## OSUG: Open-Source Underwater Glider Components

| Quantity | _ | COMPONENT_NAME | Description | Link | Cost (Euro) | Comment |
|---|---|---|---|---|---|---|
| 1 | × | Printed parts | | | | |
| 1 | × | Blue Robotics 4" tubing 1000mm | The main tubing | | | |
| 1 | × | MPU6050 | Gyroscope/accelerometer | https://amzn.eu/d/4f7AIye | 4.99 | |
| 3 | × | A4988 Stepper motor driver | Stepper motor drivers | https://amzn.eu/d/cFBuVKx | 23.97 | |
| 6 | × | 18650 Protected cells | Litium-ion batteries | https://www.conrad.de/de/p/samsung-nr18650-25r-spezial-akku-18650-hochstromfaehig-hochtemperaturfaehig-flat-top-li-ion-3-6-v-2500-mah-1431335.html?hk=SEM&+Haushalt=&+Haushalt=&B2C+Experience=&ef_id=d2293d5206e818836aaa5810540118b3%3AG%3As&s_kwcid=AL%21222%2110%2173117804044873%214576717172559192&msclkid=d2293d5206e818836aaa5810540118b3&utm_source=bing&utm_medium=cpc&utm_campaign=Kfz%2C+Hobby+%26+Haushalt&utm_term=4576717172559192&utm_content=Kfz%2C+Hobby+%26+Haushalt | 50.94 | |
| 6 | × | C/D Battery contact spring | Battery contact springs for the lithium-ion batteries | https://amzn.eu/d/6sbUuDh | 41.70 | |
| 6 | × | LRB-2.5T-M4 | Solderless crimp terminals to connect to the battery | https://de.farnell.com/jst-japan-solderless-terminals/lrb-2-5t-m4/crimpklemme-ring-m4-lrb-ausf-auf/dp/7356579 | 0.32 | |
| 3 | × | Micro lever switch | Endstops | https://amzn.eu/d/cQW1RBU | 14.67 | |
| 2 | × | 2mm stainless steel plate (400x140mm) | Used for the wings | https://amzn.eu/d/cuJ93V9 | 7.58 | |
| 2 | × | 300mm Acme screw | Used for pitch/buoyancy motor | https://amzn.eu/d/9ejFYP4 | 3.86 | |
| 2 | × | Acme nut | Used for pitch/buoyancy motor | https://amzn.eu/d/6BUYA8y | 5.29 | |
| 6 | × | 316 Stainless steel hosetail (barb fitting), 10mm diam | Used to connect the syringes to the endplate | https://amzn.eu/d/ivDjU1T | 12.99 | |
| 1 | × | 10mm aluminium tubing (1 meter lengths) | Used in general assembly | https://amzn.eu/d/1KjlZTs | 4.49 | |
| 1 | × | 9mm reinforced PVC tubing (1m) | used to connect the syringes to the exterior | https://amzn.eu/d/5HI9lmn | 11.89 | |

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| 1 | × | Blue Robotics Fathom-S Tether Interface Board Set | Serial communication boards | https://eu.robotshop.com/products/fathom-x-tether-interface-board-set | 281.95 | |
| 1 | × | Blue Robotics Fathom ROV Tether (25m recommended) | Used to test the glider/communicate/charge | https://bluerov-solutions.com/produkt/fathom-rov-tether-rov-ready/ | 272.51 | https://eu.robotshop.com/products/bluerov2-enclosure-pre-wired-electronics |
| 1 | × | Blue Robotics Enclosure Vent and Plug | Used to equalise pressure when putting the glider together | https://eu.robotshop.com/products/wetlink-penetrator-95mm-high-compression | 17.52 | https://bluerov-solutions.com/produkt/bluerov2-enclosure-only-2/ |
| 2 | × | Blue Robotics Aluminum End Cap (4" Series) | Endplate pieces | https://bluerov-solutions.com/produkt/aluminum-end-cap-4-series/ | 33.32 | |
| 2 | × | Blue Robotics O-Ring Flange (4" Series) | Endcap pieces | https://imachines.gr/bluerobotics/store/o-ring-flange-4-series/ | 35.75 | |
| 1 | × | Blue Robotics Bar30 High-Resolution 300m Depth/Pressure Sensor | Used for depth sensing | https://bluerov-solutions.com/produkt/bar30-high-resolution-300m-depth-pressure-sensor/ | 101.15 | |
| 1 | × | Blue Robotics Switch | On/Off switch for the glider | https://eu.robotshop.com/products/bluerobotics-switch-5a | 23.50 | |
| 1 | × | Silicone grease | Used to coat the o-rings to ensure the glider is watertight | https://eu.robotshop.com/products/griffon-silicone-grease-15-g | 5.65 | |
| 1 | × | Marine epoxy | Used to fix the barbs to the endplate | | | |
| 2 | × | NEMA 17 32mm Stepper motor | Stepper motors for the planetary gearbox and the buoyancy engine | https://amzn.eu/d/buewJ44 | 13.99 | 34mm |
| 1 | × | 27mm metal hole saw | Not technically a part, but | https://amzn.eu/d/g02A6Dd | 34.51 | |
| 1 | × | Pogo connector male PCB | Download from the "Files" section | | | |
| 1 | × | Pogo connector female PCB | Download from the "Files" section | | | |
| 1 | × | Control board PCB | Download from the "Files" section | | | |

