

# TACTICAL AIRBORNE DRONE SYSTEM



# INTRODUCTION

This is the specs of a tactical airborne drone system enabling operator to identify, locate and apply special treatment to any target mobile phone on 2G, 3G, 4G (FDD and TDD) and 5G NSA. System is based on SDR boards where each radio is capable of any technology (2/3/4G).

Designed and manufactured in the European Union, our cellular surveillance solutions are intended to empower law enforcement, search & rescue agencies, and intelligence agencies, in their operations.

These solutions are delivered only to bone fide Government Agencies and are regulated by the Waasenaar Arrangement, with each delivery requiring an End User Undertaking and an approved export licence from the regulatory authorities.

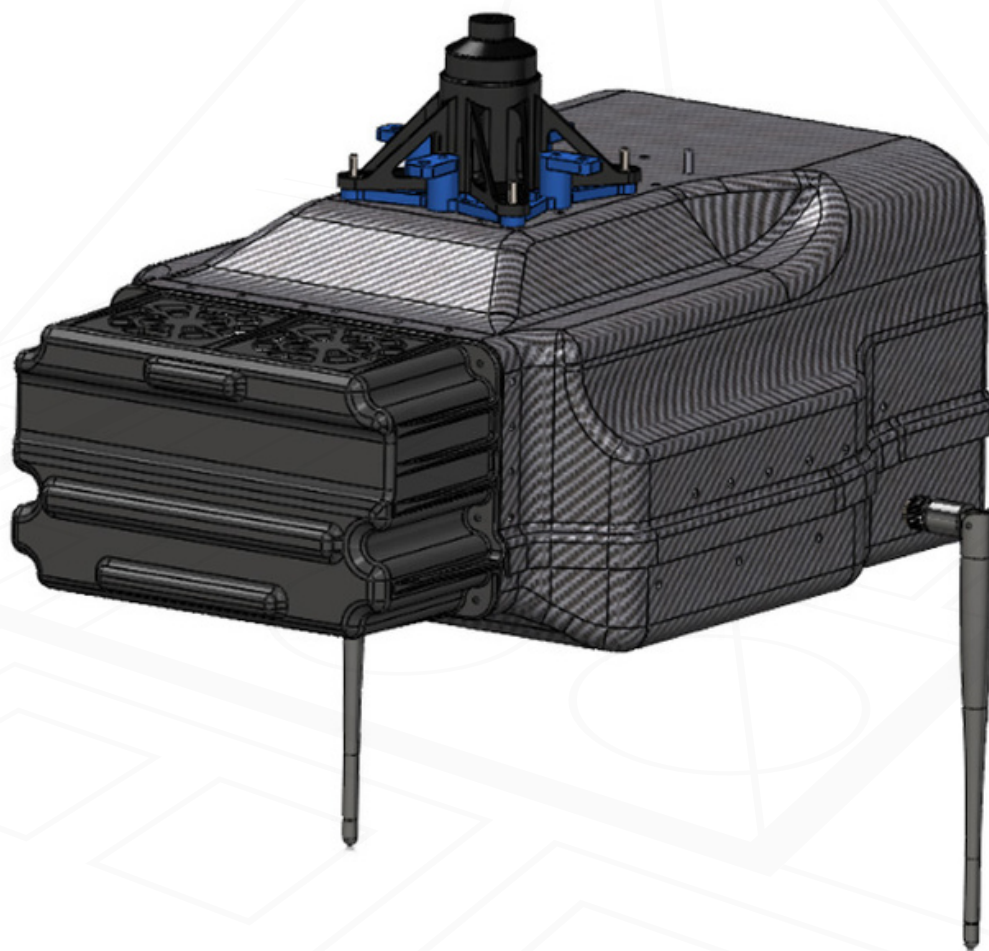
With hundreds of systems delivered worldwide, the Cellular Surveillance solutions from Sovereign Systems are the most efficient, longest range, and quietest running systems on the market. Software Defined Radios (SDR) are at the heart of the technology, with many form factors, ranging from Drone/Aircraft mounted systems, high power vehicle-based systems, to covert backpack and/or motorcycle configurations, the types of deployment are designed to suit every user need.

