

DETECT & DEFEND DRONES



We defend your airspace

DWARF



WE DEFEND YOUR AIRSPACE



IDENTIFY & CLASSIFY

Software-centric solution recognizes and classifies malicious drones



LOCATE DRONES & PILOTS

Localization technology pinpoints drones and their pilots



NEUTRALIZE THREATS

Deploys countermeasures to protect your organization or neutralize the drone

The rapid proliferation of micro/mini UAVs is a growing potential threat to national and commercial security.

Easy to make, cheap to buy, simple to fly, and hard to detect, commercially available drones are one of the most quickly evolving technological threats to military and civilian interests.

Presently Commercial drones has raised a privacy concerns among the people since most of the drones flies equipped with high quality cameras which can invade people privacy, taking photo of people and personal property.

Also drones can be used to smuggle drugs, crash into buildings, act as peeping Toms, drop bombs, shoot guns, and gather personal data on anyone whom drone pilot want to harm.

Hence a Jammer to block drones remote control signal to protect our privacy and personal space is required.

Our Anti-Drone Solutions

Take Control Of Your Airspace Security Once And For All

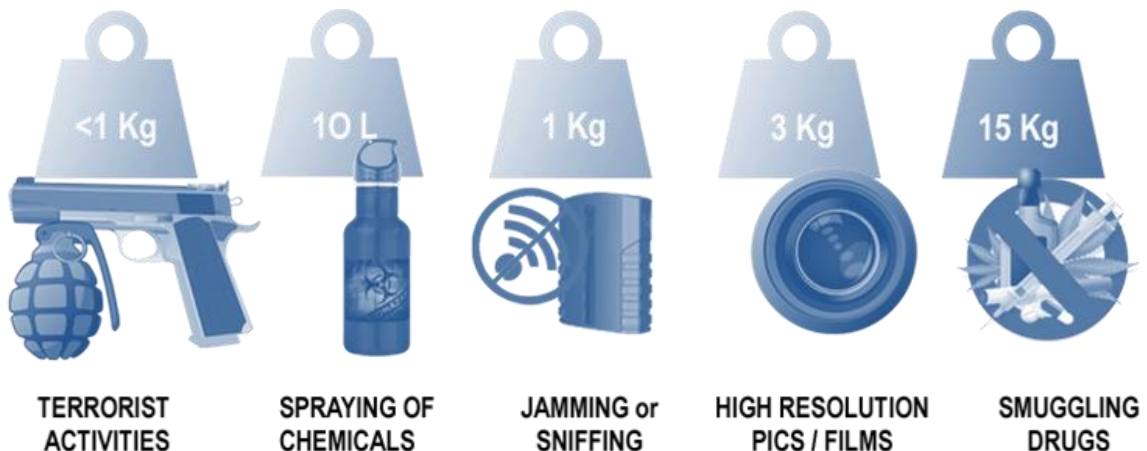
Defend your airspace

Many DEFEND DRONES manufacturer ensure us that they have the correct system that can defend a drone.

But the questions is how you will be able to defend a drone equipped with camera, GPS system and maybe other devices if you are not able to detect this first?

Which security guard or fence or alarm or any other technology can defend a small, micro or nano technology drone that will easily violate your area or your property from any open path with main scope to damage your reputation, your business, your LIFE?

A \$500 DRONE DISRUPT A \$400,000,000,000 SECURITY MARKET



Defend your airspace

We, International Armour Co, a NATO registered Company (NCAGE G2181) / UN registered Supplier (UNGM 400640) of Defence & Security products and a Security Services Provider, are proud to present you our Anti-Drones Technologies for the surveillance and protection of airports, borders, security sensitive infrastructure, Principals' privacy, high value premises / assets etc.:

After careful examination of:

- our Principals' needs and as regards the anti-drone protection (for anti-espionage, anti-cyber/hacking, anti-provocative and anti-terrorism reasons),
- the various existing systems in the market, integrating various technologies and
- the related prices of the same,

we decided to propose specific subsystem(s) integrations, either in a minimal, cost effective and tailored to their needs (no need for drone or controller localization, but need no drone to approach our clients' valuable premises and/or assets) system, or in a more intellectual and complete approach drone(s) detection / neutralization and drone controller localization for detention purposes and as follows:

COMPLETE SOLUTION - MILITARY and/or GOVERNMENTAL USE ORIENTED

- We do not want the enemy or the drone operator to detect our anti-drone squad team
- We want to know the exact position of the drone(s) and/or drone(s) operator and neutralize them/chase him/her respectively
- We want to defend a wide area (6 Km from A to B):

1. One (1) portable device DZDF-3A4D for general directional passive drone detection and early warning in order other active devices (i.e. DZRD E3000-2265C / 360 radar) to be automatically turned on and locate the exact drone(s)' position and in case we do not want to actively / continuously transmit with the radar (i.e. economy / devices overloading avoidance purposes, undercover operations etc.)

OR

1.1. Three (3) portable devices DZDF-3A4D for precise positional passive drone detection in case we want to operate completely undercover:

Combined with

2. One (1) portable device DZRD E3000-2265C (in combination with device DZDF-3A4D / device "1") for precise positional active drone detection and that will be automatically turned on and locate the drone(s) (in case we do not want to actively / continuously transmit with the radar).

AND

3. One (1) portable device DZDG1.0-DN3000 of high power directional RF jammer that will be automatically turned-on / aligned with the target upon drone detection within our security perimeter (in case we do not want to affect other directions and/or friendly forces to other directions).

AND

4. One (1) portable device DZDG1.0-ODNF1 of high power omnidirectional RF jammer that will be automatically turned-on upon drone detection within our security perimeter, in case of a multi threat scenario and with no danger of friendly forces nearby.

Defend your airspace

Optional

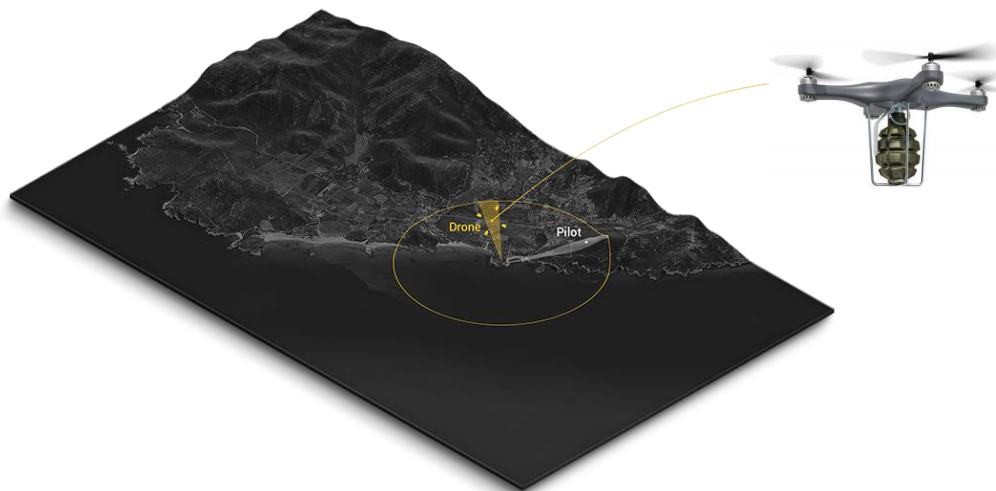
5. One (1) portable DZDG1.0-OF2 EO Tracking system if we want to have a visual aspect of the drones and the environment:

AND

6. Life time DZDG1.0-MC1 software / interface for radar, RF detector and Jammer integration.

OR

6.1. Life time Software DZDG1.0-MC2 software / interface for radar, RF detector, EO and Jammer integration (Optional) All the above will be covered with installation / demonstration / usage training services by our side at our Principals' spot(s) that will be defined in due course.



