



Smart Anti-Drone/C-UAV Solutions

Countering the threat from above

WHY DO WE NEED COUNTER DRONE SOLUTIONS?

Countering the threat caused by rogue drones is now a global issue and an increasing concern for the military, government and homeland security forces across the world.

It is expected that unmanned aircraft systems (UAS) will be used increasingly for malicious purposes as they can carry cameras, weapons, toxic chemicals and explosives and are being used increasingly for terrorism, espionage and smuggling purposes

MITIGATION OF SWARM DRONES

The response needs to be:

- Multilayered to enhance success probability and obviate saturation.
- Immediate, Fast, and Overwhelming.
- High speed interception at stand-off ranges
- Capability to designate specific missiles to specific drones in a swarm.

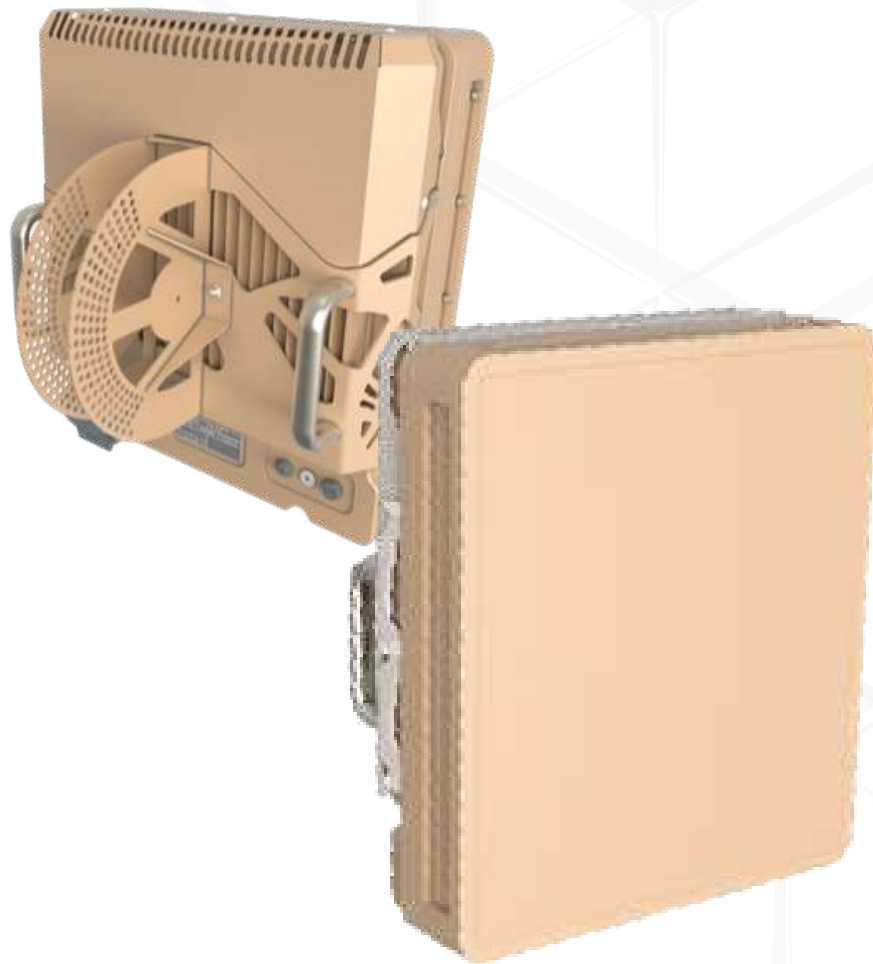
Sensortec is capable of neutralizing such an attack using a multilayered defence.



It's no different when you're trying to maintain situational awareness for drones monitor, detect, track and identify applications.

- Radar for detection at long range
- Radio Frequency direction finding for detection and Identification
- Optical and thermal imaging for tracking and classification
- Weapon System to neutralize the drone.

These various sensors act as senses to the DTI system, helping provide situational awareness to the operators.



Precise 3D tracking Radar

Features

- SOFTWARE DEFINED: Coverage prediction , Advanced tracking , AI-powered classification , API enabled.
- JOINT FORCES: Integration with: ECM/C-UAS , APS/VPS , Perimeter security.
- ST-7R3D Software Defined: Hi-tech devices need proper software to enhance their capabilities - our 3D radars come equipped with dedicated tools that guarantee robustness, provide reliability and build trust.

