SAFE DRONES
FOR INACCESSIBLE PLACES

ELIOS 3
Technical Specifications

Information disclosed in this document are preliminary and subject to change. We've only included data points for which we have a high degree of confidence. Final technical specifications will be available by the launch date.

TECHNICAL SPECIFICATIONS
AIRCRAFT

AIRCRAFT

Configuration	Ducted fan quadcopter
Data interface	USB-C port using Inspector (requires drone to be powered by its battery!)
	Typical time required to download a full flight including lidar data <= 3min
Dimensions	48cm wide; 18.9 in 38cm high; 13.8 in
Flight control sensors	IMU, magnetometer, barometer, lidar, 3 computer vision camera and ToF distance sensor
Flight modes	ASSIST - Stabilized mode ATTI - Attitude mode SPORT - Sport mode
Flight Time E3 base	>12min30s
Flight Time E3 base + lidar mapping payload	>9 min
Ingress Protection	Base platform + basic inspection payload: Splash and dust resistant design, equivalent to at least IP44 LIDAR Payload: IP68
Materials	Carbon fiber - kevlar composites, magnesium alloy, aeronautical grade aluminum, high-quality thermoplastics
Motor type	4 fast reversing electric brushless motors
Noise Level	83 dB(A) with lidar

Onboard computer	Nvidia Xavier NX onboard computer with custom linux OS
Operating temp.	0 °C to 50 °C* ; 32 °F to 122 °F
Propeller life time	10h
Propellers	4 propellers, 5 inches

LIDAR PAYLOAD

Lidar sensor	Ouster OS0-32 beams sensor

SMART BATTERY

Battery change time	< 10s by means of plug and play battery mechanism
Battery life time	50 flights
Battery Type	LiPo 6S HV Smart Battery: - LED, button and user interface for SOC monitoring, etc - Improved safety during charge cycle (protection for: overcharge, overcurrent, overvoltage, over/under-temperature) - Accurate state-of-health and state-of-charge estimation - Plug-and-play charging - Self-balancing - Storage self-discharge - Cycle counter - Battery ID
Charger	Elios 3's plug and play Smart Battery Charger -> 150VA Reactive power input -> 100-240V AC voltage input -> 1.5A AC max current input
Charging Temperature	0°C - 45°C ; 32°F - 113°F
Charging time	1h
Compliance	Approved for carry-on luggage. Complies with IATA Dangerous Good Regulation.
Energy	99.2Wh
Net Weight	620 g ; 1.4 lbs
Nominal Voltage	22.8 V
Operating Temperature	10 - 40°C ; 50°F - 104°F
Rated Capacity	4350 mAh
Safety alarm	Audible warning when battery voltage is low

PAYLOAD CHASSIS

Camera Pod Downward tilt	-90 degrees
Camera Pod Upward tilt	+90 degrees
Payload head	Damped for vibrations

MAIN CAMERA

Control modes	Auto mode with manual EV compensation
File Storage	MicroSD card (onboard the aircraft) Max capacity: 128 GB Recommended model: Sandisk Extreme micro SDXC UHS-I V30
Ground sample distance	minimum 0.18mm/pix at 30cm
Lens	2.71 mm focal length Fixed focal
Movie FOV	114° horizontal, 131° diagonal
Photo Formats	JPG
Photo FOV	119° horizontal, 149° diagonal
Photo Recording Resolution	4000 x 3000, up to 40 pictures during flight
Sensor	1/2.3" CMOS Effective Pixels: 12.3 M Sensitivity: Optimized for low light performance
Supported File System	FAT32 for cards up to 32 GB, exFAT for cards bigger than 32 GB. Up to 128GB card size.
Total vertical FOV	approximately 244° including camera tilt including 180°C without obstruction
Video Formats	MOV

Video Recording Resolutions	4k Ultra HD: 3840 x 2160 at 30 fps FHD: 1920 x 1080 at 30 fps
Video Streaming Resolution	FHD: 1920 x 1080 at 30 fps

THERMAL CAMERA

Lens	FOV 56° x 42°, Depth of field 15cm to infinity
Sensitivity (NEdT)	<50 mK
Sensor	Lepton 3.5 FLIR
Video Recording Resolution	160 x 120 at 9 fps
Wavelength (LWIR)	8-14 μm

LIGHTING SYSTEM

Control	From remote controller, adaptive light beam controlled by camera pitch
Modes	Normal mode (4x panels used) Dustproof lighting (2x outer panels used only) Selective/oblique lighting (left or right side only)
Type	High-efficiency LEDs for even lighting in front, top and bottom, optimized for low impact of dust on picture quality.

OPERATIONAL SAFETY & CRASHWORTHINESS

Battery latch safety alarm	Sensor embedded in battery mechanism to alarm customer with visual warning on drone and in Cockpit if battery lever is not closed correctly.
Fail safe	Auto-landing on signal lost
Navigation lights	One RGB navigation light on the rear of the drone
Protection cage	Carbon fiber cage with soft coating, modular subcomponents for maintenance ease, thermoplastic elastomer suspensions, bottom opening dimensioned for easy battery access, front opening dimensioned for easy payload access.

AIRCRAFT TRANSMISSION

Designation of emissions	Downlink: max 18Mbps -> Video: 1080p@30fps -> FMU data Uplink: max 3Mbps -> RC commands
Frequency band Tx	2.4GHz ISM band (2402MHz - 2483MHz)
Maximum output power	2.4 Ghz ≤20 dBm

TECHNICAL SPECIFICATIONS
GROUND CONTROL STATION

REMOTE CONTROLLER

Battery	6700 mAh 1S
Battery Charger Voltage & power input	12 V / 24 W
Battery Charging temperature range	10°C to 35°C
Battery life time	300 cycles
Controls	Aircraft control and payload settings
Operating temp.	-10°C to 45°C
Options	Optional remote controller (camera operator) with video stream reception on a secondary screen, and dual control of camera settings.
Output port	USB-c
Weight	1760g with tablet holder

REMOTE CONTROLLER TRANSMISSION

Designation of emissions	Downlink: max 18Mbps -> Video: 1080p@30fps -> FMU data Uplink: max 3Mbps -> RC commands
Frequency band Tx	2.4GHz ISM band (2402MHz - 2483MHz)
Maximum output power	2.4 Ghz ≤20 dBm
Radio link Encryption	128 bit aes-ctr as per the LTE spec

TABLET

Battery Charger	USB fast Charger 5V /15W
Charging temp.	0°C to 40 °C
Charging Time	3h (with fast charger provided with tablet) 5h (with normal charger provided by Flya?)
Model	Samsung Galaxy Tab S7 or S8
Operating temp.	-10 °C to 50 °C
Weight	500 g

TECHNICAL SPECIFICATIONS
ACCESSORIES AND SOFTWARE

TRANSPORT CASE

Compliance

NOT IATA compliant for checked-in luggage
Possibility to have a smaller case for IATA compliance in option

COCKPIT SOFTWARE

Features

Real time video and UAV telemetry, status visualization
(remaining battery, payload settings, warnings, etc.), control
payload settings and various configurations.

Operating system

Android 11/12 developed for Samsung Tab S7 / S8 tablet

INSPECTOR SOFTWARE

Operating system

Windows 10/11 (64 bits)