| Quantity | _ | COMPONENT_NAME | Description | Link | Cost (Euro) | Comment |
|---|---|---|---|---|---|---|
| 20 | × | 16mm Pogo pins (P75-B1) (20 includes 10 spare) | Used to electrically connect the front and back of the glider | https://buyzero.de/en/products/pogo-pins-needle-head-10-pack-p75-b1 | 153.00 | |
| 1 | × | PX0733 - Bulgin buccaneer standard series, dust cap | 314390 | https://de.farnell.com/en-DE/bulgin/px0733/sealing-cap-for-px0847-connector/dp/314390 | 2.96 | |
| 2 | × | PX0728/P - Bulgin buccaneer standard series, 9 pins, cable mount plug | 469683 | https://www.digikey.de/en/products/detail/bulgin/PX0728-P/1625877?s=N4IgTCBcDaIAoA0AMB2MAOA9HEBdAvkA | 23.53 | |
| 1 | × | 12237 – Bulgin buccaneer standard series, strain relief | 469713 | | | |
| 1 | × | PX0727/S - Bulgin buccaneer standard series, 9 pins, panel mount receptacle | 314419 | https://de.rs-online.com/web/p/industrie-automation-steckverbinder/0452114?cm_mmc=DE-CJAFF-_-digipart.com-_-RS+Components+DE+Product+Feed&cjevent=13da8e5f7a0711ee820b00d80a18b8fb | 25.95 | |
| 2 | × | DF13-4P-1.25DSA – DF13 male header, 4 pins | 1324879 | https://amzn.eu/d/dftG4B2 | 11.41 | |
| 1 | × | NEMA 17 60mm Stepper motor | Stepper motor for the mass assembly carriage | NEMA17 Stepper Motor 60mm - CR-3D Stepper Motor for Z-Axis (cr3d.de) | 21.90 | |
| 3 | × | 22-27-2041 or 22-29-2041 – 0.1" Male header, 4 contacts | 9731164 | https://de.farnell.com/molex/22-27-2041/stiftleiste-4pos-1-reihe-2-54mm/dp/9731164 | 1.44 | |
| 1 | × | NOTE | The electrical components are supplied with a UK farnell code in the component description, so you can identify them and f | | | |
| 3 | × | 22-27-2021 or 22-29-2021 – 0.1" Male header, 2 contacts | 9731148 | https://de.farnell.com/molex/22-27-2021/stiftleiste-2pos-1-reihe-2-54mm/dp/9731148 | 1.44 | |
| 1 | × | 22-27-2081 or 22-29-2081 – 0.1" Male header, 8 contacts | 9731180 | https://de.farnell.com/en-DE/molex/22-27-2081/stiftleiste-8pos-1-reihe-2-54mm/dp/9731180 | 0.88 | |

