SKYQUBE

the high performance drone integrated with Auterion Skynode.

A pairing with incredible performances

SkyQUBE drone with its unique stability characteristics, an endurance of 85 minutes and high-thrust motors, allows the transportation of payloads of up to 8kg of weight.

Skynode, the heart of the system, is much more than a simple autopilot. Thanks to its advanced functions, it transforms the drone from a simple mobile camera into an autonomous, powerful connected and highly performing system, capable of integrating embedded computing modules such as NVIDIA Jetson Xavier for AI processing.

The latest generation of FMU, FMUv6x, guarantees access to powerful technology in terms of performance, reliability and precision.

UNIQUE FLIGHT PERFORMANCES

Thanks to the negative dihedral system of the arms and motors, SkyQUBE allows more stable and efficient flight, even in the most complex situations.

- **FLIGHT ENDURANCE: 93 MIN with his performance batteries**
- **MAXIMUM SPEED: 27 m/s**
- **WIND RESISTANCE: 20 m/s**
- **MAXIMUM PAYLOAD: 8.0 KG**

SkyQUBE drone allows a vast amount of payloads integration possibilities that can be installed individually or simultaneously.
SkyQUBE is extremely versatile and thanks to the quick-release attachment system, it is possible to connect any type of payload, whether traditional or custom, such as: radioactivity detectors, anti-pollution systems, winches, cargo boxes, etc. It can carry multiple payloads simultaneously, within an **overall weight of 8 kg**
Furthermore, DRONELAB can develop attachment systems and integration for unconventional loads, on customer request

SkyQUBE has an interchangeable landing gear system that allows the installation of loads dimensions up to 70cm in height.

Cloud connectivity

Automated transfer of data in real time from the operational area to the cloud, allows centralized immediate monitoring of the fleet.
All flight logs are automatically uploaded for each drone and each pilot, and the data is analyzed and available for download .
The system enables holistic and scalable fleet management by providing up-to- date information on aircraft health, predictive maintenance actions and software updates via radio transmission.

With simple controls and intuitive views, the software available on the remote control allows the same mission planning and execution experience for any use case and on various devices, from the office, to the operations room or in the operations area.

AMC – AUTERION MISSION CONTROL SOFTWARE

The AMC app installed on the remote control has been further optimized to clearly present the type of mission and flight status. Easy and fluid control of the aircraft and payloads allows missions to be executed more efficiently.
Auterion Mission Control provides everything users need to carry out flight missions with maximum safety and versatility.

Flight controls and telemetry allow direct control of the SkyQUBE even without an RC controller (e.g. takeoff, fly to position, image capture, orbit, landing, etc.).
Complex missions, including detecting user-defined shaped areas, vertical structures and even paths such as roads, are planned using simple graphical tools.
Easy-to-understand in-flight alerts providing guidance to pilots on next actions.
Live video streaming overlaid on flight instruments.
Native support for Sony industrial cameras, including all settings, zoom control and of course remote shutter activation.

STREAMING MISSIONS

Camera orientation, image capture and zoom level can be stored to create specific mission files for automatic reuse.

MISSION PROGRAMMING

You can create thousands of points and set multiple actions for one or more instruments, including payload functions on each point. Plan the optimized route to maximize versatility and efficiency of each mission.
By touching an object on the remote control in the framed image, the software immediately provides coordinates, then projecting them as an icon in the camera view of the remote control. The location of the subject is automatically shared with another remote control, or with online platforms.

Intelligent operations

High precision mapping

SkyQUBE supports Waypoint, Mapping, Oblique and Linear Flight missions. You can use Terrain Follow or Oblique for efficient data collection. Together with AMC, 2D and 3D HD digital results can be obtained quickly, enabling high-precision mapping operations.

Automatic precision inspections
Thanks to the recording of live missions, SkyQUBE can generate and store flight plan files which can then be used at another time to carry out automated operations and make repetitive inspections no longer wasteful in terms of time and effort. SkyQUBE allows automatic framing and manual adjustment of subjects to improve the precision of loop shooting and the quality of inspections.

Using tight integration with flight control software and camera and gimbal control, mission results can be maximized. Data collected via live video and instant image download can be validated immediately.

