DEFENSE & SECURITY

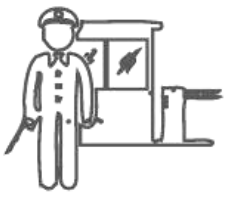
SKYPATH
DRONE & TETHERED DRONE

SKYPATH Unmanned Aerial System is an advanced Autonomous Drone acting also as a Tethered Drone providing continuous aerial coverage over large areas for law enforcement, public safety, private security and military uses, asset protection, event security, emergency communications and crisis monitoring.

WORKING AS AUTONOMOUS DRONE

30Min	22m/s	300sq.km	4800W	1260dm^2
Flight Time	Maximum Speed	Day Human Detection	Power System	Disk Area

LAW ENFORCEMENT
Crowd Control Traffic
Monitoring Event Control



PRIVATE SECURITY
Industrial Crisis
Monitoring Assets
Protection
Event Management

MILITARY
Force Protection
Communications
Extensions
ISR

DISASTER RECOVERY
Emergency First
Responders
Popup
Telecommunications
Relief Efforts

We design smart drones for persistent intelligence, surveillance, reconnaissance (ISR) capabilities as well as high - bandwidth communications.

High Standard Construction Materials

AII Composite Construction
Rapid Deployment
All CNC Made Components

On-demand airframe modifications

Materials per Aircraft Standards (FFC,MSDS,EC)
State of the art, Brushless propulsion Setup for Efficiency, amplitude power and zero maintenance

UAV platform ready for payload and autopilot integration

- Multirotor Type
- 30min endurance
- Up to 6kg payload capacity
- 10km mark Flight trip on MTOW
- Wide range of standard subsystems and options
- Advanced Autopilot System,
- IoT Ready Drone

The Airframe Feature

• TexTreme High modulus & Strength, Spread Tow Carbon Fiber with Aramid Honeycomb Fuselage. Coated with high impact / UV tolerant resins, with RF friendly material distribution.
• Ballistic Kevlar / CFK on seams
• Folding Bi-directional Carbon Fiber Booms
• Polycarbonate and Carbon fiber canopies
• Dedicated Mapping Camera, Vibration isolated on Cog Box and Custom camera mount bases and gear hatches
• High modulus & Strength cores, laminated with Spread TowTextreme Carbon fiber
• High strength and precision Linkage
• VEC™ - Carbon fiber (Vinyl ester resin and carbon fiber)
• Quick release Autopilot System Base

The Airframe power setup

• 50-x Size 360Kv 6S brushless out runner Motors
• 45A Opto-isolated ESC Embedded at Motor mounts
• Multi output 1A external BEC with switch
• Li-polymer 6S 17000mAh Battery
• DUAL Li-Ion 6S 8500mAh Battery (optional for air cargo)
• Extreme shielded integrated cabling with compact connectors

Advanced Autopilot System

For our Unmanned Systems we choose the **Ardupilot** Autopilot Suite, which is an advanced autopilot Eco-system designed upon open-hardware & Software.

The entire package is designed to be easily approachable for the novice, while remaining open-ended for custom applications, education, and research use.

Hardware

The choice of compatible controller is based on your needs, expandability and robustness.

Our primary choice on fully featured packages is the latest Pixhawk 2 "CUBE" Autopilot which offers:

- An integrated, single board / box flight controller.
- Sufficient 1/0 for most applications without expansion.
- improved ease-of-use.
- improved sensor performance.
- improved microcontroller resources.
- increased reliability and reduced integration complexity

Firmware

The free firmware running on Cube Autopilot board gives SKYPATH octocopter aircraft full autonomous capability.

The continuously updating firmware, provides advanced functions such as support for hundreds of three-dimensional waypoints, automatic take-off and landing as well as sophisticated mission planning and camera controls.

It works with a variety of Ground Control Station (GCS) software for programming and mission operations and offers a complete UAV solution.

