



ARKORY
Autonomous Robotics

Hirrus L

- Day/Night sensor stabilized EO payload
- Highly modular, simple assembly, rapid turnaround
- Fully automated with autonomous flight capability
- Low profile and noise signature, covert operation
- Retractable payload
- Highly transportable stand-alone vehicle/shelter mounted system
- Catapult Launch & Parachute Recovery
- Automatic takeoff and recovery

AUTONOMOUS
FLIGHT TECHNOLOGIES

Hirrus L UAS

System Components

Specifications

| | |
|---------------|------------------|
| Wingspan: | 3,3 m |
| Wing surface: | 1 m ² |
| Length: | 1,2 m |
| MTOW: | 9 kg |
| Payload: | 1000 g |
| Take-off: | Automatic |
| Launcher | |
| Recovery: | Parachute |
| Propulsion: | Electric |

Ground Data Terminal

Launcher

Air Vehicle

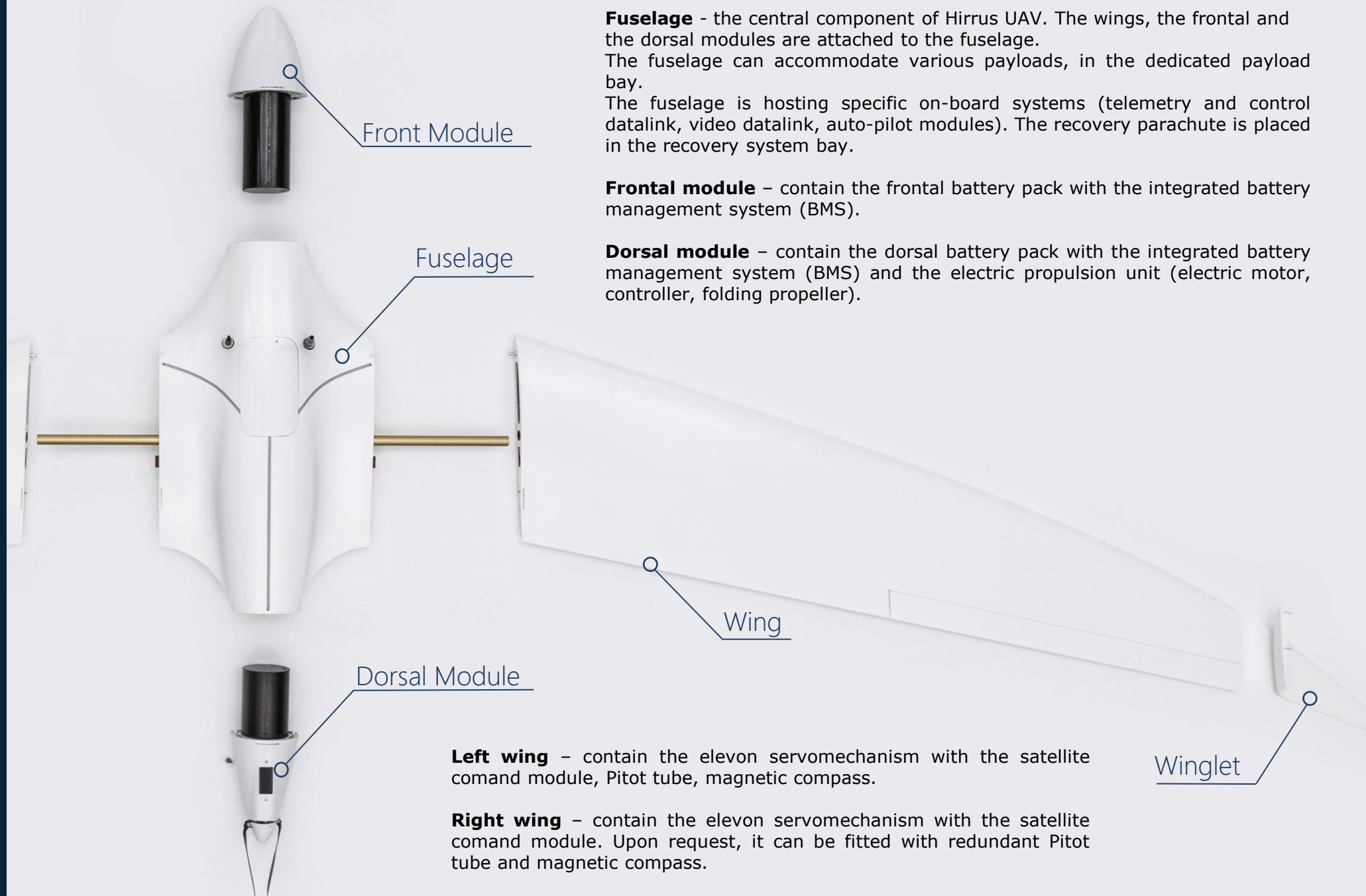
Ground Control Station

Performances

| | |
|-----------------------------------|----------|
| Max. speed (IAS): | 110 km/h |
| Cruising speed (IAS): | 70 km/h |
| V _S (IAS): | 55 km/h* |
| Take-off distance (TOD) | |
| -10 m obstacle clearance: | 70 m* |
| -30 m obstacle clearance: | 190 m* |
| Circular Error Probability (CEP): | 40 m** |
| Max. autonomy: | 180 min* |
| Video Datalink range: | 15 km |
| Telemetric datalink range | 20 km |

Hirrus L UAS

Modular Design



Hirrus L UAS

Payloads



For various applications, the Hirrus UAV may optionally accommodate three different types of payloads:

- A day payload or,
- A night payload or,
- A high speed / high resolution camera payload.

The shape, size and the look of the three payloads is almost identical – the functional difference is provided by the sensor located inside each payload. The payload is plug and play. Payload replacement takes less than 10 seconds.

Hirrus L UAS

Ground Segment

Ground Data Terminal perform the following tasks:

- Transmission of the data coming from the Ground Control Station to the aerial vehicle (uplink);
- Reception of the data coming from the aerial vehicle (down-link) and streaming them to the Ground Control Station. The down-link include telemetry data and video-stream data;
