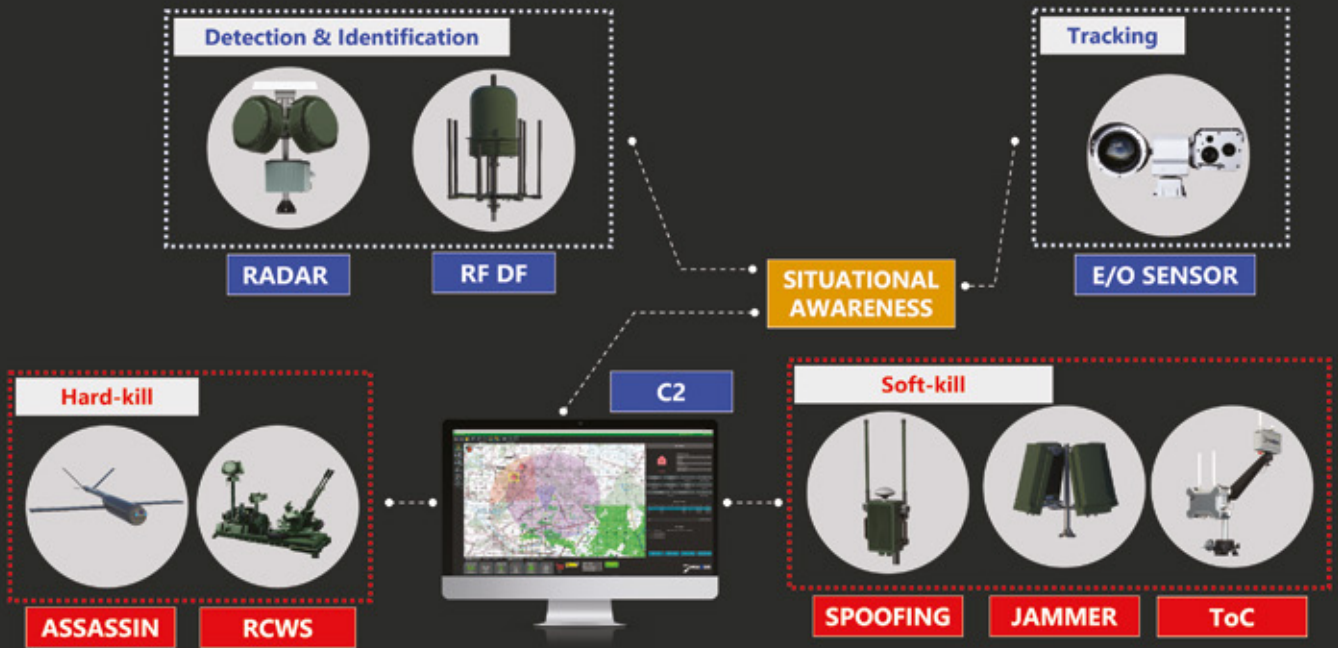# MADDOS

- ✓ **Combat-proven solution**
- ✓ **Scalable for huge sites and borders**
- ✓ **Effective against FPV drones and Loitering Munition**
- ✓ **360° x 90° protection coverage**
- ✓ **Extremely long detection range**
- ✓ **Fully automatic operation with AI support**
- ✓ **Detection of all UAV types**
- ✓ **Locates drone swarms and drone operators**
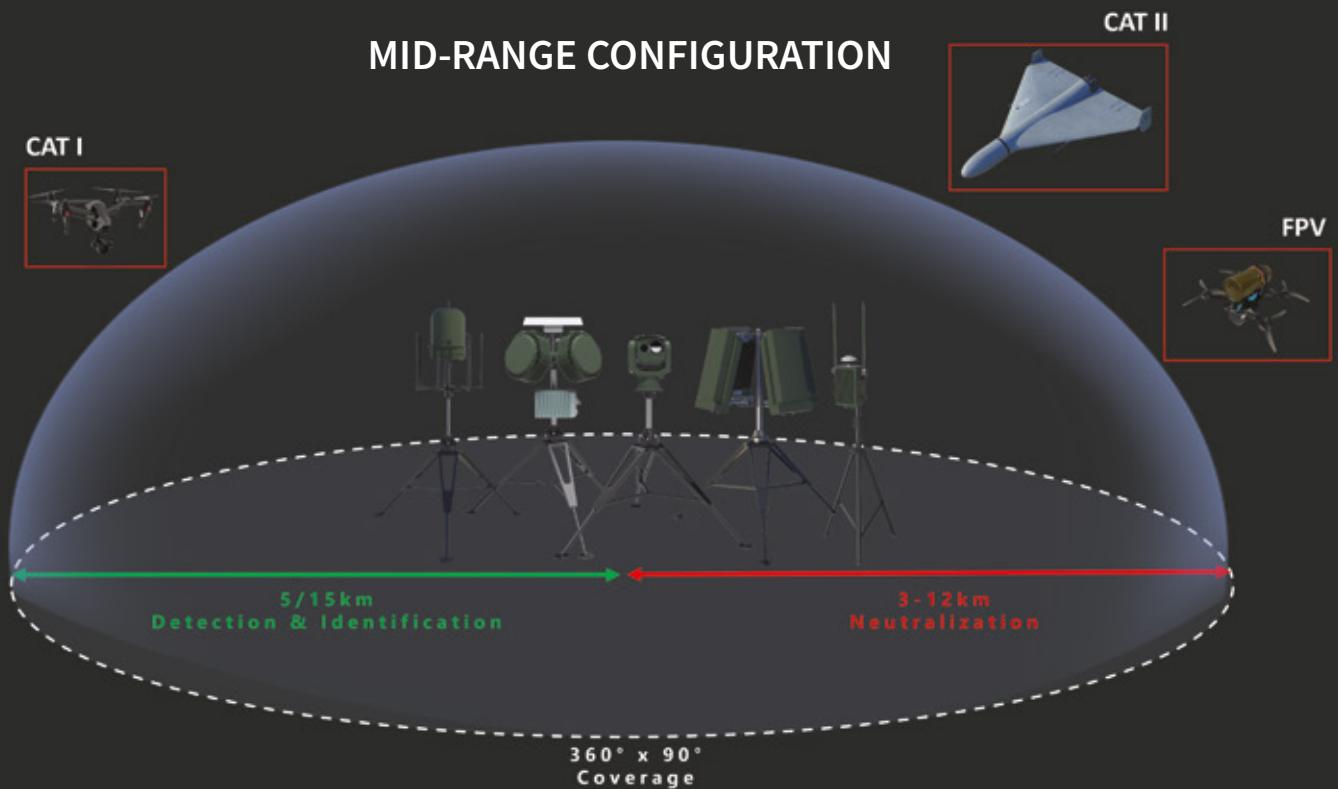- ✓ **Data Fusion with low false alarm rate**

MADDOS SYSTEM COMPONENTS

Detection & Identification

RADAR

RF DF

Tracking

E/O SENSOR

SITUATIONAL AWARENESS

C2

Hard-kill

ASSASSIN

RCWS

Soft-kill

SPOOFING

JAMMER

ToC

MID-RANGE CONFIGURATION

CAT II

CAT I

FPV

5/15km
Detection & Identification

3-12km
Neutralization

360° x 90°
Coverage

APPLICATION

Airports

Prisons

Critical infrastructure

Convoy protection

