

# SKYPATROL V3-S



- ▶ Homeland Security
- ▶ Migration Surveillance
- ▶ Smuggling Watch

**BEAUMONT**  
**MILSATCOM**

Barcelona • Singapore • Kuala Lumpur

# About the “SKYPATROL V3-S” Drone

The SKYPATROL V3-S drone provides a unique solution for successful specialized missions.

- Bidirectional satellite communications
- High performance hydrogen battery
- Vertical take off and landing (VTOL) system

## Thanks to this unique combination;

- Take off and land virtually from anywhere
- Easily manage your long-range mission
- Control your drone from anywhere in the world

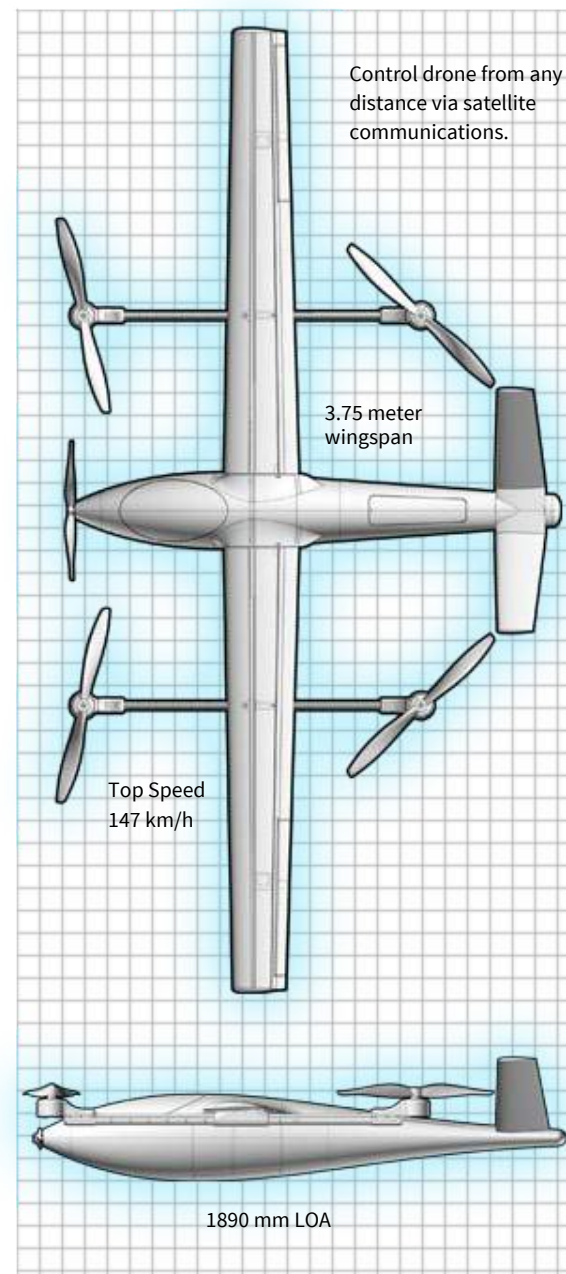
## Dimensions and Payload

- Wingspan: 3750mm
- Length: 1890mm
- Maximum Take-off weight: 22000g
- Wing Area: 94 dm<sup>2</sup>
- Wing Loading: ~200g/dm<sup>2</sup>

## Design Highlights

- All Carbon fiber construction
- Fully sheeted 1mm thick plug-In Wing
- Plug-In 1mm thick V-Tail
- Huge payload up to 10kg net capability
- Large air intake & cooling duct for ESC/motor cooling and hydrogen battery
- Highly aerodynamically efficient airframe
- Interchangeability for 500W /1000W Hydrogen generator
- Fully compatible LiPo or Hydrogen energy

The SKYPATROL V3-S is delivered into one molded case of 180 x 60 x 52cm, with a total weight of the box of ~30kg, depending on options.



