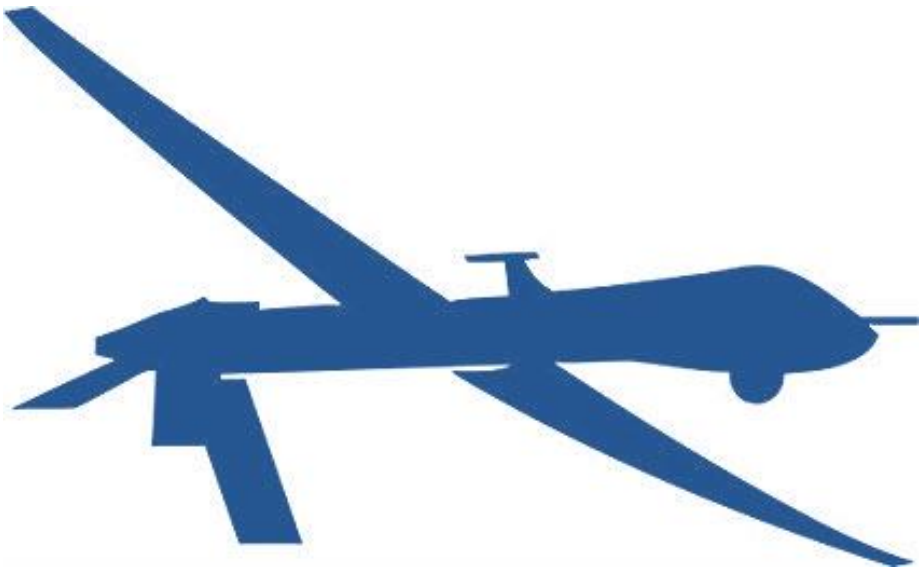
DETECT & DEFEND DRONES



We defend your airspace

DEFENDER designed for the governments, HLS agencies, Police and Special Units in the public safety arena.

Established by leading Israeli technology experts, DEFENDER has rapidly become one of the world's leading authorities for the design and development of anti-drone systems, and is currently operational worldwide, protecting airports, critical infrastructures, prisons and national borders against drone threats.

Drone Detection
Up to 20Km
Up to 3.5Km/Drones

Drone Neutralization
Up to 3Km

EO/IR Drone
Acquisition
Up to 4Km

Drone
Destruction
From 200m up to 800m

TAILOR MADE CONCEPT

DEFENDER anti drone system unique and flexible approach enables us to offer comprehensive anti drone protection.

Our multi-layered platform is comprised of modular, passive and/or active systems for the detection, verification and neutralization of unauthorized drones.

All our systems are customized to meet your specific threats and budgetary requirements.

WHY DEFENDER?

- Multi-layer protection
- Modular systems
- A complete anti-drone solution
- 360° coverage
- On the move capabilities
- Unified chain of logistics
- Field proven and fully operational

EVOLVING DRONES THREAT

As drones become faster, smaller, cheaper and deadlier, with the ability to add a payload, the need for countermeasures to ensure public safety is imperative.

Drones pose a wide array of threats to public safety and national security.

The team of our Company understands that drone technology is continually evolving, creating newer and more substantial challenges such as drone swarms using preprogrammed drones. With a growing demand for countermeasures, DEFENDER has developed a flexible, multi-layered, anti-drone solution that provides a customized solution to meet the tactical requirements of each facility, from airports and critical infrastructures to government headquarters.

360° DRONE DETECTION RADAR

DEFENDER's advanced rotating drone detection radar system provides the outer layer of protection for military bases, critical infrastructures and Presidential Guard.
With an effective 360° coverage, the radar system detects all drones flying in proximity to the defined no-flight zone.
Our safety distances allow the system to be deployed near populated areas without posing a risk to those nearby.
The lightweight, portable radar system defines the range, azimuth, elevation and velocity measurements for up to 200 targets simultaneously, including miniature UAVs characterized by a small signature with a low speed and altitude.