Government institutions

Military
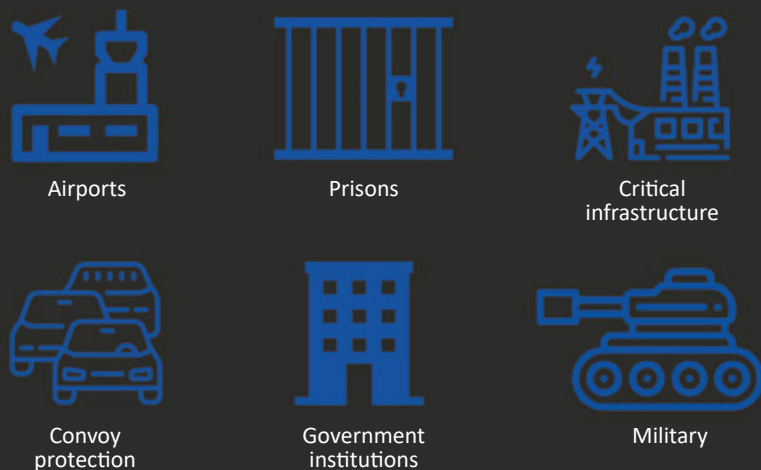
MADDOS **RF**

A radio frequency (RF) detector is a specialized device designed to detect the presence of RF waves traveling through the air. Unlike active systems emitting signals to detect environmental changes, RF system quietly observes and analyzes the electromagnetic spectrum. This capability allows it to identify both drones and their pilots accurately. Thanks to cutting-edge AI algorithms, the MADDOS RF can differentiate various frequency patterns and effectively recognize different RF-emitting devices, such as drones, remote controllers, FPVs, and telemetry devices, from more common signals like those from WLAN. The extensive drone library, continuously updated to reflect new and evolving drone models, is a cornerstone of the system's effectiveness.

