



UNMANNED UNITED

OVERWATCH-LR™ UNMANNED
AERIAL SYSTEM

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TECHNICAL SPECIFICATIONS



OVERVIEW

The Overwatch-LR™ is a heavy-lift, long-endurance coaxial-octocopter with optional fixed wings for extended cruise efficiency. Designed for ISR, cargo, and multi-mission defence roles, the platform combines four parallel hybrid generators with high-capacity solid-state batteries to deliver hours of station time plus rapid burst-power for vertical manoeuvres.

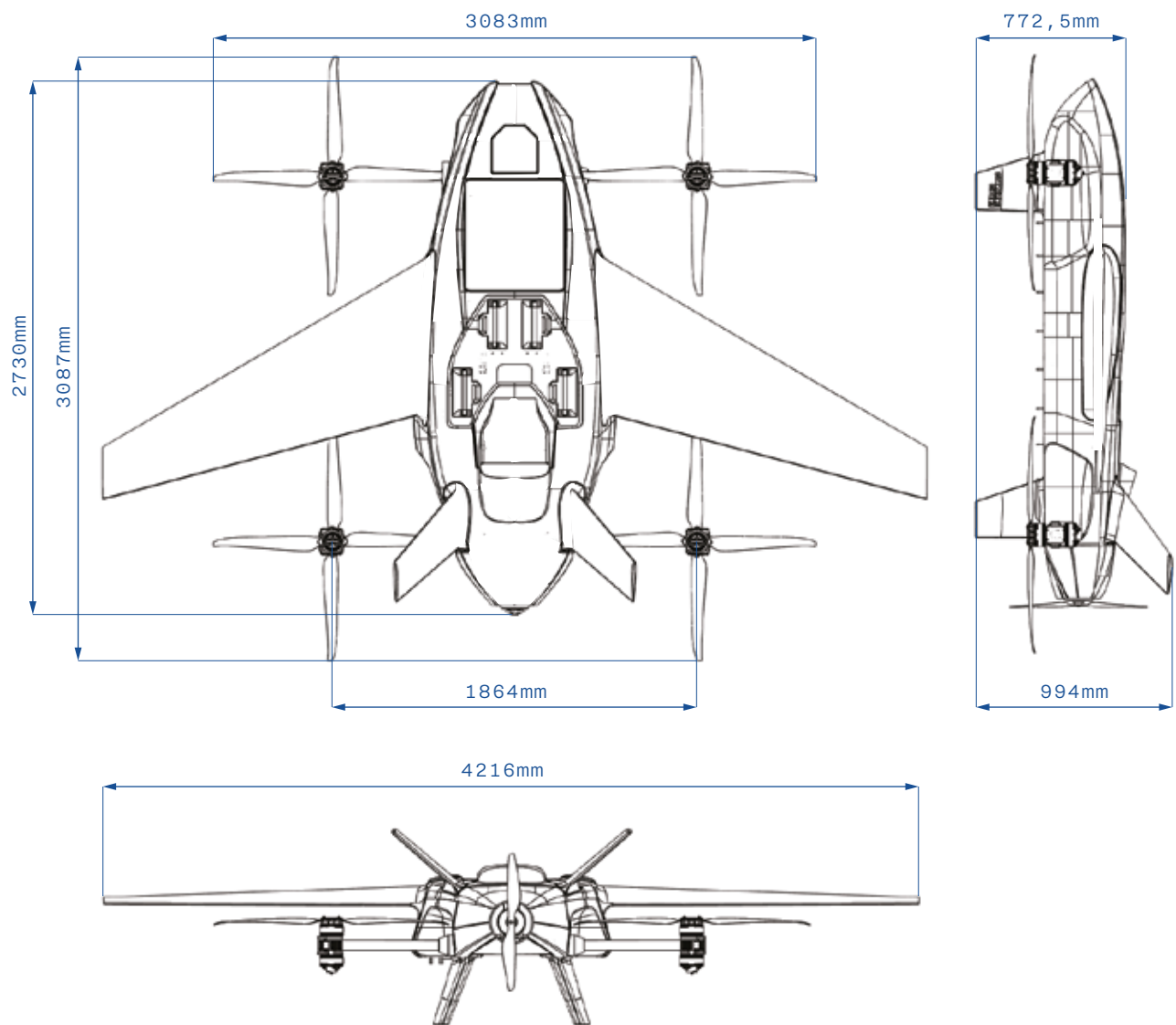
Physical Dimensions

With wings (flight mode):