# The Sierra Satellite Telecommunications Module

The SKYPATROL V3-S is the only drone on the market able to have a SIERRA transceiver on board that combines;

- Inmarsat satellite
- Thuraya satellite
- Iridium satellite
- Globalstar satellite
- GSM 2G/3G/LTE/4G+
- TETRA
- UHF
- VHF



## The Sierra Satellite Module allows:

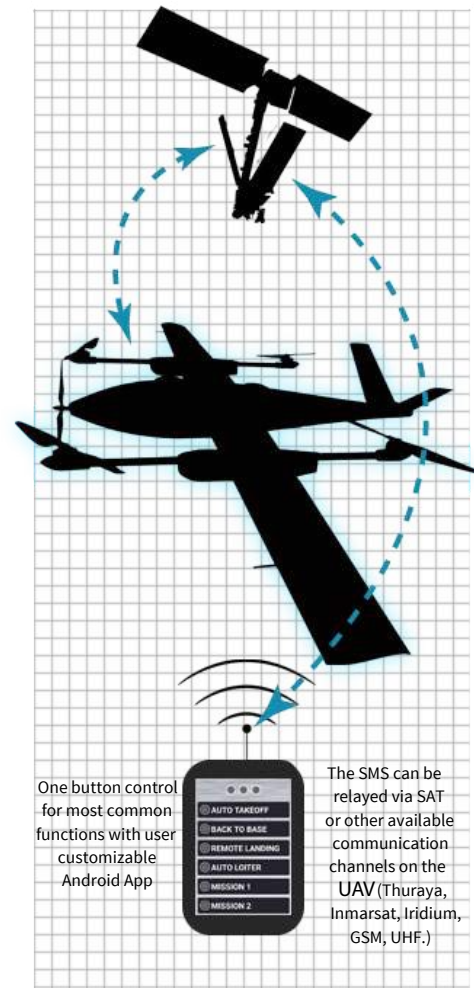
- Control the SKYPATROL V3-S UAV from anywhere in the world
- Transmission of images and/or real time video to anyplace in the world

The onboard satellite telecommunication transceiver “SIERRA” has features that enable bidirectional communication from preferred/best selected aerial channel. This system uses a mix of ground infrastructure and satellites, radio vectors, working together to ensure to have at least one transmission channel in worst case scenarios.

The Beaumont Telecom SIERRA also has triangulation abilities that establish geo location without GPS which confirms accuracy of standard satellite GPS.

The Beaumont Telecom SIERRA automatically takes over AutoPilot guidance if the VHF link is lost due to extended distance, blocked signal by terrain, construction or any other reason.

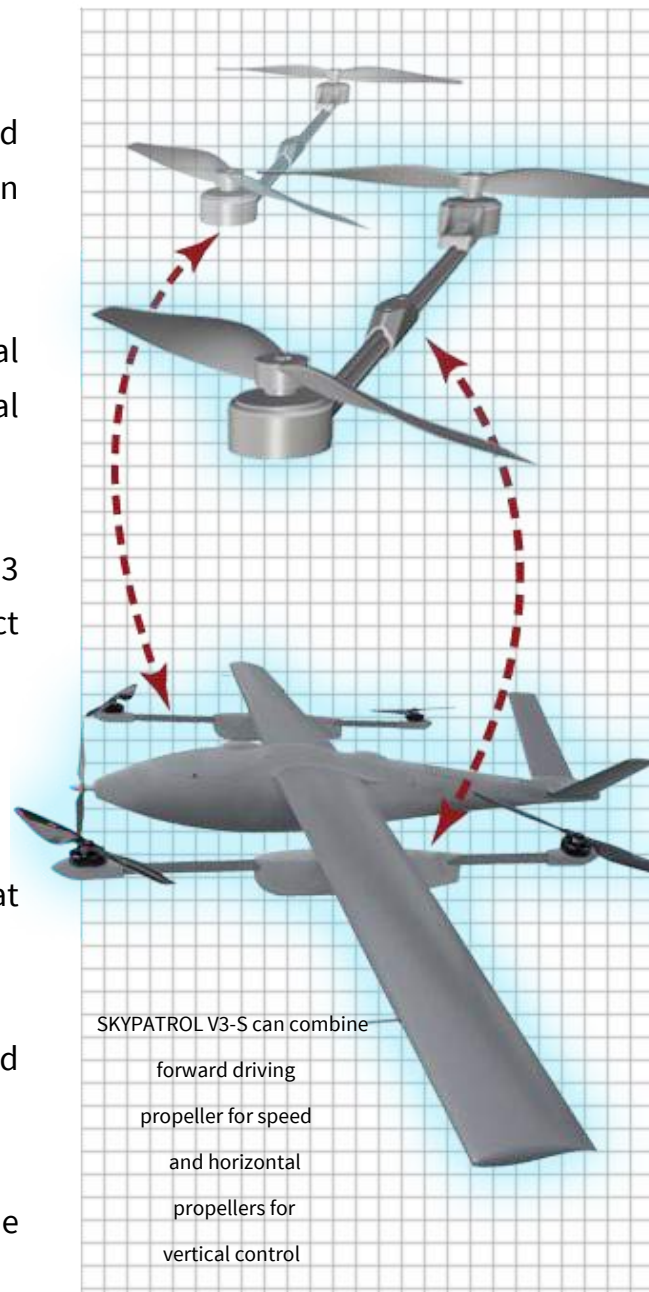
The Beaumont Telecom SIERRA has embedded encryption.