The process starts with our Prediction Software which analyzes terrain and presents actionable information on optimum radar setup, locations and detection likelihood. Integrate through API with your C2 platform.

Improve your combat readiness and effectiveness thanks to advanced AI-based tracking and classification algorithms.



Technical Specifications

DETECTION

Instrumented range	50 km
Minimum detection range	1 m
Typical Detection Ranges*	
Nano UAVS, RCS 0.01 m2	5 km
Micro UAV RCS 0.05m2 DJI Phantom	8 km
Pedestrian RCS 1m2 RCS	18km
Light Vehicle RCS 30 m2	45 km
Aircraft RCS 100 m2	50 km
Range accuracy	3 m
Range resolution	10 m
Minimum/maximum target altitude	1 m/50 km
Coverage, azimuth/elevation	90°/30°
Frequency	X-Band
Technologies	AESA/MIMO
Tx output power (peak)	24 W

TRACKING AND CLASSIFICATION

Update rate	4 Hz
Technologies	MHT
Software features included in every MIMO radar.	Computationally efficient Multiple Hypothesis Tracking.Tracker is used to convert single radar detection events into real targets and their motion models (tracks). AI-powered target classification combined with traditional classification techniques.

* The detection ranges shown are based on ideal conditions and direct line of sight to target

OPERATIONS AND MAINTENANCE

Interface protocols	IEthernet
Input power	24 VDC
Power consumption	90 W
Dimensions (W x H x D, cm)	38 x 43.5 x 15
Weight	23 kg
Operation temperatures	-40°C - +60°C
Cooling method	passive
Ingress Protection	IP 66/IP 67
Enclosure	Rugged, milled aluminium, powder coated.
Mean Time Between Failure	50 000 hours
Operational availability	99%
Fault tolerant architecture	Remote monitoring, operational parameters adjustment and restart.
Yearly maintenance	Up to 3 working days, in harsh environment areas.



**Uncooled Multisensor
Camera Up To 18,000m**

Product description

Uncooled Multisensor Camera combines visible camera, and thermal camera that suit long distance monitoring in total darkness and foggy/rainy environment. It has a U shape housing and with military quality, the camera is widely applied to coastal, seaport, airport, Forest fire prevention.

In the day time, HD lens and 2 megapixel color to B/W CMOS works. At night, the 640*512 uncooled thermal camera. The Uncooled Multisensor Camera can detect vehicle at 18 km 24/7 hours. Internal industrial-grade embedded electronic control system support the Uncooled Multisensor Camera operation: zoom, focus, video switch, pan tilt. The integral aluminum alloy housing IP66 makes sure outdoor long running.

General Functions

- Aluminum alloy housing, anti-corrosion paint, anti-seawater corrosion, spherical housing, resisting 33m/s wind.
- Precision positioning.
- Data feedback: real-time feedback direction, angle, focal length and focusing data, track and locate the target. (cooperate with application software) High load duty.
- Max rotation speed 45°/s, min rotation speed 0.01°/s.
- Pan rotation angle range 0-360°, tilt rotation angle range $\pm 45^\circ$.
- Uncooled Multisensor Camera combines thermal camera, visible camera, pan tilt, housing and decoder.
- One integral aluminum alloy housing, waterproof, IP66, anti-dust.

Application

Border defense, lake and river monitoring, airport security, city safety, forest fire prevention.

DRI Ranges

	Detection	Recognition	Identification
Vehicle	18,000 m	6,000 m	3,000 m
Human	8,000 m	2,600m	1,500m

Technical Specification

Thermal sensor	uncooled detector, 640*512; 7.5um-14um spectral response , 50mk NETD
Thermal lens	95-295 mm, Dual view Electric zoom and auto focus
Fov (H)	6.5°× 4.9°/2.1°× 1.6°
Visible lens	16.7-1000mm motorized zoom DC8-12V zoom data feedback
Visible sensor	1/1.8”CMOS 0.0002lux super high sensitive color to B/W CCD 2 megapixels,1920X1080 Automatic ICR switch H.264/MPEG4/MIPEG 32Kbps~16Mbps,60Hz30 FPS ABF auto adjust function