KEY FEATURES

- ✓ Fully passive system based on SDR technology
- ✓ RF frequency range covering 75 MHz – 6000 MHz
- ✓ Very long detection range > 10 km
- ✓ Multi-frequency, multi-directional swarm attack detection
- ✓ Directional finding of approaching drones
- ✓ Geolocation – display exact 3D position of the drone and pilot
- ✓ Spectrum monitoring for the detection of tactical drones
- ✓ Nearly zero rate of false alarms
- ✓ High detection accuracy
- ✓ Drone library – more than 600 models
- ✓ Friend or Foe differentiation
- ✓ Low weight and compact size
- ✓ Stationary/Mobile version

SPECIFICATION	MADDOS RF SkyProtector GEN2
Detection range (LOS)	STD: > 5 km LR: > 10 km
Coverage	360 x 90° (full dome)
Radio frequency coverage	75 MHz – 6 GHz
DF tracking accuracy	5°
False alarm rate	< 1% (near zero false alarms)
Type of drones detected by the system	• Commercial COTS drones • FPV / DIY drones • Video transmitters (analog / digital)
Triangulation (if 2 or more sensors are used together)	Yes
Weight and IP	< 28 kg & IP66
Operating temp	-25 to +55°C (according to MIL-STD-810G)

MADDOS RF

MADDOS Radar

MADDOS MHR is an advanced software-defined, pulse-Doppler radar for the direction of aerial targets at a wide range of velocities. Radar runs a deep analysis of the detected object signature, to next classify it as a drone or other class type. Highly advanced AI algorithms provide high effectiveness in object recognition with a very low false alarm rate.

Radar is a compulsory sensor to detect fully autonomous, dark drones and tactical UAVs, which are not visible to a RF sensor. Additionally, radar provides 3D target position at all times, which is crucial for cueing camera sensor or controlling hard-kill effectors.

KEY FEATURES

- 4D AESA pulse Doppler radar with AESA antenna
- Detection of all drone classes and types
- Combat proven SHORAD/C-UAS system
- 4 panels covering 360° x 90° – full hemispheric protection
- Superior performance against low signature targets
- Automatic Self-Calibration – easy to use
- Operation On-The-Move (OTM) up to 90 km/h
- Detection and tracking of 512 targets simultaneously
- Frequency band: S-band (advanced ECCM algorithms)
- Deep AI algorithms for target classification
- Multi-mission modes

MADDOS Radar

| Threat class	Range [km]
DJI Mavic 3	5 – 6
DJI Matrice 600	7 - 8
Shahed-136	9 - 10
MADDOS 600h	13 – 15

MADDOS Camera

An electrooptic sensor is an additional, fully integrated component used for visual observation and target threat level assessment. Once an object is detected and classified as a drone by Radar and RF, the operator can quickly command the camera to perform slew-to-cue action and start automatic object recognition and visual tracking. An integrated approach greatly increases response time and situational awareness.
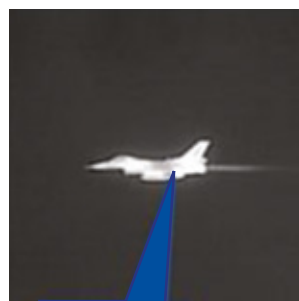
KEY FEATURES

- ✓ Automatic tracking of the UAV
- ✓ Integrated slew-to-cue capability
- ✓ View in daylight and thermal sensor
- ✓ Various camera versions, including cooled thermal sensors with high optical zoom
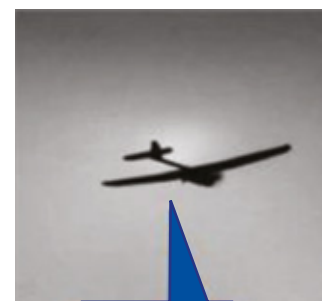- ✓ Implemented an AI video tracker for automatic object recognition

MADDOS Camera
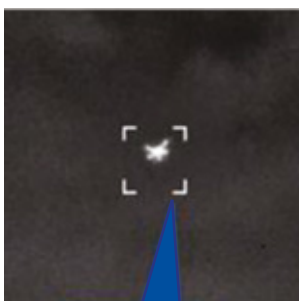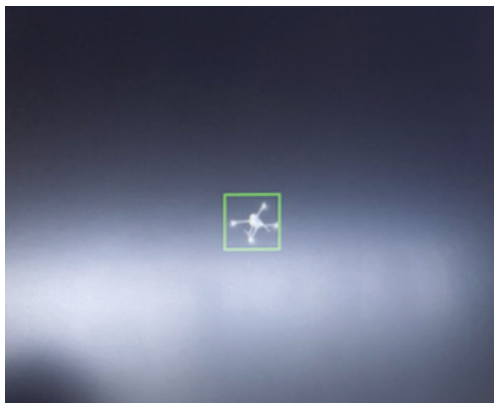
RW UAS

Fast Jet

Mini UAV

MADDOS Jammer

MADDOS jammer is the main neutralization effector in the system. Jammer sends out signals to interfere with and eventually block the communication signal between the drone and its operator. Additionally, it can block the navigation signal of the drone.