KEY CAPABILITIES

■ 3D Tracking – Range, azimuth, elevation and velocity measurements of up to 200 targets simultaneously
■ Advanced waveform with modern signal processing techniques
■ High-resolution
■ High probability of target detection
■ Low radiated power – Safety distance of 10m

360° RF DRONE DETECTION SYSTEM

The Passive RF Detection system is ideal for use in urban, built-up environments where the line of sight may be obstructed by obstacles. It is also highly-suitable to “on the move” mode. The system is comprised of:

■ 8/24 High gain directional antennas are continually scanning for the most widely used aerial frequencies, providing 360° coverage of up to 3km.

■ 3 bi-directional jamming antennas.

ADVANCED SDR RECIEVER

■ Sectorial direction

■ A drone’s operational frequency and transmitting output power

■ Drone Identification

■ The system will detect any drone as long as the drone is communicating with the operator

■ Coverage: Elevation 0-30; Azimuth 360°

ELECTRO-OPTICS TARGET VERIFICATION

EO/IR LONG RANGE DETECTION

DEFENDER's advanced, electro-mechanic, modular electro-optical system includes a continuous zoom and autofocus feature with a manual/auto gain control.

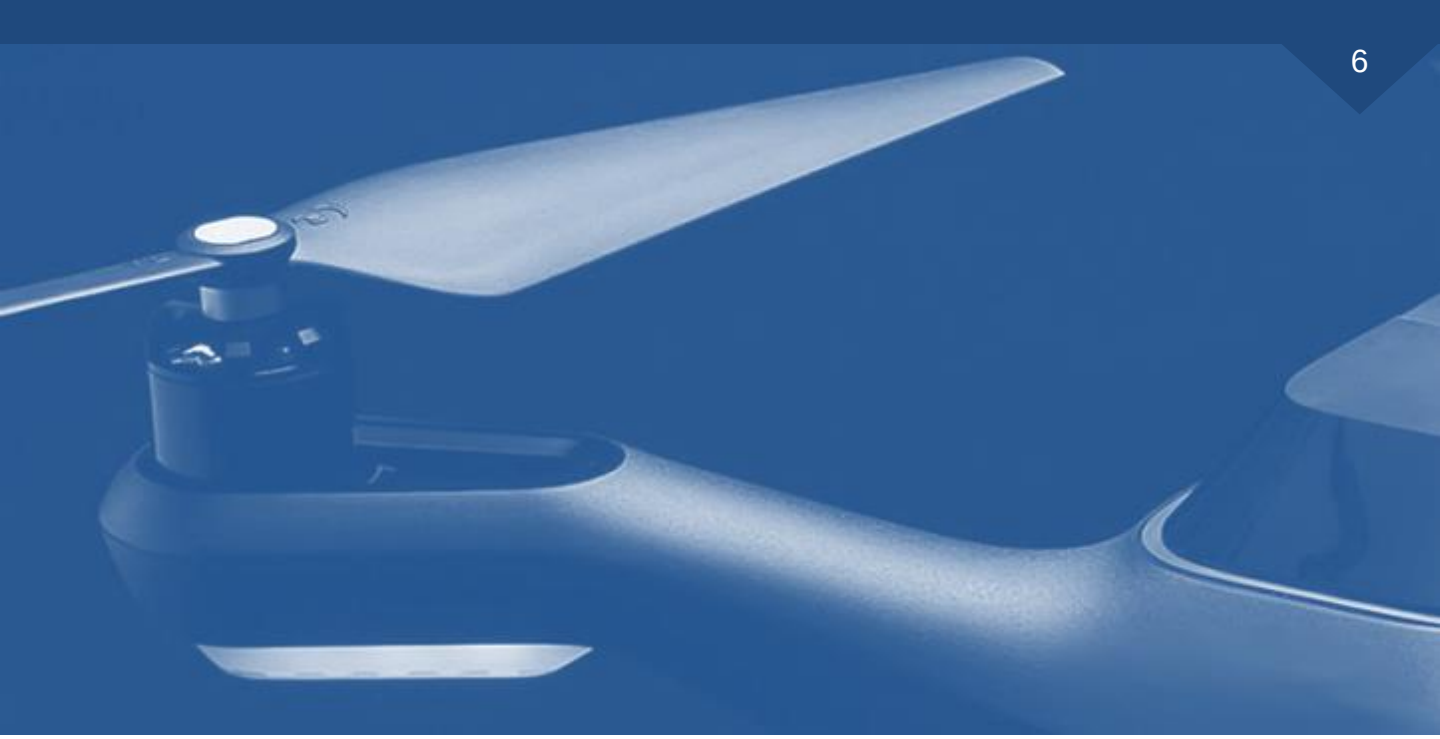
The system's EO/IR trackers, thermal imaging and daytime camera provide ONVIF compliance, with standard industry mounting options.

