

USER MANUAL

HYBRiX.20

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1. HYBRiX.20 SYSTEM

Congratulations on your purchase. HYBRiX.20 is a hybrid Remotely Piloted Aircraft (RPA) of multirotor type, for professional civil operations. Its hybrid system with fuel allows to obtain operational flight times beyond 1 hour.

Please read the complete contents of this manual and its attachments carefully before you start using the aircraft and make sure that you meet the requirements for the operation. HYBRiX.20 RPA comes properly configured and calibrated. Please do not alter such configuration without the authorisation of the manufacturer.

Since this is a recent innovation in a new industry, it is important that you regularly check the applicable regulation, any system upgrades and the User Manual and that you stay up-to-date on technical upgrades and corrections to this manual. The User Manual contains usage information for the standard version of HYBRiX.20, so it may differ slightly from the version you purchased. Due to unpredictable changes or upgrades, the information in this manual is subject to change without notice. If you have any questions or concerns about your HYBRiX.20 system, please contact the manufacturer before usage.

1.1. GENERAL DIMENSIONS AND SPECIFICATIONS

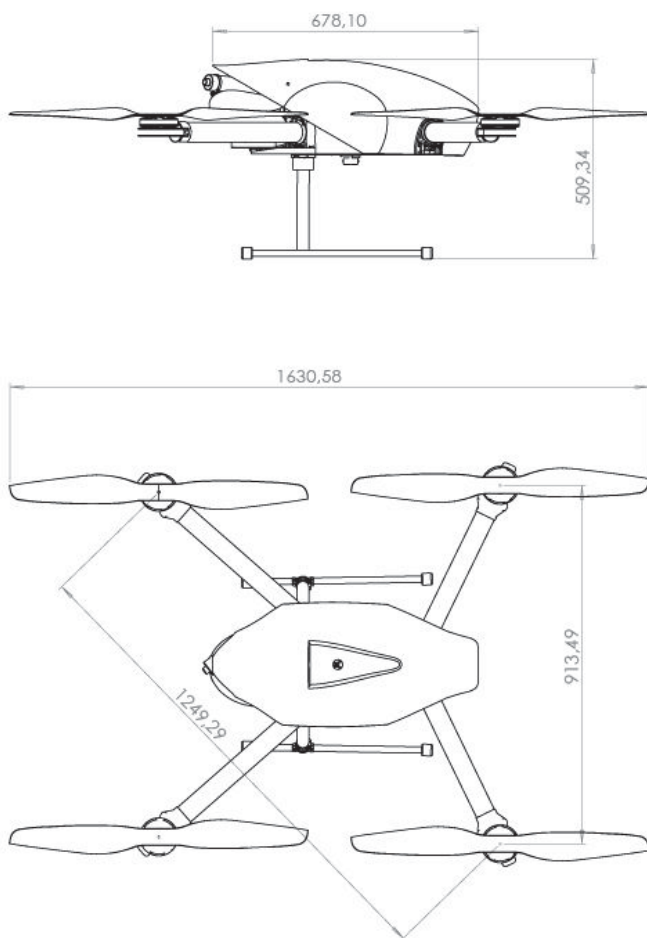


Fig. 1.1

RPA HYBRiX.20	
Aircraft specifications	
Maximum Take-Off Weight	20 kg
Empty weight	13.5 kg
Payload	2.0 kg
Operational endurance	2h (full load)
Cruise speed	50 km/h
Maximum speed	80 km/h
Motor to motor distance	1249 mm
Propellers	30"
Ceiling (altitude)	2000 m
Operational temperature	-10° to +45°
Take-off and landing	VTOL
Power system	
Power type	Series hybrid
Motor	2 stroke
Fuel	95 oct. mix with oil
Battery	2x LiPO 6S
Flight control	
Autopilot type	Ardupilot
Automatic waypoints	Yes
Automatic take-off and landing	Yes
Manual override	Yes
"Return to launch" function	Yes

1.2. LIST OF COMPONENTS

1. AIRCRAFT	2. GROUND CONTROL STATION	3. FUEL STATION
Aircraft body Canopy Electric-power supply system Fuel-power supply system Arms and propulsion system Navigation system Communication system Landing gear Electronic fuel injection (opt.) Flight camera (opt.) Support for payload (opt.)	Radio transmitter Mission Control Application Communications system Electric power system Android Tablet (opt.) Laptop (opt.) Video display (opt.)	Tank with fuel tubes Electronic device for fuel charge and discharge Electric power system

1.3 HYBRiX.20 AIRCRAFT

HYBRiX.20 is a VTOL RPA of four rotors, consisting of a body with a flip-up canopy, four removable arms and a landing gear. In the body of the aircraft are: the power system, the navigation system, and the communication system, necessary for its operation. These systems are described below:

Power system

The power system of HYBRiX.20 is an electric-fuel hybrid system. The electric power system consists of two 6000 mAh Lithium Polymer batteries with 6 cells per battery, permanently powered by the range extender.

The fuel power system consists of a range extender, formed by a two-stroke combustion engine, connected to an electric generator and controlled by a board called "governor". The combustion engine gets fuel from a fuel tank located in the central part of the aircraft.

Navigation system

The navigation system of the aircraft consists of the following elements: a flight controller with "Ardupilot" software, barometric sensors, two accelerometers, two gyroscopes, a magnetometer and a GNSS GPS sensor.

Communication system

The aircraft communications system consists of a LRS radio transmitter / receiver with the chosen frequency and an antenna that receives the flight-control information from the ground station and outputs the telemetry data of the aircraft provided by the Flight controller, including the position of the device or its battery level.

The basic communications system of the aircraft has direct Visual Line of Sight (VLOS) obstacle-free radius from the ground control station.

Propulsion system

The propulsion system, located on the arms of the aircraft, consists of four electric rotors attached to the carbon arms and four 30-inch carbon propellers. The rotors are powered from the electric batteries and each of them is controlled by an electronic speed controller (ESC) located in the body of the aircraft.