

WhaleTech Robotics

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MATE WORLD COMPETITION 2025

Non-ROV Device Design Documentation

Float-Side

- 6V Battery
- Pi Zero 2W
- On-board Transceiver
- Blue Robotics Bar30 Depth/pressure sensor
- Relay X2
- DC Motor Peristaltic Pump

Surface-Side

- Pi Zero 2W
- Surface Transceiver
- Programming Laptop

Fuse Calculations

- Pi Zero 2W = 350mA
- GPIO pins = 50mA
- Relay = 10mA
- DC Motor = 1A
- On-board Transceiver = 115mA
- ROV Full Load Amps(FLA) in water = 1.525A
- Fuse size selected based upon FLA = 2A

Surface-Side AMP PULL

- Pi Zero 2W = 350mA
- GPIO pins = 50mA
- Surface Transceiver = 115mA

Legend:

- 6V (Red)
- 5V (Dark Red)
- 3.3V (Green)
- Signal (Yellow)
- USB (Magenta)
- Phase (Blue)

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Sheet: /
 File: G08GFloatSide_sch
Title: Float Schematic
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All systems are housed in a cast acrylic tube to ensure the safety of marine life as well as all components inside. It serves as protection from collisions for all components in addition to serving as a waterproof housing. The endcaps also serve as additional pressure releases should the build-up of pressure occur.