| Quantity | _ | COMPONENT_NAME | Description | Link | Cost (Euro) | Comment |
|---|---|---|---|---|---|---|
| 3 | × | 22-01-2025 – 0.1" Female header, 2 contacts | 143126 | https://www.mouser.de/ProductDetail/Molex/22-01-2025?qs=mrPiglD9aYKHxZkM06vJ3A%3D%3D | | |
| 3 | × | 22-01-2045 – 0.1" Female header, 4 contacts | 143128 | 22-01-2045 Molex, Connector Housing, KK 254 6471, Receptacle \| Farnell EN | | |
| 2 | × | 22-01-2085 – 0.1" Female header, 8 contacts | 143130 | https://www.mouser.de/ProductDetail/Molex/22-01-2085?qs=P7cO%252B%252BFDLzR5XBen9XcmMw%3D%3D | | |
| 50 | × | 08-50-0113 – Crimp contact for motor/endstop headers (includes 16 spare) | 2063734 | https://www.reichelt.de/de/de/molex-crimpkontakt-kk-buchse-molex-8500106-p185676.html?PROVID=2788&gclid=Cj0KCQjwtJKqBhCaARIsAN_yS_nkjy650nn7UkCBk7-z5s7HatS8z2Q2nN-O5u2yL3JyEU6OptDldWIaAlASEALw_wcB&&r=1 | 7.50 | |
| 3 | × | 0603 SMD resistor 10kohm | 9238603 | https://amzn.eu/d/clM5XFs | 4.49 | |
| 1 | × | DF13-6P-1.25DSA – DF13 male header, 6 pins | 2427590 | https://de.farnell.com/en-DE/hirose-hrs/df13-6p-1-25dsa/stiftleiste-6-pos-1-reihe-1-25mm/dp/2427590 | 0.47 | |
| 8 | × | LM8UU | Linear bearings for mass assembly | https://amzn.eu/d/d1P6G5q | 6.64 | |
| 4 | × | 3.5mm Screw terminal block, 2 pins, through hole | 2478586 | https://ie.rs-online.com/web/p/pcb-terminal-blocks/8971332 | 2.40 | |
| 1 | × | 16MHz Crystal, through hole, 11.5mm x 5mm | 1842217 | https://uk.farnell.com/abracon/abl-16-384mhz-b2/crystal-16-384m-18pf-cl-hc49-4h/dp/1611776 | 0.20 | |
| 2 | × | 0603 SMD ceramic capacitor 22pF | 1759057 | https://www.mouser.de/ProductDetail/KEMET/C0603C220J4GACAUTO?qs=MyNHzdoqoQJm2JGkEmcT9Q%3D%3D | 0.44 | |

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|---|---|---|---|---|---|---|
| 1 | × | 0.1" male header, through hole, 12 contacts, 2 rows | 1593443 | https://www.digikey.de/de/products/detail/molex/0010897120/3068090?utm_adgroup=&utm_source=google&utm_medium=cpc&utm_campaign=PMax%20Shopping_Supplier&utm_term=&productid=3068090&utm_content=&utm_id=go_cmp-20189582800_adg-_ad-__dev-c_ext-_prd-3068090_sig-Cj0KCQjwtJKqBhCaARIsAN_yS_mvRknPTwRJ1wfLPXMSJKFdJSW_3XJzRJUHsLJ5xkQzlbLgd5sAQvYaAgtcEALw_wcB&gad_source=1&gclid=Cj0KCQjwtJKqBhCaARIsAN_yS_mvRknPTwRJ1wfLPXMSJKFdJSW_3XJzRJUHsLJ5xkQzlbLgd5sAQvYaAgtcEALw_wcB | 1.92 | |
| 1 | × | ATMEGA2560 16MHz TQFP | 1288330 | https://www.reichelt.de/8-bit-atmega-avr-mikrocontroller-256-kb-16-mhz-tqfp-100-atmega-2560-16au-p68178.html?utm_source=affiliate&utm_medium=awin.de&PROVID=2690&awc=14954_1698997147_791d7d13f8721b454c1a6334bd6b1c2e | 14.70 | |