Once jamming is engaged, the drone will enter an emergency mode that will either begin a landing maneuver or return to its Home point. Some of the drones, after being jammed, may even fall and crash.

KEY FEATURES

- Selective jamming of the UAV communication and navigation signal
- User / Auto selection of jammed frequency bands
- High effectiveness against all types of RF-controlled drones
- Automatic or manual activation
- Directional or omnidirectional jamming
- Integrated with a RF sensor for reactive jamming
- Fixed or programmable bands
- Programmable bands within the 300 MHz – 6 GHz range

Portable version

Handheld or ManPack configuration

9 fixed-bands

Up to 140 W output power

Up to 3 km range

RADHAZ certified

MIL-STD 810H

Stationary/Mobile version

Sector / Omni / Pan&Tilt configuration

Programmable or fixed-bands

Reactive jamming

Up to 12 km range

Automatic operation

MADDOS IMSI Catcher

Protect sensitive zones from aerial threats with our GSM interception platform. The **MADDOS IMSI Catcher detects drones operating on GSM networks**, capturing device identifiers and enabling:

- ✓ Early warning of drone incursions across border zones
- ✓ Tracking of operators attempting remote surveillance or smuggling
- ✓ Integration with radar and RF sensors for multi-layered defense
- ✓ Deployment-ready hardware for rugged field conditions

Designed for border patrols and infrastructure protection teams, this system delivers actionable intelligence to prevent unauthorized aerial activity. The MADDOS IMSI Catcher's high output power enables extended coverage, detecting GSM-enabled drones and operators across vast areas — with each system covering more square kilometers and operating from a safer, standoff distance.

MADDOS IMSI Catcher means:

- ✓ **Greater efficiency** in drone detection
- ✓ **Improved operational security** for field teams
- ✓ **Remote control of multiple units**, allowing seamless coordination and **cost-effective deployment** across large geographical zones

Whether securing borders, monitoring urban environments, or protecting critical infrastructure, **MADDOS IMSI Catcher** delivers unmatched reach and control.

KEY FEATURES

- ✓ GSM Interception - Captures IMSI/IMEI from GSM-enabled drones and controllers
- ✓ Operator Localization - Pinpoints pilot location via mobile signal triangulation
- ✓ Drone neutralization - Disconnects UAV from network
- ✓ Covert Operation - Operates discreetly without disrupting public networks
- ✓ Extended range - over 10 km detection capability
- ✓ Forensic Logging - Stores data for analysis and legal evidence
- ✓ Field-Ready - Rugged. It can also be a portable version for rapid deployment

Vehicle	Military vehicle	Airborne	Maritime	Tactical	Border post

MADDOS SPOOFING

MADDOS Spoofing is a combat-proven system designed to mitigate the risks posed by drones equipped with GNSS sensors, including those programmed for specific missions or operating autonomously.

This technology misleads the drone's onboard GNSS system into accepting false location data, effectively altering its perceived location or trajectory. The lightweight and compact design of the MADDOS system allows for versatile deployment options: it can be mounted on a stationary tripod for fixed site protection or installed on a vehicle for mobile defense.

KEY FEATURES

- Manipulation of drones onboard the GNSS receiver
- Effective against non-RF drones
- Automatic or manual operation
- Range up to 7km (configurable by operator)
- Directional or omnidirectional spoofing
- Covered navigation bands 1.2GHz and 1.5GHz
- Capable of drone swarm neutralization

SPOOFING MODES

- **Push** – forces the drone to fly away from the protective zone or to a specific direction
- **Hold** – force the drone to fly in a circle pattern or hover in one place
- **Land** – forces the drone to land
- **Descent** – causes the drone to rapidly descend and crash