# SYSTEM DESCRIPTION

## AIRBORNE SOLUTION CAPABILITIES

### DRDX-4 ACTIVE CELLULAR PAYLOAD

The DRDX-4-SS Active Cellular Payload is a compact 4x radio active system composed of 4x multi- RAT SDRs paired with a custom high power RF Front end.



## TECHNICAL SPECIFICATIONS

- Active cellular payload system is custom designed to be mounted on drone
- Composed of 4x SDRs (Radios) supporting 2G, 3G, 4G technologies
- High power RF front-end delivering up to 36dBm (4W) average power per band
- Supports nine (9) cellular bands including TDD;
  - Bands: B1, B3, B7, B8, B20, B28, B38, B40, B41
- Military grade RF Link (preset or combination between 800MHz, 1.4GHz, 2.4GHz)

## ANTENNA CONFIGURATION

- Single operation antenna:
  - Directional
  - 10-12dBi Gain
  - Motorized & controlled from Ground Control Station
- Datalink 2x diversity antennas: 3dBi Gain
- Receiver sensitivity: greater than -105dBm

## POWER SPECIFICATIONS

- System power consumption: under 280W
- DC voltage input range: 36V – 53V
- Directly powered by the Drones' batteries

## FORM-FACTOR

- Quick Release Mechanism Options
  - Dimensions(mm) including antennas
    - Gremsy Quick Release – 513x342x293 (DxHxW)
    - Freely Quick Release – 513x342x365 (DxHxW)
- Weight: 6.3Kg (\*including Motorized Antenna and Quick Release)

## ENVIRONMENTAL SPECIFICATIONS

- Operating temperature range: -10°C to +45°C
- Ingress Rating: IP65
- Operating humidity range: 10% to 85% (non-condensing)
- Storage temperature: -20°C to +65°C
- Active cooling solution allowing operation while the drone is landed
- Quick mount release system allowing easy payload swapping

## GROUND CONTROL STATION (GCS)

- Military grade RF Link (preset or combination between 800MHz, 1.4GHz, 2.4GHz)
- Integrated GPS module for accurate positioning (Optional)
- Optional Network scanning or MITM modems hosting
- Embedded 15.6" Sunlight Readable LCD touchscreen with speakers
- Embedded Industrial Keyboard with touchpad
- Embedded OLED screen for various information (i.e. Battery levels)
- Dual battery power input + Mains input (24VDC)
- External Type-C port for expansion
- Operational time: 2h
- Hot-swappable dual battery power management
- Connectivity for optional GSM A5.1 / A5.2 decipher
- Ruggedized weather sealed enclosure (\*when lid is closed for transportation)



## GCS POWER SPECIFICATIONS

- Power consumption: peak 100W, typical 65W
- Battery specifications:
  - Li-on 98Wh smart battery
  - Built-in temperature and over current protection
  - Charged externally using smart balancing desktop charger

## GCS FORM FACTOR

- Dimensions: 48.8 x 38.6 x 18.5 cm (H x W x D) (\*lid closed for transportation) – Pelican Storm Case iM2400
- Weight: up to 14Kg (\*including batteries)

## GCS POWER SPECIFICATIONS

- Power consumption: peak 100W, typical 65W
- Battery specifications:
  - Li-on 98Wh smart battery
  - Built-in temperature and over current protection
  - Charged externally using smart balancing desktop charger

## GCS FORM FACTOR

- Dimensions: 48.8 x 38.6 x 18.5 cm (H x W x D) (\*lid closed for transportation) – Pelican Storm Case iM2400
- Weight: up to 14Kg (\*including batteries)

## GCS SPECIFICATIONS

- Ruggedized Touch Tablet PC
- Screensize: 10inHD;1000nits
- Datalink: 30KmLoS; AES-128encryption; triple band support
- Mission planning, automatic take-off/landing
- IP67rating(dust and rain/snow proof)
- Cell configuration: 12s2p
- Weight: 9.4Kg

## DRONE SPECIFICATIONS

- Hexarotor drone
- Diameter: 1600mm
- Propeller size: 30in
- Flight time: 1h with 5Kg payload
- Semi-Solid-State HV batteries
- Autopilot with triple redundancy
- Drone naked weight: 8Kg
- Maximum Take-Off Weight: 30Kg
- Max air speed: 15m/s
- IP56 rating (dust and rain/snow proof)
- Anti jamming and spoofing GNSS

