

Solar-Powered Remote Monitoring System *Long-Endurance Vehicle*

The FSI SRMS is a solar-powered remote monitoring vehicle capable of operating on the surface or at water depths up to 500 meters. The vehicle is equipped with rechargeable lithium ion batteries to allow maximum mission endurance even under conditions where minimal solar radiation is available.

A single-vectoring thruster provides three-dimensional position and altitude control without the need for additional thrusters or active movable surfaces. The efficient propulsion system/controller allows through water speeds up to two knots. Surface speed depends on ambient sea conditions.

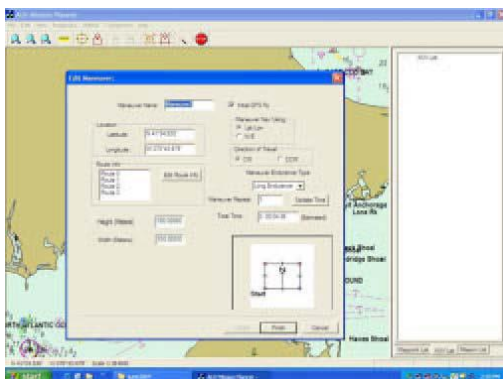


The SRMS comes with a pressure sensor for depth and an optional acoustic altimeter for height off bottom control. GPS is provided for control of position while on the surface. Underwater navigation is maintained by dead reckoning only. Surface navigation is maintained by GPS.

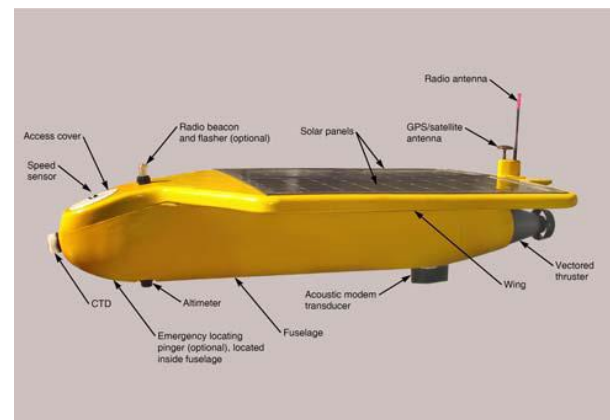
Bi-directional vehicle program control and real-time data acquisition are accomplished through integrated RF communication such as Freewave, radio modems, WiFi, Iridium satellite link, or by using optional short-range HF band acoustic modems. An easy-to-use intuitive Windows®-based operator interface allows mission planning and program downloading prior to deployment, and data uploading following vehicle recovery at the end of mission. These functions can also be accomplished in real-time during the mission via the bi-directional communications system.

FEATURES

- Solar power and high-capacity rechargeable batteries allow extended mission endurance
- Easy deployment and recovery
- Real-time command, control, and data recovery
- Space and power available for a wide variety of science payloads
- GUI provides intuitive, easy-to-use operator interface
- Durable composite vehicle construction



Intuitive Windows® Based Mission Manager



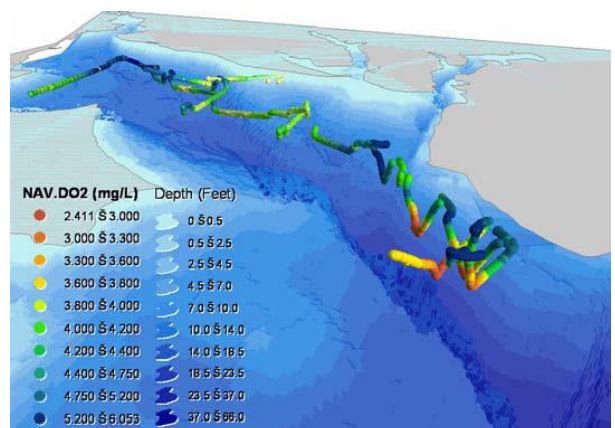
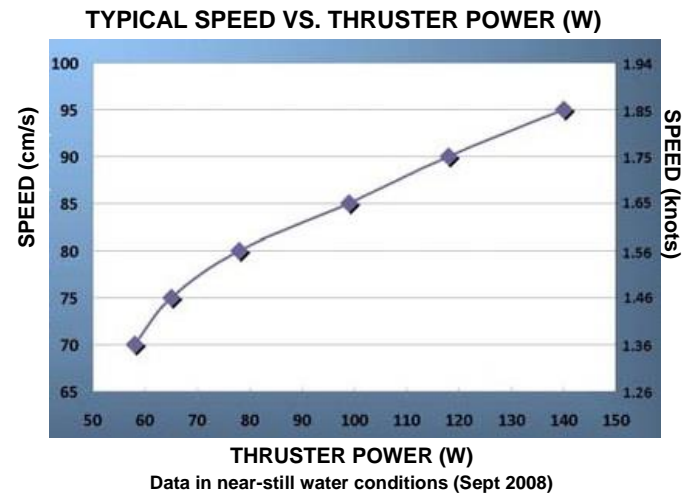
SPECIFICATIONS

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Depth Capability:	500 meters
Solar Array Size:	1.0 m ²
Power/Directional Control:	Vectored Thruster
Operating Speed:	1 to 2 knots, depending on mission parameters
Construction:	Fiberglass Composite
GUI:	Windows®-based intuitive operating system
Sensors:	Pressure Sensor (standard), Acoustic Altimeter (optional)
Communications:	Freewave RF (standard) Iridium satellite (standard) WiFi (standard) Short-range HF band (22–27 KHz) acoustic modems (optional)
Optional Emergency Relocation Systems:	Underwater Relocation Pinger, Flasher, VHF
Dimensions:	2.3 m L x 1.1 m W x 0.5 m H
Weight:	In Air: 200 kg In Water: 1 kg (positive) Trimmable for custom payloads
Payload Capacity:	25 Kg
Digital Control:	PC-104 based controller
Battery Type:	Lithium based technology
Standard Battery Capacity:	2 KWHr
Stand-by Energy Use:	10 W
Thruster Energy Use:	58 to 140 W maximum
Average Battery Charge Rate:	400 to 700 WHr/Day (Full sunlight, Middle latitudes)

APPLICATIONS

- Water Quality
- Oceanographic Sensors
CTD, DO, PH, Turbidity, Temp., etc.
- Fisheries
- Marine Environmental Monitoring
- Resource Protection
- Water Reservoir Mapping
- Internal Waves & Shear Measurement
- Gas Seep Detection
- Current Profiling
- Sporting Safety (Yacht Racing)



Data visualization by J. Frederickson (SAIC) produced using ArcGIS 9.0 suite including spatial analyst and 3D Analyst Data collected during a dissolved oxygen survey in Greenwich Bay, RI, 8 September 2004

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Falmouth Scientific, Inc.

1400 Route 28A, PO Box 315, Cataumet, MA 02534-0315

fsi@falmouth.com • Tel: 1-508-564-7640 • Fax: 1-508-564-7643 • www.falmouth.com