MADDOS Spoofing
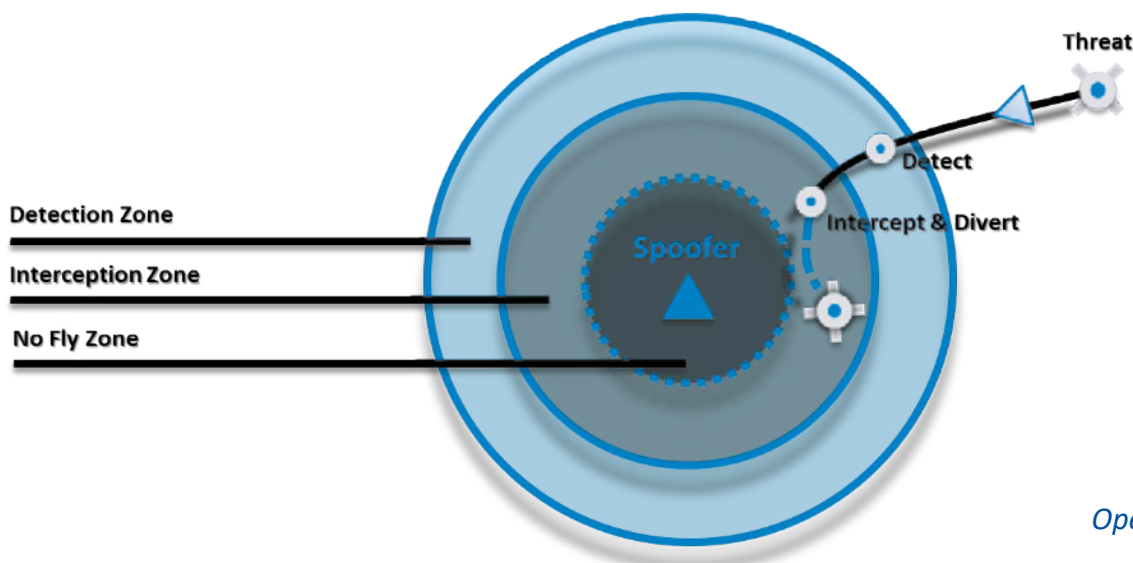
Operation scheme

MADDOS HARD-KILL RCWS

Hard-kill solution based on Remote Controlled Weapon Station (RCWS) equipped with 23 mm or 30 mm cannons. The RCWS system is fully integrated with the MADDOS detection and tracking system to provide the target's initial 3D position from long range. The turret is automatically aimed at the sector where the target is located, and the opto-electronic module starts visual tracking. The distance to the target is determined, and a 3D flight path of the target is calculated to shoot down the threat accurately. MADDOS RCWS can effectively destroy any UAV from a significant range, while maintaining high mobility and ease of transportation.

KEY FEATURES

- Effective against NATO CAT I & II drones
- Designed to counter loitering munitions
- Day & night operative
- Fully automatic operation
- Main gun caliber: 23 mm or 30mm
- Effective range up to 2.5 km
- Electric drives for rotation in azimuth and elevation
- Integrated stabilized Electrooptic suite
- Processing unit with a ballistics calculator

FCS Orion


RCWS-30

MADDOS HARD-KILL DRONE

MADDOS ASSASSIN is an advanced, mini-size, fully autonomous fixed-wing UAV. The drone can stop intruding UAS, including tactical, pre-programmed, autonomous drones that can't be jammed or hacked by kinetically destroying them. The hunter drone is designed with precision targeting and swift, reliable deployment. The efficiency of the MADDOS ASSASSIN is underpinned by its advanced navigation and targeting systems and robust design, which ensure it can engage and neutralize targets even in adverse weather conditions. The system includes a 4D ground-based radar that detects the intruder and sends coordinates to the guidance system. ASSASSIN automatically takes off from a pneumatic, multiple launch system and calculates the optimal route to intercept the enemy. In the next phase, the on-board visual seeker is activated to increase the precision of the hit. In the final phase of flight, the drone's proximity sensor activates the warhead, increasing the blast area.

KEY FEATURES

- ✓ Kinetic neutralization with the use of a hunter drone
- ✓ Highly effective against CAT I & II UAVs
- ✓ Equipped with an explosive or ramming head
- ✓ Range up to 8 km
- ✓ Fully autonomous operation – no operator control required
- ✓ Top speed up to 200 km/h
- ✓ Weight: 5.5 kg
- ✓ Day and night operational
- ✓ Low cost and fast production
- ✓ Swarming capable
- ✓ Multi-launcher configuration