# SKYPATROL V3-S Vertical Take Off and Landing Capability

## Vertical Take Off & Landing (VTOL)

- Two optional arms create a quad-motor copter to lift the aircraft to an altitude of 30 -100 meters within 20 seconds.
- Once the chosen transition altitude is reached, the forward thrust motor is powered in order to start the mission horizontally.
- When mission is completed, the UAV returns to the vertical take off point. Horizontal thrust is stopped and the vertical power takes over to land within 30 seconds at home base.
- The two VTOL arms can be installed or removed within 3 minutes; only 2 fasteners are required. No cable to connect or disconnect.
- The VTOL arm carries its own built-in LiPo energy supply.
- Each arm can lift up to 40kg vertically, providing great stability, even in strong winds.
- Control of the VTOL system is automatically managed through the main autopilot.
- The VTOL arms are optional. The SKYPATROL V3-S drone can fly without them as a conventional aircraft.
- Traditional takeoff can be performed from a runway or a catapult system along with traditional runway landing. VTOL allows vertical takeoff and landing.



# Hydrogen Energy Power System

Renewable and sustainable energy source for your SKYPATROL V3-S

The SKYPATROL V3-S is the only drone on the market with an interchangeable energy system. Within minutes you can swap from LiPo batteries to hydrogen generator and vice-versa.

## This power flexibility allows:

- Use of your available energy source on the spot.
- Adapt the energy system to the mission.

## Hydrogen Energy System Description

The 45 cells stack (500W/1000W) is a standard PEM fuel cell stack developed for long endurance UAV operation. It includes an electronically controlled fuel cell stack with an integrated cooling system and hybridization card.

This generator is the most effective in the world and with only 1,4kg weight can generate a constant 42V / 12A.

A fully wrapped carbon fiber reinforced aluminum-lined composite cylinder is used to store the hydrogen (up to 300 bars).

The hydrogen tank can be filled directly from standard 210 bars hydrogen bottles that can be easily be purchased on the market (Air Liquid is one such resource).

The hydrogen can be compressed into the tank using an optional compressor in order to reach the maximum endurance for the SKYPATROL V3-S UAV.



# SKYPATROL V3-S UAV Automatic Pilot Flight Modes

## MODE- Fly-By-Wire:

- Assisted real time flight mode that corrects automatically.
- Adjusts for winds to maintain altitude and speed.
- True heading is corrected in real time automatically.
- SKYPATROL V3-S UAV flies securely, making calculated adjustments autonomously.
- Ranges: max pitch: 30°, min pitch: 20°, max roll: 40°, max speed: 41m/s, min speed:12m/s

## MODE- Auto:

- Completely automated flight follows a pre-registered mission by the operator.
- Maximum of 255 way-points.
- Additional features are available including loiter mode (maintain altitude and speed. circling around a defined GPS point with correction of winds).