NEW SIYI MK15E RADIO CONTROL

Featuring a 7-inch high-brightness screen, SIYI MK15E supports Dual Operator mode which offers an operating time of up to 12 hours, allowing for various operational needs.
SIYI MK 15 is dust and water resistant to operate reliably even in adverse weather conditions. The operating temperature is -20° to 50° C (-4° to 122° F), to support 24- hour operation even in very hot or cold environments.

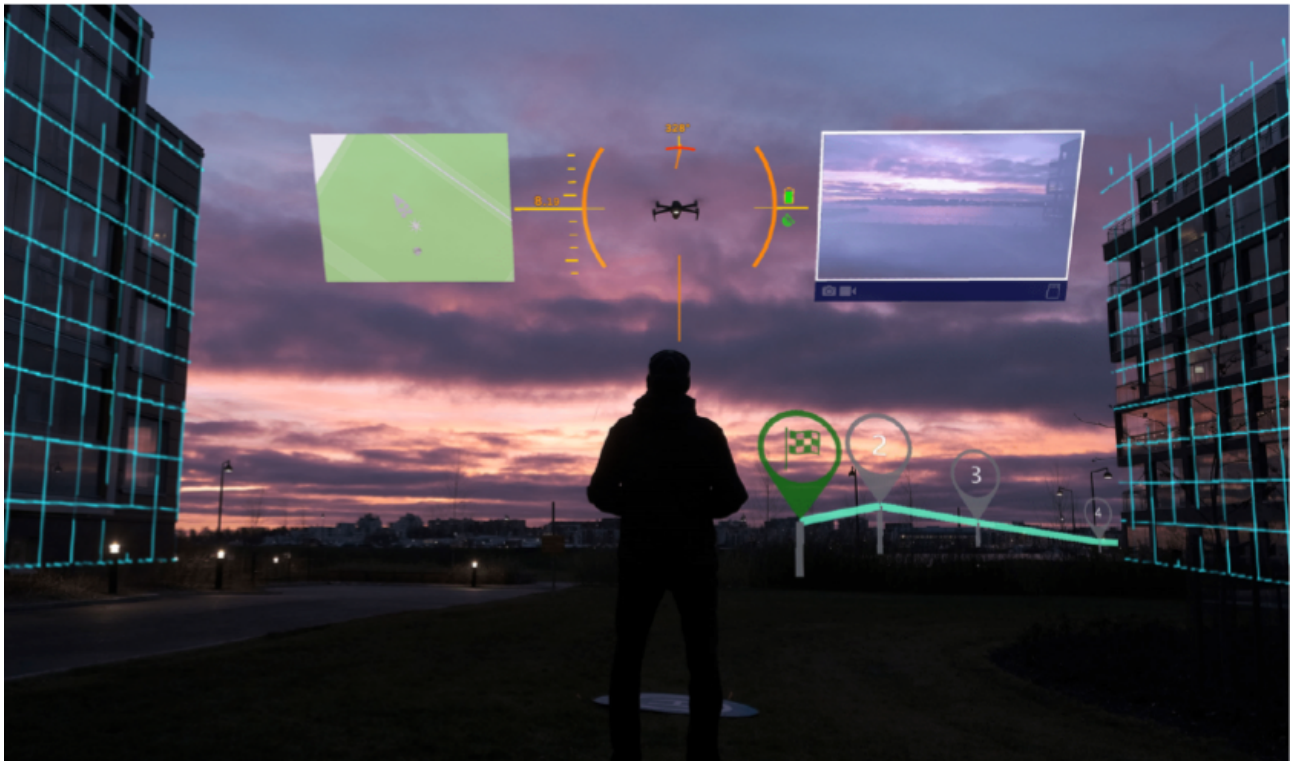
SECURITY AND DATA TRANSMISSION

SkyQUBE adopts Encrypted AES256 transmission which supports HD live feed and a maximum transmission distance of 20km (in free air)
Both the aircraft and the remote controller are equipped with a multi-antenna transceiver system, which can intelligently select the optimal antennas to transmit signals. In this way, the anti-interference capabilities are greatly improved and the transmission stability is optimized.

DRONE BATTERIES

SkyQUBE is equipped with a 25,000 mA 6S dual battery system. The battery can be charged up to 500 cycles, allowing significant savings on the operational road.