15 ft (≈ 4.6 m) span \times 9 ft (≈ 2.7 m) length \times 2.5 ft (≈ 0.75 m) height

Without wings (compact mode):

4 ft (≈ 1.2 m) width \times 9 ft length \times 2.5 ft height



Note:

Integrated carbon-fibre landing skids are moulded into the lower fuselage shell.

Mass & Payload

Maximum take-off weight (MTOW):
≈ 140 kg

Usable mission payload:
Up to 55 kg
(subject to final weight-audit)

Fuel / battery allocation:
4 × 4 kW hybrid gensets
2 (-4) solid-state battery packs

Propulsion & Energy

Lift motors:
4 × Hobbywing CM-H11M coaxial packs
(8 rotors total)

Propellers:
48 × 17.5 in
carbon-fibre folding blades

Hybrid range-extender:
UU “Quad-70”
(4 × 70 cc EFI,
16 kW DC continuous, 14 kg total)

Battery packs:
UU Solid-State 77 000 mAh, 14 S each,
QS8 connectors with CAN telemetry

Power bus:
52 V nominal,
dual-redundant CAN/PWM ESC control

Performance*

Endurance (hover, gensets active):
4 – 6 h

Endurance (battery-only hover):
≈ 50 min

Service ceiling:
< 13 500 ft (4 115 m) AGL

Ambient temperature range:
-30 °C ... +55 °C

Hover thrust margin @ 55 kg payload:
> 30 % reserve

**Performance figures are preliminary
and subject to flight-test validation.*

Avionics & Flight Control

Flight computer:
ARK Orin Nano “PAB” NDAA-bundle
(20 TOPS AI)

Flight control firmware:
PX4-based UU custom build

Data storage:
512 GB NVMe (removable)

Health monitoring:
On-board power-train & vibration
analytics, remote log sync.

Navigation & Sensors

GNSS:

ARK Mosaic
(GPS + Galileo + BeiDou; non-RTK)

IMU suite:

Triple-redundant MEMS
(± 16 g, 2000 °/s)

Altimetry:

Ainstein US-D1 Pro radar altimeter
(0 - 120 m, 0.1 m accuracy)

Communications

Primary Command & Control (C2):

Starlink Gen-3 Flat Panel with encrypted IP-based telemetry, video, and remote access.

Backup Links:

Dual-SIM 5G / LTE cellular failover with automatic link switching.

Encryption:

AES-256 for all C2 and video streams; FIPS 140-2 compliant modules.

Optional Payload Links:

HereLink HD, Iridium Certus, or LoRa modules available upon request.

Payload Options

EO/IR ISR: Sentinel-A20 gimbal - 4 K day camera, 640 x 512 LWIR, 30x zoom, 360 ° continuous pan

RADAR/LiDAR: Open bay - 28 V DC, 8 kg max

Cargo: Sling or saddle pod - 55 kg total load, auto-release hook

*Other bespoke integrations supported via CANopen & 28 V/12 V rails.

Environmental Qualifications

IP45 sealing for propulsion pods; IP67 option for generator pack EMI/EMC:
MIL-STD-461G compliant subsystems Vibration & shock tested to DO-160G Section 7, Cat B.

Compliance / Export Control

This product and its documentation may be subject to ITAR or other United States export regulations. End-user certification required prior to shipment.
Unmanned United Inc. reserves the right to revise these specifications without notice.

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