## MODE- RTL (return to launch):

- Automatically comes back to a defined GPS point.
- Upon return choose; in-flight loiter, auto landing or manual landing.

## MODE- Automatic Self Landing:

- System utilizes a laser radar altimeter (LIDAR) for precise landing flare. Features 1cm resolution with 500 altitude calculation per second from 40 meters altitude.
- Pre-recorded terrain information.
- Airspeed analog and digital sensor calculates in real time true speed.
- Airspeed sensor signals drone to open flaps at ideal angle for perfect landing.
- Finds its home, even without GPS.

## Automatic Pilot Specifications

### Processor

- 1.2GHz 64-bit quad-core ARMv8 CPU
- 1GB RAM

### Sensors

- MPU9250 9DOF IMU (first IMU)
- LSM9DS1 9DOF IMU (second IMU)

### Sensors

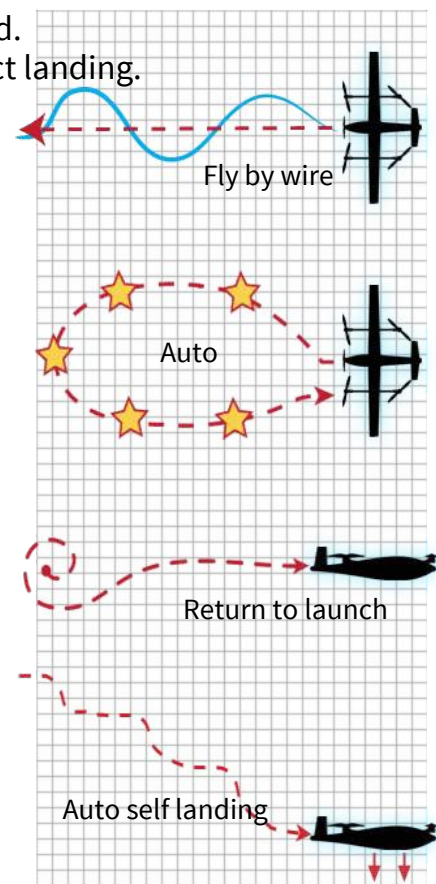
- MS5611 Barometer
- U-blox M8N Glonass/GPS/Beidou
- RC I/O coprocessor

### Power

- Triple redundant power supply

### Interfaces

- UART (I2C & ADC)
- PWM / S.Bus input
- PWM servo outputs
- 4xUSB and LAN ports
- 802.11n Wireless LAN



## SKYPATROL V3-S UAV Vital Specifications

Your Beaumont Telecom includes these vital features that set it apart from other brands/models.

FEATURE:	Standard Aircraft Configuration	Vertical Takeoff/Landing Option
SPAN	3.75m	3.75m
MAX TAKE OFF WEIGHT	22 kg	22kg
OPERATIONAL TIME FRAME	< less than 5 minutes (day/night)	< less than 5 minutes (d/n)
TAKE OFF DISTANCE	60 meters at MTOW	0 meters at MTOW
LANDING DISTANCE	30 meters on automatic	0 meters on automatic
MOTOR	Electrical	Electrical
MAX ALTITUDE AMSL	5,000 m	5,000 m
OPERATIONAL TEMP.	[-20°C ; +50°C]	[-20°C ; +50°C]
OPERATIONAL WEATHER	Certified under light rain	Certified under light rain
MAX SPEED	147 km/hr @ MTOW	110 km/hr @ MTOW
MIN SPEED	57 km/hr @ MTOW	0 km/hr @ MTOW
TRANSMISSION DISTANCE	Telemetry and control @ 866Mhz 10km guaranteed. Video2 SD 2.4Ghz up to 10km	Telem/control @ 866Mhz 10km guaranteed. Video2 SD 2.4Ghz up to 10km
TRANSMISSION ON THE MOVE	Telemetry and control @ 866Mhz - UHF Video2 SD 2.4Ghz up to 30km	Telemetry and control @ 866Mhz - UHF Video2 SD 2.4Ghz up to 30km
GPS	GPS L1 & L2 - Glonass - Gallileo NO GPS/Dead reckoning	GPS L1 & L2 - Glonass - Gallileo NO GPS/Dead reckoning
AUTONOMY	Up to 2 hours with LiPo - Up to 7 hours Hydrogen Battery	Up to 2 hours with LiPo - Up to 7 hours Hydrogen Battery
LASER	Up to 600m	Up to 600m