The user-friendly, scene awareness software facilitates easy integration.

The system can identify and track up to 200 drones simultaneously, at a range of up to 4km depending on the weather conditions and size of the target.

KEY CAPABILITIES

■ The cooled thermal camera system combines high sensitivity and ultra long-range performance
■ Observe thermal and visible light channels simultaneously
■ Effortless integration
■ Designed and certified to IP66, for hot, cold, dusty and other harsh environments
■ Up to 4km drone detection



ELECTRO-OPTICS TARGET VERIFICATION

EO/IR DETECTION

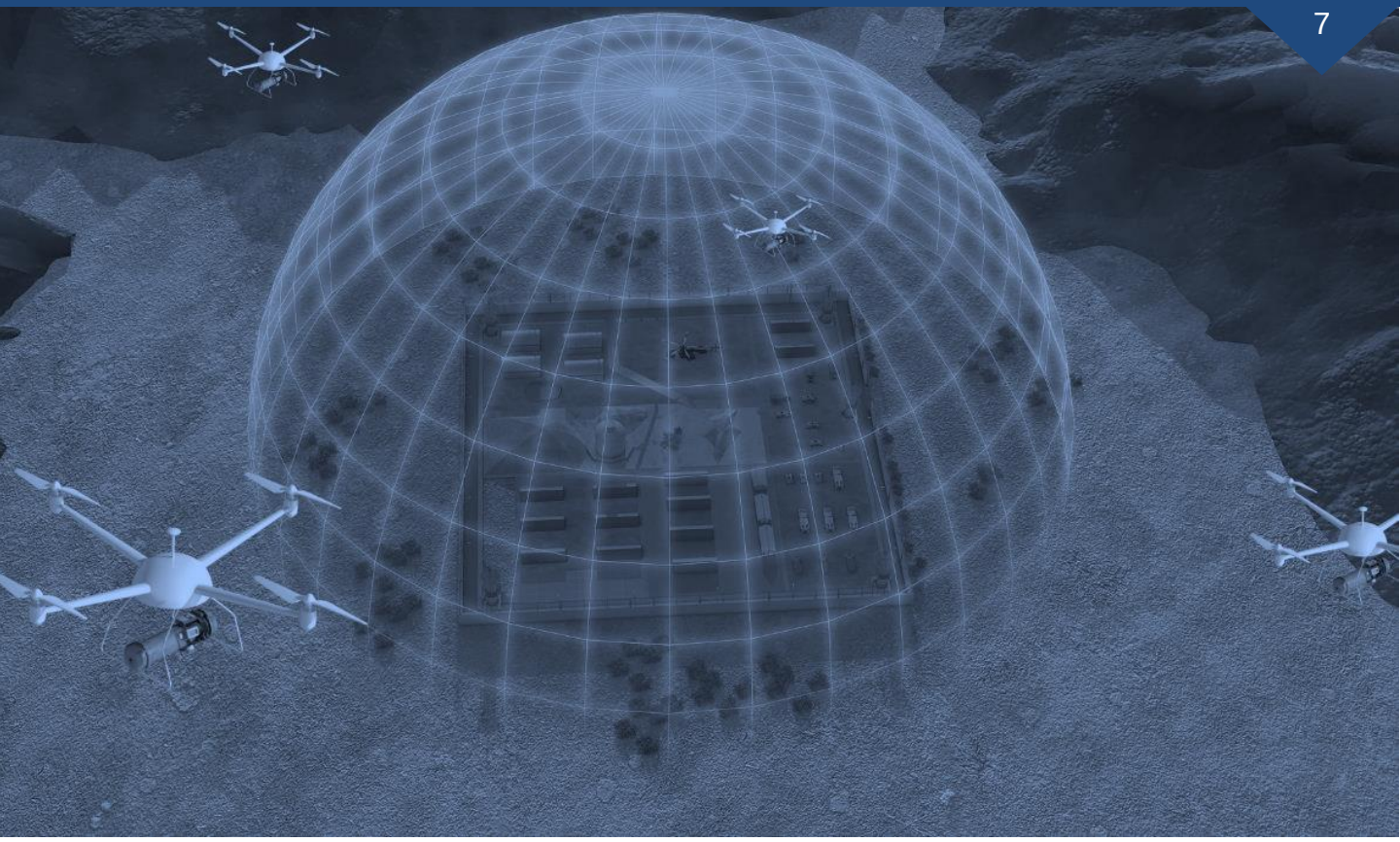
DEFENDER's electro-magnetic, modular electro-optical system includes a continuous zoom and autofocus feature with a manual/auto gain control.

