



DRONES FOR INDUSTRIAL INSPECTION IN EXTREME CONDITIONS

Morpho Mini

Technical specifications



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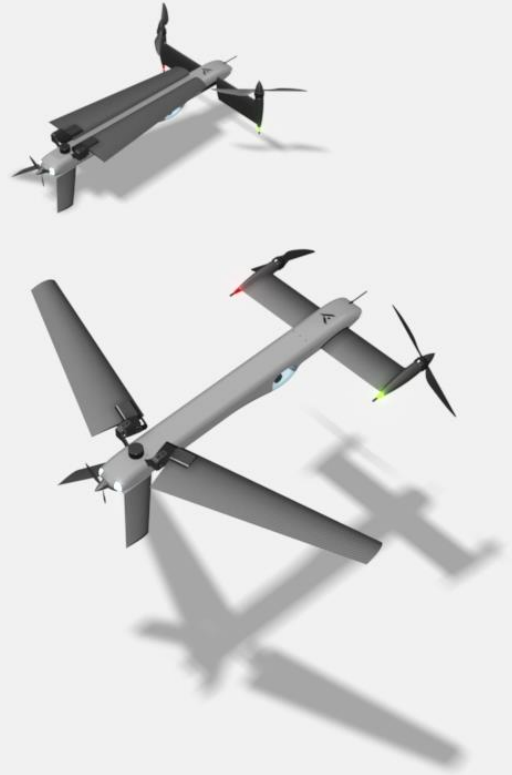


TECHNICAL SPECIFICATIONS

MORPHO MINI

Morpho Mini is the first product from Elythor in 2024. The Morpho Mini version, is ideal for fast deployment in time critical operations where the combination of **range, speed** and **precision** is **paramount for mission success**.

Equipped with an IR and RGB cameras on an active gimbal.



Hardware

Drone type	Bellysitter vertical take-off and landing (VTOL)
Maximum take-off weight	2.5 kg (5.51 lb)
Weight (with batteries)	2 kg (4.4 lb)
Maximum payload weight	0.5 kg (1.1 lb)
Wingspan	150 cm (4.92 ft)
Dimensions of Morpho Mini (Wings unfolded)	150 x 120 x 16.2 cm (4.92 x 3.93 x 0.53 ft)
Dimensions of Morpho Mini (Wings folded)	63 x 120 x 16.2 cm (2.06 x 3.93 x 0.53 ft)
Lighting	15000 lumens – front light, standard navigation lights
Radio link	Bi-directional 10 km (6 mi) direct visual line (obstacles reduce range)
Battery type	Li-Po
Travel hardcase dimensions (LxWxD)	114 x 64.3 x 41.9 cm (3.74 x 2.1 x 1.37 ft)



Flight Operation

Flight speed	100 km / h (62.13 mph)
Wind resistance	36 km / h (22.36 mph)
Maximum flight time	20 min
Hovering accuracy	10 cm (3.93 in)
Temperature	-10 to 45 °C (14 to 113 °F)
Maximum take-off altitude above sea level	5000 m ASL (16404 ft ASL)
Weather	Can fly in fog, rain, snow
Auto-landing accuracy	< 2 m (< 7 ft)
Assembly time	< 5 min

Camera system

Camera type	Dual thermal and visible camera
Commercial name	<u>Teledyne Flir - Hadron 640R</u>
Thermal imaging detector	Boson 640x512 pixels, 12µm (0.0004 in) pitch, USB 3.0, 2-lane MIPI
Temperature accuracy	±5 °C less, over 0 to 100 °C range (±41 °F less, over 32 to 212 °F range)
IR camera optics	Effective Focal Length (EFL) 13.6mm (0.53 in), 32° HFOV, F/# 1.0
IR camera video	Full resolution @ 60Hz
Visible camera optics	Effective Focal Length (EFL) 4.8 mm (0.18 in), 67° HFOV, F/# 1/2.3
Visible camera video	9248 x 6944 pixels (64.2 MP), 0.7 µm (0.00002in) pitch, 4-lane MIPI
Camera video	Full resolution @ 60 Hz
Operational & storage temperature	-20 to +60°C (-4 - 140 °F)
Tested EMI performance	FCC part 15 Class B