MINIMAL SOLUTION - PRIVATE USE ORIENTED

- We do not need to know the exact position of the drone(s) and/or drone(s) operator
- We want to defend a narrow area (i.e. up to 300-400 m from A to B)
- We do not want any drone to approach our valuable premises / assets :

1. One (1) portable device DZDF-3A4D for general directional passive drone detection and early warning.

Combined with

2. One (1) portable device DZDG1.0-ODNF1 of multi-power omnidirectional RF jammer that will be automatically turned-on upon drone detection within our security perimeter.

We want to defend a narrow area (i.e. up to 300-400 m from our valuable premises / assets) at an urban and close space environment.

AND

3. Life time DZDG1.0-MC1 software / interface for RF detector and Jammer integration. (The future software updates including current drones RF data base will be free of charge).

All the above will be covered with installation / demonstration / usage training services by our side at our clients' spot(s) that will be defined in due course.

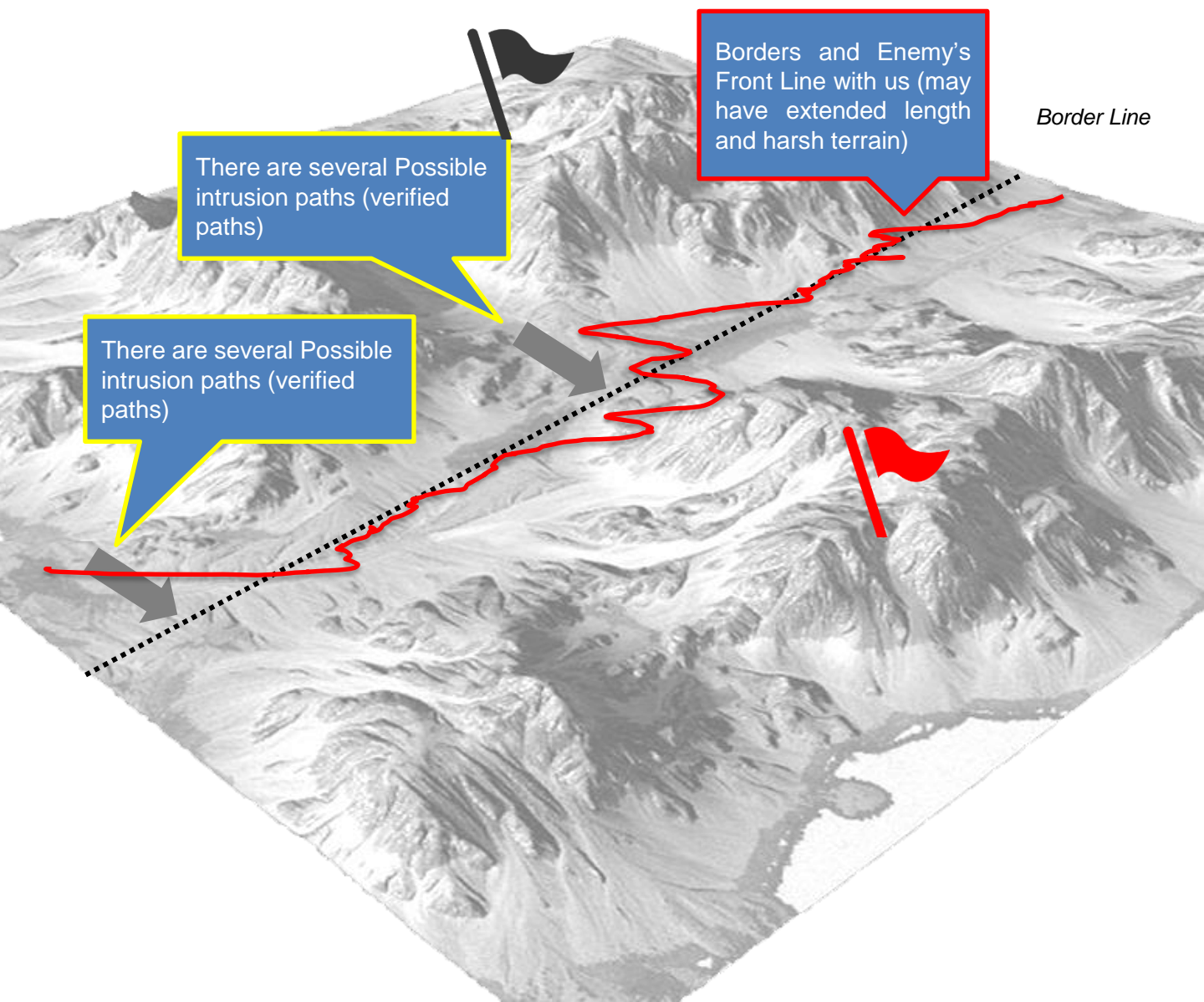
The above solution may be applicable for our clients' management company premises up to more than 2000 sq. meters, their warehouses, villas and / or ships and super-yachts.

Borders / Enemies' Front Line Problem

Neighbors and / or Enemies, in the field of operations are separated from us with a Border or Front Line.

Smugglers, Terrorists, Criminals or Enemies in general intrude into our own territory by passing through specific passages and "safe" intrusion paths.

The borders or enemy's frontline have various extent and geomorphology, that sometimes are so long and complex that anti-smuggling, anti-terrorists, anti-criminals, or military operations from our own Armed and Law Enforcement Forces are very difficult and complicated.



Enemies' Proven Capabilities

The enemies have the advantage of surprise;
 They chose the time to pass into our territory and the right for them path of intrusion.
 They use suitable 4-wheel drive heavy trucks or other to intrude into our territory
 They utilize different means of destruction in order to fool our Armed and Law Enforcement Forces