- Provide automatic orientation of the antennae, both in azimuth and elevation, aiming to maximize the gain.

Ground control station (GCS) provides:

- Mission planning;
- Mission loading onboard of UAV;
- Launch monitoring of UAV;
- Mission monitoring;
- Changing of the flight plan during the mission of UAV;
- Reception and storage of specific mission data (command, control data, video data);
- Offline mission play for debriefing.



Hirrus L UAS

Power System Charger Unit Batteries



The Power System (PS) provides electrical power to the following components of the system:

- GCS; GDT; Charger.

Input Characteristics

- Mains supply: 220Vac, max 5A compatible with European socket;
- Auxiliary supply: 12 – 28 Vdc, max 25A, compatible with 12V and 24V vehicle battery.

The Charger Unit is responsible for charging and monitoring of AV Hirrus battery packs. It consists of two separate, micro-processor controlled, high efficiency switching mode power supplies, capable of charging simultaneously two battery packs.

The Charger Unit is meant to be powered up mainly by the Power System. But the wide input voltage range allows charging from a vehicle power systems (12V or 24V) or external power supplies, with a maximum input voltage of 30V.

Hirrus L UAS

Launcher



The launch of the airplane is performed using an automatic launcher equipped with elastomeric (rubber) tubing.

This technical solution allows a smooth, silent, simple and effective launching of the UAV even in difficult weather conditions (wind, rain, low temperature) reducing dramatically the potential risks that may appear during the launching sequence.

The Launcher is equipped with active safety system throughout the launch preparation.



Hirrus L UAS

Cases



Case #1

- GCS (including tripod);
- GDT (including tripod);
- Charger;
- Fuselage;
- Frontal and Dorsal Modules;
- Winglets (one set);
- Payload.

Case #1 weight (fully equipped)
– 60 kg



Case #2

- Launcher;
- Power System;
- Tool Box;
- Wings (one set).

