



Uncrewed Surface Vehicles

YOUR VEHICLE TO BETTER DATA AND BETTER DECISIONS



Why Would You Use a Vehicle Platform?



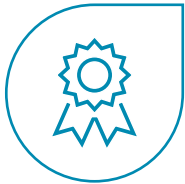
Data Quantity

Collect exponentially more data than you can in a boat or with point sampling.



Mission Control

Pre-program your mission for autonomous operation, or stay in full command with remote control, or use both!



Data Quality

Xylem's industry-leading sensors are used with top-quality sonar and positioning technologies.



Safety

Spend less time on boats and exposure to the elements by replacing days of manual profiling with a single vehicle mission.



rQPOD

- Surface-only for low seastate environments, such as canals, low-wind and wave reservoirs
- Remote control & autonomous module and thrusters; multiple board options to accommodate sensors



HYCAT

- Surface-only, stable catamaran design for low-to-moderate seastate environments, such as medium to large lakes, estuaries, and coastlines
- Remote control or fully autonomous missions, with 5.8 GHz Radio for real-time data acquisition



Flow Seeker

- Surface-only, stable inflatable hull design for low-moderate seastate environments, such as medium to large lakes, estuaries and coastlines
- Remote control or fully autonomous missions capability as standard
- Autonomous moving boat and stationary discharge measurement functions



Flow Scout

- Equipped with three underwater thrusters enabling 360 degree heading
- Autonomous lateral movements, even in challenging conditions like windy and slow-moving channels
- Autonomous moving boat and stationary discharge measurement functions

What Will You Do With a Xylem Vehicle?

Xylem has worked with global experts to design vehicle platforms for our customers' applications, ranging from pure environmental research to drinking water reservoir management to search and rescue missions. Almost any outdoor application requiring a YSI or SonTek sensor can be completed faster and with less operational expense, and the value only increases with sensor combinations.

Vehicle Comparison					
	Description	rQPOD	Flow Seeker	Flow Scout	HYCAT
Key Sensor Options	SonTek HydroSurveyor M9	Yes	Yes	Yes	Yes
	SonTek RS5	Yes	Yes	Yes	Yes
	YSI EXO2 Water Quality Sonde	Yes	Yes	Yes	Yes
	Sidescan Sonar	No	No	No	Yes
	Multibeam Sonar	No	No	No	Yes
	LIDAR	No	No	No	Yes
Key Features	Maximum Speed	1.5m/s	4m/s	2m/s	5m/s
	Remote Control	Yes	Yes	Yes	Yes
	Autonomous Operation	Yes	Yes	Yes	Yes
	Real-time Data Acquisition	Yes	Yes	Yes	Yes
	Onboard Camera	No	Yes	Yes	Yes
	Field Swappable Battery	Yes	Yes	Yes	Yes
	Single-person Deployability	Yes	Yes	Yes	No
	Run time on one battery charge (at survey speed)	4 hours	6 hours	6 hours	6-8 hours
	Hull can be used without thrusters for towed measurements	Yes	Yes	Yes	No
	Steering redundancy for fouled propellor boat return	No	Yes	Yes	No
	RTK position shared across USV navigation and onboard sensors	No	Yes	Yes	Yes
	Dual-GNSS with heading as standard	No	Yes	Yes	No
Lateral Movement	No	No	Yes	No	

rQPOD



Cost-Effective, Flexible, and Innovative Surveying Tool

The **rQPOD** is a compact and light weight remote controlled or autonomous vehicle that can easily be deployed in remote locations with just one operator. This compact motor propulsion system can be incorporated into our unique family of **Torrent Boards (DUO, TB, and the TBX)**. The rQPOD is perfect for smaller lakes, ponds, reservoirs, and hard-to-access areas where a larger vehicle can't access.

Features available as standard or options include:



Flexible sensor options: EXO 1,2, or 3; SonTek-M9 or RS5; side scan sonar.



Rugged Torrent Board withstands harsh water quality and moderate flow conditions.



Removable thrusters and batteries for field installation and serviceability.



Its small size and low draft makes this our most nimble vehicle platform.