MADDOS ASSASSIN
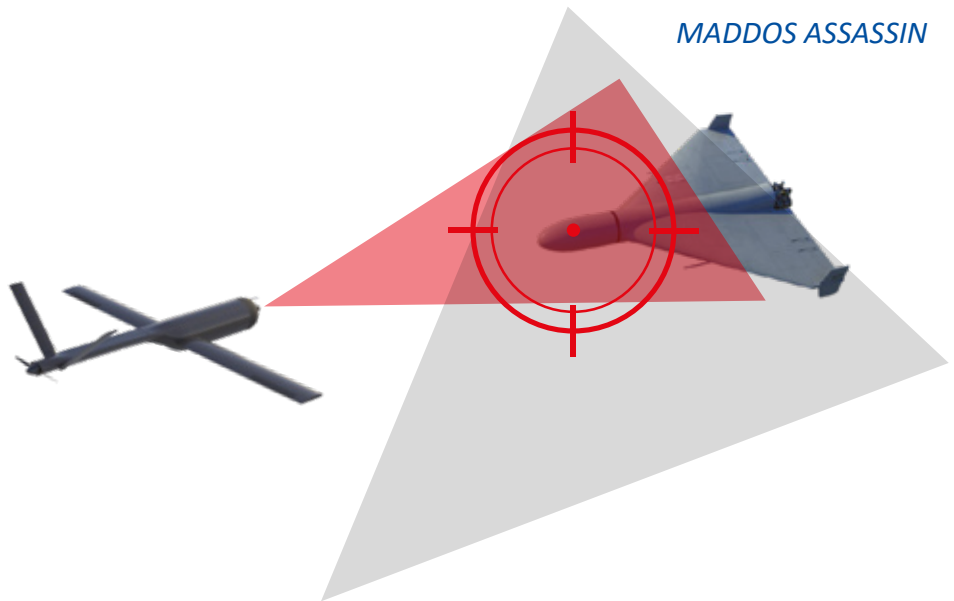
MADDOS ASSASSIN operation scheme

MADDOS C2

In the MADDOS system, software is the key! MADDOS Command and Control (C2) provides the operator with a situational awareness picture, as well as tools for managing responses. Data received from different sensors is correlated, which allows the system to present a full sky picture with all important information. The user-friendly graphical interface makes the system easy and intuitive to use. The operator can configure and activate/deactivate all sensors, display their health status, customize the UI to show only relevant information, and much more. Thanks to using MIL-STD 2525 common NATO symbology, the software can be used not only in civilian applications but also in military. Upon request, it is possible to integrate any sensor of the customer into the MADDOS ecosystem, or report messages can be shared from our C2 to external systems over standardized protocols.

KEY FEATURES

- Multi-Sensors, Multi-Effectors, Multi-Users system
- Control and operation from a central location and a local deployment location
- Display integrated Sky Picture
- Data fusion and correlation
- Automatic operation with AI support
- Customizable operator display
- User-selectable background maps
- Management of the connected devices
- Create and display Areas of Interest (AOI)
- Automatic target classification (Friend, Hostile, Neutral)
- Audible and visual alarms
- Advanced filtering
- Implemented MIL-STD 2525 common NATO symbology
- Continuous Built-in Test (CBIT)
- Recording of events and generation of reports
- Data sharing with external systems
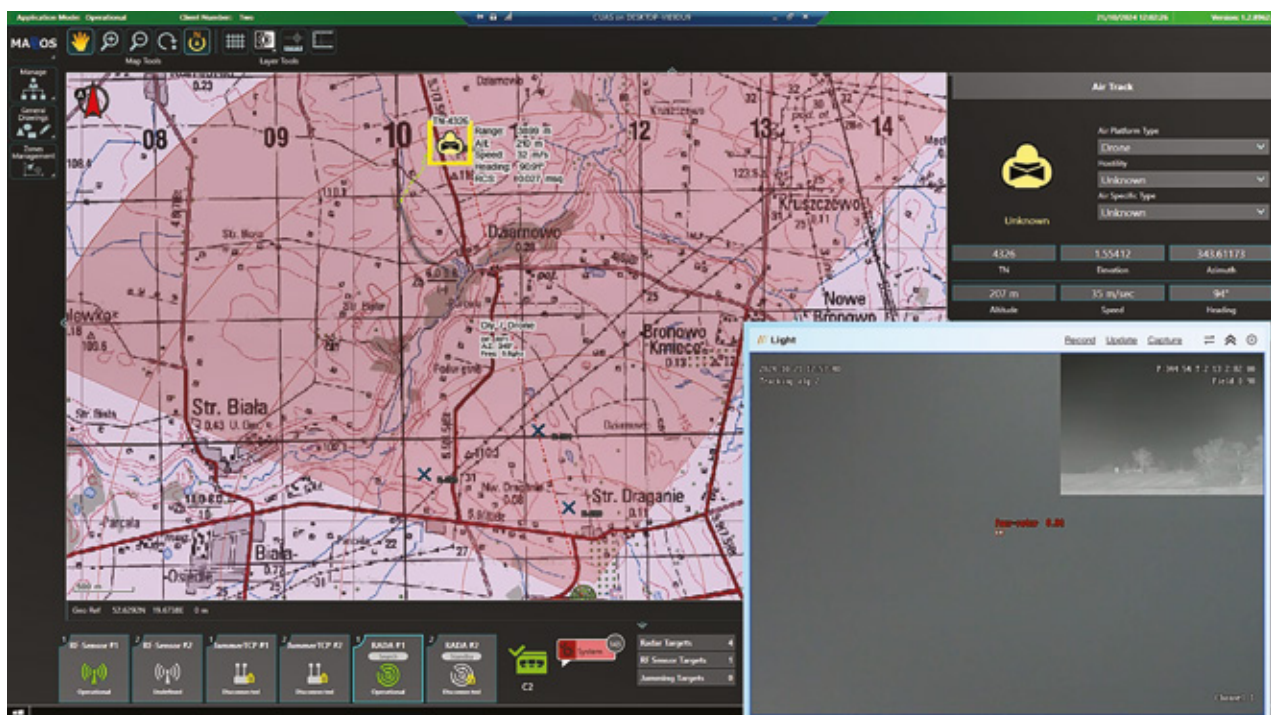
MADDOS MDP