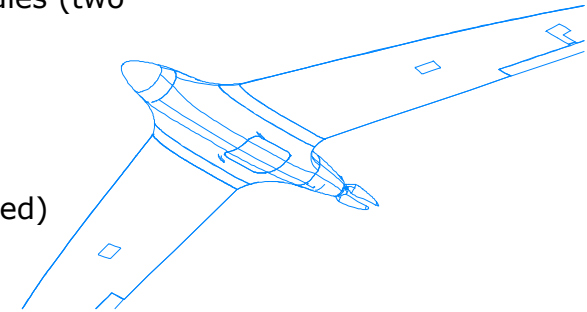
Case #2 weight (fully equipped)
– 67 kg



Case #3

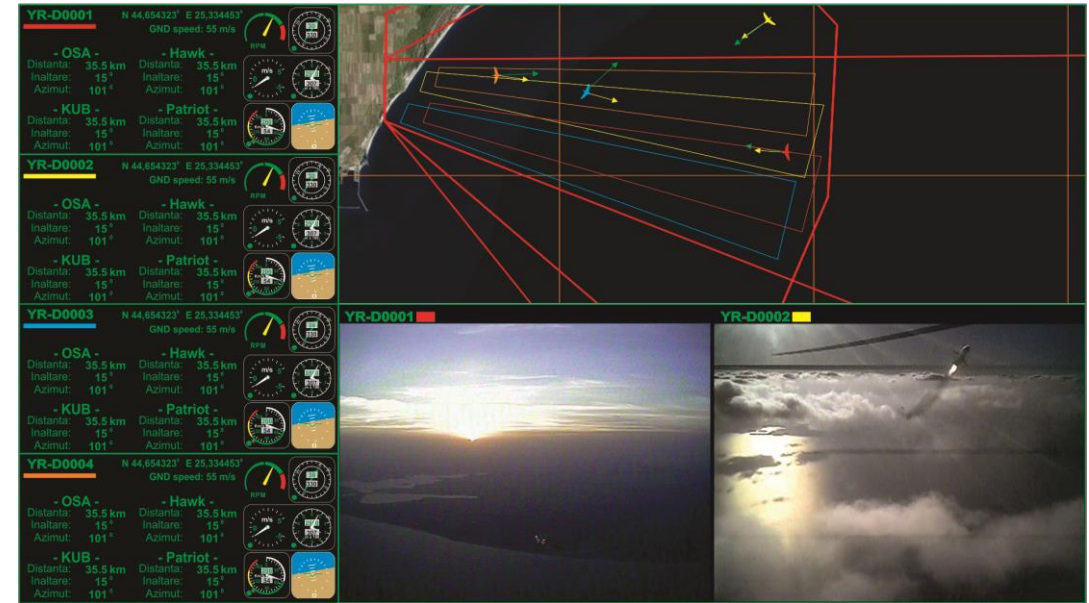
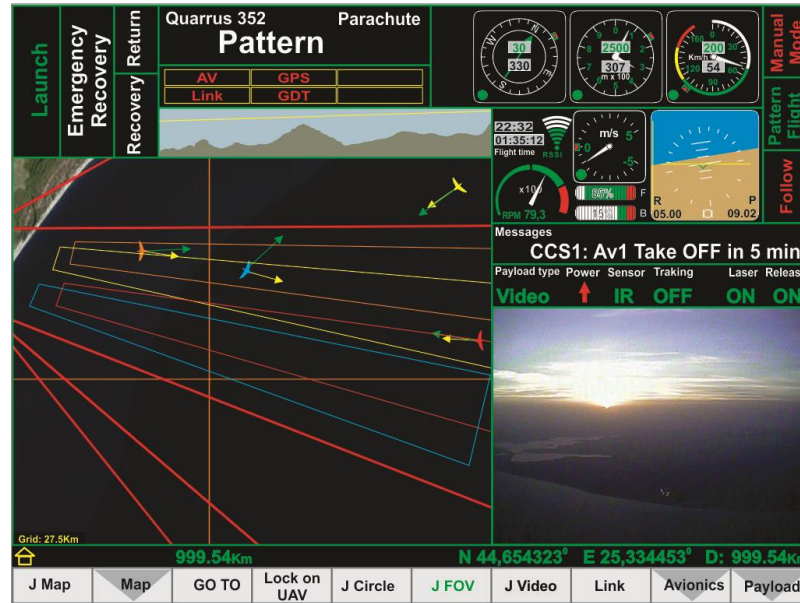
- Fuselages (two pcs);
- Frontal and Dorsal Modules (two sets);
- Winglets (two sets);
- Payloads (two pockets);
- Wings (two sets).

Case #3 weight (fully equipped)
– 45 kg



Hirrus L UAS

Command and Control



The command & control system software and automatic pilot for UAS was developed by AFT over 10 years of R&D. At this time, they meet all the requirements of complex missions. It has a modularity and level of integration that is rarely found in such systems. This provides great robustness and scalability.

Hirrus system includes as standard option the ability to operate 2 or more UAVs simultaneously.