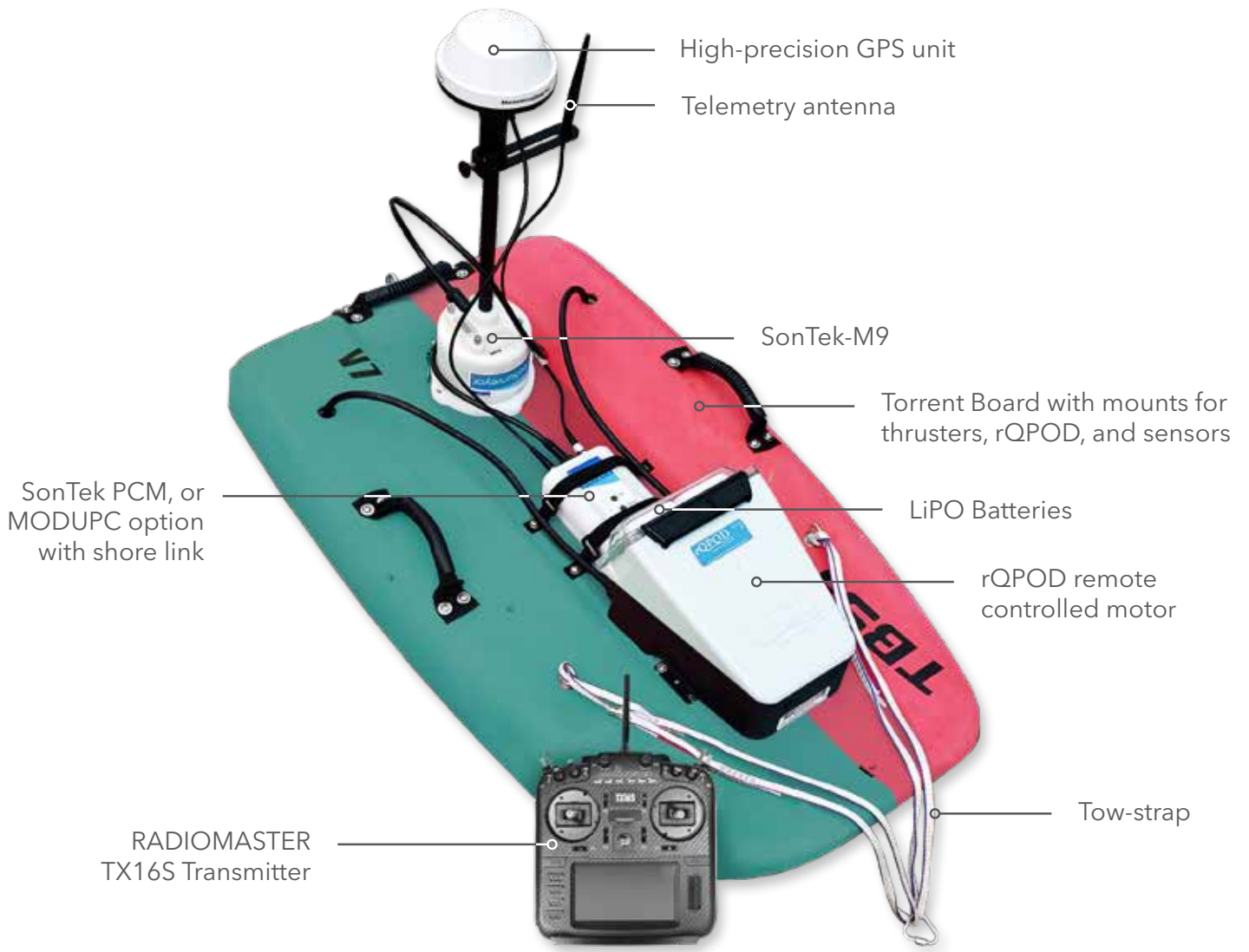
Patent-pending rQPOD motor is adaptable to other floating platforms.



At less than 26 lb (12 kg) and with the supplied backpack, system can be carried, assembled, and deployed by one person.