Enemies' Possible Capabilities

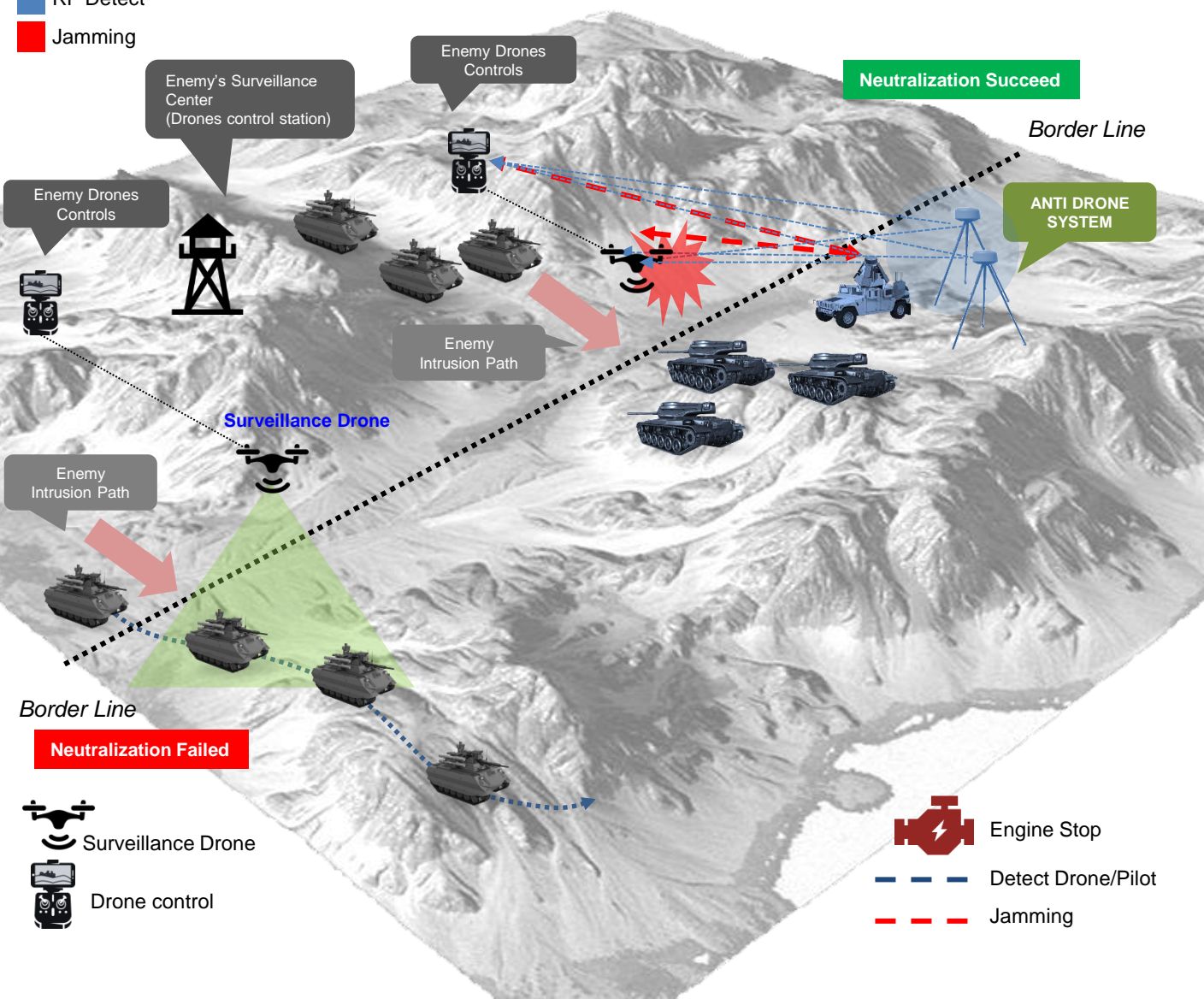
Probably, they utilize cheap commercial drones that fly for a short period of time throughout the borders line, in order to find out the right safe intrusion paths that are not protected by own Armed and Law Enforcement Forces.

They have possibly established surveillance and monitoring spots throughout the borders line, in order to find out the right safe intrusion paths that are not protected by own Armed and Law Enforcement Forces.





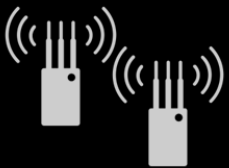

























They maintain the advantage of surprise...

ENEMY HAS THE SURPRISE ADVANTAGE

- Piloting
- RF Detect
- Jamming



Border Control and Enemies' Front Line Operations Needs

									
UAV-A/C	Guidance Method	DETECTION RANGE ACTIVE RADAR	GIANT SYSTEM Detection Range Passive (RF/ WiFi/ RC)	COMMON SYSTEM Detection Range Passive (RF, WiFi, RC)	BIG / VEHICLE Jamming / Neutralization Capability (3G, 4G included)	BIG / VEHICLE Jamming / Neutralization Range	PORTABLE Jamming / Neutralization Capability (3G, 4G is optional)	PORTABLE Jamming / Neutralization Range (3G, 4G is optional)	
Nano UAV	GCS / RF, WiFi, RC, GPS	6 Km	6 Km	3 Km	YES	6 Km	YES	3 Km	
Micro UAV	GCS / RF, WiFi, RC, GPS	9 Km	6 Km	3 Km	YES	6 Km	YES	3 Km	
Mini UAV	GCS / RF, WiFi, RC, GPS	28 Km	6 Km	3 Km	YES	6 Km	YES	3 Km	
UAV Regular	GCS / RF, WiFi, RC, GPS, 3G, 4G	40 Km	6 Km	3 Km	YES	6 Km	YES	3 Km	
UAV Regular	SATELLITE (5G, LEO)	40 Km	N/A	N/A	NO	NO	NO	NO	
UAV Regular	Dead Reckoning	40 Km	N/A	N/A					
Fighter Very Low RCS	LOS, Radar, GPS, Dead Reckoning	16 Km	N/A	N/A					
Fighter Low RCS	LOS, Radar, GPS, Dead Reckoning	33 Km	N/A	N/A					
Fighter Regular	LOS, Radar, GPS, Dead Reckoning	45 Km	N/A	N/A					
Light Transport A/C	LOS, Radar, GPS, Dead Reckoning	58 Km	N/A	N/A					
Heavy Transport A/C	LOS, Radar, GPS, Dead Reckoning	85 Km	N/A	N/A					
 Hard Kill Weapons System is needed		N/A = NO APPLICABLE							

Border and Enemies' Front Line Surveillance and Monitoring (in terms of enemies' monitoring spots reconnaissance)

Border and Enemies' Front Line Surveillance and Monitoring (in terms of Enemies' movements detection and early warning)

Possible destruction of enemies' monitoring spots and/or the enemies themselves, depending on the operational situation

Enemies' drones detection and neutralization

Enemies' communications neutralization

Enemies' / criminals' trucks immobilization by own Armed and Law Enforcement Forces.

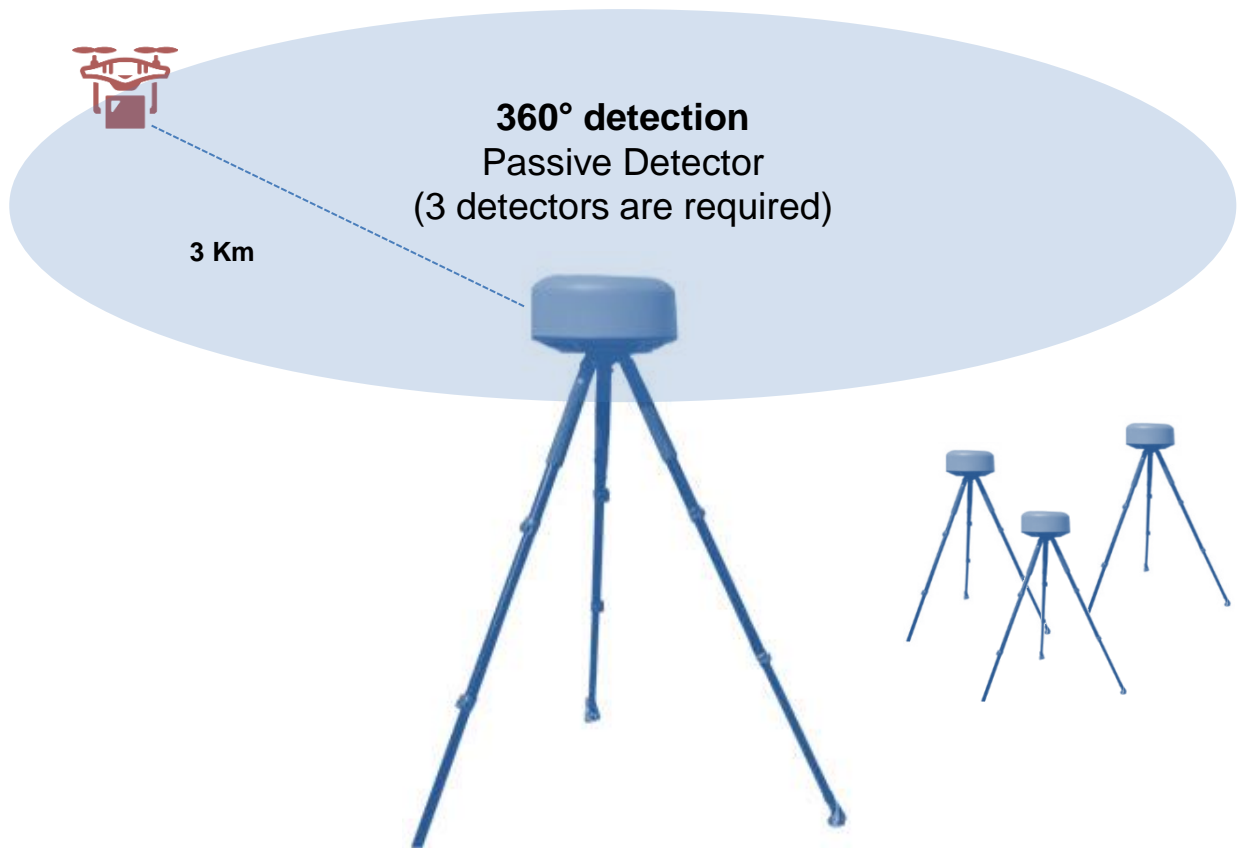
Enemies' / criminals' trucks inner cargo inspection for illegal drugs, weapons, explosives, human trafficking, etc.