Software

Your interface to the hardware.
• initial set-up, configuration, and testing. Mission-planning / operation, and post-mission analysis.
• Point-and-click intuitive interaction with your hardware, or advanced custom scripting for niche mission profiles. Options are everything with ArduPilot

Back-up and Support

Custom Payload integration
Flight & Ground School Training
Technical Support
After Sale Services

Three main Payloads

Multi Camera Mapping System
Granule Spreader
Frequency Scanner-Meter

"With the integration of Colibri 2 high precision day/night EO/IR/Thermal camera SKYPATH can have:

- A 60° Wide Field of View (WFOV with no zoom) for long distance surveillance (3-3,5 Km truck distinction and 600-700 m human distinction)

- Up to 3° Wide Field of View (WFOV with X 20 optical zoom) and up to 1,5° Wide Field of View (WFOV with X 40 optical + digital zoom) for very long locating distance (12-14 Km truck distinction and 2,5-3 km human distinction)

- Extended surveillance and detection and distinction capabilities on thermal mode day and night.- Laser target allocation and tracking capabilities independently of distance.

- Laser target allocation and tracking capabilities independently of distance.

MILITARY STANDARDS

Aircraft Frame Materials

- Aero, TUV-SUD UV-Protective coating
- Spread Tow TeXtreme
  Hi strength ultra-light carbon fabric
- High impact, vibration, and fatigue strength
  Aramid honeycomb
- Aero, twill weave, Carbon fabric

Protective Materials

- Aero, UV-SUD UV-Protective coating
- Aero, plain weave, glass fabric
- Spread Tow TeXtreme
  Hi strength ultra-light carbon fabric
- Fine industrial grade closed cell foam
- Aero, twill weave Aramid fabric live hinges

Modular Design

AII SKYPATH components are easily removable and completely interchangeable.

Booms are folding and SKYPATH folds down to a 25cm box, in a split of a second. Assembly and fastening is tool free and all bolds and subsystems require a minimum of toolset during maintenance.

Despite its large disk area, the disassembled UAS features an ergonomic design in order to capture the less possible volume during transportation. In the same concept, all components from Avionics to Payload can be individually removed for replacement, update or
inspection.

Carefully Chosen COTS parts, like cabling and connectors ensure ample availability in any circumstance.

CNC Aero grade
Aluminum Lock mechanisms

Spread Tow TeXtreme
Hi strength ultra-light carbon fabric with Aero, TUV - SUD UV - Protective Coating

Fine industrial grade Closed cell Foam & Graphene Components

High impact, vibration and fatigue strength Aramid honeycomb

TÜV SÜD ISO 9001

Approved by the TUV-SUD followed by ISO 9001 and German Federal Aviation Authority

LBA TeXtreme

State of the Art Manufacturing Processes, and Per-Aircraft Standard Materials, offer unprecedented flight envelope, plug-n-play payloads, and proven reliability make it the ultimate platform for the professional operator and experimenter.

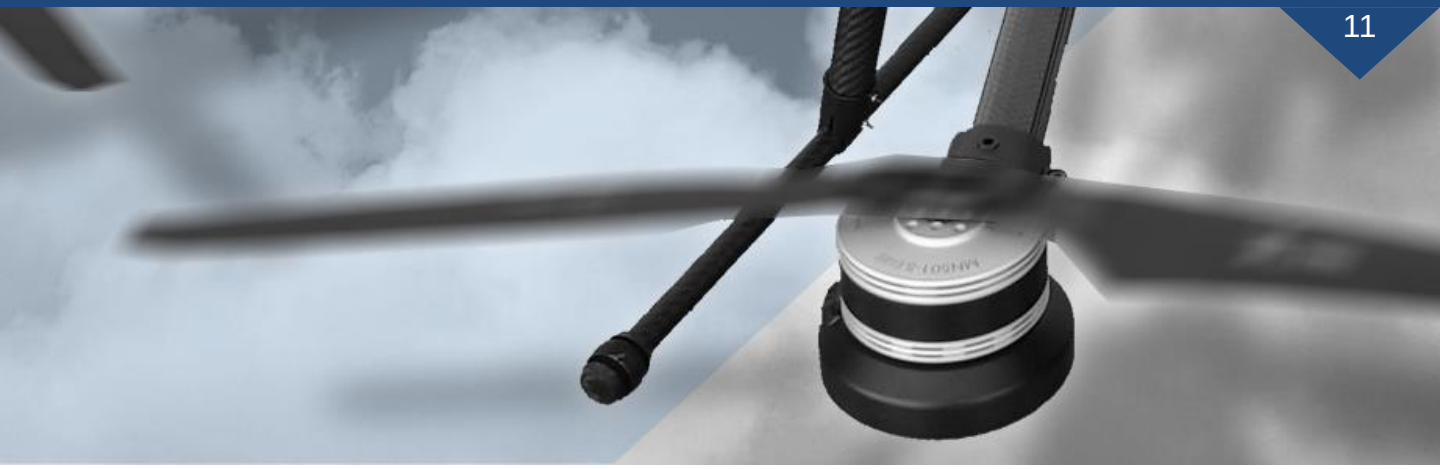
Standard specifications are as follows, with payload-specific metrics detailed in the Payloads section below.