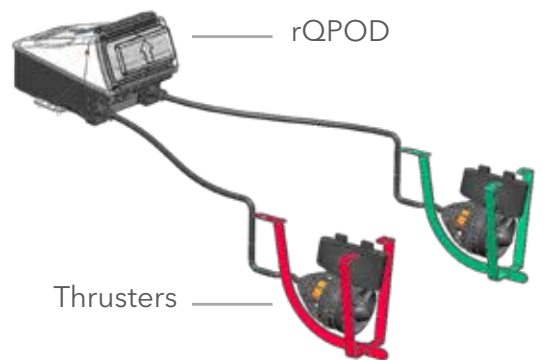


Vehicle Overview



rQPOD Module Specifications

Top Speed	1.5 m/s (5 ft/s)
Weight	4.54 kg (10 lb)
Battery Duration	4 to 6 hours @ 1.4 kts
Temperature Range	-10°C to +40°C (14°F to 104°F)
Batteries	2x LiPO
Transmitter	RADIOMASTER TX16S
IP Rating	IP67



Torrent Board Options



DUO



TB



TBX



Flow Seeker



Allowing the Operator to concentrate on the data not the deployment

The **Flow Seeker** is the workhorse USV designed with **SonTek M9 and RS5 ADCP** measurements in mind. Maneuverable, portable, and able to handle faster flowing conditions with its **maximum speed of 4m/s**. Features the Surfbee App running on the transmitter with advanced capabilities including onboard camera streaming, autonomous moving boat measurements and stationary discharge measurements with no tag line.

Outstanding features available standard or as options include:



Powerful performance (4m/s maximum speed) in a lightweight package (15kg)



ADCP Surfbee App functions for autonomous gaugings, moving boat, and stationary discharge method



Long-range (1km) transmitter, dust and spray-proof with USB charging



Onboard camera with live streaming to transmitter for situational awareness and gauge plate reading (optional)



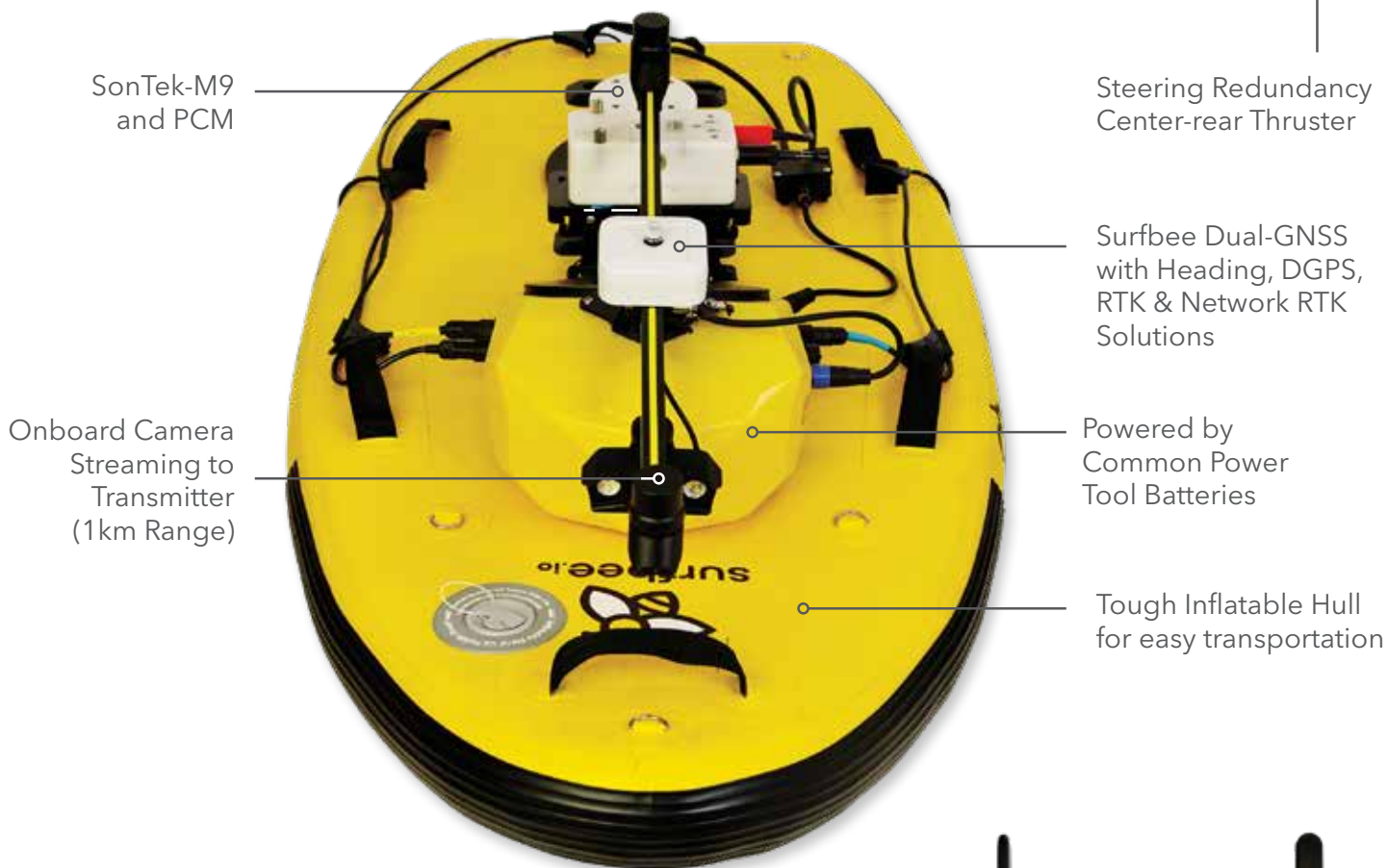
Inflatable rugged hull designed for harsh conditions allows for easy transportation and storage



