Evo Logics®

SONOBOT 5

AUTONOMOUS HYDROGRAPHIC SURVEY VEHICLE

PRODUCT INFORMATION GUIDE

EVOLOGICS SONOBOT 5: MODULAR DESIGN FOR A WIDE RANGE OF APPLICATIONS

High-precision measurements and recordings

- different GNSS-options available (DGPS with/without RTK, laser tracking over a total station as well)
- Sonars: single-beam echosounder, multibeam echosounder, side-scan sonar (in variable configurations according to customer needs)
- HD camera for navigation support, photo- and video recordings

Flexibility

- Rapid system deployment, excellent maneuverability and area coverage thanks to powerful and efficient drives
- Special system software for planning, execution and evaluation of the survey
- Communication over a redundant mesh network enables work with/without a WLAN station, including integration of additional modules (laser tracking) without any configuration effort

Versatility

- Autonomous and radio controlled operation modes
- Direct Wi-Fi communication with redundant link or GPRS/UMTS
- Mission planning includes settings for sonar parameters
- Configurable data output

Robustness

- Built from seawater-resistant robust materials (basalt laminate, stainless steel, plastic)
- Suitable for operations in industrial waste waters
- PC for field operations
- On-board data logging, wireless transmissions on demand
- Transport case, suitable for air transport