Gimbal system



Angular vibration range	± 0.01°
Maximum controlled rotation speed	Pan axis: 100°/s Tilt axis: 100°/s Roll axis: 100°/s
Mechanical endpoint range	Pan axis: ±170° Tilt axis: ±170° Roll axis: -260° to 80°
Controlled rotation range	Pan axis: ±165° Tilt axis: ±120° Roll axis: ±40°

Battery & Charger

Battery type , configuration, capacity	LiPo, 6S1P, 3300 mAh
Energy	73 Wh
Weight	0.596 kg (1.31 lb)
Charging cutoff voltage	25.2 V
Min voltage watt	21.6 V (Might get damaged if lower)
Operational cycles	~ 200 cycles (Upon proper use and storage)
Recommended storage voltage	22.2 22.8 V
Recommended charging current	< 3.3 A or 1C
Charging temperature	10 – 30 °C
Charging time	< 90 min
Material safety data sheet (MSDS)	Provided upon request
Charger type	Dual AC/DC LiPo charger with balancing function
Charger input voltage AC	110 - 120 V AC / 220 - 240 V AC, 50 / 60Hz, 9 - 32 V DC
Peak output power	600 W



GPS RTK

Onboard GPS	RTK GPS (mutli-band, GPS L1C/A L2C , GLONASS G2 G1 , Galileo E1 E5b and BDS B1I B2I)
Time-to-first-fix	Cold start \leq 35 s, Warm start 20 s, Hot start 1 s
Position accuracy	DGNSS, 0.5m CEP (Circular error of probability) RTK, 1 cm + 1 ppm (Horizontal based on 30km (18.64 mi) , the accuracy error increases by 1cm every 10km from the base station)
Velocity accuracy	GNSS, 0.1 m/s (0.32 f/s), D-GNSS, 0.05 m/s (0.16 f/s)
Operational limits	Dynamics \leq 4 g

Weather meter / Anemometer

Instrument commercial name	<u>Kestrel 5500 Weather Meter</u>
Instrument measurement sensors	Wind Speed Air Speed Ambient temperature Relative humidity Pressure Compass
Wind speed / Air speed range	2.2 to 144.0 km/h 118 to 7,874 ft/min 1.3 to 89.5 mph 1.2 to 77.8 knots
Ambient temperature range	-29.0 to 70.0° C -20.0 to 158.0° F
Relative humidity range	10 to 90 % 25 °C (77° F) noncondensing
Pressure	25° C / 77° F 700-1100 hPa / mbar 10.15 - 15.95 PSI
Compass	0 to 360°
Detailed specs and functionalities	<u>Specifications & functionalities link</u>



Ground station

Ground station type	Controller integrated with screen and audio feedback
Weight	536 g (1.18 lb)
Size	21.7 × 10.65 × 3.1 cm (8.54 × 4.19 × 1.22 in) (not include external antennas and joy-sticks)
Screen	138.68 mm (5.46 in), 1080P, 16 million colors, capacitive touch screen
Screen brightness	1000 nit
Max transmission distance	FCC 20 km (12.42 mi), CE / SRRC / MIC 12 km (7.45 mi)
Controls and Input	Hall affect gimbals with removable sticks × 2, Scroll wheel × 1, Bottom button × 6, Top button × 1 (right)
Wireless communication	Bluetooth / Wi-Fi / GPS / 2.4G map transmission ground
External antenna	Directional antenna (5dBi) × 1 detachable Omnidirectional antenna (2dBi) × 1 detachable
Build-in antenna	Built-in Wi-Fi antenna, built-in GPS antenna, external GPS antenna interface × 1
Battery	Build-in 4950 mAh Li-Po battery
Charging	Support micro USB port 5v 2A current charging

Travel hardcase

Travel hardcase commercial name	<u>PELI - 1780 Protector Transport Case</u>
All-in-one travel hardcase	Polypropylene Blend / ABS
Functional characteristics	Rugged Waterproof Crushproof Dustproof
Exterior (L×W×D)	114 × 64.3 × 41.9 cm (44.88 × 25.31 × 16.49 in)
Interior (L×W×D)	104.4 × 54.7 × 37.8 cm (41.1 × 21.53 × 14.91 in)
Weight With Foam	22.2 kg (48.94 lb)



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Version 1.0
05 February 2024

All specifications are subject to change without notice.
For further information please contact us via email.

Elythor SA (in formation)
EPFL STI, MED0 1024,
1015 Lausanne, Switzerland

sales@elythor.com
www.elythor.com