Technical Specification

PTZ	Load: 50kg U Shape housing, Multi-dimensional free-form surface shape resisting 33m/s wind. Rotation speed Pan: 0.01°~45°/S; Tilt: 0.01°~45°/S; PT Pan: 0~360°; Tilt: -45°~+45° Preset 200
Image process	2X digital zoom; Image processing; AGC; 10 pseudo color; SDE image enhancement;
Fog filter	AFR color fog fliter technology
Housing	Material: High strength aluminum alloy shell, waterproof seal To avoid the growth of mold and moisture generated Structure: Integrated double-window design Surface coating: PTA three-resistance coating, Seawater corrosion resistance Built-in thermostat, design of thermal equilibrium Interface: Aviation waterproof plug
Interface	1.1 channel 10M / 100M adaptive Ethernet port 1 AC24V / DC24V, 2. Military-grade waterproof aviation plug
Video format	H.264, Dual video output
Protocol	TCP/IP, HTTP, DHCP, DNS, DDNS, RTP ect. Other protocol Support ONVIF2.0 Pelco-P, Pelco-D, Baudrate 2400, 4800, 9600, 19200 optional
Power supply	AC220V±20% Turntable rotation power can be controlled in 120W, maximum power consumption 150W, stationary machine power 45W, heating 150W

Environment

Working temperature	-40℃~+ 65 ℃
Storage temperature	-40 ℃~ + 65 ℃
Humidity	<90%
Protection	IP66
Weight	115KG



Anti drone weapon system

Missile System

- Missiles are a patented, high-speed, long-range, self-guided missiles that can detect, track, and destroy small enemy drones, and are fired out of multi-round ground based, mobile, or tactical aerial launchers.
- They are "fire and forget", autonomous, highly maneuverable, and can track and destroy UAVs at speeds of up to Mach 1.0.
- They are equipped with electro-optical and infrared sensors for day/night operation and utilize ultra high-speed microprocessors for AI-based computer vision detection and tracking.
- They are well suited for mitigating a "swarm" of small drones since they can be fired rapidly and in large numbers from launchers.
- The smart missile system offers a safe and cost-effective means to neutralize these

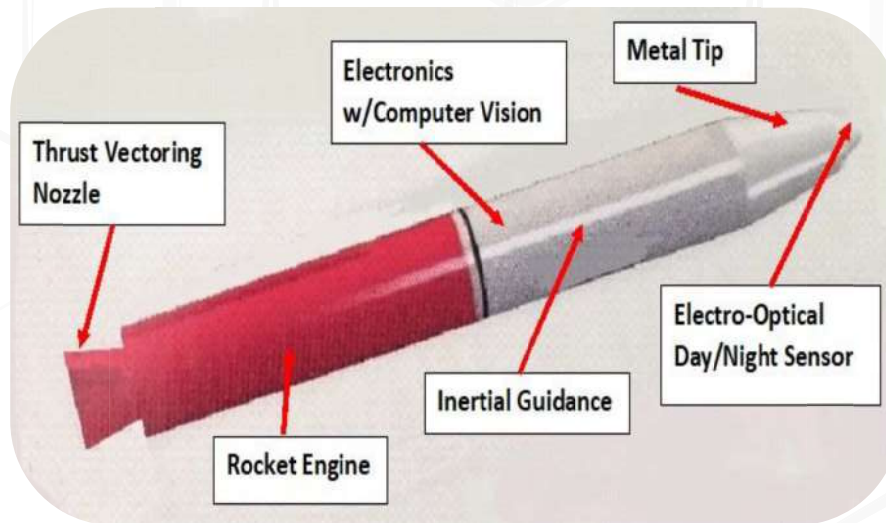


FEATURES KINETIC WEAPON SYSTEM

- 40mm Guided Missile - Mach 1.0
- Solid-Fuel Propellant & Thrust Vectoring
- Maximum Range - 5km
- High-Speed AI-Based Microprocessor
- AI-Based Computer Vision Algorithms
- Autonomous Detection and Tracking
- Day/Night Capable - EO/R Sensors
- Variety of Payloads
- Ground, Mobile, or Airborne Platforms
- On-Board Communications, Wi-Fi & Bluetooth
- Rugged Construction - Carbon Fiber/Aluminum