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|---|---|---|---|---|---|---|
| 1 | × | 0.1" male header, through hole, 6 contacts, 2 rows | 1248132 | https://www.digikey.de/de/products/detail/w%C3%BCrth-elektronik/61300621121/4846835?utm_adgroup=&utm_source=google&utm_medium=cpc&utm_campaign=PMax:%20Smart%20Shopping_Product_Zombie%20SKUs&utm_term=&productid=4846835&utm_content=&utm_id=go_cmp-18521752285_adg-_ad-__dev-c_ext-_prd-4846835_sig-Cj0KCQjwtJKqBhCaARIsAN_yS_mrM5-g1nlW3NNTrvIVIBlH3nG5YqhOKegSzPpa4y9v-6-hgCJ7iCwaAkfKEALw_wcB&gad_source=1&gclid=Cj0KCQjwtJKqBhCaARIsAN_yS_mrM5-g1nlW3NNTrvIVIBlH3nG5YqhOKegSzPpa4y9v-6-hgCJ7iCwaAkfKEALw_wcB | 0.54 | |
| 50 | × | Crimp contact for communication headers (includes 18 spare) | 1097978 | https://www.mouser.de/ProductDetail/Molex/214524-1000?qs=By6Nw2ByBD1H8xR7rSUduw%3D%3D&mgh=1&vip=1&gad_source=1&gclid=Cj0KCQjwtJKqBhCaARIsAN_yS_kn3DRbU9iycCp_hBqSk8CE0AQtiKnPZa4Wbkcqh5FRF1qw4rq4fRMaAjPlEALw_wcB | 5.50 | |
| 4 | × | 2 contact female header for communication | 1211646 | https://www.reichelt.de/buchsenleiste-2-54mm-1x2-gerade-bkl-10120944-p266669.html?PROVID=2788&gclid=Cj0KCQjwtJKqBhCaARIsAN_yS_k_BTtDYy5aPjaUYQu7f0MOC6l_5cD1HTpIdZ24faXlX3XroHD35_IaAvZSEALw_wcB | 1.40 | |
| 2 | × | 4 contact female header for communication | 1211644 | MPE 094-1-004: Socket headers 2.54 mm, 1X04, straight at reichelt elektronik | 0.84 | |

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|---|---|---|---|---|---|---|
| 1 | × | 8 core 24AWG ribbon wire | 1301023 | PP002607 Pro Power, Ribbon Cable, Per Metre, Unscreened \| Farnell DE | 2.22 | |
| 1 | × | Small zip ties (many) | Used to fasten linear bearings | https://amzn.eu/d/g17CVUe | 3.49 | |
| 100 | × | M3 nuts (includes 4 spare) | | https://amzn.eu/d/27D9vxR | 7.14 | |
| 60 | × | 10mm M3 bolts (includes 10 spare) | | https://amzn.eu/d/dre8li2 | 6.31 | |
| 70 | × | 16mm M3 bolts (includes 11 spare) | | https://amzn.eu/d/dgLoKjU | 41.93 | |
| 10 | × | 20mm M3 bolt (includes 4 spare) | | https://amzn.eu/d/dre8li2 | 10.69 | |
| 5 | × | 25mm M3 bolt (includes 2 spare) | | https://amzn.eu/d/dre8li2 | 9.25 | |
| 15 | × | M4 nuts (includes 15 spare) | | https://amzn.eu/d/5lJnBYs | 5.29 | |
| 20 | × | 16mm M4 bolts (includes 8 spare) | | https://amzn.eu/d/5Kwv7OE | 7.99 | |
| 5 | × | 25mm M4 bolts (includes 2 spare) | | https://amzn.eu/d/am2hH7E | 7.99 | |
| 10 | × | 30mm M4 bolts (includes 6 spare) | | https://amzn.eu/d/jf7r86X | 7.49 | |
| 1 | × | M8 nut | | https://amzn.eu/d/i1oYVFf | 13.99 | Nuts and Bolts |
| 2 | × | 8mm chromed smooth rod 1000mm | Stainless steel smooth rod Used for movement | https://amzn.eu/d/i0Xi3Pb | 3.49 | |
| 1 | × | 40mm M8 bolt | | https://amzn.eu/d/i1oYVFf | | Same as 67 |
| 1 | × | Arduino | Used for burning the bootloader | https://amzn.eu/d/13qqiyh | 16.99 | |
| 1 | × | 6 pin ICSP cable | Used for burning the bootloader | https://exp-tech.de/products/olimex-icsp-cable-6pin-mini | 1.64 | |
| 6 | × | Terumo Catheter Tip Syringes 50ml Syringe | Buoyancy engine syringes (Other brands may work, but dimensions will vary) | https://amzn.eu/d/bGaUe4F | 9.99 | 5 instead of 6 |
| 3 | × | 608ZZ Bearings | To keep the mass assembly rotating smoothly | https://amzn.eu/d/j0UYU3z | 3.49 | |