Hirrus L UAS

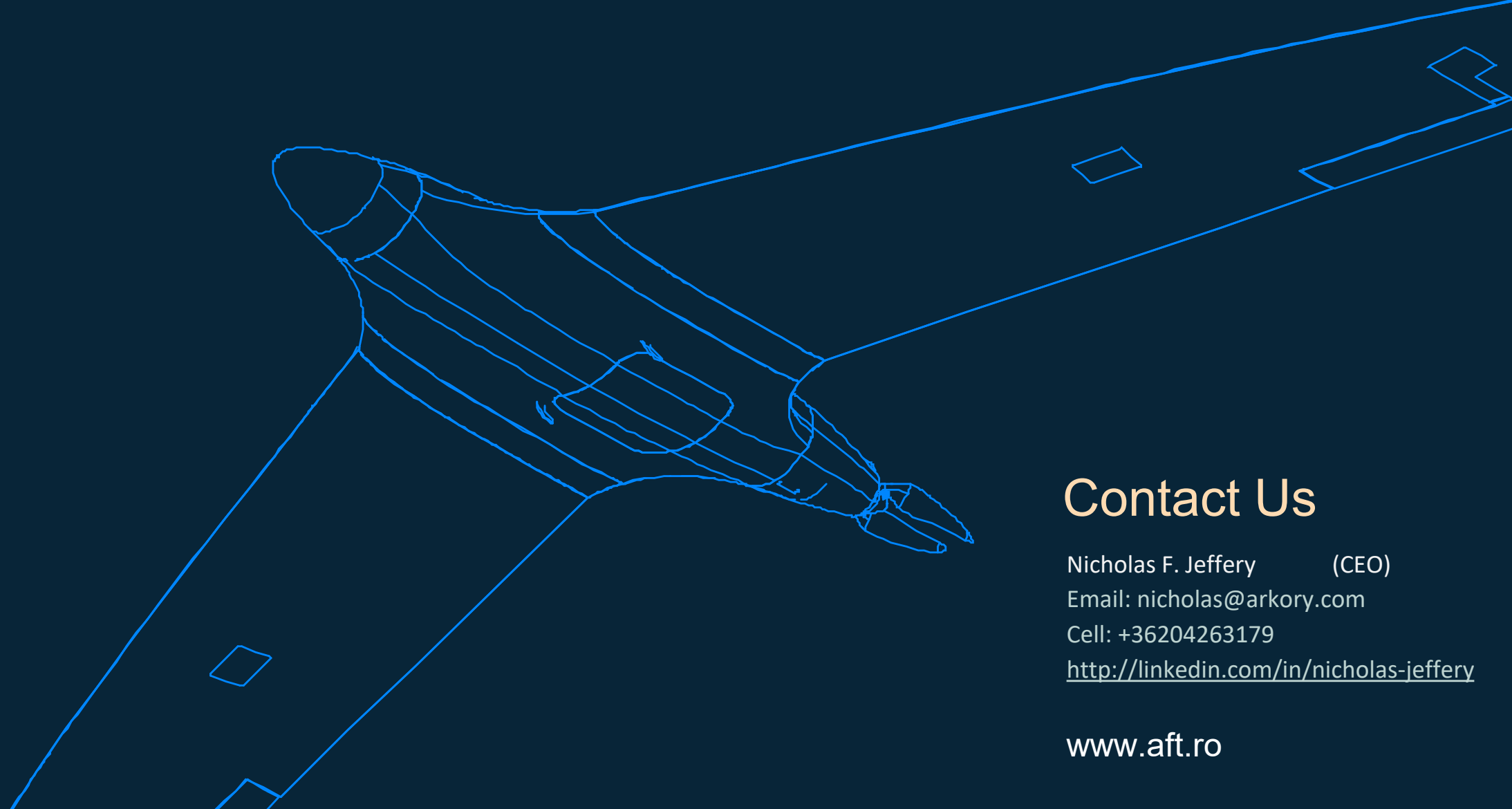
Multiple GCS



At the Ground Data Terminal multiple Ground Control Stations can be connected over an IP network. With the help of an appropriate infrastructure, such a connection can be made even via the Internet. Ground control station is available both as an embedded solution and as an application on the PC. Integration with Command-and-Control Centers is therefore particularly easy.

The collaborative way of working between different operators is intuitive. Any operator intervention is replicated automatically in all terminals connected to the system.





Contact Us

Nicholas F. Jeffery (CEO)

Email: nicholas@arkory.com

Cell: +36204263179

<http://linkedin.com/in/nicholas-jeffery>

www.aft.ro