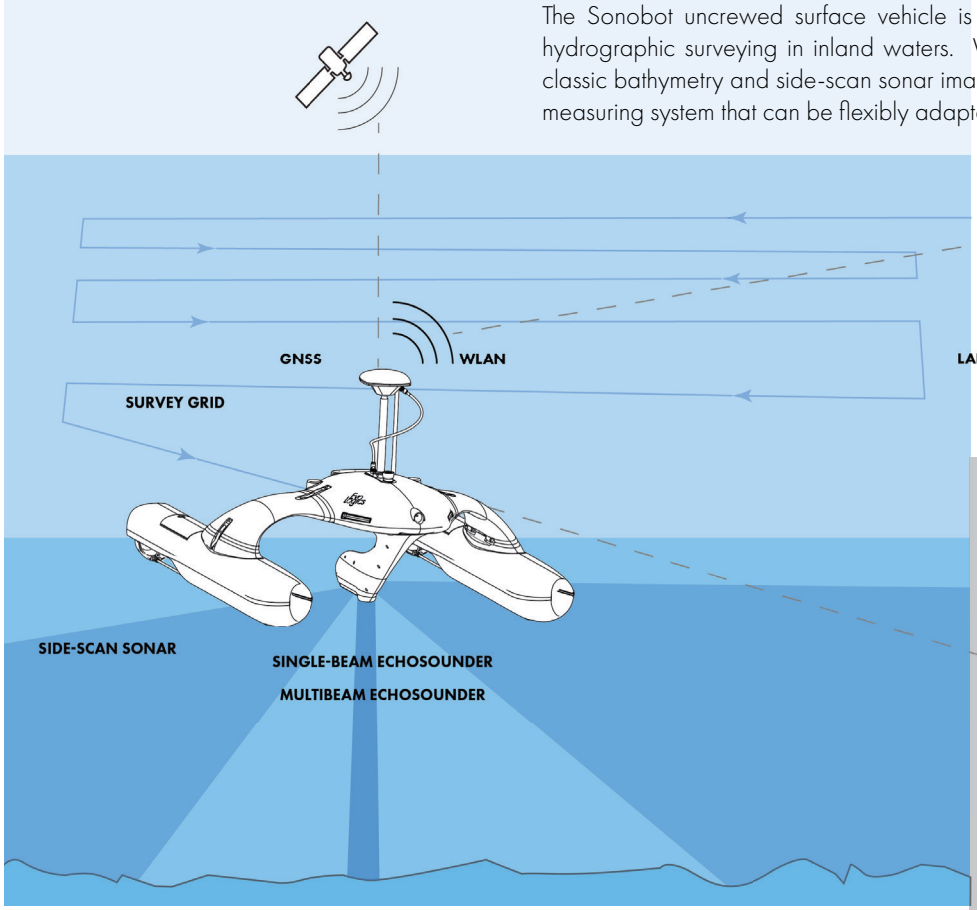
Easy handling

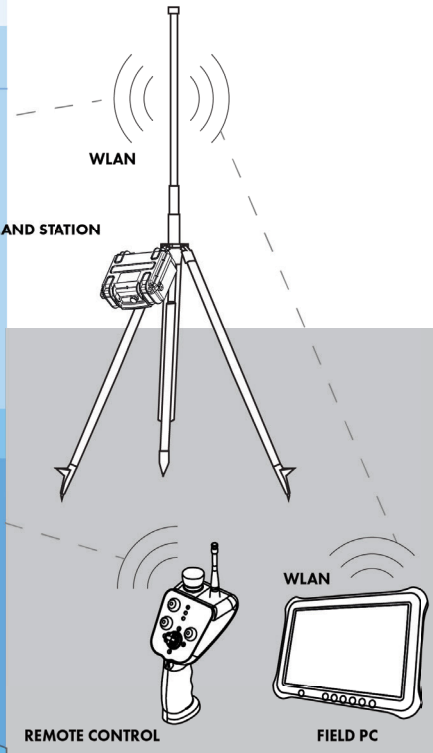
- Assembly completely without tools
- Can be handled by a single person
- Fits into a car trunk compartment for transport

THE SONOBOT 5 SYSTEM

EVOLOGICS SONOBOT 5 SYSTEM

The Sonobot uncrewed surface vehicle is a system platform, tailored to the needs of hydrographic surveying in inland waters. With highest precision, it carries out both the classic bathymetry and side-scan sonar imaging. The Sonobot is a very light and modular measuring system that can be flexibly adapted to the needs of a particular application.





Autopilot-integrated measuring system and a dedicated software package enable highly effective deployments of the Sonobot system.

The Sonobot is primarily used for 3D mapping, estimations of water body volumes, to determine sediment inputs or displacement of sediments. As an autonomous system, the vehicle can reveal changes in the shipping routes over time. It can be used to detect objects that pose a safety threat to people and infrastructure.

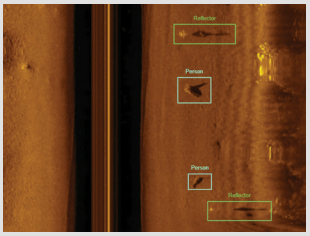
During search operations, objects and people can be located quickly: the vehicle enables targeted recovery work, reducing time and effort for rescue personnel and divers.

NEW: OBJECT RECOGNITION

Object recognition is an advanced new feature for EvoLogics Sonobot: the AI-based system is an extra module that runs directly onboard the vehicle and analyses raw side-scan sonar or video camera output.

Objects of interest are detected and visually highlighted in the operator's control software onshore - all live during the mission

A cloud-based ecosystem around the new OR system provides users with regular up-dates and new detectable object classes. It also allows uploading user datasets for the system to be trained for new object types upon request.



Hydrographic surveys

- Bathymetry and seafloor imaging in ports, harbors and inland waters

Search and recovery

- Locating objects, such as archeological artifacts, wrecks, missing persons etc

Survey missions

- Exploring shallow waters, natural reserves, flooded, restricted or hard-to-reach areas

Monitoring

- Regular examinations of underwater infrastructure

Security

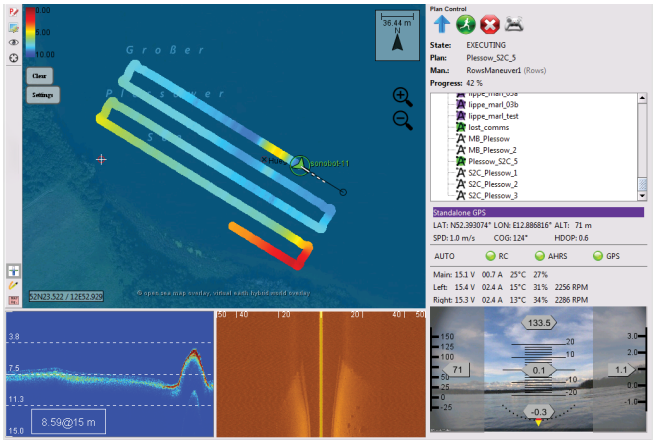
- Special versions for maritime and seaside security missions available upon request

