

LONG RANGE BEYOND VISUAL LINE OF SIGHT SOLAR POWERED AUTONOMOUS UNMANNED AERIAL VEHICLE

MAPPING

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Imagine the possibilities A full day of aerial survey

After years of research and development, we can now offer the most affordable autonomous UAV that can carry multiple sensors over very long distances and for an entire day.

XSun Solar One

SOLARPOWERED
ZERO EMISSIONSONESOLUTION
MANY MISSIONS





Aerial Imagery and LiDAR

Using the best sensors, mapping the surface of the Earth can be performed at very high photographic resolution as well as LiDAR high point density.

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Flight planning and aerial data acquisition

Once the flight planning has been created, the UAV will fly autonomously to cover the project using the preset parameters. The captured data will be downloaded for post-processing after completion of the flight mission.

Choice of photographic cameras

Depending on the application, the UAV can accommodate the right camera for the job. From small to medium format cameras, RGB, IR, NIR or multi-spectral, all are installed on gyrostabilised mounts for Nadir capture and optimised coverage.

Choice of LiDAR sensors

Density of LiDAR points and characteristics of the pulse return are defining which sensor is suitable for your project. We can recommend which is the best system for your application.



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Corridor Mapping

Our UAV solution is the perfect tool for mapping very long linear projects and/or complex ones where other UAVs cannot deliver because of the lack of endurance and payload capacity.

Precise navigation over hundreds of kilometres

Tasking your corridor mapping project has never been simpler thanks to the long range of our UAV. This equates in lower costs of operation for maximum quality aerial data acquisition. Think about it... **12 hours** of flying autonomy...

Infrastructure planning and monitoring

Super high resolution imagery, down to **1 cm GSD**, offers great detail for all type of analysis. Not only is the information extremely valuable in terms of interpretation and inspection, but also in terms of planimetric and altimetric accuracy.

Digital Terrain and Surface Models

We live in a rapidly changing 3D world. Recreating the Earth surface accurately using photogrammetric technology and methodology as well as LiDAR airborne data acquisition is widely used in many industries who depends on these models.

The high resolution imagery and/or the LiDAR data captured from our UAV can be processed to obtain DTMs and DSMs. These models can be used for powerlines, railroads, roads, pipeline planning and survey. Other applications includes coastal and river erosion studies, flood analysis, obstructions evaluation for telecoms and aviation.

Multi-sensors capability

A fit for purpose sensor enables flexibility to optimise the data acquisition: vertical, oblique, LiDAR, Multispectral, Thermal.

FURTHER SMARTER

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PHASEONE ixm-rs150f







Area Mapping

With an entire day of effective aerial survey capability in a single flight mission, our UAV can cover large areas when using the right camera and lens combination for a given image ground resolution.

State-of-the-art digital camera for photogrammetry

The Phase One iXM150F camera with 150 Megapixels sensor can achieve tremendous geometric accuracy as it is specifically designed for mapping projects. Coupled with a gyro-stabilised mount, the system ensures image overlap consistency and perfect nadir photography for efficient aerial acquisition. Its high dynamic range can enhance details in shadows and in highlights areas whether in RGB or NIR.

Lenses for mapping: fit for purpose approach

Choice of various lenses are available to suit the aerial survey specifications. From super wide angle to tele lens, the right lens exist to cover the maximum area at the best resolution for the job. The lenses are specifically designed for the camera and calibrated for robust photogrammetric geometry. Each lens meet RTCA DO160G standards, and is individually tested for performance and high-modulation across the whole image area.

Small Farmat Carners CO Manazimla, 25mm Lana											
Small Format Camera 60 Megapixels - 35mm Lens											
GSD	Ali	tude	Coverage	Daily Autonomy (km2/hours)							
cm	m	feet	km2/h	2 h	4 h	6 h	8 h	10 h	12 h		
1	94	308	3.4	6.7	13.4	20.1	26.8	33.6	40.3		
2	188	617	6.7	13.4	26.8	40.3	53.7	67.1	80.5		
3	282.0	925.2	10.1	20.1	40.3	60.4	80.5	100.7	120.8		
4	376.0	1233.7	13.4	26.8	53.7	80.5	107.4	134.2	161.1		
5	470.0	1542.1	16.8	33.6	67.1	100.7	134.2	167.8	201.3		
10	940.0	3084.1	33.6	67.1	134.2	201.3	268.5	335.6	402.7		
15	1410.0	4626.2	50.3	100.7	201.3	302.0	402.7	503.4	604.0		
20	1880.0	6168.3	67.1	134.2	268.5	402.7	536.9	671.2	805.4		
25	2350.0	7710.4	83.9	335.6	503.4	503.4	671.2	839.0	1006.7		
30	2820.0	9252.4	100.7	201.3	402.7	604.0	805.4	1006.7	1208.1		
35	3290.0	10794.5	117.5	234.9	469.8	704.7	939.6	1174.5	1409.4		

