Sea SURVEYOR

Single/Dual Frequency Phased-Array ADCPs for Moving Vessels

FEATURES AND BENEFITS

- Single or Dual-Frequency operation in a single phased array transducer (patented) ADCP system providing:
  - High-Resolution Current Profiles in the upper and coastal ocean
  - Long-Range Current Profiles in deep ocean
- RTI's proven Doppler Signal processing and advanced Bottom detection algorithms
  - Narrowband for longer range
  - Multiple Broadband modes and bandwidths
- ± 1% Current and Bottom Velocity accuracy
- High accuracy Dual-Frequency echo intensity for plankton particle size distribution calculation over overlapping profiling range
- Host Computer control of Profiling Range/Precision Multi-Mode operation and Application Specific post signal processing

DESCRIPTION

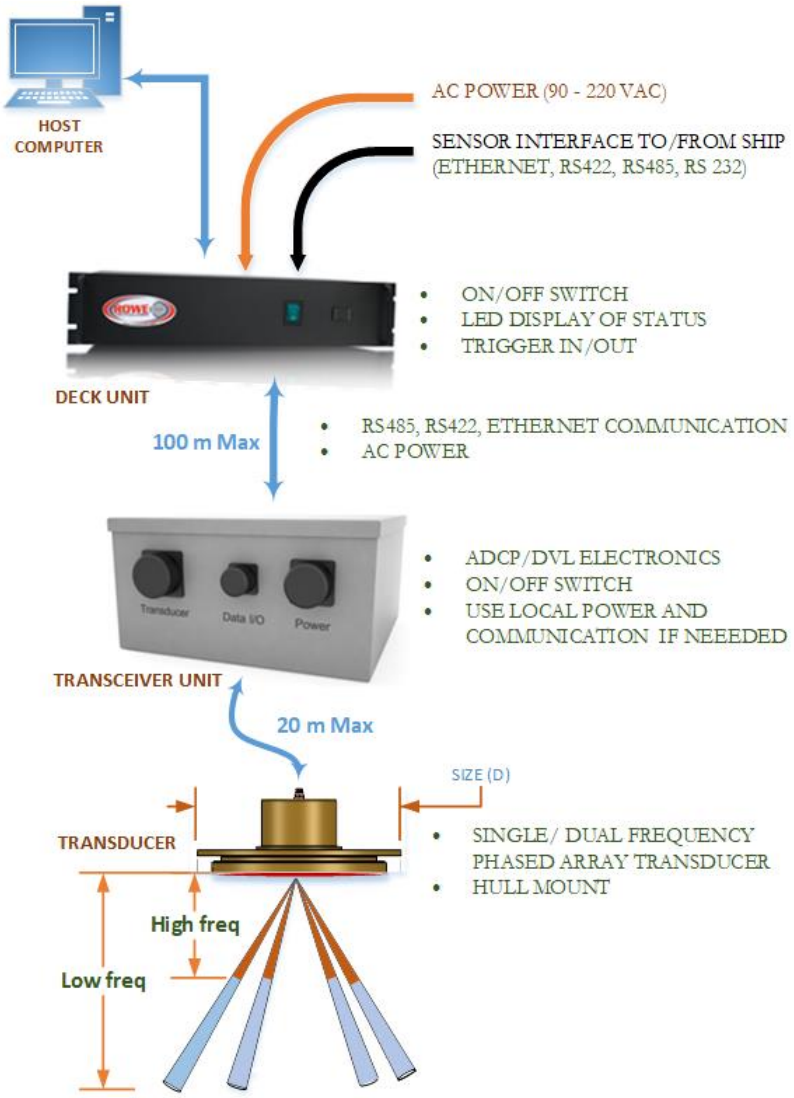
RTI's Sea **SURVEYOR** ADCP and DVL employ advanced 3rd generation **ROWE ADCP** Technologies (ADCP3), to simultaneously measure precision Short Range and Long Range vertical profiles of:

- 3-Axis water Currents,
- Echo Intensity,
- Vertical Profiles of Plankton Size Distribution,
- 3-Axis Bottom Track and Altitude,

providing a horizontal spatial survey of the vertical profiles along the surface or subsurface vessel path.

Configurations of the Sea **SURVEYOR** are available at single and dual frequency options. Single frequency options are 38, 75, 150, 300 kHz and the dual frequency options are 38/150, 38/300, 75/300, 150/300. The lower frequency provides longer profiling and bottom tracking range, and the higher frequencies provide higher spatial, velocity and temporal resolution currents and echoes nearer to the vessel. Two Transducers may be used with a single Transceiver unit for simultaneous UUV up/down measurements, including ocean surface/ice height.

SYSTEM CONFIGURATION



TRANSDUCER FREQUENCY, SIZE, RANGE

Frequency (kHz)	38 or 38/150	75 or 75/300	150 or 150/300
Size (D) in cm	91.5	48	30.5
Range (m) Bottom track (NB)	2000	1200	600
Range (m) Bottom track (BB)	1500	800	400
Range (m) Current Profile (NB)	1100	600	300
Range (m) Current Profile (NB)	1300	800	400

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TECHNICAL SPECIFICATIONS			
Acoustic:			
Frequency (kHz)	38	75	150
Transducer Type	2D Phased Array		
Beams	4 inclined @ 30˚		
2-Way Beam Width	3˚		
Current Profile:			
Velocity range	-5 to 15 m/s		
Long-term Accuracy	±1 % ± 2 mm/s		
Broadband Precision	4 cm/s at 32 m cell	4 cm/s at 16 m cell	4 cm/s at 8 m cell
Narrowband Precision	20 cm/s at 32 m cell	20 cm/s at 16 m cell	20 cm/s at 8 m cell
Broadband Range (m)	1100	600	300
Narrowband Range (m)	1300	800	400
# Cells	Up to 250		
Cell Size (m)	8-64	4-32	2-16
Ping Rate at Max Range (Hz)	0.4	0.6	1.2
Min Blanking (m)	4	2	1
Echo Intensity Accuracy:	±1 dB		
Bottom Tracking:			
Long-term Accuracy	± 1 % ± 2 mm/s		
Broadband Precision	± 0.5 % @ 3 m/s		
Narrowband Precision	2 cm/s @ 3 m/s		
Broadband Range (m)	>1500	>800	> 400
Narrowband Range (m)	>2000	>1200	> 600
Ping Rate @ Max Range (Hz)	0.25	0.5	1.0
Altitude Accuracy[1]	±1 %		
Data Communications:			
Serial	RS-232, RS422 or RS-485 serial @ 1200 - 921600 baud		
Ethernet	100 Base-T		
Sensors:			
Water Temperature	-5 to 40°C, ± 0.2°		
Power:			
Voltage Form	90 – 250 VAC, 47-60 Hz or DC 24 – 48 VDC at 1000W peak and 100W average		
Physical:			
Materials	Transducer: Bronze		
Transducer Diameter	See Table (first page)		
Electronics Unit	400 mm (L) * 400 mm (W) *200 mm (H), NEMA 4/4x/12/13 Rating		
Deck Unit	100 mm Rack Mount		
Transducer Cable	20 m max		
Electronics-Deck Cable	100 m max		
Environmental:			
Operating Temperature	-5 to 50° C		
Storage Temperature	-30 to 70° C		
Built-In-Test:			
Continuous Monitor	Current profile status, bottom track status, Operating Voltages, Receiver and Processor Operation.		
Fault Diagnostics	Fault Localization to Plug-in Replaceable Module		

[1] Does not include effects due to change in speed of sound, pitch and varying bottom conditions

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