High RPM, High Efficiency, Strong Power

X Carbon is a new patent polymer folding prop series of high RPM, high efficiency, and strong power

PIXHAWK 2

- The most advanced Open source Autopilot
- Powerful & Open-Source Software/Hardware



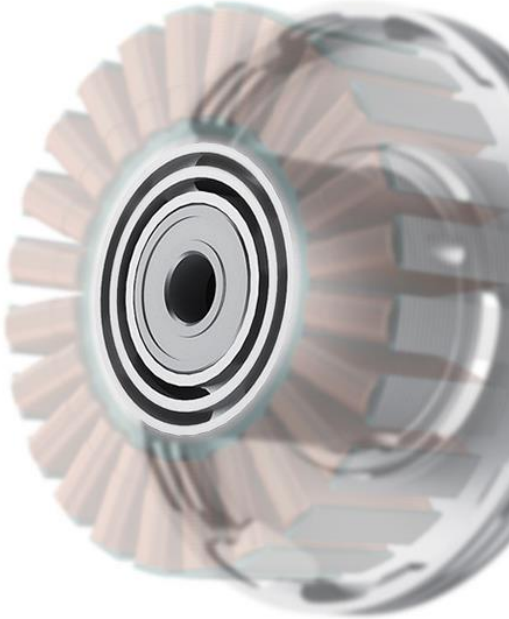
What does the Navigator motor best for, and why?

"Navigator" motors are for general uses such as aerial photography.

The newly released MN501-S, MN505-S, MN601-S, MN605-S, MN701-S, MN705-S, MN801-S and MN805-S have extended the application to VTOL (Vertical take-off and landing)

- 6.6+ Thrust
- Stable & Reliable
- Safe
- Impact resistant
- IP45 (waterproof)
- Excellent Cooling Performance
- Anti-High Temperature
- Anti-Overload

Safe Flying
Big Thrust
Long Lifespan



TARANIS Q

Powerful and expendable Best in class Radio Transmitter for unlimited Future Models with multiple capabilities, featuring Real Time telemetry and Haptic feedback.

Specifications:

Model Name: Taranis Q X7 EU Version
Operating Voltage Range: 6~15V (2S, 3S Lipos are acceptable)
Operating Current: 210mA maximum (both RF module and backlit are on)
Operating Temperature: -10~45
Backlight LCD Screen: 128*64 outdoor readable LCD
Model Memories: 60 (extendable by SD card)
Compatibility: FrSky X series, D series and V8-II series receivers (plus other receivers if an external module is used)

Features of the Taranis Q X7:

Quad Ball Bearing Gimbals
Receiver Match
Audio Speech Outputs (values, alarms, settings, etc.) (1)
Real-time Flight Data Logging
Receiver Signal Strength Indicator (RSSI) Alerts
Super Low Latency
Vibration Alerts
Model configuration files compatible with TARANIS X9D Plus

Including
1 x FrSky Q X7 White
1 x Manual
1 x Back strap

Optional accessories not included:
MicroSD card
Transmitter battery you will need to source a suitable Lipo Battery or Nimh

0.8m/0.55m Diameter & Height	1260dm² DISK Area
4800W Power System (Electric Brushless)	5.1 Kg Empty Weight Exc. Battery & Payload
3Kg Max Payload (Maintain Flight Envelop)	15kg MTOW
10m/s Cruising Speed	22m/s Max Speed
30min Flight Endurance	AUTO Take Off / Landing Method

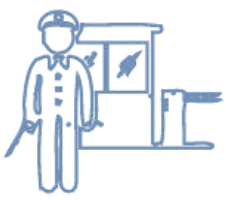
SKYPATH designed for the governments, HLS agencies, Police and Special Units in the public safety arena.

