



SWALE OCEANOGRAPHIC

Sea Sciences – ACROBAT™ undulating towed vehicle

Swiftly conduct repeated measurement profiles across a wide area with a single deployment. The **Acrobat™** LTV-50X is a light, computer-controlled, vehicle designed to be towed behind small boats operating in shallow water. The **Acrobat™** is capable of carrying a large variety of research instruments providing real-time data to a computer on the boat. Several available wing lengths offer customization for different maximum depth requirements. Instruments such as an LOPC, CTDs, fluorometers, transmissometers, oxygen sensors and many other instruments are easily carried by the **Acrobat™**. Special requirements can also be accommodated.

The **Acrobat™** software provides 5 standard operating modes:

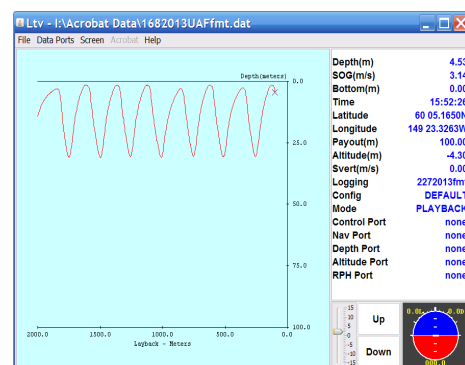
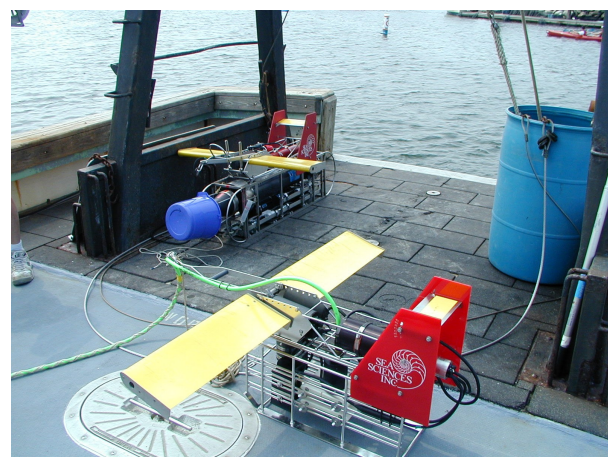
- Constant Depth
- Constant Altitude above bottom
- Constant Undulation between two depths
- Adapting Undulation between a set depth and varying bottom
- Selected control options for sensors with low sampling rates

Features

- Small and lightweight so easily transportable by car
- Designed to be handled and operated by one person
- Durable stainless steel and plastic construction
- Large payload capacity
- Frame designed for flexible positioning of sensors
- Manual or computer real-time control
- 5 modes of computer control
- Wide range of working speeds (2 to 10 knots)
- Working depth range to 70 metres
- 3 standard interchangeable wing lengths available
- Customizable for increased depth, payload or data bandwidth
- Available accessories, such as extension cage, sled or brackets
- Available as basic system or with instruments pre-integrated.

Applications

- Estuary, coastal zone and fresh water data systems from small boats
- Ecosystem health monitoring
- Real-time three-dimensional data gathering in support of modelling
- Pollution monitoring and dye tracing studies
- Ground truth for satellite remote sensing
- Continuous plankton monitoring and sampling
- Local area site assessment



Accessories

- Electro-mechanical tow cable, with anti-strum fairing
- Cable terminations, electrical and mechanical
- Ethernet module providing total system power and data communications requirements
- Extension frames for instrument payload
- Skid extension for protection of instruments
- Spare parts kit
- Rope clutch for restraining tow cable
- Test cable
- Acrobat™ attitude sensor
- GPS with depth transponder
- Laptop computer for control system
- Portable electric winches
- Cable storage reels with slip rings
- Cable tension meter
- Mounting brackets for instruments

Vehicle Dimensions

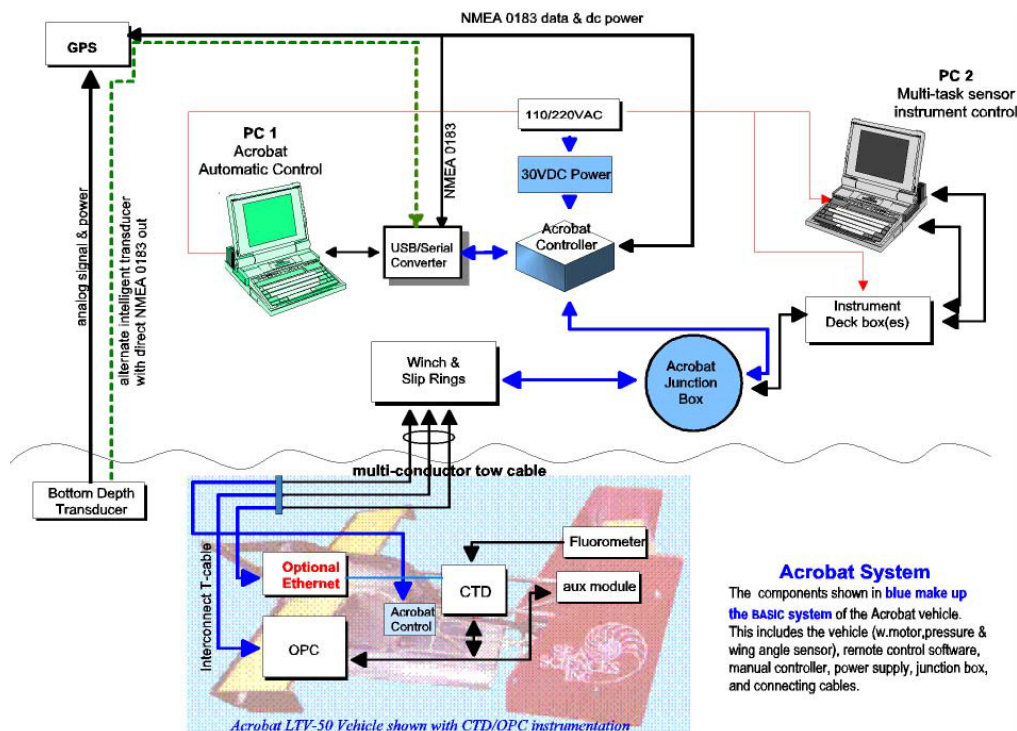
Length (excluding tow bar) :	0.80 m
Height (tail) :	0.40 m
Width (wingspan) :	0.76 – 1.37 m
Weight (excluding instruments) :	13 kg in air, 9 kg in water

Engineering Details

Flight Control :	Windows computer with Acrobat LTV software.
Data used for control :	Wing Angle, Depth, Echo-sounder and GPS if fitted.
Power Supply :	LTV power module 120/220 V ac in, ± 24 V dc out, max. 250 mA.
Materials :	Welded Stainless Steel frame, wings and towing yoke. PVC tail.

Performance

Depth Range :	0 - 70 m typical; other depths ranges to order.
Towing speed :	1 to 12 knots typical.
Dive / Climb Speed :	Independently adjustable.
Control Modes :	Constant depth, height above bottom, constant undulation, varying undulation, and maximum number of undulations.



Acrobat System

The components shown in blue make up the BASIC system of the Acrobat vehicle. This includes the vehicle (w. motor, pressure & wing angle sensor), remote control software, manual controller, power supply, junction box, and connecting cables.

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