Autonomous Bathymetry and mission setup via transmitter App



Vehicle Overview



SonTek-M9 and PCM

Steering Redundancy Center-rear Thruster

Surfbee Dual-GNSS with Heading, DGPS, RTK & Network RTK Solutions

Onboard Camera Streaming to Transmitter (1km Range)

Powered by Common Power Tool Batteries

Tough Inflatable Hull for easy transportation



Surfbee App running on controller

Flow Seeker Specifications

Top Speed	4m/s
Dimensions	1.65m X 0.75m X 0.1m (inflated)
Dimensions	0.95m X 0.45m X 0.45m (transport)
Weight	13.5Kg (no batteries)
Temperature Range	-10C to +45C

Flow Scout



Innovative Lateral Vessel Movement for precise ADCP control in challenging conditions

The **Flow Scout** excels in shallow waters and is equipped with three underwater thrusters for robust propulsion. Novel thruster configuration allows for lateral vessel control even in challenging conditions such as windy and slow-moving channels. **Utilising dual GNSS antennas** for heading, precise **SonTek M9 and RS5** discharge measurements has never been easier.

Outstanding features available standard or as options include:



Powerful performance (2m/s maximum speed) in a lightweight package (12.5kg)



ADCP Surfbee App functions for autonomous gaugings, moving boat, and stationary discharge method



Long-range (1km) transmitter, dust and spray-proof with USB charging



Onboard camera with live streaming to transmitter for situational awareness and gauge plate reading (optional)



Inflatable rugged hull designed for harsh conditions allows for easy transportation and storage