HEAD UP DISPLAY CONTROL



Thanks to excellent night vision capabilities, the FPV camera can clearly present the surrounding environment and obstacles during night flight.
Both the aircraft system and the sensors adopt a redundant configuration to ensure maximum flight safety, allowing you to face the most difficult operational environments with greater confidence.

The integration of the AIR-HUD Head Up Display (optional) allows control of the drone in BVLOS conditions by obtaining drone images and telemetry data directly on the augmented reality goggles like Microsoft Hololens, Meta Quest and other.
Air Hud can be used also as a flight simulator for training flight missions.

Cockpit camera features:
Resolution 1 920 x 1 080 pixels (Full HD), 1/3” sensor, Auto white balance, Wide dynamic range, Backlight compensation, Exposure and Gamma control
Optical zoom 10x optical zoom with vibration compensation
View angle ultra zoom 6.9° - extra wide 58.2°, focal 33.0 mm - 3.3 mm

Noise reduction Special 3D noise reduction function Focus Autofocus with Direct Focus Zoom synchronization

Expandable ecosystem
Operators will be able to get even more from SkyQUBE by leveraging the SDK and API ecosystem.

SDK Payloads: You can integrate an incredible variety of third-party payloads such as gas detectors, multispectral sensors, and processing modules to use the platform in even more ways.

Mobile SDK: With a vast network of third-party mobile applications, you can unlock endless features to meet your needs for specialized missions. Using the Mobile SDK, SkyQUBE supports the development of highly customizable mobile apps.

Cloud API: With the Cloud API, SkyQUBE can be integrated directly into third-party cloud platforms, accessing functions such as data transfer, live streaming and flight route distribution.

Aircraft characteristics

- Dimensions (unfolded, without propellers) 930 × 930 × 350 mm (L × W × H)
- Dimensions (folded, with propellers) 530 × 670 × 270 mm (l. × w. × h.)
- Diagonal distance between axles 1385 mm
- Weight (with single lower stabilizer) Without batteries:
  Approx. 6.5 kg With two batteries: Approx. 11.5 kg
- Max. take-off weight 19.5 kg
- Operating frequency
  5.150-5.250 GHz or at 2.4 Gz on customer request)
- Accuracy in stationary flight (with or without wind) Vertical: ±0.1 m
- positioning accuracy (FIX) 1 cm + 1 ppm (horizontal) 1.5 cm + 1 ppm (vertical)
- Max. angular velocity Pitch: 300 °/s
  Yaw: 100 °/s
- Maximum angle of inclination 42°
- Max. ascent speed 6 m/s
- Max. descent speed (vertical) 5 m/s
- Max. speed of descent in inclination 7 m/s
- Maximum horizontal speed 27 m/s
- Max. flight altitude 7000 m
- Max. wind resistance 20 m/s
- Max. flight time 85 minutes
  Measured with SkyQUBE flying at approximately 4 m/s without payload, in a windless environment, until the battery level reaches 0 %. Data is for reference only. Actual usage time may vary depending on flight mode, accessories and environment.
- Protection rating IP55
- RTK Global Navigation Satellite Systems (GNSS) GPS + GLONASS + BeiDou + Galileo
- Operating temperature
  -20 to 50 °C (-4 to 122 °F)

Remote control SIYI MK15E

- Display
  7.02-inch LCD touch screen; resolution: 1920×1200; max. brightness: 1200 nits
- Global Navigation Satellite Systems GPS + Galileo + BeiDou
- Built-in battery
  Type: Li-ion (6500 mAh at 7.2 V)
- Charging type: Use the battery station or USB-C quick-charge charger with a max. power of 65 W (max. voltage of 20 V).
- Charging time: 2 hours
- Chemical system: LiNiCoAlO2
- Voltage: 7.6 V
  Type: Li-ion
  Power: 37.39 Wh Chemical system: LiCoO2
- Protection rating IP54
- Operating time
  Built-in battery: approx. 3.3 hours
  Built-in battery + external battery: approx. 6 hours
- Operating temperature
  -20 to 50 °C (-4 to 122 °F)
- Operating frequency 5.725-5.850 GHz

Video transmission

- Max. transmission distance (unobstructed, interference-free) 20 km (FCC)
  8 km (CE/SRRC/MIC)