...

DWARF Drone Detection & Neutralization System

Defend your airspace

UAV RF Passive Detection Subsystem



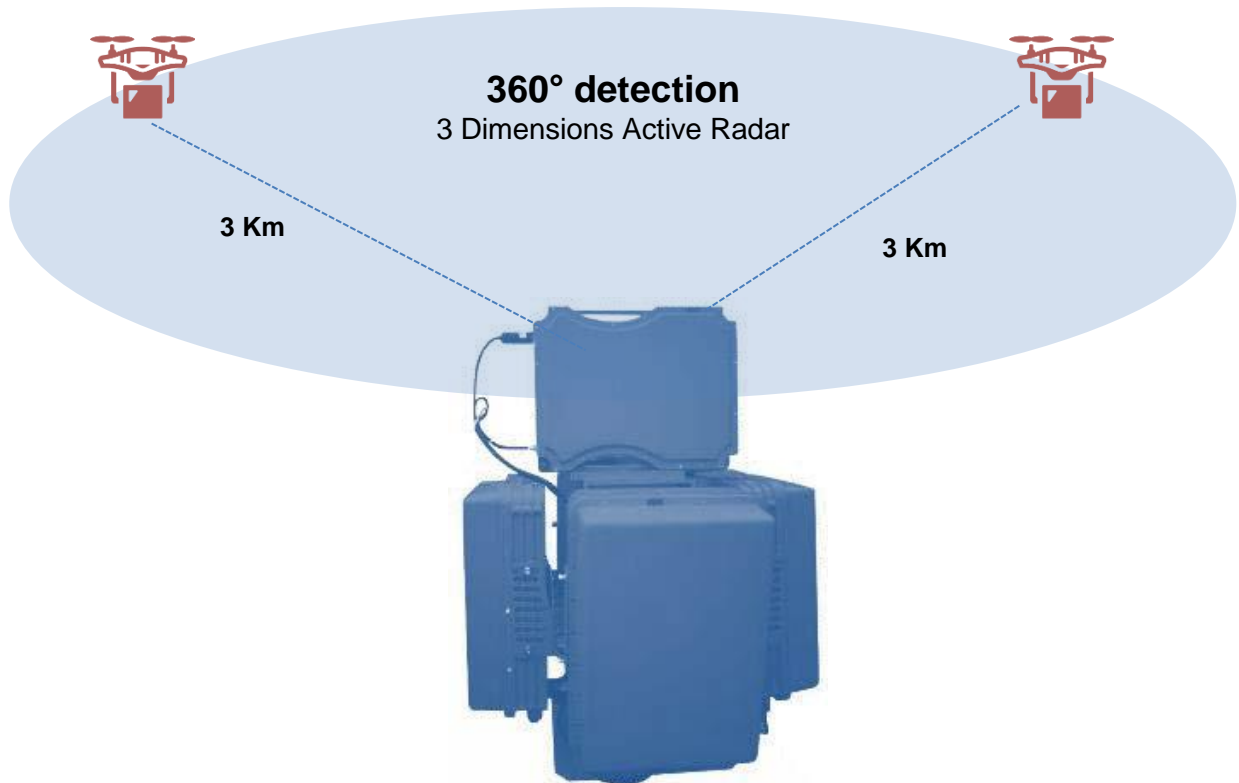
- Monitoring frequency range: 840-940MHz
2400-2500MHz
5725-5850MHz
- Signal style: UAV measurement and control signals, IEEE 802.11a, b, n, g, digital transmission, remote control signals;
- Detection distance: $\geq 3\text{km}$;
- Detecting airspace: azimuth 360° full airspace;
- Measure accuracy: better than $\pm 3^\circ$ (RMS);
- Single station ranging accuracy: better than 20%R;
- Multi-station positioning accuracy: better than 5%R (baseline distance is greater than 1km);
- Detecting the number of drones simultaneously: greater than 40
- First interception time: $\leq 3\text{s}$
- Power Supply: 28V/DC or 220V/AC
- Power Consumption: $\leq 100\text{W}$
- Waterproof
- Interface requirement: Ethernet & Power interface
- Working temperature: $-20^\circ\text{C} \sim +70^\circ\text{C}$
- Working Environment: Rain-proof; Dust Prevention; Sand-prevention; Moisture-proof, Mould-proof and Salt-proof
- Weight: $\leq 8.8\text{kg}$
- Dimension: 450x450x250mm

Defend your airspace

Terrorist activities, espionage, invasion of privacy and smuggling

There is hardly any other technology currently developing as fast as drone technology.

However, the increase in drone efficiency also means more opportunities to misuse them for criminal purposes. When your airspace is exposed, no longer are fences, video cameras, and security guards adequate to protect sensitive buildings or personal.