SPECIFICATIONS AND CONFIGURATION OPTIONS

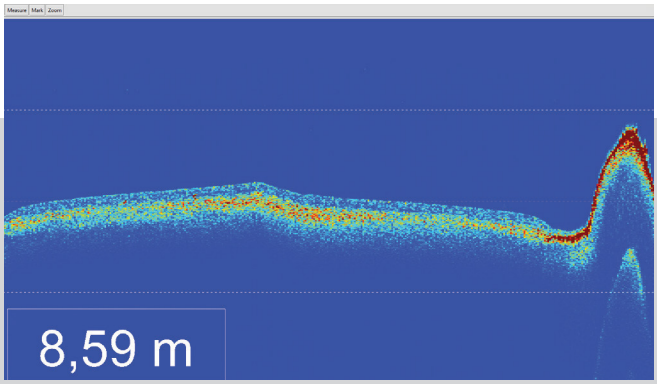
DESIGN AND DIMENSIONS	
VEHICLE TYPE	Catamaran
DIMENSIONS	Height: 805 mm (construction) Width: 920 mm Length: 1300 mm
DRAFT	120 mm (propeller over keel line) with weed guard
WEIGHT	< 27 kg
TRANSPORT	complete system in one transport case, fold-out no-tools assembly
IP RATING	IP 68 for all system components
SYSTEM COMPONENTS	Sonobot USV, field-PC with software, remote control, WLAN-station with tripod and antenna
OPERATION	
COMMUNICATION	Mesh-network 2,4 GHz WiFi and 868 MHz redundant (915 MHz available) enable permanent control for real-time navigation and measurement data collection
WLAN RANGE	Up to 1,5 km (with omnidirectional antenna), up to 2,5 km (with directional antenna)
OPERATING RANGE	>30 km at 1 m/s speed in water
SURVEY SPEED	0.5 to 1,5 m/s, maximum speed 5 m/s
OPERATING TIME	Up to 9 hours with one battery pack, additional battery packs available
WIND/ WAVES	up to 5 Bft without breaking waves
CONTROL	Manual control and map-based navigation, autopilot for autonomous operation, Radio-Silent Mode
SONARS	
ECHOSOUNDER	EvoLogics broadband single-beam echsounder 200 kHz - standard; 80 kHz and 400 kHz options available
SIDE-SCAN SONARS	EvoLogics 700 kHz with integrated 1MHz echosounder - standard; 300 kHz, 900 kHz and 1,2 MHz side-scan sonar options available
MULTIBEAM ECHOSOUNDER	**EvoLogics Multibeam** (Norbit inside): dual GNSS and INS positioning and motion control, up to 130° swath, 256 beams at 1.45° x 1°, over 200 m range, up to 50 Hz ping rate, compatible with Norbit data collection tool; IMAGENEX 270 kHz optional
POSITIONING	
GNSS	432 channels, frequency bands: BDS B1I/B2I, GPS L1/L2, GLONASS L1/L2, Galileo E1/E5b, QZSS L1/L2, RTK position accuracy: horizontal 0.8cm + 1ppm, vertical: 1.5cm + 1ppm
RTK	Reference service over GSM/LTE or Base/Rover, EGNOS
TOTAL STATION	Mirror reflector and total station for positioning without GNSS optionally available
FIELD-PC/SOFTWARE	
RUGGED TABLET	Robust, bright, long battery life, with pre-configured software
SOFTWARE	Software and GUI are designed for working with the Sonobot and are also available without a PC
CAMERA	
FRONT-VIEW CAMERA	Fully integrated HDTV network camera with data storage for photo- and video recordings. Underwater camera option available
TRANSPORT	
CASE	Robust case for long-term industrial use
OUTER CASE DIMENSIONS	1532 x 585 x 514 mm
TOTAL SYSTEM WEIGHT	appr. 60 kg

