AANDERAA
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RCM Blue

A new rugged self-recording current meter with Bluetooth for communications and data retrieval. The instrument uses a true vector-averaging sensor for measuring current speed and direction in salt or fresh water, and a battery container with battery capacity up to 70Ah.

Features

- Internal data storage
- Configuration and data retrieval by use of Bluetooth
- Battery compartments with up to 70Ah
- External LED with color code reports status
- Software for configuration and retrieval of data and USB to Bluetooth adapter included
- Unique ZPulse multi-frequency acoustic technology improves data quality, sampling speed and reduces power consumption
- Built-in solid state three axis compass and tilt sensor with compensating algorithm
- Direct readout of engineering data
- Fast sampling rate
- Low power consumption
- Insensitive to fouling
- Low maintenance needs

The RCM Blue is a self-recording Current Meter which also measures water temperature.

The Doppler Current Sensor is an upgraded version of the proven SeaGuard ZPulse sensor. The instrument configuration and data retrieval is done via Bluetooth which eliminates the need to open the pressure case for repeated deployments.

The DCS sensors are based on the backscatter acoustic Doppler principle. The DCS has two transducers on each orthogonal axis. This enables the DCS to measure in both directions on each axis which makes it insensitive to disturbance from vortex speeds around the sensor itself and the mooring line when the forward ping feature is enabled. One transducer on each axis transmits short ultrasonic pulses simultaneously (50 to 600 pings in each recording interval). The same transducers receive backscattered signals from particles in the water. This gives an orthogonal x and y speed component which is tilt compensated to find the correct horizontal speed components. The North and East speed components are calculated based on the x and y speed components and the heading from the built-in solid state electronic compass. The sensor takes several of these two-component measurements and finally calculates the averaged north and east speed components and the vector averaged absolute speed and direction.

Another great advantage is the ZPulse technology which improves the statistical precision. Complex acoustic pulses comprising two distinct frequencies which are combined into a single acoustic pulse. The ZPulse based DCS separates the received signal into different frequency bands, one for each frequency in the transmitted signal. Further it analyses the frequency shift using a high speed Digital Signal Processor using an ARMA (Auto Regressive Moving Average) based parametric model processing algorithm to find the Doppler shift frequencies. This multi-frequency technique reduces the required number of pings needed in order to achieve an acceptable statistical error. The achieved measurement precision is proportional to the inverse of the square root of the number of ping measurements in a measurement interval. The ZPulse DCS uses two frequencies and this gives a reduction by a factor square root of two compared to a single frequency sensor. A single frequency sensor needs twice the number of ping to achieve the same precision as the Zpulse DCS.

The instrument outputs Absolute Current Speed and Direction, Speed in east and north direction, Ping Count, and extensive readout of quality control parameters such as Single-ping Standard deviation, Heading, Tilt in X- and Y-direction, and Signal Strength.

Specifications

Recording System:	Internal data storage
Storage Capacity:	Standard 1GB
Battery:	2 batteries compartments inside case
Alkaline 3988:	9V, 15Ah (nominal 12.5Ah; 20W down to 6V at 4°C)
or Lithium 3908:	7V, 35Ah
Recording Interval:	2s - 2h
Depth Capacity:	300m
Material and Finish:	PUR, POM, PET, epoxy coated titanium
Platform Dimensions:	H: 356mm OD: 139mm
Weight:	In Air 7.0kg / In Water 1.7kg
Supply Voltage:	6– 30Volts
Operating Temperature:	-5 to +50°C
Current Speed:	(Vector averaged)
Range:	0 – 300cm/s
Resolution:	0.1mm/s
Mean Accuracy:	±0.15cm/s
Relative:	± 1% of reading
Statistic precision (std):	0.3cm/s (ZPulse mode), 0.45cm/s[1]
Current Direction:	
Range:	0 – 360° magnetic
Resolution:	0.01°
Accuracy:	±5° for 0-15° tilt ±7.5° for 15-35° tilt
Temperature:	
Range:	-5°C to +40°C
Resolution:	0.01°C
Accuracy:	0.05°C
Settling Time(63%):	<3s
Tilt:	
Range:	0-50°
Resolution:	0.01°
Accuracy:	±1.5°
Compass:	
Resolution:	0.01°
Accuracy:	±3°
Acoustics:	
Frequency:	1.9 to 2.0 MHz
Power:	25 Watts in 1ms pulses
Beam angle (main lobe):	2°
Installation distance:	
From surface:	0.75m
From bottom:	0.5m
Accessories Included:	Data Studio Basic AADI Real-Time Collector Magnetic tip stylus + spare USB to Bluetooth adapter Alkaline Battery 3988 Empty Shell 4513 Documentation on CD

Optional Accessories:

Mooring frame:	In-line 4044/3824A Bottom 3448R Protecting Rods 3783
Battery/Power:	Internal Lithium 3908 Internal Alkaline 3988 Internal Battery Shell 4513 AC/DC adapter, lab. 4908 Maintenance Kit 3813 Tools kit 3986A Vane Plate 3781,3681 Hardcopy Documentation

[1] *Standard deviation based on 300 pings*

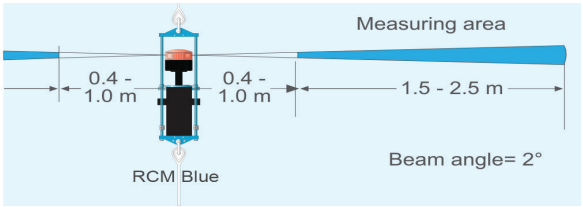
Specifications subject to change without prior notice.

Configuration and data retrieval

The instrument configuration and data retrieval procedures are accomplished by means of Aanderaa's Real Time Collector software. This package allows the user to establish a secure connection with the RCM Blue over the Bluetooth channel with the purpose of configuration and retrieval of the data stored in the instrument.

Postprosessing software

A basic version of a software called Data Studio is provided with the instrument and allows basic data quality control and plotting procedures as well as reviewing the configuration of the instrument during the measurement session, and exporting the collected data to various formats like Excel, Matlab etc.



The solid state sensor is well suited for monitoring low current speeds due to no moving parts. Because the sensor starts measuring in an area 0.4 to 1.0 meter from the instrument, the effect of marine fouling and local turbulence is minimized.

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Let's Solve Water

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