Autonomous Bathymetry and mission setup via transmitter App



Vehicle Overview

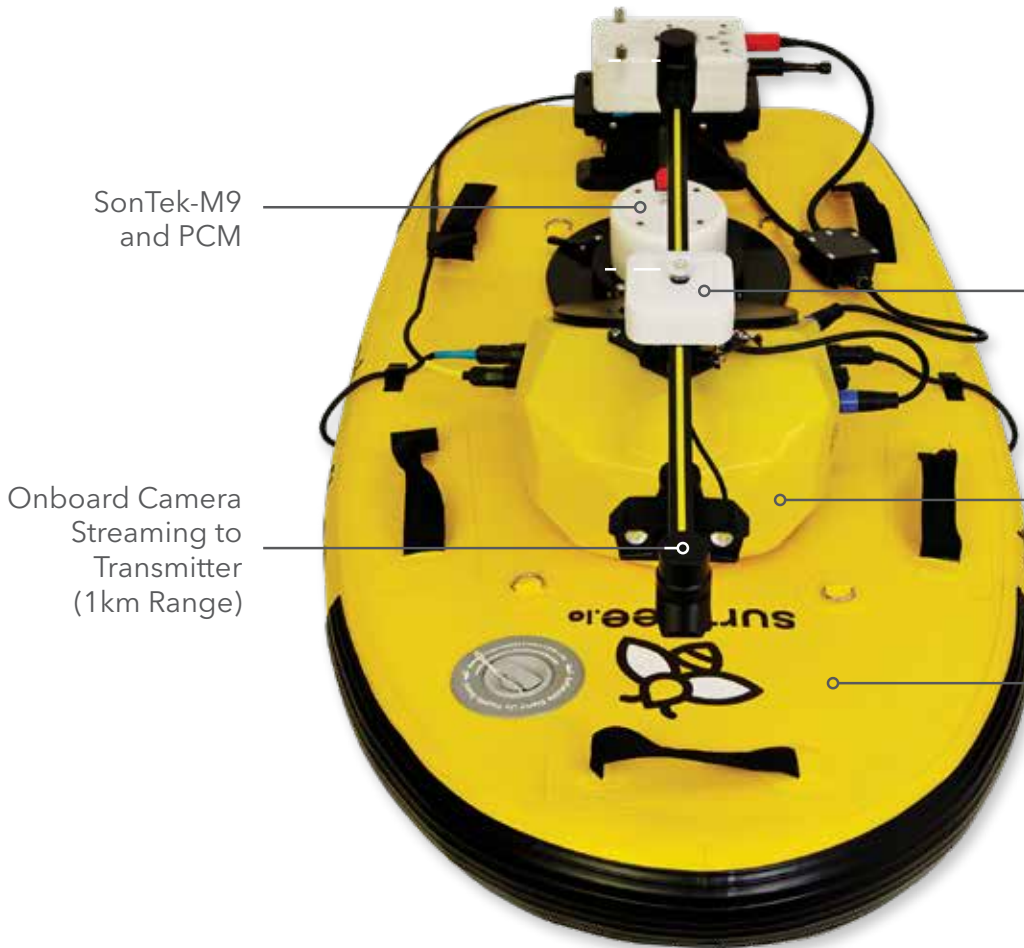


Steering Redundancy
Center-rear Thruster

Surfbee Dual-GNSS
with Heading, DGPS,
RTK & Network RTK
Solutions

Powered by
Common Power
Tool Batteries

Tough Inflatable Hull
for easy transportation



SonTek-M9
and PCM

Onboard Camera
Streaming to
Transmitter
(1km Range)

Surfbee App
running on
controller



Flow Scout Specifications

Top Speed	2m/s
Dimensions	1.35mX0.7mX0.1m
Dimensions	0.95m X 0.45m X 0.45m (transport)
Weight	11Kg (no batteries)
Temperature Range	-10C to +45C

HYCAT



Multiple Sensors, One Complete Solution.

The **HYCAT** is a unique Autonomous Surface Vehicle (ASV) that allows for the collection of water quality, current profiling, bathymetry, discharge, and side scan data, all simultaneously and in real time. The HYCAT is perfect for use in near coastal environments. The catamaran design allows it to cut smoothly through the water, providing the most stable data possible. It fits into most trucks and SUVs for easy transport and deployment. The HYCAT-PRO model offers multibeam sonar capability.

Features available as standard or options include:



The most sensor-rich platform available: YSI EXO2^s, SonTek-M9, Side Scan Sonar in one system!



Easily switch between autonomous and remote-controlled modes with the rugged handheld.



Real-time data for real-time decisions.



Onboard camera gives you a unique look at your study site.