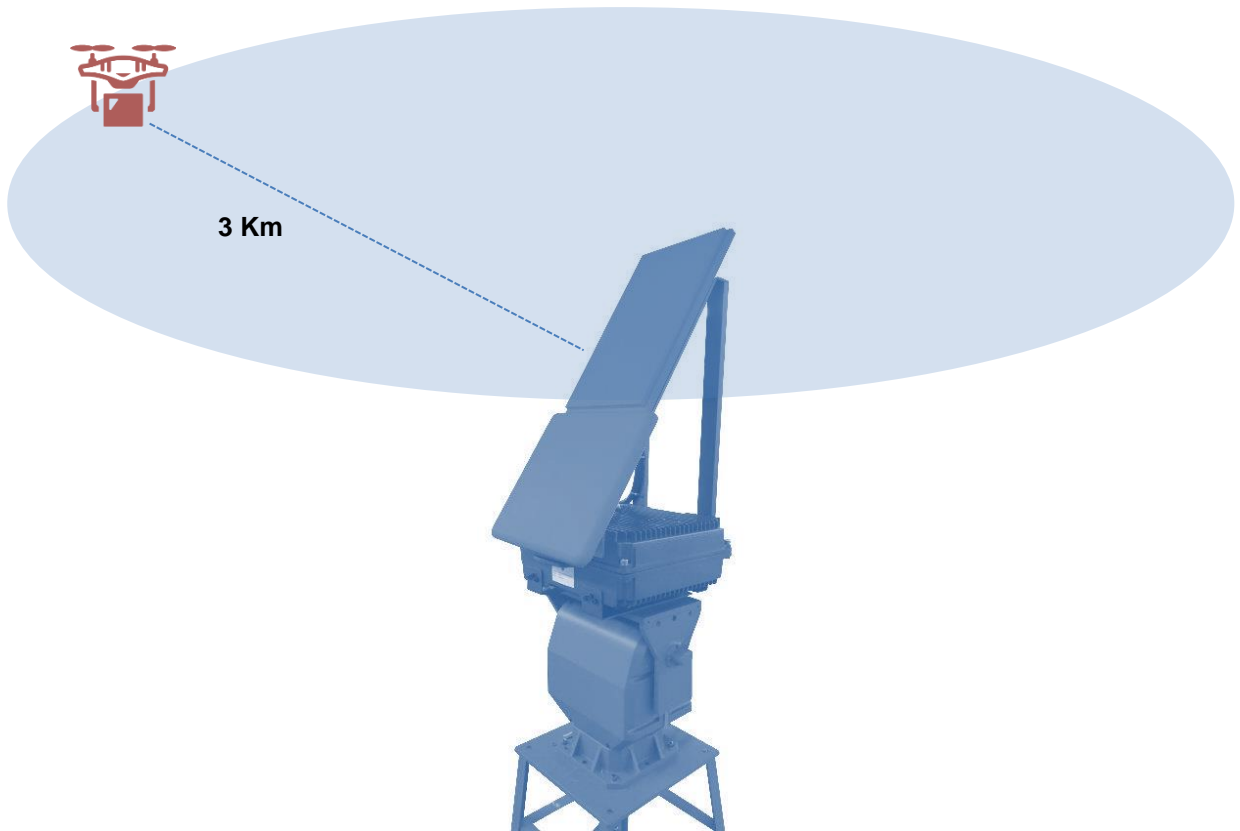


Detection Radar System

3D Active Phased Array Radar
 Pulse Doppler
 Frequency: C Band (5.5-5.8GHz);
 Detecting Range: 2.5-3km (UAVs);
 Elevation Coverage: $\pm 20^\circ$
 Azimuth coverage: 360°
 Distance Accuracy: $\leq 5m$
 Azimuth Accuracy: $\leq 1^\circ$
 Target Detection Speed: 0.2m/s - 30m/s
 Speed Accuracy: $\leq 0.2m/s$
 Weight: $\leq 80Kg$
 Power Consumption: $\leq 140W$
 Dimension: 880mm X 880mm X 1500mm

Defend your airspace

Directional RF Jamming System



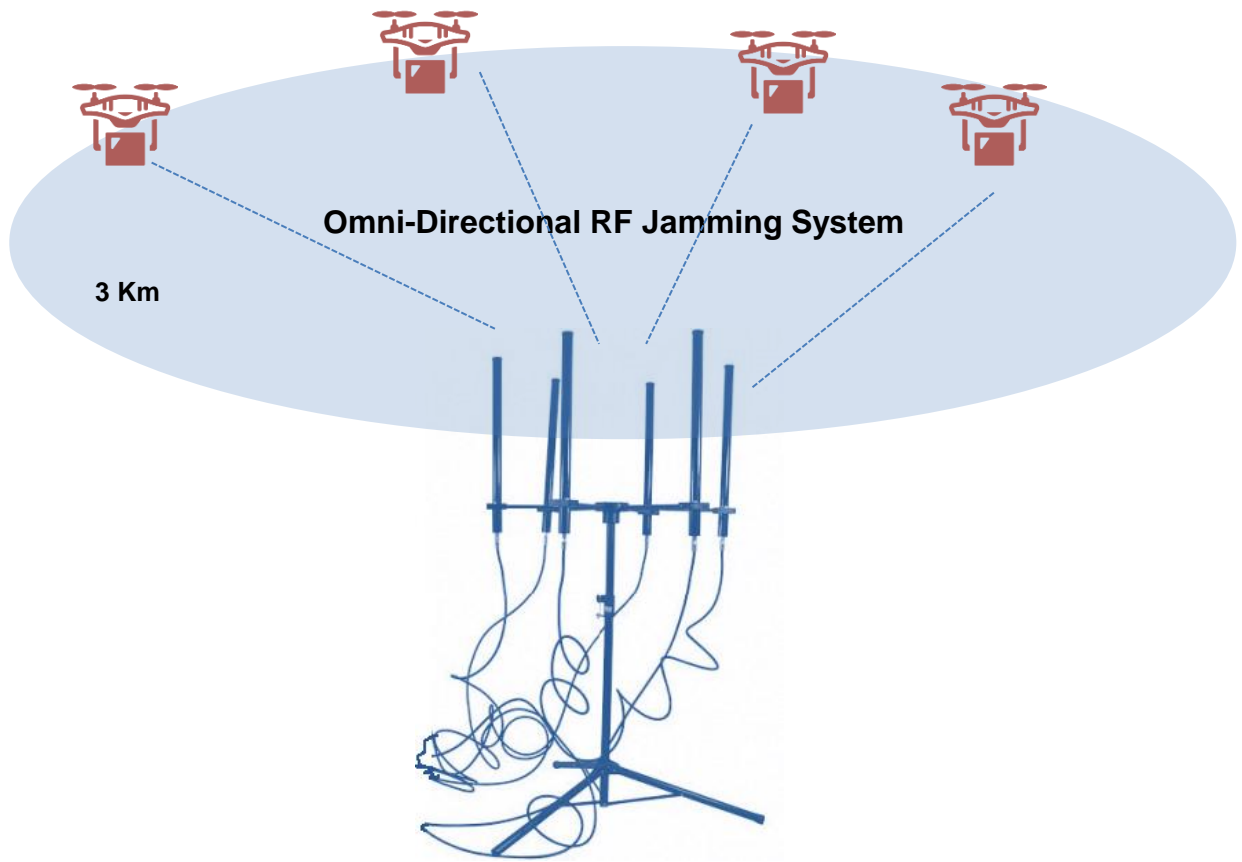
Frequency: 860 - 930 MHz
 2400 - 2500 MHz
 5725 - 5850MHz
 1550 - 1620 MHz (GNSS);

Jamming Range (Customized for Clients)

Standard Jamming Range: Remote Control Signal 1-3km
 GNSS Signal 3-5km

- Power Consumption: 360w
- Polarization: Vertical Min 30° - Max 60° (For different type of Jammer)
- Antenna Gain: Min 10dB
- Output Power: Min 20 Watts/channel; GNSS: Min 10 Watts
- Reaction Time: 1s-3s (Depends on the distance of UAVs)
- Operation Temperature: -20°C - 60 °C
- Waterproof
- Interface requirement: Ethernet & Power interface
- Working temperature: -20 °C ~ +60 °C
- Working Environment: Rain-proof; Dust Prevention; Sand-prevention; Moisture-proof, Mould-proof and Salt-proof

Defend your airspace



Frequency: 2400 - 2500 MHz; (Standard)
 5725 - 5850MHz; (Standard)
 1550 - 1620 MHz (GNSS / Standard)
 860 - 930 MHz; (Standard)

