AANDERAA
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Conductivity Sensor 4019

A compact fully integrated sensor for measuring the electrical conductivity of seawater. Designed to be mounted on the Recording Doppler Current Profiler RDCP 600. Two versions of this sensor are available. 4019B has enhanced accuracy compared to 4019A, see specifications overleaf.

Advantages:

- Smart Sensor for easy integration with RDCP
- 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 Internal bus, RS-232.
- 3 depth ranges; maximum 6000 meter

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 solid. 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.

Measurements of Conductivity together with Temperature and Depth improves the RDCP 600 virtual sensors, like Salinity and Speed of Sound. These parameters improves the calculated current speed and cell position. Together with the high accuracy Pressure Sensor 3187 the Conductivity Sensor 4019 provides for good CTD measurement on the RDCP 600.

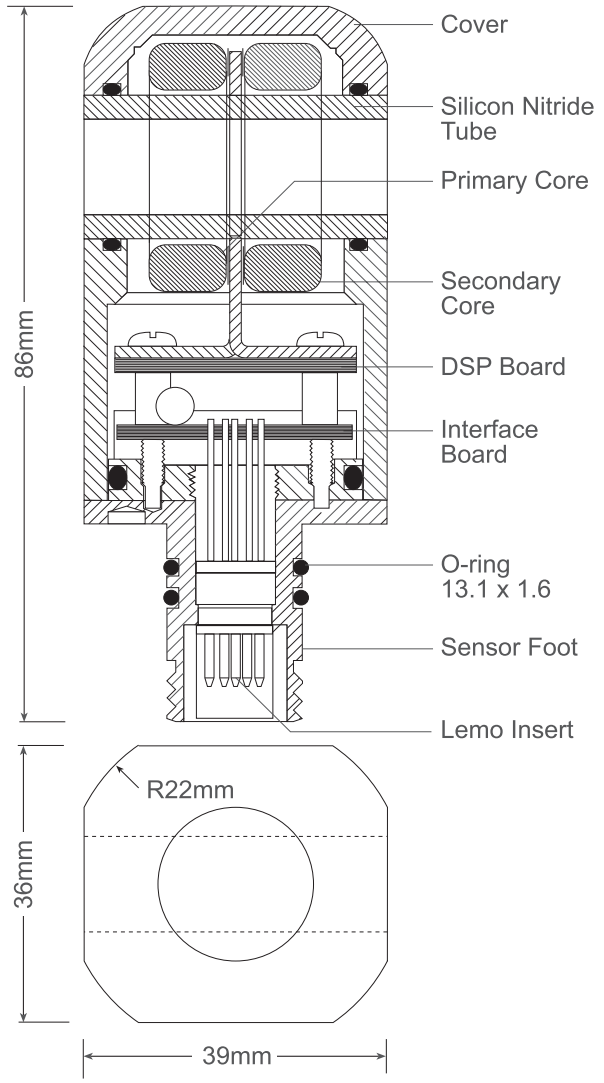
The Conductivity Sensor 4019A and 4019B are based on an inductive principle. This provides for stable measurement without electrodes that are easily fouled and may wear out in the field.

Utilization of miniature components has made it possible to integrate all the required electronics. A digital signal processor calculates salinity, density and speed of sound. The salinity and density are calculated according to the UNESCO International Equation of State (IES 80).

The sensor can be set to output parameter in RS-232 mode or to the RDCP via the RDCP Internalbus. In RS-232 mode the output parameters are Conductivity in mS/cm, as well as Temperature, Salinity, Density and Speed of sound. In RDCP mode the output parameter is Conductivity in mS/cm.

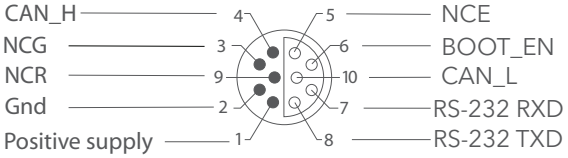
The sensors are available in 3 different depth ranges; 0-300meter, 0-2000meter and 0-6000 meter.

The sensor can be mounted directly on the top end plate of the Aanderaa RDCP 600 and connected to the Sensor Board with a short patch cable 4054/4996.



PIN CONFIGURATION

Receptacle, exterior view; pin = • bushing = ◦



The 10-pin receptacle in the sensor foot mates with Aanderaa CSP (Cylindrical Sealing Plug) giving access to both outputs. In RS-232 mode, use Sensor Cable 4865 for connection to a Personal Computer (PC). Cable 4865 is furnished with a watertight 10-pin CSP-plug at the sensor end. An additional USB plug is used for providing power to the sensor.

Conductivity:	
Range:	0 – 7.5S/m (0 – 75mS/cm)
Resolution:	0.0002S/m (0.002mS/cm)
Accuracy:	
4019A	±0.005S/m (±0.05mS/cm)
4019B	±0.0018S/m (±0.018mS/cm)
Response Time (90%):	<3s1)
Temperature:	
Range:	0 – 36°C (32 – 96.8˚F)
Resolution:	0.01°C (0.018°F)
Accuracy:	±0.1°C (0.18°F)
Response Time (63%):	<10 seconds
Output format:	RDCP Internal bus, RS-232
Output parameter:	
RDCP:	Conductivity
RS-232:	Conductivity, Temperature, Salinity, Density and Sound of speed
Sampling interval:	
RDCP:	Controlled by RDCP 600 config.
RS-232:	2 sec – 255 min
Supply voltage:	6 to 14VDC
Current drain:	
Average:	0.16 + 48mA/S where S is sampling interval in seconds
Maximum:	110mA
Quiescent:	0.16mA
Operating temperature:	-5 – +40˚C (23 – 104˚F)
Operating depth:	
Shallow Water (SW):	0 - 300m (0 - 984.3ft)
Intermediate Water (IW):	0 - 2000m (0 - 6590ft)
Deep Water (DW):	0 - 6000m (0 - 19690ft)
Electrical connection:	10-pin receptacle mating CSP-plug
Dimension (WxDxH):	36 x 39 x 86mm (1.4"x1.5"x3.4")
Weight:	240g (8.466oz)
Material:	Epoxy coated Titanium
Accessories: (not included):	Resistor Set 3719 for function test Patch Cable 4054/4996 Sensor Cable 4865 to PC Sensor Cable 4762 free end

1) Dependant on flow through cell bore

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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Let's Solve Water

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Aanderaa Data Instruments AS
Sanddalsringen 5b, P.O. Box 103 Midtun,
5828 Bergen, Norway
Tel +47 55 60 48 00
Fax +47 55 60 48 01