The system's EO/IR trackers thermal imaging and daytime camera provide the control room with a precise location and clear images of the drone.

With high resolution imaging for identification, your security officers detect, identify and track up to 200 drones simultaneously at a range of up to 2.5km depending on weather conditions and size of target.

KEY CAPABILITIES

- Continuous zoom
- Auto focus
- Manual/auto gain control (including local AGC)
- NUC selection & calibration
- Optical tracking
- Up to 2.5km drone detection



RF JAMMING SYSTEM

EO/IR DETECTION

The RF drone signal jammer blocks the connection between the hostile drone's video, telemetry, command, control and navigation systems and the device's operator. By jamming the communication channels, the drone is effectively disabled and forced back to its home base or grounded at its current location.

KEY CAPABILITIES

■ Covert spectral jamming of the drone

■ The system blocks all communications between the drone and its operator (2.4 GHz, 5.8 GHz, GPS, GSM)

■ Jamming the drone's video & telemetry, command, control & navigation capabilities – disabling its functionalities

■ Jamming from 2.5km – 10km

■ Managing a "White list"

RF JAMMING SYSTEM

SMART NEUTRALISATION

Operating a jamming system in an urban environment is not always possible due to regulatory constraints or signal interference in densely populated areas.

The DEFENDER's smart neutralization system provides an alternative method to conventional jamming technology.

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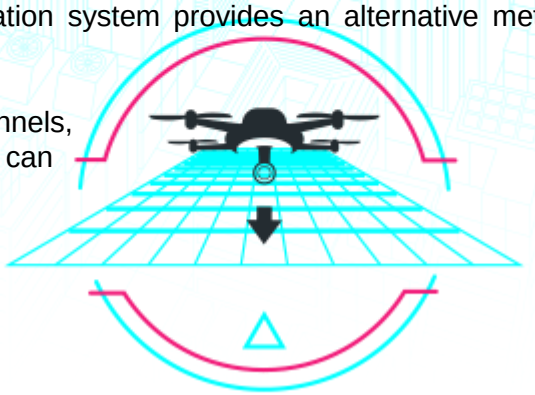

KNIGHT`S DOME

AND-HELD ANTI DRONE GUN

The KNIGHT`S DOME is a hand-held, anti-drone gun that can disable drones operating on 5 frequencies and has a range of up to 1,000 meters. This technology enables military and security forces to thwart the use of drones by enemy combatants for surveillance, direct attack by IED or other devices on friendly forces.

Compact and lightweight, it's easily deployed by ground force personnel and security response teams in mobile units, strike teams, at checkpoints, forward outposts. The KNIGHT`S DOME can also close the gap in electric fences due to Line of Sight obstructions.