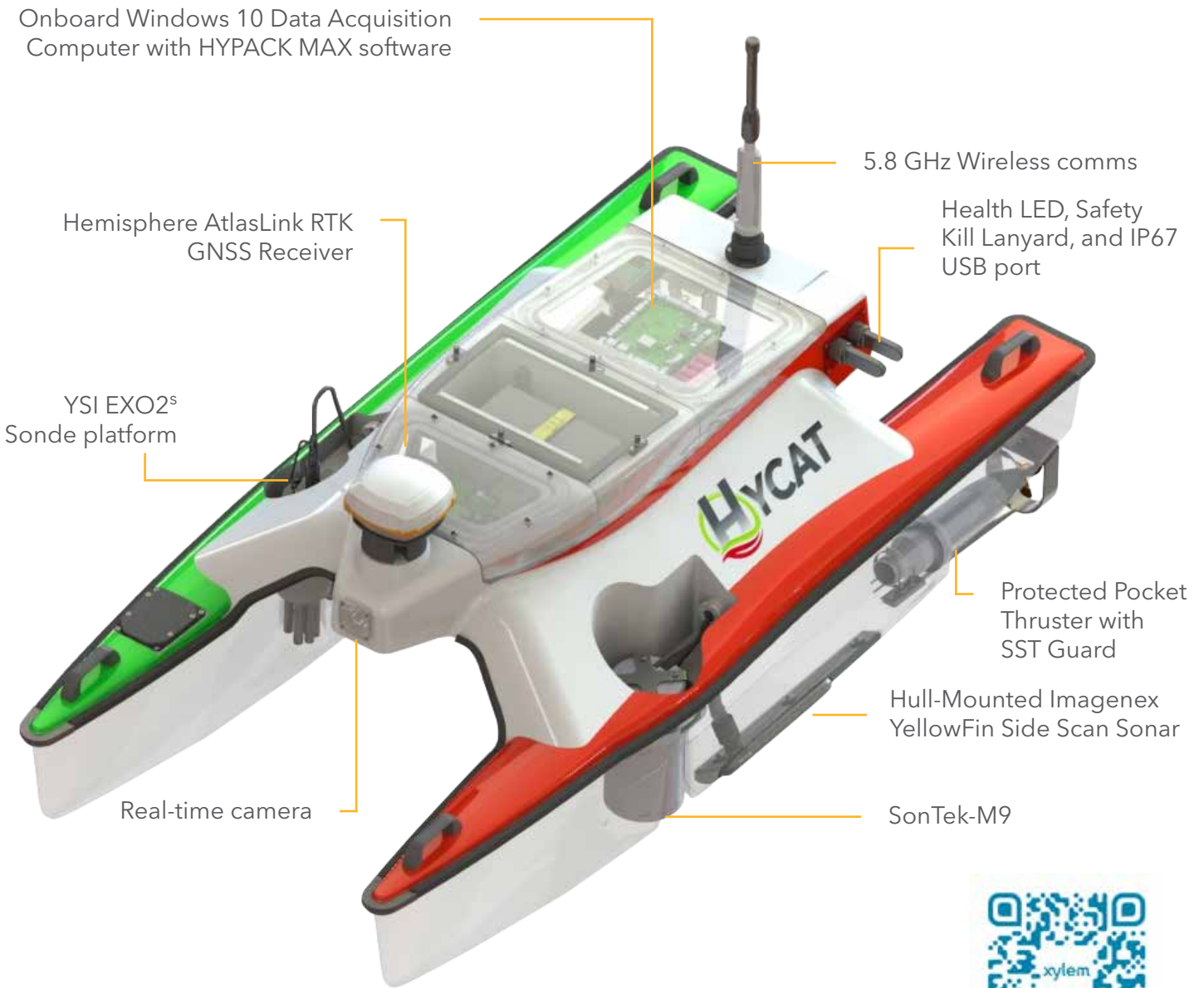
Field-swappable Li-ion battery keeps you operating all day.



Intuitive HYPACK MAX software for mission planning and analysis.