For pricing and configuration information contact us at sales@evologics.com or call +49 30 4679 862 - 0

MISSION PLANNING
The measurement grid

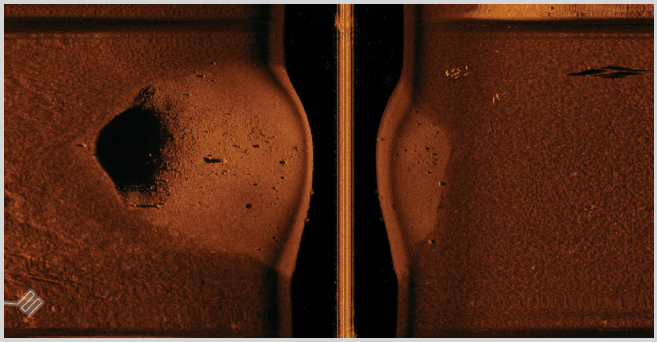


DURING THE MISSION
Bathymetry and Side-scan sonar live view

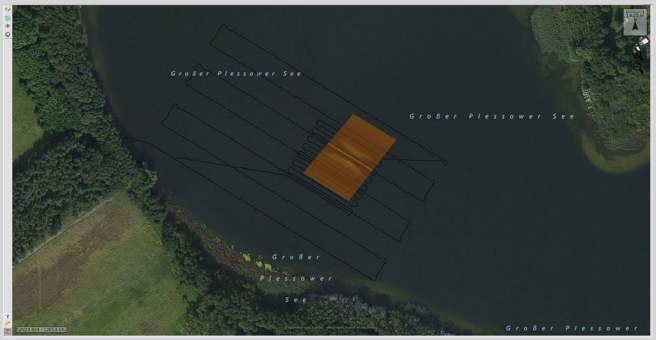


DURING THE MISSION
The depth profile live view

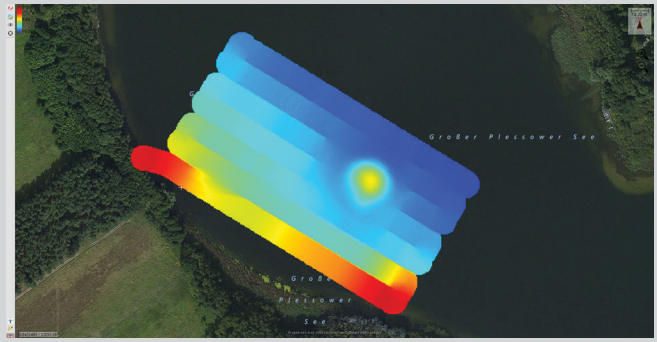
DURING THE MISSION
Camera view



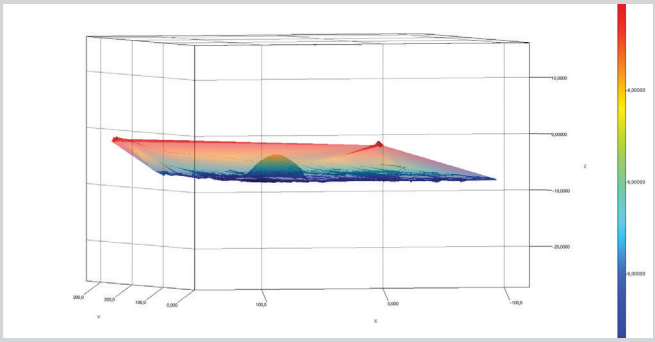
DURING THE MISSION
Side-scan sonar live view



MISSION RESULTS
Side-scan sonar image



MISSION RESULTS
Bathymetry in 2D



MISSION RESULTS
Bathymetry in 3D

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