Medium Format Camera 150 Megapixels - 50mm Lens											
GSD	Alitude		Coverage	Daily Autonomy (km2/hours)							
cm	m	feet	km2/h	2 h	4 h	6 h	<mark>8 h</mark>	10 h	12 h		
1	133	436	4.4	8.8	17.5	26.3	35.0	43.8	52.5		
2	266.0	872.7	8.8	17.5	35.0	52.5	70.0	87.5	105.0		
3	399.0	1309.1	13.1	26.3	52.5	78.8	105.0	131.3	157.5		
4	532.0	1745.5	17.5	35.0	70.0	105.0	140.0	175.0	210.0		
5	665.0	2181.9	21.9	43.8	87.5	131.3	175.0	218.8	262.5		
10	1330.0	4363.7	43.8	87.5	175.0	262.5	350.0	437.5	525.0		
15	1995.0	6545.6	65.6	131.3	262.5	393.8	525.0	656.3	787.5		
20	2660.0	8727.5	87.5	175.0	350.0	525.0	700.0	875.0	1050.0		
25	3325.0	10909.3	109.4	437.5	656.3	656.3	875.0	1093.8	1312.5		
30	3990.0	13091.2	131.3	262.5	525.0	787.5	1050.0	1312.5	1575.0		
35	4655.0	15273.1	153.1	306.3	612.5	918.8	1225.0	1531.3	1837.5		

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Mining

A UAV build for long endurance with many safety features is the right candidate for conducting aerial surveys for the mining industry

Electrically powered, low in noise but high in safety

We have developed one of the safest UAV on the market to meet the very strict international aviation regulations with a focus on advanced aircraft components and safety systems redundancy. The drone is equiped with a parachute and has a double wing design for near-zero stall.

Capture and measure accurately what you need

- Photogrammetric stockpile and cut/fill volume calculations
- Elevation models for earthworks planning
- Change detection
- Progress tracking and monitoring

Save big in mobilisation costs and data processing

With a range of up to 600km, you can cover several sites in one sortie, conduct aerial surveys or live HD video monitoring completely autonomously.



When compared with conventional ground surveying, it has been proven that our system for surveying greatly reduces the exposure to risk for workers on the ground. The aerial survey can be done in a fraction of the time of a

The aerial survey can be done in a traction of the time of a ground survey and generally provide higher accuracies. Surveying projects that usually take weeks with conventional surveying methods can be completed in just a few hours.

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Agro-Tech

Capturing high resolution imagery in the visible spectrum as well as in NIR or using a multispectral sensor, our UAV is the ideal airborne platform for agricultural applications

Monitoring livestock

Different options of sensors are available to monitor livestock over very large areas. Real-time HD video feed to base provides situation awareness and enables rapid action on the location where a critical event has been identified From animal welfare monitoring to herd movement management, water source analysis, our UAV can assist in optimising cattle stations operations.

Precise aerial acquisition with various image sensors

Very high-resolution image capture down to 1cm offers rich details for interpretation. Crop management, disease and pest control, optimising yields are some of the main applications where georeferenced imagery is valuable to the agro-tech industry.

Cutting costs, saving time and stimulating growth

Compared to other aerial and ground surveys techniques, our UAV covers more in a day at a fraction of the costs when it comes to capturing very high-resolution imagery. With a range of sensors available for each agricultural application, the benefits are reaching a new height for those who are seeking a cost-effective solution.

MAP EARTH SMARTER

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The need of environment and wildlife protection because of a fast land development all around the world calls for all aspects of biodiversity monitoring, biodiversity impact assessment, targeted species surveys, biodiversity planning advice and wildlife management studies.

Identification and monitoring of endangered species

Traditionally, individual detection is done by human verification by observing if a target species exists in a given area. Our UAV equipped with HD and Thermal sensors make it easy to identify and count birds or mammals in cryptic habitats, based on their homoeothermic body temperatures from the surrounding backgrounds.



Conservation and research

Part of protecting endangered species is monitoring their health and the status of their habitats. Using our low noise UAV has less variations and more accuracy in data collection than a group of human researchers on the ground, using direct observation with binoculars. Long flight time allows a huge amount of observation over a vast area.



Low operation costs, a safe, non-intrusive and suitable solution

Most UAVs currently in use in this particular application have not the endurance and the adequate sensors to successfully document issues in biodiversity studies. Being able to fly with minimum noise and safely without disturbance to the ecosystem.

MAP LIFE SMARTER



References

XSun's rapid growth has attracted many clients who are looking for an innovative and cost-effective aerial survey unmanned UAV. We have an extensive portofolio of satisfied customers and partners



EXCELLENCE

European Commission

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