Vehicle Overview



HYCAT Specifications	
Dimensions:	Length: 1.8 m (5.9 ft), Draft (antenna down): 0.15 m (0.5 ft), Beam: 0.86 m (2.83 ft)
Weight	53 kg (115.5 lbs)
Battery Duration	8.0 hrs @ 2 kts, 6.0 hrs @ 3 kts, 2.7 hrs @ 4 kts
Temperature Range	Air Temperature: -20°C to +45°C (-4°F to 113°F) Water Temperature: +4°C to +32°C (39°F to 90°F)
Batteries	1 x 1500 Whr 24VDC nom UN38.3 rated Li-ion Battery. Field swappable.
Transmitter	Ruggedized operator control unit with joysticks and softkeys. Can easily switch between autonomous and RC control modes.
Software	HYPACK MAX, SonTek HydroSurveyor, Kor Software

Our Lineup of Survey Vehicles Has You Covered



Bathymetry, Discharge &
Current Profiling



Water Velocity



Depth Measurement



Remote Data Acquisition



Source Water Mapping



Point Source and Nonpoint Source
Mapping



Water Quality



Imaging with Side Scan Sonar



Real-Time Positioning



Baseline & Bottom Monitoring

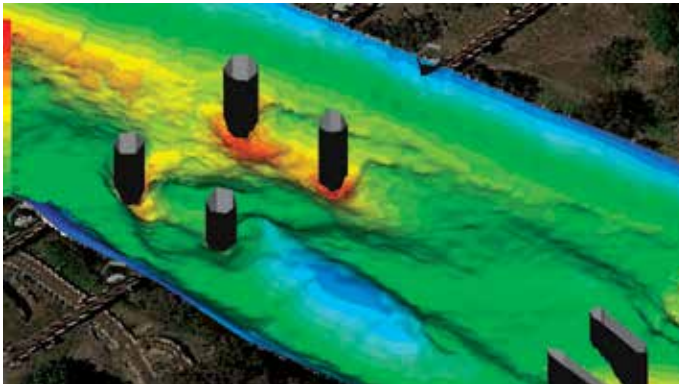


And more!

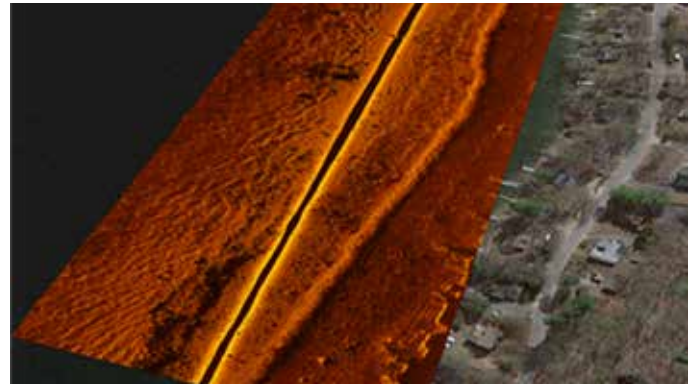


USV Applications

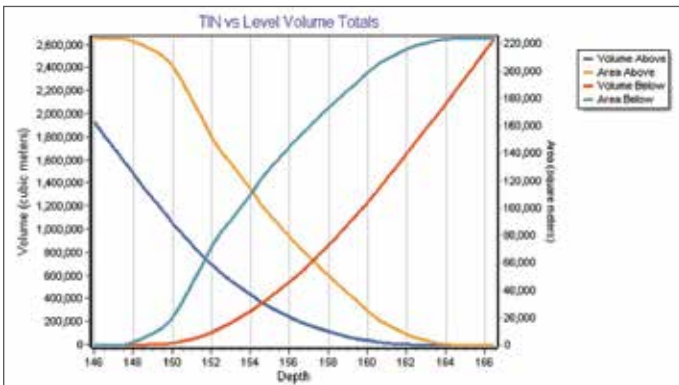
Enabling safer, precise and efficient data collection