- Max. transmission distance (with interferences)
  Weak interference and hindered by buildings: approx. 0-0.5 km
  Weak interference and obstructed by trees: 0.5-3 km
  Strong and unobstructed interference: cityscapes, approx. 1.5-3 km
  Medium and unobstructed interference: suburban landscapes, approx. 3-9 km Weak and

unobstructed interferences: suburban/coastal landscapes, approx. 9-20 km
Measured in compliance with FCC regulations in unobstructed environments, with typical interference, at a flight altitude of approx. 120 m (120 ft). Data are for reference only. Actual transmission distance may vary depending on obstacles and environmental interference. Pay attention to application reminders.

SENSORS

DRONELAB has chosen excellence for its unmanned systems.
The standard cameras installed on SkyQUBE are specifically designed for specific use on remote piloting systems, such as Trillium HD40-LV, Workswell WIRIS Pro, NextVision NightHawk2, Phase One P3, Sony ILX LR1

Sony Camera ILX-LR1, with its exceptional 61Mpx resolution, offers data acquisition in different operational scenarios, such as public safety applications (firefighters, firefighting, search and rescue and public order) and for the energy industry (infrastructure and equipment inspections, geothermal energy exploration, oil and gas pipeline inspections):
The ILX-LR1 is a professional mirrorless camera from Sony designed for industrial applications**.**
Its main features include:
Image sensor: 35mm full-frame Exmor R CMOS sensor with approximately 61 million effective pixels. It offers high sensitivity, resolution and dynamic range, ideal for detailed inspections and mapping.
Interchangeable lenses: Compatible with a wide range of E-Mount lenses, allowing users to choose the most suitable lens depending on the shooting situation.
Remote Operation: Supports Sony's Camera Remote SDK, which allows users to control menus and other camera functions remotely via software applications. This SDK also facilitates the integration of the camera with other custom applications. Image quality: Offers a maximum resolution of 61 megapixels for still images and approximately 50.8 megapixels for videos. It supports multiple image and video formats, including JPEG, HEIF, RAW, XAVC S and XAVC HS.
It uses a fast hybrid autofocus system with phase and contrast detection, with up to 693 focus points for both stills and video. ISO sensitivity ranges from 100 to 32000, expandable up to 102400, with AUTO settings available, making it suitable for different lighting conditions. The camera's mechanical and electronic shutter offers a speed range of 1/4000 to 30 seconds for still images and 1/8000 to 1 second for video.
Technical specifications
Interchangeable optics, compatible with E-Mount optics
sensor: 35 mm back-illuminated Exmor R Full Frame CMOS – 61 megapixels
image processor: Bionz XR
ISO: 100-32,000
video recording format: 4K (3,840 x 2,160 pixels) @ 60 fps (150 Mbps)
UHS-I/II compliant SD card recording
mechanical/electronic closure
Image stabilization supported on optics
Interfaces: USB-C compatible with SuperSpeed USB 5 Gbps (USB 3.2)
HDMI type D microconnector
DC input for power and control cable
Buttons: Close, Zoom, Menu, Play, Customize/Delete, Control Wheel, Power Switch, Freeze and Freeze/ Movie/S&Q
Workswell Wiris Pro dual sensor THERMAL CAMERA:

Workswell WIRIS Pro is a thermodiagnostic device that can be installed on SkyQUBE. It includes a second generation thermal imaging camera, one of the most advanced in the world, and additional visible spectrum optics with Full HD resolution
Its thermal imager is equipped with an LWIR microbolometer sensor with 640×512 px resolution (in the range of 7.5 – 13.5 μm) and its 'Super Resolution Mode' feature can provide a final thermogram with a resolution of 1266×1010 px. The RGB camera features Full HD resolution (1920 x 1080 px) and provides an absolutely unrivaled 10x optical ultrazoom in real time (6.9° to 58.2° field of view). The maximum possible temperature that the thermal imager can measure is 1,500 °C (2,732 °F).
Technical specs.
IR camera resolution 640 x 512 pixels
IR Super Resolution Mode 1 266 x 1 010 pixels (improvement of native resolution up to 1.3 Mpx)
FPA active sensor size 1.088 x 0.8705 cm