

Transmedium Superdrone - prototype build guide (P1)

dronefactory24.uk · air + water VTOL · mostly off-the-shelf parts

Honesty and status. This is a prototype design, not a flight-proven aircraft. Speed figures are engineering estimates with the physics stated. The seawater cell is an auxiliary trickle-charge source, not a flight powerplant. Maritime use is search-and-rescue and interdiction support with hand-off to crewed authorities. Patent materials are drafts, not granted rights.

TARGET ENVELOPE

~75-95 mph

realistic loaded air

~115-185 mph

stripped air stretch

~15-25 mph

submerged

~3.6:1

air thrust-to-weight

1.2-1.6 kg

all-up weight

BILL OF MATERIALS

#	Part	Qty	Line USD	Function
1	RC submarine hull (bullet/torpedo ABS)	1	90	Buoyant body, dry bay
2	Flight controller + 4-in-1 ESC stack	1	65	VTOL stabilisation
3	Air motors 2207-class (IP53)	4	60	Air lift/thrust
4	Air props 5 inch + spares	8	8	Lift
5	Sealed underwater thruster + ESC	1-2	95-175	Water propulsion
6	6S LiPo packs	2	64	Primary energy
7	6S balance charger	1	45	Dock charging
8	ELRS receiver nano	1	12	Control link
9	ELRS radio transmitter	1	100	Pilot control
10	FPV camera + VTX	1	40	Live video
11	Ballast pump 12V + reservoir	1	20	Dive/surface
12	Depth/pressure sensor	1	22	Depth feedback
13	Waterproof servos 20kg	2	56	Ballast/payload
14	Aluminium tube 6061	1set	22	Frame + Al electrode
15	Magnesium sacrificial-anode rod	1	20	Mg electrode
16	Wiring/connectors	1set	20	Interconnect
17	Marine epoxy + conformal coating	1set	25	Sealing
18	Payload-bay hardware	1set	35	Mission modules
19	O-rings, glands, penetrators	1set	18	Waterproofing

#	Part	Qty	Line USD	Function
Indicative subtotal			~\$820	Range ~\$700-1300

Cost-down: a bundled BNF FPV core collapses lines 2-4 and 8 into one purchase and is the fewest-components air-side route.

ASSEMBLY (TOOLS: SCREWDRIVER, HEX SET, SOLDERING IRON, BUTTERKNIFE, EPOXY)

1. Pry the bullet hull along its seam with a butterknife; dry-fit the electronics tray.
2. Mount the flight controller + 4-in-1 ESC on soft standoffs; conformal-coat the boards.
3. Bolt the four folding arms; fit the 2207 air motors and props (note rotation).
4. Fit the sealed underwater thruster to the tail on its own bidirectional ESC; gland the lead.
5. Install the ballast pump, reservoir and depth sensor; route tubing to flood/vent ports.
6. Fit the aluminium frame tube and the magnesium anode rod as the seawater cell electrodes.
7. Wire the XT60 power bus, bind the ELRS receiver, connect the FPV camera and VTX.
8. Seal every penetration with O-rings/glands and marine epoxy; pressure-test the dry bay.
9. Bench-test motors and ballast, then tethered hover and a shallow dive before open water.

KEY DIMENSIONS (NOMINAL, REFINE IN CAD)

Overall length: 520 mm (nose 140 + body 300 + tail 80)	Body OD: 110 mm, wall 3 mm ABS
Boom: 6061 tube OD 12 mm x 180 mm, 4 arms at +/-45 deg	Motors: 2207, M3x4 BC 16 mm, 5 inch props
Dry bay: 260 mm sealed, O-ring seam, 6 x M3	Mg anode: 12 mm dia x 80 mm in a 16 mm flow channel
AUW target: 1.2-1.6 kg, CG at 40% body length	Seawater cell: ~5-30 W to a current-limited avionics buck only

SAFETY AND LEGAL

1. Fly under the applicable national rules (UK CAA) at a permitted site; keep visual line of sight for the prototype.
2. LiPo handling: charge in a fire-safe bag at the dock; never charge a swollen or wet pack.
3. Pressure-test the dry bay before every water session; carry a leak-detect interlock that blows ballast and surfaces.
4. Maritime: detect, track, mark, relay and deliver flotation aids only. Any action involving an occupied vessel is handed to HM Coastguard or Border Force. Do not interfere with crewed boats.

dronefactory24.uk transmedium drone prototype programme. Prices indicative mid-2026 USD, not quotes. Patent drafts are not granted rights; professional prosecution required. Full sourced dossier in the project repository.