MINI ALECS

Unmanned Aerial Vehicle

Mini ALECS belongs to the category of small unmanned aerial vehicles (UAV).

Mini ALECS is designed to be used as a surveillance aircraft capable of a real-time data transmission to ground station.

For military application Mini ALECS may be used for ground observation and reconnaissance, target data collection for artillery and rocket batteries, whereas in civilian domain, it may be used in agriculture and forestry for watching wildlife, forests, crop surveillance, border control and ground surveys.

Mini ALECS can carry a payload of 6 kg, which may include a day and night camera, and if required, a laser target designator may be installed as well.

The camera characteristics are selected according to special requirements (the distance at which certain objects (soldiers, vehicles, etc.) should be identified).

Mission

Mini ALECS is capable of vertical take-off and landing without the need of a runway, and it may also carry out conventional take-off and landing on a 50 m-runway.

Mission profile is as follows:

- Staring, warm up of the engine
- Vertical climbing or conventional takeoff
- Cruising at 100 km/h at the distance of 50 km and altitude of 500 m
- Hovering for 10 min. or observation and reconnaissance for 1h at the speed of 83 km/h at the altitude of 500 m
- Flying back to ground station
- Vertical descending or diving and stopping

Manner of control

The UAV can be operated either manually by an operator from the ground station, or automatically without the participation of the operator and semi-automatically, in which case the operator controls the aircraft from the ground station, but part of the operations associated with the flight control is performed by autopilot.

Top speed at H=0m is 145 km/h

Stall speed at H=0m is 45 km/h

Flight endurance

One hour of horizontal flight at the speed of 100 km/h requires 34 Ah, whereas at the observation and reconnaissance speed of 83 km/h, it requires 21Ah. On the other hand, 10 min. of hovering requires 17Ah (propellers 30x10), or 21Ah (propellers 27x8).

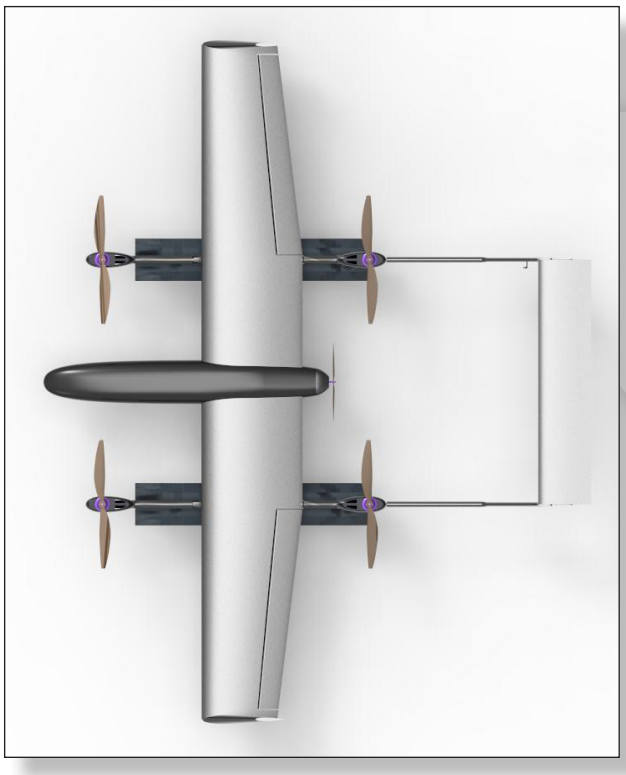
Selection of frequency ranges for data transmission

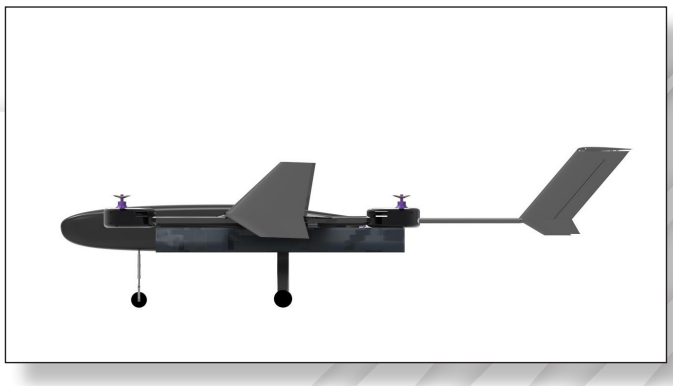
The telemetry data is transmitted from the aircraft to the ground station at the frequency of 430 MHz.The transmission of information from the aircraft to the ground station is carried out at the frequency of 2400 MHz. The transmission of command signals from the ground station to the aircraft is carried out at the frequency of 1710 MHz.

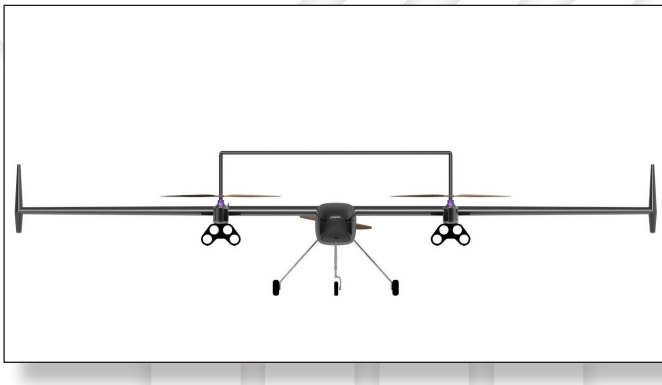
The UAV is made from composite materials (aircraft plywood, glass-epoxy).

In addition to the basic model of the mini UAV, there is also UAV based on analogous concept in several extended configurations. The first configurations features a hybrid power plant, and the second weighs 260 kg and also has hybrid propulsion, where the electrical motor is used for vertical fight, and piston engine for horizontal flight.

Maximum take-off weight (kg)	60	260
UAV type	Hybrid	Hybrid
Horizontal flight speed V (km/h)	180	180
Top speed Vmax (km/h)	250	250
Structure weight (kg)	12	52
Payload weight (kg)	15	75
Flight autonomy (h)	8	8
Maximum flight altitude (m)	4000	4000
Wing span (m)	4.2	3.75







YUGOIMPORT SDPR J.P.

Should you have any further enquires, please do not hesitate to contact us at **fdsp@eunet.rs**