Established by leading European technology experts, SKYPATH has become one of the MOST operational DRONE/TETHERED DRONE for the design and development of anti-drone systems, and is fully operational to protect airports, critical infrastructures, prisons and national borders against drone threats.

WORKING AS TETHERED DRONE

Unlimited	40km/h	3500W	100m	1260dm^2
Flight Time	Wind Speed Operate	Tethered Power System	Hovering Altitude	Disk Area

LAW ENFORCEMENT
Crowd Control Traffic
Monitoring Event Control



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FULLY AUTOMATED
FROM TAKE-OFF TO LANDING

Thanks to a push-button interface and a wholly automated deployment, SKYPATH users don't need any particular piloting skills nor extensive trainings.

RESILIENT MOTORIZATION
FOR TRUE ENDURANCE

With its high-grade industrial motors, SKYPATH has been engineered to endure extensive flight times and demanding environments.

DAY AND NIGHT VISION

Equipped with a gyro-stabilized multi-sensor full HD camera with day-light optical zoom X30 and an infrared camera.
SKYPATH is highly qualified for demanding and long staring missions in any day / night weather conditions.

MULTIPLE REDUNDANCIES
FOR SECURED OPERATIONS

SKYPATH is redundant at every level, including autopilot sensors, motorization, power distribution and logical controls.
An emergency parachute system is also included.

FLY FOR DAYS NOT MINUTES

Powered from a ground source and through its patented micro-tether and built with industrial components.
SKYPATH is designed for long duration uses.

WEATHER RESISTANT

SKYPATH can - without any concern - smoothly / safely operate with winds up to 40 km/h without the active interference of the operator in a tethered drone mode.

No pilot required

Simply connect SKYPATH to your Safe-T tethering station, enter your desired hovering height on the control pad and press Start.
Be ready within minutes.

Fully secured

Avoid interferences, jamming or hacking thanks to SKYPATH fully secured data transmissions through Elistair micro-tether.
SKYPATH also integrates built-in fault-detections, emergency procedures and a smart parachute system.

Always ready

SKYPATH is assembled or disassembled in a snap, no tools needed. Arms easily disconnect, maximizing capacity for transportation.
Connect your control pad to the system, select a hovering height, press launch!

Fly as autonomous Drone

SKYPATH has 30 min flight time in distance of 20 km range.
SKYPATH can be disconnected automatic from the cable and flying as an autonomous drone either with autopilot scheduled program or under the user control.

GCS – Ground Control Station with T-PLANNER Software

SKYPATH system is controlled through a rugged Toughbook loaded with Elistair T-Planner software.

Connected to Safe-T (SKYPATH ground tether management system) through an Ethernet cable, T-Planner is an easy-to-use and intuitive interface enabling the operator to control SKYPATH, the XDM camera and Safe-T.

Simply enter your desired height of flight, and SKYPATH will automatically take-off and reach its desired position. SKYPATH is a push-button surveillance system, requiring no piloting skills to be used. All safety procedures are also automated

T-Planner intuitive interface features:
- A push-button piloting mode with height control, automatic take-off and landing
- A full control of the camera, with the GCS interface or through an external joystick for more convenient and precise actions
- Standard recording and saving parameters for video and photo
- An access to two levels of health indications icons, simple or in-depth, for a deeper monitoring of SKYPATH

An access to the IP based video stream can be used for an external use of the video feed (streaming, processing, integration into third parties VMS etc…).

T3500 Tethered Power System

Tethered Power System is designed to provide unlimited, reliable and redundant power source for UAV, which helps UAV overcome the limitation of flight duration and payload capacity, can fly as long as required without worrying about landing to change batteries.

