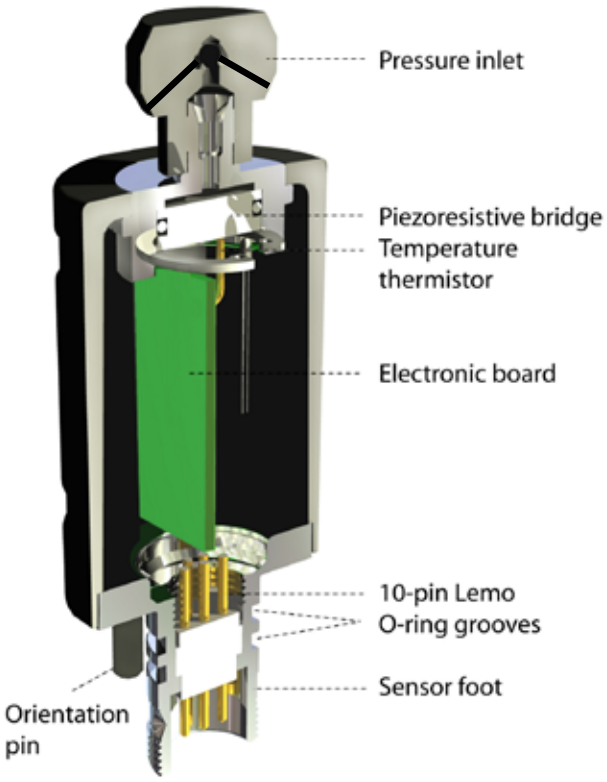
The output parameters from the SEAGUARD® applications are easily presented in SEAGUARD Studio.

The output format of pressure sensor 4646 are AiCaP CANbus and RS-232, while the output format of the 4646R 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 Pressure sensor can be used as stand-alone sensor with AADI Real-time Collector for Real-time data.

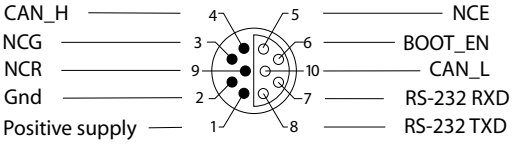
# Specifications for 4646/4646R





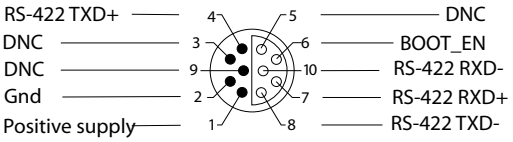

PIN CONFIGURATION for sensor 4646

Receptacle, exterior view; pin = • bushing = ◦




PIN CONFIGURATION for sensor 4646R

Receptacle, exterior view; pin = • bushing = ◦




**Pressure:**

| | |
|---|---|
| 4646A/4646AR Range: | 0 – 400kPa (58 psia) ~30m depth |
| 4646B Range: | 0 – 700kPa (101 psia) ~60m depth |
| 4646C Range: | 0 – 3100kPa (449 psia) ~300m depth |
| Resolution: | <0.0001% FSO |
| Accuracy: | ±0.04% FSO |
| Output 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: | ±0.2°C (0.36°F) [1] |
| Response Time (63%): | 2 minutes |
| Output parameters: | Temperature in °C, Temperature raw data in LSB |

| | |
|---|---|
| **Output format:** | **4646 version:** AiCaP CANbus, RS-232[2] **4646R-version:**RS-422(2) |
| **Sampling Interval:** | RS-232/RS-422: 1s – 255 minutes AiCaP: Controlled by SEAGUARD® |
| **Supply voltage:** | 5 to 14Vdc |

**Current drain(@ 9V):**

| | |
|---|---|
| Maximum(RS-232/RS-422): | 50 mA |
| Quiescent: | 0.4 mA |
| Average: | |
| AiCaP mode: | 0.4mA+5.4mA/S |
| RS232 mode: | 0.4mA +24mA/S |
| RS422 mode: | 1.1mA +22mA/S |

where S is sampling interval in seconds.

| | |
|---|---|
| **Operating temperature:** | -5 – +40˚C (23 – 104˚F) |
| **Operating depth:** | Within pressure range |
| **Electrical connection:** | 10-pin receptacle mating plug CSP |
| **Pressure connection:** | Swagelok™ 1/8 inch |
| **Dimensions:** | OD: 36 x 101mm (OD:1.4”x3.9”) |
| **Weight:** | 138g (4.86oz) |
| **Materials:** | Stainless steel, ABS/PC, pom, epoxy casting |

**ACCESSORIES**

| | |
|---|---|
| not included: | RS-232 Sensor Cable 4762[3]/4865[4] |
| | RS-422 Sensor Cable 4763[3]/4799[4] |

*(1) Output interval ≥ 2 seconds*

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

*(3) CSP Cable with free end for Real-time data*

*(4) CSP 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.*

Representative's Stamp

Latest version on internet

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