



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.

Features of the Conductivity Sensor 4019:

- 16-bits resolution over full range 0 - 75 mS/cm
- Smart Sensor technology, no configuration needed
- Real-time integrated calculation of salinity, density and sound of speed
- Internal pressure never exceeds 1 bar therefore electronics and sensors are unaffected by sea depth
- Very easy functionality check
- Rugged and Robust with low maintenance needs
- Short response time
- 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 Sensors 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).

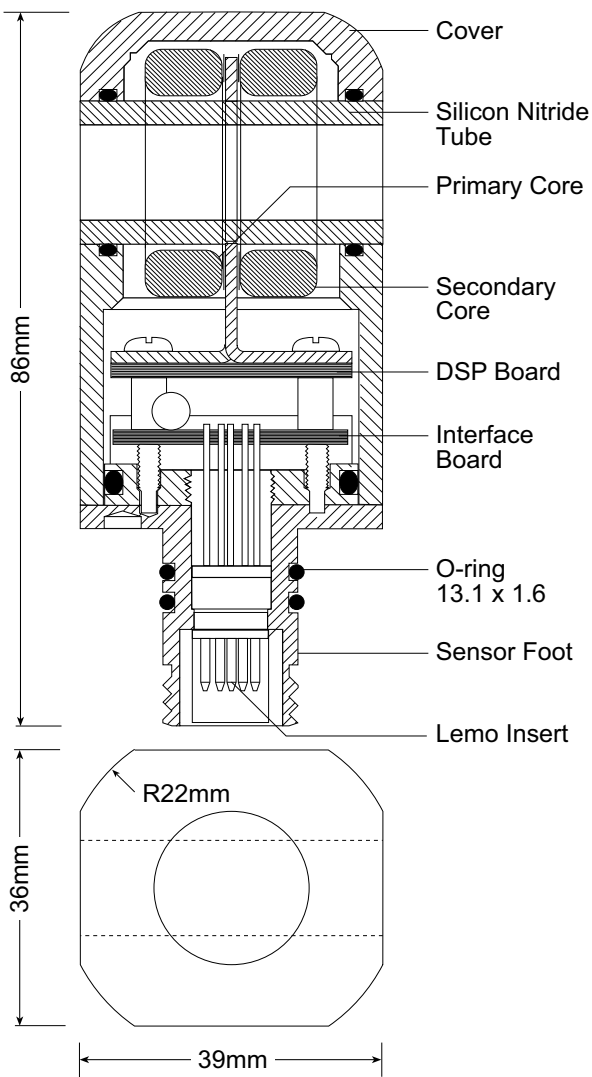
The sensor can be set to output parameter is RS-232 mode or to the RDCP via the RDCP Internalbus. In RS-232 mode the output parameters is Conductivity in mS/cm, as well as Temperature, Salinity, Density and Speed of sound. In RDCP mode the output parameter is Conductivity in mS/cm.

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

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.

Specifications

D354 - May 2011



PIN CONFIGURATION

Receptacle, exterior view; bushing = ○; pin = ●

CAN_L	4	5	Reserved, DNC ¹⁾
Reserved, DNC ¹⁾	3	6	Reserved, DNC ¹⁾
Reserved, DNC ¹⁾	9	10	CAN_H
Ground	2	7	RXD (RS232)
Positive supply	1	8	TXD (RS232)

¹⁾ DNC: Do Not Connect

The 10-pin receptacle in the sensor foot mates with AADI 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.

Latest version on internet

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CONDUCTIVITY:

Range: 0 – 7.5 S/m (0 – 75mS/cm)
Resolution: 0.0002 S/m (0.002mS/cm)
Accuracy:
4019A ±0.005 S/m (±0.05 mS/cm)
4019B ±0.0018 S/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 RDCP600 config.
RS-232: 2s – 255 minutes

Supply voltage:

6 to 14 VDC

Current drain:

Average: 0.16 + 48 mA/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 (8.466 oz)

Material:

Epoxy coated Titanium

Accessories: (not included)

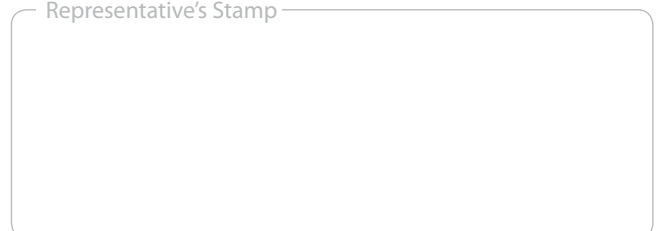
Resistor Set for function test 3719
Patch cable 4054/4996
Sensor Cable 4865 to PC
Sensor Cable 4762 free end

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.

Representative's Stamp



AADI, an ITT Analytics company