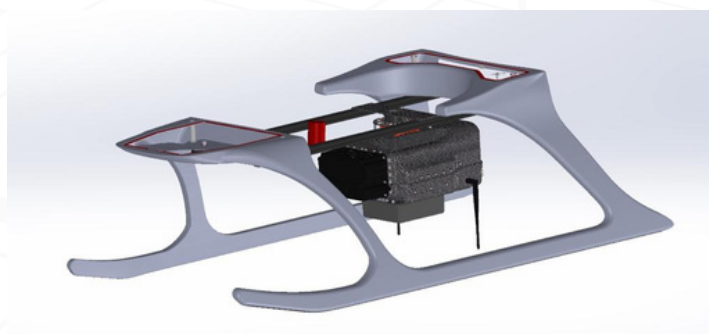
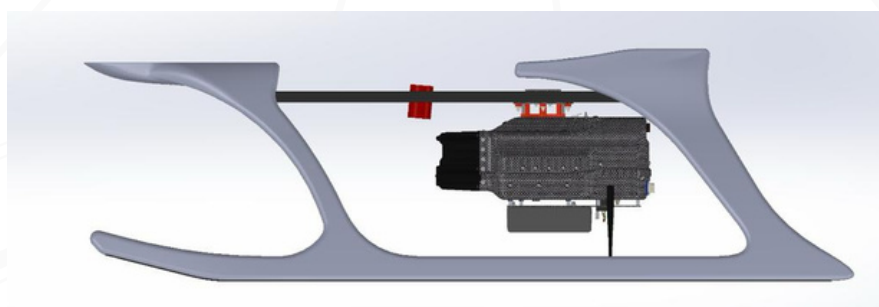


Hexarotor drone

- **Optional add-ons:**
  - Military grade autopilot
  - Safety ballistic parachute
  - Obstacle avoidance 360deg LIDAR
  - Optical flow sensor (allows precision autonomous landing using image recognition)

## HIGHLIGHTS

- Medium-long range operational capabilities payload mounted on our custom built hexarotor drone. Payload can be adapted to numerous aerial platforms.
- Highly transportable, compact footprint, fast system deployment.
- Available as complete integrated drone cellular system, or stand alone cellular payload for installation on end users drone/UAV platforms.
- Provide covert intelligence gathering functionality over the AOI (rural, semi-rural, semi-urban and urban environments).
- Intercept and record GSM/2G voice and SMS transmissions (optional with decipher)
- Operational time: Flight time up to 60min with 6kg payload.
- Range of control: Up to 30km LoS
- Operational altitude: 2000m (AGL), band dependent.
- High power RF front-end delivering up to 38dBm (6W) average power per transmission.



