



Conductivity Sensor 4419R

The Conductivity Sensor 4419R is a compact fully integrated sensor for measuring the electrical conductivity of seawater. 4419 is designed to be used as stand-alone sensor using RS-422. For applications with either AiCaP or RS-232 use please refer to Conductivity sensor 4319.

Advantages:

- Direct readout of engineering data
- Internal pressure never exceeds 1 bar therefore electronics and sensors are unaffected by sea depth
- Rugged and robust with low maintenance needs
- Output format: RS-422
- 3 depth ranges available max. 6000 meters

Conductivity is a key parameter for in-situ determination of several fundamental physical properties of seawater.

For seawater, the ability to conduct electrical current is mostly dependent on temperature and the amount of inorganic dissolved solids. This means that, together with temperature and depth information, a good estimate of the salinity may be determined.

Salinity is defined as the concentration of dissolved solids. Other important properties of seawater are again dependent on the salinity. Among these are the density and the speed of sound.

The Conductivity Sensor 4419R is based on an inductive principle. This provides for stable measurement without electrodes that are easily fouled and may wear out in the field.

Utilization of miniature components have made it possible to integrate all the required electronics.

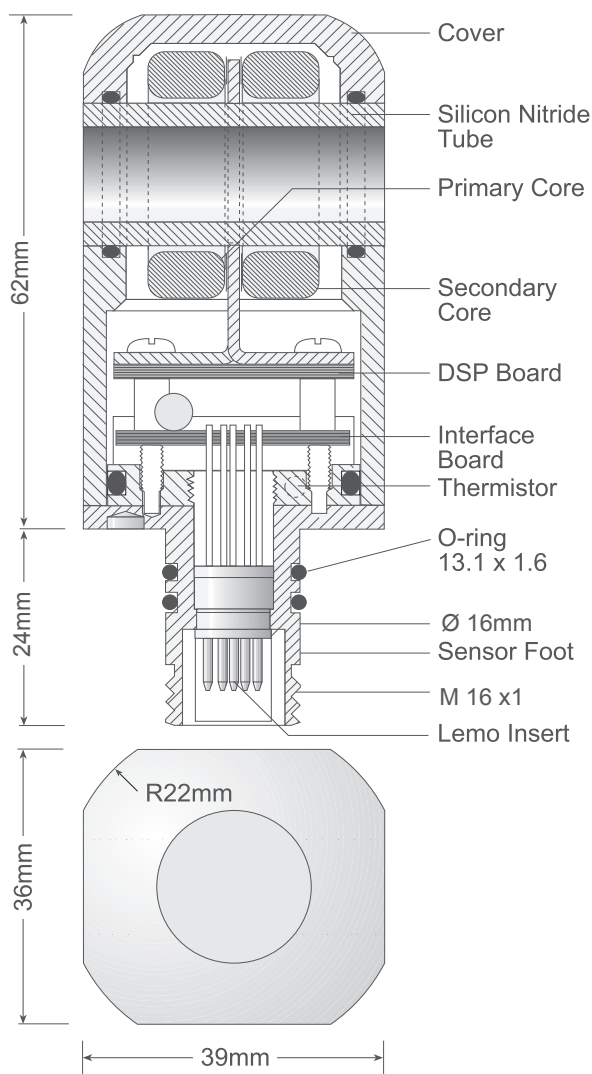
The output format for 4319 are AiCaP CANbus and RS-232, while the output format for the 4419R version is RS-422. The sensor version must be specified when ordered as the two version are not interchangeable. The R-version cannot be used in SeaGuard applications.

Output parameters are conductivity, temperature, salinity, density and sound speed in RS-422. Data can be presented in engineering units or raw data.

The Smart sensors can be mounted directly on the top end plate of the Aanderaa SeaGuard, in a String System node or connected to the SmartGuard and are automatically detected and recognized.

Aanderaa offer a easy to use configuration software; AADI Real-Time Collector, both for configuration but also logging of data. As alternative to this software you may also use a terminal software like Terra Term or Hyper Terminal.

Specifications



PIN CONFIGURATION FOR 4419R, RS-422

Receptacle, exterior view; pin = ● bushing = ●

RS-422 TXD+	4	5	DNC
DNC	3	6	BOOT_EN
DNC	9	10	RS-422 RXD-
Gnd	2	7	RS-422 RXD+
Positive supply	1	8	RS-422 TXD-

Conductivity:

Range:	0-7.5S/m (0-75mS/cm)
Resolution:	0.0002S/m (0.002mS/cm)
Accuracy:	4419RA $\pm 0.005S/m$ ($\pm 0.05mS/cm$) 4419RB $\pm 0.0018S/m$ ($\pm 0.018mS/cm$)
Response Time (90%):	<3s ¹⁾

Temperature:

Range:	-5-40°C (23-104°F) ²⁾
Resolution:	0.01°C (0.018°F)
Accuracy:	$\pm 0.05^\circ C$ ($0.09^\circ F$)/($\pm 0.1^\circ C$ ($0.18^\circ F$ for interval <30s.))
Response Time (63%):	<10 seconds

Output format:

4419R: RS-422

Output Parameter:

Conductivity, temperature, salinity, density and sound of speed
2 sec - 255 min

Sampling interval:

Supply voltage:

5 to 14VDC

Current drain:

Average:	0.16 + 48mA/S where S is sampling interval in seconds
Maximum:	100mA
Quiescent:	1.5mA

Operating depth:

Shallow Water (SW):	0-300m (0-984.3ft)
Intermidiate Water (IW):	0-3000m (0-9843ft)
Deep Water (DW):	0-6000m (0-19690ft)

Electrical connection:

10-pin receptacle mating Sensor plug

Dimension (WxDxH):

36 x 39 x 86mm (1.4"x1.5"x3.4")

Weight:

240g (8.466oz)

Materials:

Epoxy coated titanium

Accessories,

not included: Resistor Set 3719 for functional test
Sensor Cable 4763, 4799

¹⁾ Dependant on flow through cell bore

²⁾ Calibrated range is 0 to 36°C (32-96.8 °F)

The above specifications are for the stand-alone sensor only, not the installation it is utilized with.

Specifications subject to change without prior notice.

xylem
Let's Solve Water

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