MADDOS MDP (Mobile Drone Protection) is a fully automated detection and protection system used for On-The-Move operations. It was specially designed to be mounted on vehicles to protect convoys against COTS and DIY drones.

MDP is composed of two sensors: a fully passive RF detector and an active jamming unit. An RF detector is used to identify radio communication signals, enabling rapid detection of drones and their operators. RF distinguishes drones from common RF signals by using learned patterns and AI algorithms, and can identify almost all types of drones. An active jamming unit is used to protect a defended unit by interfering with the communication and navigation signals of drones, forcing them to fly away or crash.

KEY FEATURES

- ✓ Integrated Detection and Neutralization
- ✓ Automatic operation – Detect & Defeat
- ✓ Detection range up to 3 km
- ✓ Neutralization range up to 1 km
- ✓ RF frequency range covering 75 MHz – 6 GHz
- ✓ Swarm drone detection and neutralization
- ✓ System is operational from laptop / tablet
- ✓ On-The-Move (OTM) capabilities
- ✓ Durability and shock-resistance according to MIL-STD 810 H
- ✓ Can be mounted on any vehicle: civil or armored
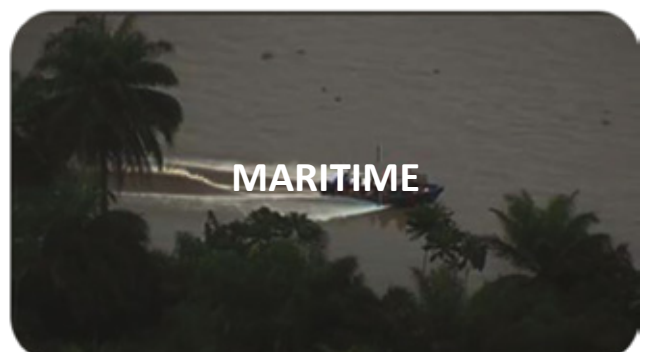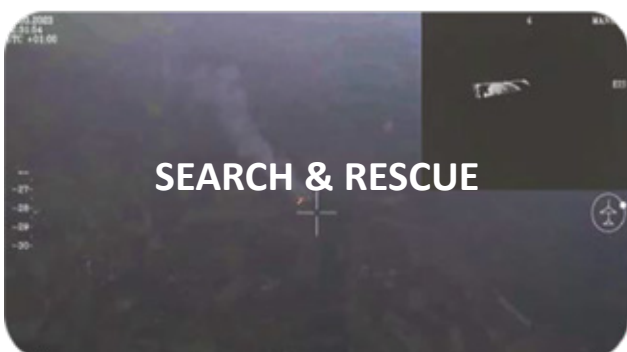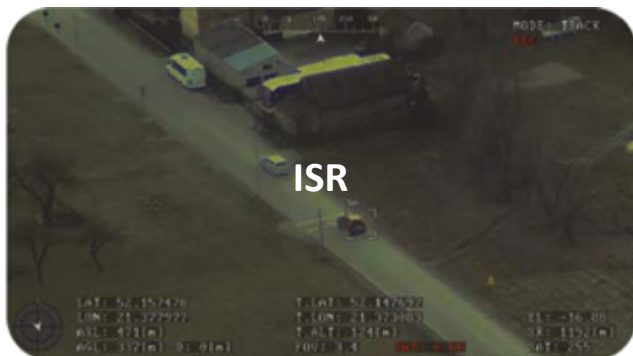
MADDOS UAV

Designed and built to deliver unparalleled performance matched with onboard cutting-edge technology. Combining real-time intelligence gathering capabilities with robust construction, it's an ultimate tool for strategic advantage in challenging environments.