Tethered Power supply ground station provides power through the ultralight-tether to the drone for unlimited flight time.

The ultralight onboard power replaces the battery, enables you to fly as long as required without worrying about landing to change batteries. Tethered Power System ensures not only the long flight duration, also ensure the high reliability and ability to carry heavier payloads like stabilized HD zoom cameras etc.

The tethered power supply system converts the 220VAC power into the DC power required by the onboard power system.

The ground starting voltage can be adjusted from 380 to 400V.

High-voltage compensation voltage adjustable range is 400-450V, and it can realize voltage compensation for the drone according to the set voltage range, that greatly enhance the load capacity of the aircraft. And the onboard power system only 700g, max output power 3500W.

This tethered power system coupled with commercial drones can be applied in many different fields by loading different equipment, mainly used as mobile relay station, and to provide secure and reliable high altitude long time aerial monitoring and for emergency lighting. The live aerial monitoring data can be wirelessly shared through the relay station to monitors etc.

Owe to the unlimited flight duration, tethered drone is suited for many industrial applications where manned aircraft and even free-flying drones are unable to deliver.

Specification:

Base Station Weight: 30kg
Base Station Size: 66x63x40cm
Air Unit Size: 22x9.5x4.4cm
Air Unit Weight: 700g
Cable Weight: 1.6kg
Cable Length: 100m
Output Voltage: 12S
Output Power: 3500W
Voltage Input: 220Vac 50Hz
Onboard Unit Voltage output: 50V
Tensile Strength: 50kg

SKYPATH UAV

Large Payload, weather resistant UAV build for endurance

CAMERA

Colibri 2 or
Night Hawk 2 or
EPSILON 140 or
Any requested

Micro-tether (Power/Data

GROUND Control

T-planner software for automated flights camera control

TETHERED POWER SYSTEM

Smart tethering system

ETHERNET Data Cable

220-250 VAC
50-60 Hz,
3KW min.

PAYLOAD

COLIBRI 2

The Colibri2 is a dual EO-IR stabilized camera built for professionals needing a quality camera for day and night use. Weighing in at 180 grams [6.3 oz], the Colibri2 offers excellent image quality and sharpness to capture detailed imagery, such as license plates and faces.

Zoom : x20 + x2 digital (total x40)
FOV : 60° WFOV – 3° WFOV – 1.5° DFOV
Thermal Resolution : 640x480
Pitch FOR: -45° to +90°
Roll FOR: -180° to +180°
Weight : 180 grams [6.3 oz.]
Dimensions : 53mm [2.099”] x Height=81mm [3.2”]

NightHawk 2

The NightHawk2 is an EO/IR stabilized camera with a mere weight of 250 grams [8.8 oz]. The NightHawk2 delivers powerful thermal observation alongside long range visible imagery.

Zoom : x20 + x2 digital (total x40)
HFOV : 60° WFOV – 3° WFOV – 1.5° DFOV
Thermal Resolution : 640x480
Pitch FOR: -45° to +135°
Roll FOR: -180° to +180°
Weight : 250 grams [8.8 oz.]
Dimensions : Diameter=64mm [2.5”] x Height=94 mm [3.7”]

EPSILON 140

Ultimate stability at 30x optical zoom

Supreme image quality with 720p HD sensor

Global shutter sensor for exceptional image clarity

Industry-leading surveillance range with unique 60 mm IR lens

Onboard image processing

Epsilon 140 has a state-of-the-art onboard image processing capability.

The onboard processing leads to a rock-solid target tracking performance and eliminates any communication latency issues. Its processed video reduces the data rate and requires lower bandwidth datalinks, which is of extreme importance for modern UAVs.

The video stream, along with snapshots, can be stored in HD quality onboard the Epsilon 140.

Rugged and Lightweight, Environmentally Sealed Design

You can operate the Epsilon 140 in any conditions. IP64 rated, it has an environmentally sealed construction and will protect electronics from dust and heavy rain.

Its robust aluminum structure is optimized for demanding applications where the gimbal needs to handle shock and rapid accelerations.

Epsilon 140 can handle routine parachute recoveries, net recoveries, belly landings, and catapult launches with ease.

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