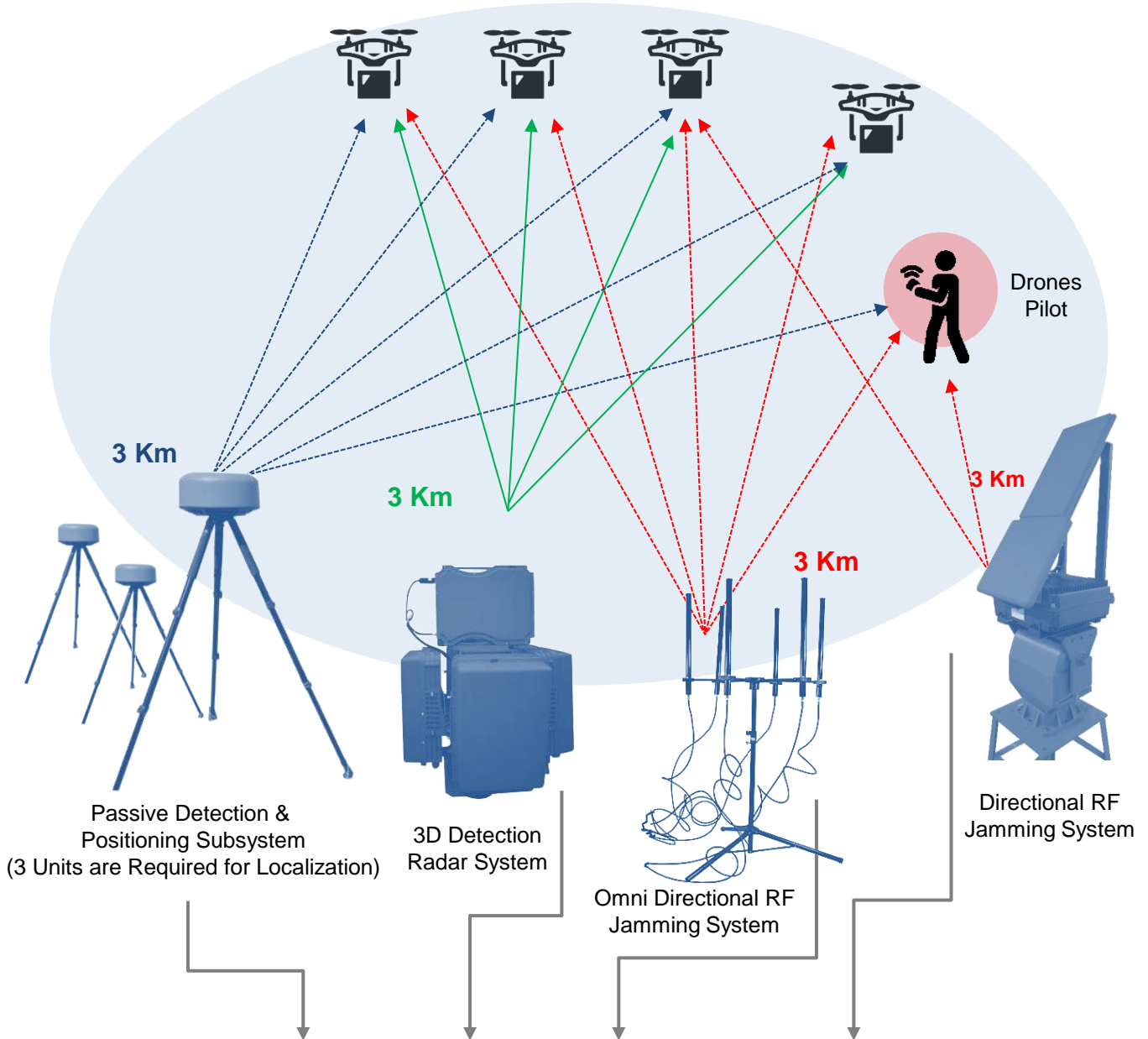
Optional Frequency: 5150-5350MHz; 315MHz; 433MHz

Jamming Range (Customized for Clients) Standard Jamming Range
 Remote Control Signal 1-3km
 GNSS Signal: 3-5km;

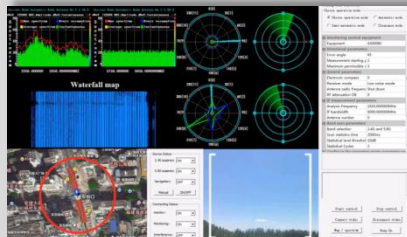
- Polarization: Vertical
- Antenna Gain: 3dB
- Output Power: Min 20 Watts/channel; GNSS: Min 10 Watts
- Reaction Time: 1s-3s (Depends on the distance of UAVs)
- Waterproof
- Interface requirement: Ethernet & Power interface
- Working temperature: -20 °C ~ +60 °C
- Working Environment: Rain-proof; Dust Prevention; Sand-prevention; Moisture-proof, Mould-proof and Salt-proof

DETECT & DEFEND DRONES

MULTI DRONES DETECTION/JAMMING



- Jamming
- Radar Detect
- RF Detect



Control Center
(Radar + RF+ Jammer)

The total system can
be loaded on a truck
ready and in use.