# About Beaumont Telecom System

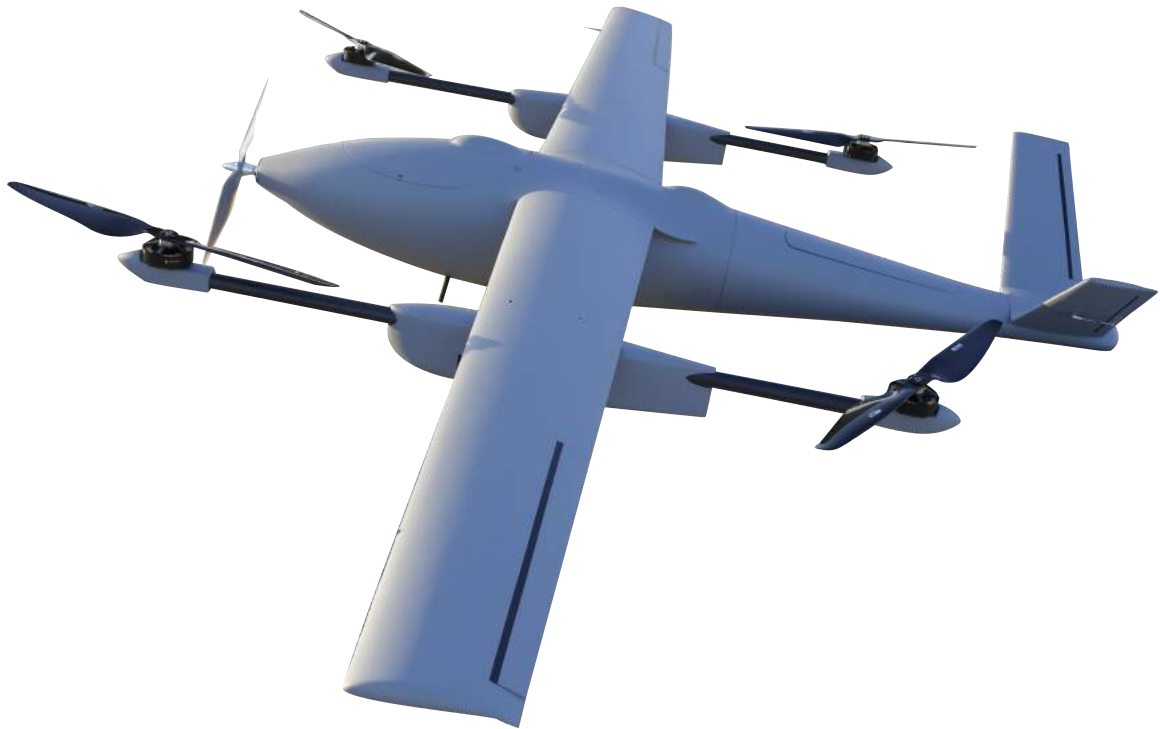
Beaumont Telecom System has been designing and manufacturing innovative aeronautical and telecommunication equipment for more than 15 years.

This equipment is used on variety of civil and multipurpose platforms such as helicopters, aircraft and UAV/drones.

The product range includes SatCom transceivers, antennas, hub USB and LAN,USB repeaters, geolocation devices and all related accessories.

All equipment manufactured by Beaumont Telecom System complies with DO-178 requirements.

Our most recent design, this innovative UAV/DRONE with 3.75 meters wingspan was created for specialized missions.





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