KEY FEATURES

- VTOL configuration (vertical take-off and landing)
- Fully automatic operation
- Operations in GNSS denied environment
- Long endurance – over 10 h
- High payload capacity – up to 20 kg
- Long operation range – up to 150 km
- Day & night operation
- Modular design – fast field assembly

APPLICATION

ISR

ARTILLERY FIRE CORRECTION

SEARCH & RESCUE

MARITIME

MADDOS UAV

VTOL 350e

VTOL 350e is a fully electric unmanned aircraft system in VTOL configuration, designed for rapid, short-range ISR missions. Its endurance of up to 3h and silent operation make it a perfect tool for law enforcement and military users.

SPECIFICATION

MADDOS VTOL 350e

- ✓ Propulsion: Electric
- ✓ Wingspan: 3.5 m
- ✓ MTOW: 23 kg
- ✓ Payload: 1.5 kg
- ✓ Flight time: up to 3 h
- ✓ Cruise speed: 72 km/h
- ✓ Ready to fly in 15 min
- ✓ Silent operation
- ✓ Communication range – over 40 km
- ✓ Payload options: Gimbal EO/IR, photogrammetry camera

VTOL 460h

VTOL 460h is a scaled-up version of the field-proven VTOL 350e in a hybrid version with increased flight time and payload capacity. Engineered for demanding tactical applications, this UAV is the ideal platform for extended missions requiring high endurance, flexibility, and advanced payload integration.

SPECIFICATION

MADDOS VTOL 460h

- ✓ Propulsion: Hybrid
- ✓ Wingspan: 4.6 m
- ✓ MTOW: 45 kg
- ✓ Payload: 5 kg
- ✓ Flight time: >10 h
- ✓ Cruise speed: 72 km/h
- ✓ Ready to fly in < 25 min
- ✓ Communication range: over 120 km
- ✓ Payload options: Gimbal EO/IR, photogrammetry camera, SAR radar, NADIR camera, IMSI catcher

MADDOS UAV

VTOL 600h

VTOL 600h is a long-endurance, long-range unmanned aircraft system in VTOL configuration, designed for demanding operations. Its endurance of up to 10h with a line-of-sight range of 150 km makes it a competent unmanned platform that meets various mission needs.
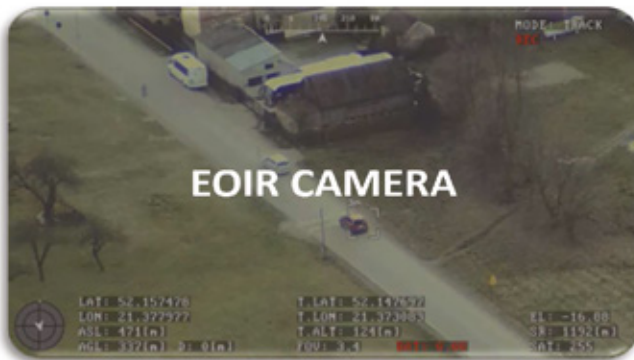
SPECIFICATION

- ✓ Propulsion: Hybrid
- ✓ Wingspan: 6 m
- ✓ MTOW: 110 kg
- ✓ Payload: 20 kg
- ✓ Flight time: up to 10 h
- ✓ Cruise speed: 115 km/h
- ✓ Ready to fly in < 45 min
- ✓ Communication range: up to 150 km
- ✓ Payload options: Gimbal EO/IR, photogrammetry camera, SAR radar, NADIR camera, IMSI catcher

MADDOS VTOL 600h

ADVANCED PAYLOADS

EOIR CAMERA

SIGINT

SAR RADAR

NADIR CAMERA

REFERENCES

AP-FLYER Sp. z o.o., Żegańska 2d St., 04-713 Warsaw, POLAND, Phone: +48 22 613 04 87, info@maddos.pl, www.maddos.com, www.ap-flyer.pl

MADDOS
MULTI-SENSOR AUTOMATIC DRONE
DETECTION & OBSERVATION SYSTEM