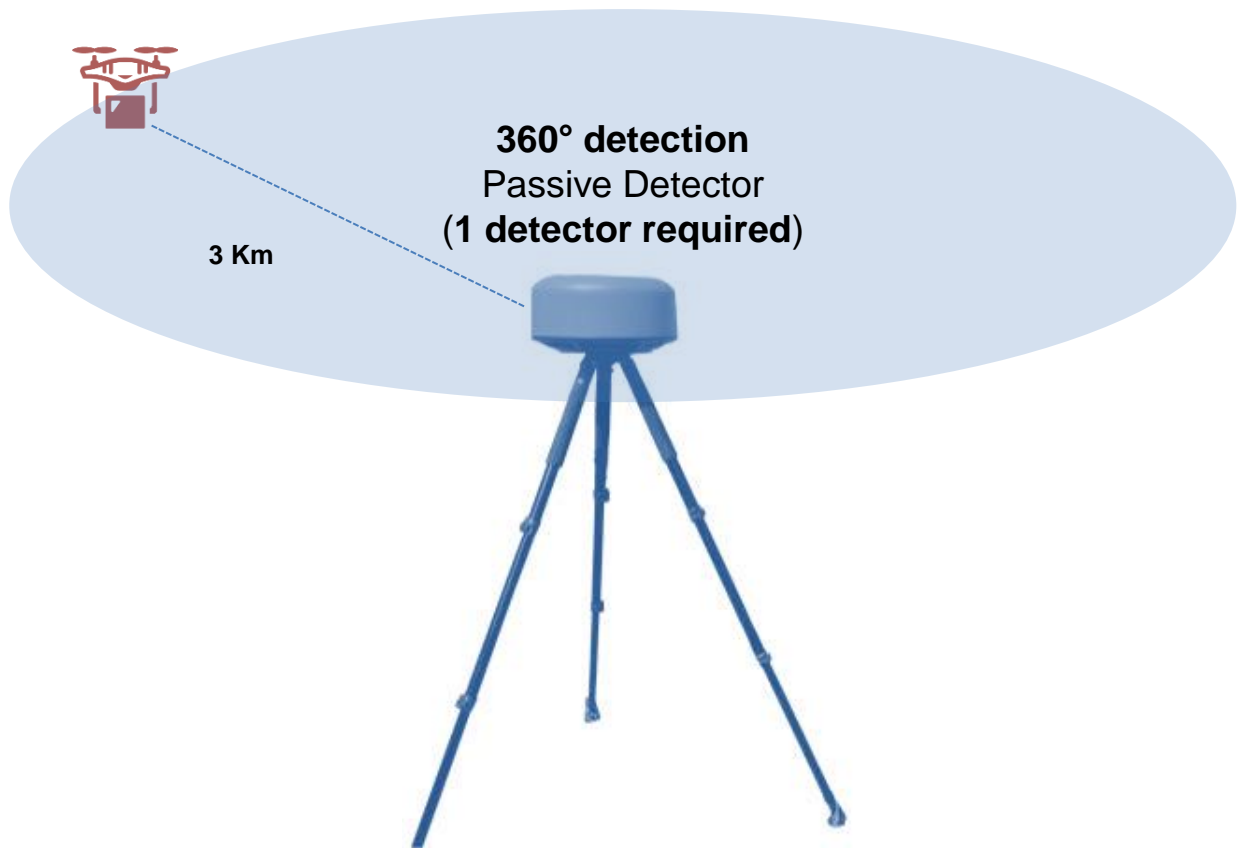




Minimal Drone Detection & Neutralization System

Defend your airspace

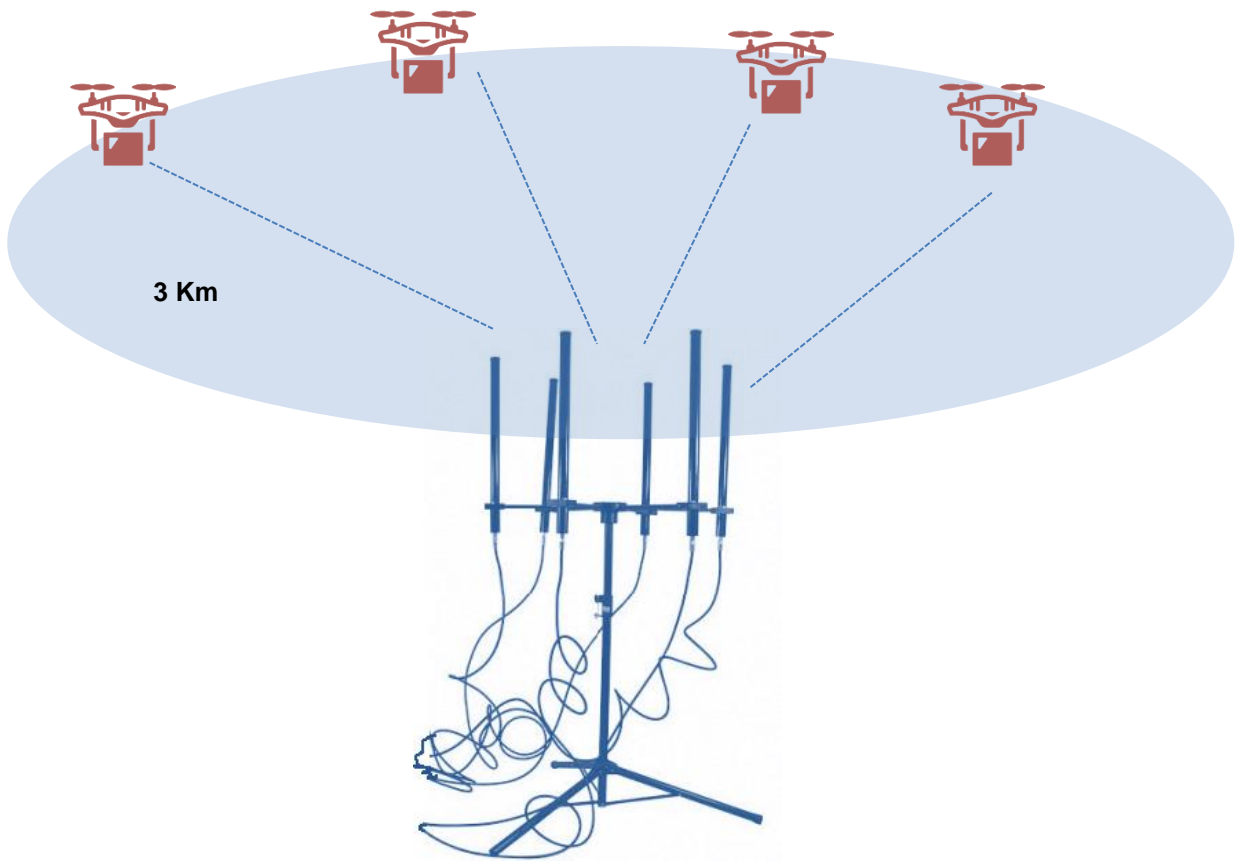
UAV RF Passive Detection Subsystem



- Monitoring frequency range: 840-940MHz
2400-2500MHz
5725-5850MHz
- Signal style: UAV measurement and control signals, IEEE 802.11a, b, n, g, digital transmission, remote control signals;
- Detection distance: $\geq 3\text{km}$;
- Detecting airspace: azimuth 360° full airspace;
- Measure accuracy: better than $\pm 3^\circ$ (RMS);
- Single station ranging accuracy: better than 20%R;
- Multi-station positioning accuracy: better than 5%R (baseline distance is greater than 1km);
- Detecting the number of drones simultaneously: greater than 40
- First interception time: $\leq 3\text{s}$
- Power Supply: 28V/DC or 220V/AC
- Power Consumption: $\leq 100\text{W}$
- Waterproof
- Interface requirement: Ethernet & Power interface
- Working temperature: $-20^\circ\text{C} \sim +70^\circ\text{C}$
- Working Environment: Rain-proof; Dust Prevention; Sand-prevention; Moisture-proof, Mould-proof and Salt-proof
- Weight: $\leq 8.8\text{kg}$
- Dimension: 450x450x250mm

Defend your airspace

Omni-Directional RF Jamming System



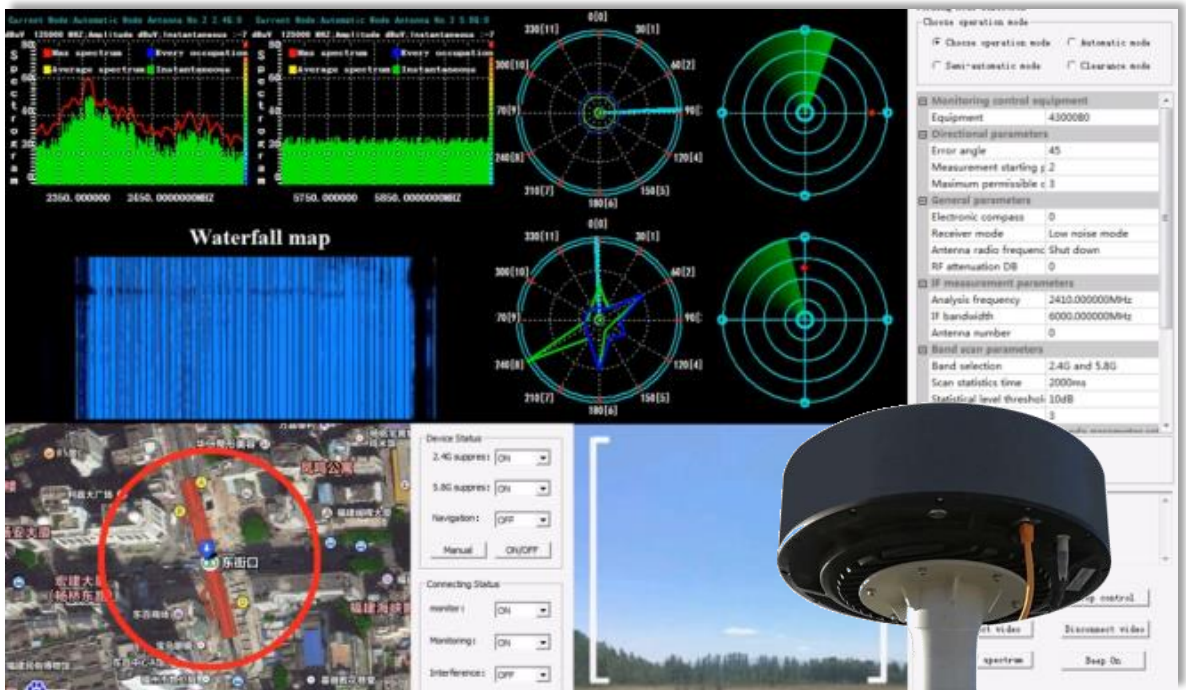
Frequency: 2400 - 2500 MHz; (Standard)
 5725 - 5850MHz; (Standard)
 1550 - 1620 MHz (GNSS / Standard)
 860 - 930 MHz; (Standard)