WEAPON COMPONENTS



WEAPON FEATURES

- Patented Smart Weapon Design
- Long-Burn Solid-Fuel Propellant
- Thrust-Vectoring Engine with Outstanding Agility
- Max Velocity - Mach 1.0
- Long Range - 5 km
- High-Speed AI-Based Microprocessor
- OnBoard Communication Between Missiles
- Computer Vision Algorithms and Dataset
- Autonomous Detection and Tracking
- Urban Safe - Returns to Ground via Parachute
- Day/Night Capable - EO/IR Sensors
- Wide Selection of Payloads with Proximity Detection
- Neutralize a Swarm of Group 1 and Group 2 Drones
- Ground, Mobile, or Airborne Platforms
- Rugged Construction - Carbon Fiber/Lexan/Aluminum

- Multi-Tube Launchers with 40 mm Missiles (64 Tubes Shown)
- Long-Range 360° Coverage
- Automatic/Manual Rapid-Fire Operation & Quick Reload
- Day/Night 24/7 Coverage
- Neutralize a Swarm of Group 1 and Group 2 Drones
- Ground or Mobile Based Platforms
- Integration with any Surveillance & Sensor Control System Including Radar
- Rugged All Weather Construction



1. High-Speed C-UAS Missile

Parameters	Specifications
Dimensions:	50mm X 46cm (2 X 19 inches) 46 X 50
Range:	5 Km
Maximum Velocity:	Mach 1.0
Detection Method:	
Computer Vision:	High-speed microprocessor w/electro-optical day/night or infrared sensor
Inertial Guidance	MEMS-based accelerometer, gyroscope and magnetometer
Communications:	Bluetooth and wi-fi
Propulsion:	Internal rocket engine with thrust vectoring
UAV Mitigation:	Kinetic energy impact with metal tip.

2: Multi-Tube Ground Launcher

Parameters	Spe
Capacity:	64 or 16 missiles
Detection Methods:	
Radar:	360 degree radar
Computer Vision:	Long-range electro-optical day/night and Infrared sensor
Maximum Rate:	Firing One missile per second
Communications:	Bluetooth and wi-fi
Operation:	Manual or Automatic

S-Cannon - 18mm Gas-Powered Cannon

For airports and urban areas we are developing a lightweight, compact, 18mm cannon for our 18mm compressed gas rapid-fire S-Cannon would fire up to 100 non-lethal rifled rounds (aluminum, nylon, etc.) at high velocity disabling or destroying the drone(s).



MOBILE PLATFORM

- Tube-Fired Launcher Can Also be Mounted on a Mobile Platform Like This SOCOM Vehicle





A PROVEN MULTI-MISSION
COMPLETE C-UAS SYSTEM

Smart Anti-Vehicle Aerial Guided Engagement



DETECT

Controller
Video
Telemetry
WiFi

IDENTIFY

Drone / Protocol
Frequency
RSSI
Threat

TRACK

Pilot
Drone
In Development

DEFEAT

Single Threat
Swarms
Commercial Drones
Hobbyist Drones

REPORT

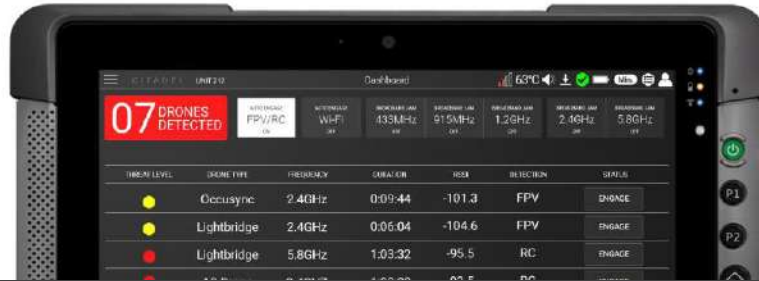
Drone Activity
Operator Activity

Features

- AI Approach is responsive to new threats and robust to encryption
- Adaptive Countermeasures minimize collateral impact and preserve comms
- Autonomy is a force multiplier with interoperability for unmanned platforms
- Multi-mission Use for fixed, mobile, and dismounted applications
- Intuitive User Experience allows user to focus on mission without distraction

THE RF SOLUTION THAT FUTURE PROOFS C-UAS AND INTEGRATES WITH OTHER SENSORS

- ✓ Artificial Intelligence
- ✓ Easy to use for operators
- ✓ Seamless interoperability
- ✓ Operational validation
- ✓ Mission proven performance
- ✓ Autonomous force multiplier





sales@sensortec-eu.com



www.sensortec-eu.com



Sydney House, 62 Lancaster Way, Ely,
Cambridgeshire, CB6 3NW, UK.