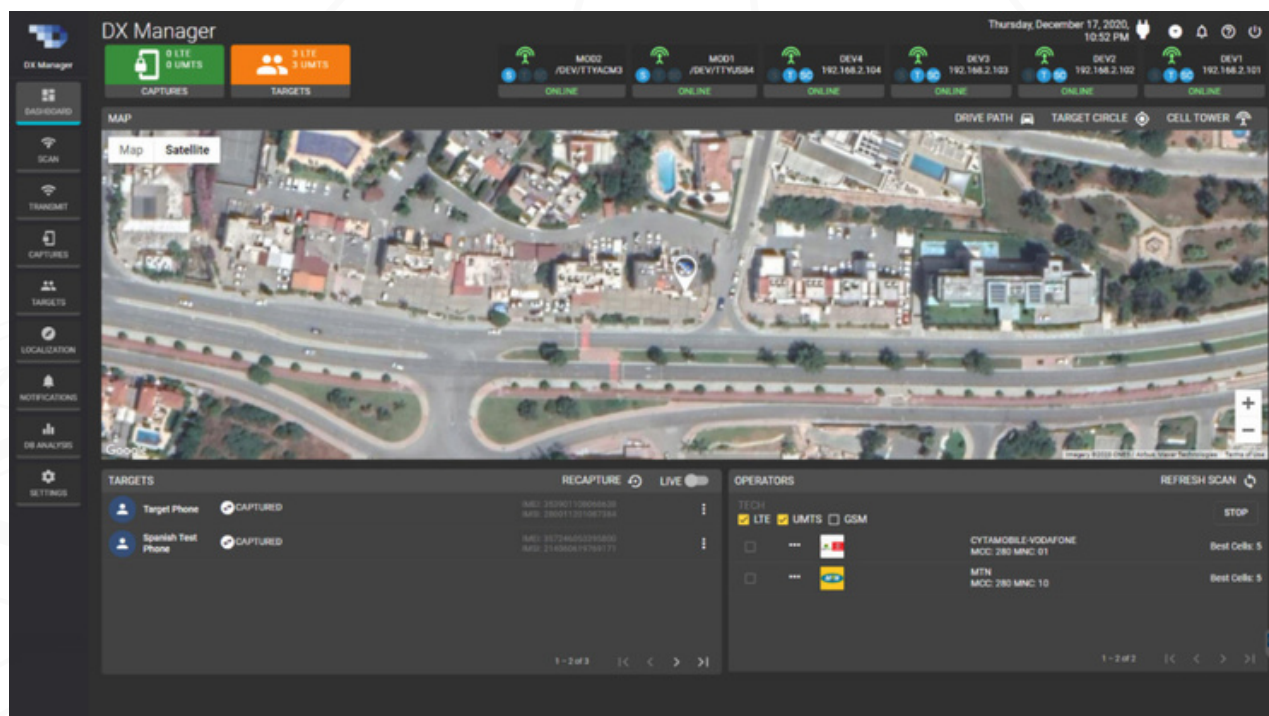


## SYSTEM SOFTWARE FUNCTIONALITY

The DX Manager is a web based Graphical User Interface enabling remote control and management of the system hardware. The application is device and OS agnostic, i.e. it can run on any type of computer or handset by using any web browser software.

The software requires a very thin client connection to the hardware units, and can be used either over local 5GHz Wi-Fi connection or remote cloud connection using broadband backhauling datalink. Multiple clients can connect and observe passively or control the hardware from remote location.

The architecture allows easy integration with 3rd party analysis tools through custom API interface.



## SOFTWARE FEATURES

- Web application type can be used with a browser by any device & OS
- Activity & Data recorded in a central database located in the system's CPU, based on
- Mission/Location/Session activity
- User Application Access based on login credentials and rights: User, Administrator, Audit user types
- Environment Cell Network Scan for GSM/UMTS/LTE-FDD/LTE-TDD cells in Deep or Normal mode.
- Loading of saved previous cell network scans
- Automatic and/or manual radio transmission control
- Recommended cell transmission parameters calculated in automatic mode; manual parameters modification can be done
- Power transmission modification in steps, before starting and/or during transmission
- IMSI/IMEI/TMSI identities registration along with GPS system position and different radio parameters, including phone estimated distance from the system
- Target definition: IMSI and/or IMEI as Target (blacklisted) or Friendly (whitelisted)
- Target redirection by downgrade to any RAT, including LTE TDD to any other RAT
- Redirection to a Clear channel designated by the user; graphic tools for clear channel calculation
- Native Silent call for LTE, UMTS or GSM with good stability for locating, with maximization of the target phone power transmission;
- Silent call can be done also by redirecting the target to any RAT, real or clear channel
- Simultaneous Silent Calls can be done for several targets
- Automatic Restart of a lost Silent call
- A DF receiver can be used for last meter location during SC
- Data searching, filtering and reports for data correlation, inside current mission or between missions
- Data export for views or reports in .csv format
- Visual and acoustical alarms for different target events
- System events logging
- System error notifications
- Target incoming and outgoing voice live and recorded playback (ONLY FOR MITM SYSTEM).
- Target incoming and outgoing sms capture and manipulation (ONLY FOR MITM SYSTEM).

# CONTACT US

**Email:** [connect@sovsys.co](mailto:connect@sovsys.co)

**Web:** [www.sovsys.co](http://www.sovsys.co)

**Tel:** +65 6829 2137