Optional Frequency: 5150-5350MHz; 315MHz; 433MHz

Jamming Range (Customized for Clients) Standard Jamming Range
 Remote Control Signal 1-3km
 GNSS Signal: 3-5km;

- Polarization: Vertical
- Antenna Gain: 3dB
- Output Power: Min 20 Watts/channel; GNSS: Min 10 Watts
- Reaction Time: 1s-3s (Depends on the distance of UAVs)
- Waterproof
- Interface requirement: Ethernet & Power interface
- Working temperature: -20 °C ~ +60 °C
- Working Environment: Rain-proof; Dust Prevention; Sand-prevention; Moisture-proof, Mould-proof and Salt-proof

Defend your airspace



System include

Software DZDG1.0-MC1 for RF detector and Jammer integration with Lifetime software update

One (1) portable device DZDF-3A4D for general directional passive drone detection:

One (1) portable device DZDG1.0-ODNF1 of high power omnidirectional RF jammer



detect & defend DRONES Portable System



IA-SW-360 UAV detection system includes UAV Monitoring Computer, 360 degree mobile sector antennae and Detection Equipment.

It can make a real time measurement of RF emissions from drones, direction finding, Spectrum identification, multiple targets tracking, trace record replay, location of drones operators as well as drones fallen to the ground.

It can be widely applied in big events venues, commercial Venues ,military bases, civil, airports, government compounds, military and critical infrastructure, troops, prisons and executive protection, border control, nuclear plants as well as personal residence and so on.



ALARMING NEWS

INCIDENTS

Aramco contains fire at oil sites after militia attack



September 2019: Saudi Aramco contained fires at two of its facilities in the world's largest oil-exporting region after attacks that Yemen's Houthi rebels claimed responsibility for.

The facilities in Abqaiq and Khurais were attacked at 4 a.m. local time, state-run Saudi Press Agency reported, citing an unidentified interior ministry spokesman. It didn't give further details. Most of the oil produced in Saudi Arabia is processed at Abqaiq before export or delivery to refineries.

The militia launched "a large-scale operation involving 10 drones that targeted refineries in Abqaiq and Khurais in eastern Saudi Arabia," Al Masirah said.

[READ THE ARTICLE](#)

Emirates calls for tougher action on drones after airport closures



October 2016: Dubai International Airport was closed for 80 minutes because of unauthorized drone activity’.

DUBAI: Drone detectors and heavy fines for people who fly the devices into flight paths are being called for by Emirates airline.

Thousands of passengers have faced delays and millions of dirhams were lost this year after drones caused the closure of Dubai International Airport on several occasions.

Emirates has called for authorities to take stronger action to discourage future incidents in and around Dubai airspace.

Network disruptions cost millions each time as airlines are forced to divert flights or hold aircraft until security checks have been completed.

Drones have forced the airspace around Dubai International to close on three separate occasions since June, with one half-hour closure in September causing delays to 85 departing Emirates flights.

[READ THE ARTICLE](#)

Shropshire drone accident fear is raised by RAF office



It is only a matter of time before a drone causes a major accident involving an aircraft over Shropshire, an RAF safety officer has warned.

It comes after six reports of drones causing a potential risk to aircraft associated with RAF Shawbury this year, including in places such as Telford and Nesscliffe. The legal maximum flying height for drones is 400 feet, but they have been spotted in Shropshire flying at 2,000 and 1,500 feet. Squadron Leader Gary James, Station Flight Safety Officer (SFSO) at RAF Shawbury, said he is not against the ideas of drones, but stressed the need to use them safely.

They are getting cheaper and cheaper and more people are having them so the risk has increased. You can get them from eBay, Amazon and Jessops really easy. It is only a matter of time before something happens. Last year it was more hearsay, but this year we have had actual sightings from our helicopters. There has been one flying at 2,000 feet over Telford, which is illegal and stupid. One of the problems is that the law is difficult to enforce as its hard catching people in the act. But police have been given guidance.

[READ THE ARTICLE](#)

Dramatic increase in drone sightings from pilots, says ILF



September 2016: Pilots reported 39 drone sightings from their planes in the first five months of 2016, a dramatic increase on last year, according to new figures. The ILF Environment and Transport Inspectorate said 31 of these drones – flown for fun by members of the public – were spotted at airports and 24 at Schiphol. Of the 39 reports, 35 were drones and four were model aircraft.

In the whole of 2015, just 15 drones were reported and there are concerns about safety and collisions with planes, which fly so fast that the impact of any small crash would be greater.

The increasing numbers spotted are, reports NOS, probably due to technically more advanced drones. Anybody can buy and fly these, but it is not permitted to fly an unmanned craft on or near an airport.

[READ THE ARTICLE](#)

Queenstown drone forces plane to divert



August 2016: An incident where a plane in Queenstown had to change course to avoid hitting a drone was extremely dangerous, the Civil Aviation Authority says.

An Air New Zealand flight coming into Queenstown Airport yesterday afternoon, with 150 passengers on board, had to divert after the unmanned aerial vehicle (UAV) was spotted by the control tower.

Drones are not allowed to be flown within 4km of airports. It was the second incident of its kind in New Zealand, after a near miss between a drone and a plane leaving Christchurch a year ago.

Civil Aviation Authority spokeswoman Philippa Lagan said the incident was risky.

"We take it really seriously, and we do hope that the police can find the person responsible and lay the maximum charge possible, because these UAVs pose significant safety threats to planes that are either taking off or landing."

The authority was leaving it to the police to find the pilot of the drone, Ms Lagan said.

[READ THE ARTICLE](#)

And many – many other



Can the rapid expansion of drones technology
turn a funny game to a real threat?

- Derry Ryanair flight in near miss with drone
- UK police probe drone near-miss with commercial flight
- FAA investigating drone spotted near Logan Airport
- Drone closes busy Dubai International Airport for an hour
- Plane has close call with drone while landing in Winnipeg
- Drone Flying Over Airport Delays 55 Flights In Southwest China
- Drone flew 30 metres from airliner at Manchester airport
- Drones in near-misses with planes almost once a week
- Drone Comes Within 200 Feet of Airliner Near LA Airport
- Number of Near Misses Involving Drones Quadruples in 1 Year

WE KEEP YOUR AIRSPACE SAFE

Joining Forces against illegal Drones

Airbus DS Electronics and Border Security is collaborating in order to defend against small drones

Munich / San Francisco / CA - 27 July 2016 - Airbus DS Electronics and Border Security (EBS) and De-Drone, San Francisco, have concluded a cooperation agreement to combine their skills to protect lower airspace from small drones. The partners intend to jointly offer drones defense systems that can reliably detect and defend against the unauthorized entry of drones in critical airspaces.