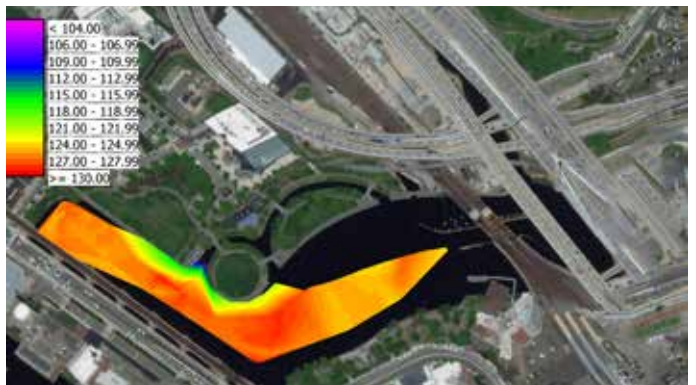
Bathymetry - Bridge Scour Surveys



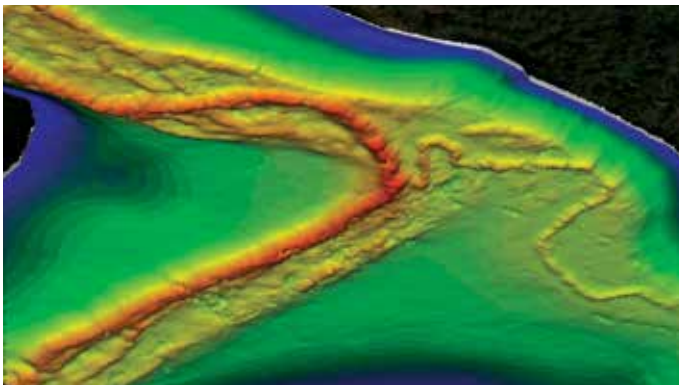
Side Scan Sonar



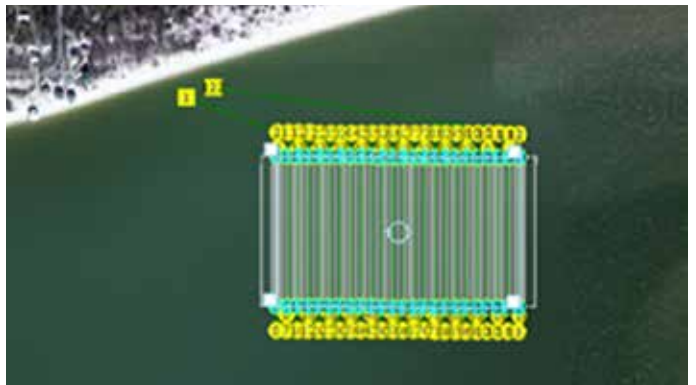
Bathymetry - Elevation Storage Curves



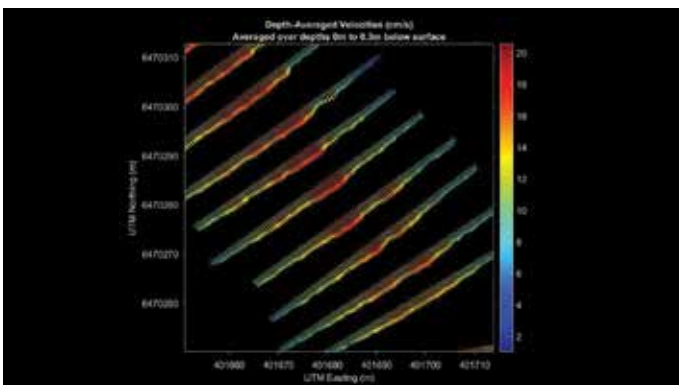
Water Quality Monitoring



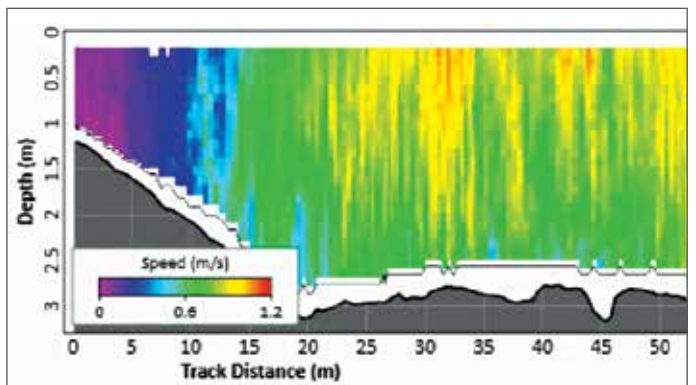
Bathymetry - Infrastructure Planning



Vector Mapping & Custom Waypoints



Water Velocity Mapping



Discharge Measurement

Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced analytics solutions for water, electric and gas utilities. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

For more information on how Xylem can help you, go to www.xylem.com

