



OPEN SWAP

SHALLOW WATER
AUTONOMOUS PROSPECTOR

PROAMBIENTE

innovation & environment

DATASHEET

Open Swap is a remotely controlled, fully autonomous, water Unmanned Surface Vehicle (USV) for geophysical surveys, visual inspections and custom applications.

Designed to study and monitor various contexts, is light-weight, cheap and totally customizable and compatible with most popular GPS and sensors.



- ✓ New modular aquatic robot class feasible for any environment
- ✓ Arduino/Raspberry based platform
- ✓ Integrated Single-beam echo sounder (12°@200KHz) w/bottom tracking and seg-y records
- ✓ Easy to transport and deployment
- ✓ Customizable on-demand and by the customer himself
- ✓ Data control and real-time visualization
- ✓ Several I/O digital and analog ports



Dimensions:

Catamaran Length x Width..... 120x120 cm (Hull 120x30 cm)
 Hull & Central Case Material.....LLDPE
 Hatches.....screw caps with gasket IP67:
 2x 24 cm and 2x 12.2 cm – Hull
 1x 43.5 cm diameter– Central Case
 Additional Payload..... 40 kg max

Electrical:

Power..... 12-16VDC provided by 2 x LiPOs
 (4S) 20Ah pack
 Motors.....4 brushless (4x 350Wmax) w/
 protection grid

Navigation Capability:

Typical Survey Speed..... 1.5-2 knots (3.5 knots max)
 Battery Endurance..... 7-8 hours (@Typical Survey Speed)
 Radio Control/Link Range..... 1 km @2.4 GHz (2 km @ 433MHz)
 NavigationSoftware..... OPENSWAPNAV (Linux) routes
 planning and real-time remote
 control with GIS technology using
 free database of land images

Sensors and I/O:

Integrated Positioning System.....GPS UBLOX-True heading w/
 double antenna (dynamic heading
 accuracy 0.3° - 50% @ 30m/s)
 Horizontal position accuracy
 (standalone) = 2.5m CEP
 External GPS.....Compatibility with NMEA GPS (w/
 RS232-Serial Adapter or WIFI link)
 Inertial Motion Unit..... 10 DOF MEMS w/ heading
 correction when GPS heading fails
 Single Beam Echosounder 12°@200KHz with echogram
 visualization and selectable bottom
 tracking > record of SEG-Y files
 and NMEA \$DPT bottom values
 with temperature in logfile
 Depth Accuracy.....1cm/0.1% of depth (0.5 to 50m)
 Acquisition Software.....SWSCONTROL (Linux) realtime
 remote controller for echosounder
 bottom tracking and SEG-Y record
 Auxiliary Ports.....I/O analog and digital port (5V
 tolerant)

Optional:

Video..... HD streaming (@2.4 GHz) w/ 8MP
 Wide Angle 110° frontal camera
 Extended kit.....2 x LiPOs (4S) 20Ah pack + 2x
 brushless motors + controller rack