OVERVIEW

- Field programmable with integrated USB port for software updates
- Disrupts C2 or GPS link controlling drones to descend or return to the origin
- RF sensor detects all drone signals; aids targeting in all light conditions
- LED settings adjustable from low to bright light conditions for targeting
- User training is less than 1 minute; acquires drone in under 3 seconds
- Compact and Lightweight; compatible with military personnel load out
- Most cost effective system available on the market

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COUNTER DRONE INTERCEPTING & OPERATOR CAPTURE

DIRECTION FINDER

DEFENDER provides security teams with the ability to locate and capture unauthorized drone operators once a drone has been detected.

This is equally-if not more important to intercepting the drone itself since it allows Law Enforcement officers to investigate and prevent future attacks.

KEY CAPABILITIES

- 24 Directional antennas
- Operator detection
- A drone's operational frequency and transmitting output power
- Accurate drone Identification
- Coverage: Elevation 0-30; Azimuth 360°

COUNTER DRONE LASER BURNER

LASER BURNER SYSTEM

Using the accurate, high powered laser burner system, the operator has the ability to destroy malicious drones.

The system activates the burner system, effectively eliminating a drone within a matter of seconds within an 800m range.

LASER BURNER	
Laser Burner Type	Single Mode CW ytterbium fiber laser
Laser Burner Power	1000W (Optional up to 1500W)
Optical Specifications	
Wavelength	~ 1064nm
Wavelength Range	+/- 20nm
Max peak output power for a single optical module (the power is user configurable)	1.000W
Power adjustment in steps of 10%	10-100
Mode of Operation	CW
Beam Divergence	<0.03mrad
Electrical Specifications	
Input Voltage	AC 220V 50Hz
Power Consumption	700W
Communication and Control	Ethernet via CC Software
Switches	Power on/off, User Arm on/off
LEDs	Power, ARM, Lasing
Controls and Monitoring	Laser Enable, Power adjustment, Lase Timer, System BIT (Temperatures, Laser Current, Battery Voltage, etc..)
Environmental Specifications	
Operating Temperature Range	-5…+35°C, optional +45°C
Storage Temperature Range	-5…+50°C, optional +70
IP Grade	IP65
Cooling Type	Telescope: Passive, Free Convection, Laser Modules, Electronics Unit, Battery and Charger: Force Air Cooling, Internal Fans

HARD KILL

ULRWS

Ultra-light remote weapon station (ULRWS) for manned and unmanned platforms.

HARD KILL SPECIFICATIONS	
Dimensions	Dimensions w/o weapon 58x70x51 cm (L x W x H)
	Weight (w/o weapon & ammunition) ~75 kg
	Overall Combat Weight < 100 kg
	Mount type: Fast Mounting (4 bolts)
Main Armament	Automatic machine gun
Ammunition cartridge	7.62mm – Up to 400 rounds
	5.56mm – Up to 500 rounds
Range elevation	-30 to +70
Power supply	24V – nominal (9-36V)
Traverse range & tilt speed	N*90, 360 Per Second
Optics module	Color HD Day camera: optical zoom X30 Human target detection range < 1200 m
	Thermal camera: Human target detection range < 800
Image processing suite	"Point & Shoot" Technology
	Embedded Anti-Drone Track and Shoot algorithm
	Day & Night multiple target tracking
	Digital image stabilizer
	VMD – video motion detection
Laser range finder	Up to 3.3km
Stabilization	Dual Axis stabilization based on Gyro and GNSS (north heading)
RCU - Remote Control Unit	"Point & Shoot" Technology
	FZ-G1 Panasonic tough pad
	Dual Trigger Safety
	"Anti-Drone track and shoot"

CONTROL TAKING

TAKEOVER SOLUTIONS

The DEFENDER Control Taking system allows Law Enforcement officers to gain control of malicious drones by disrupting the signal frequency between the device and its operator. Once the signal has been disrupted, the Control Taker forces the drone to land or “go home.”

COUNTER DRONE SOLUTIONS DESIGNED FOR URBAN ENVIRONMENTS

Commercial drones have become a common feature of the urban environment. DEFENDER’s Urban is the leading solution that allows Law Enforcement officers to deter and disrupt the WI-FI communication and GPS signal without affecting the operation of legitimate drones in the vicinity.

SYSTEM HIGHLIGHTS

- No-fly zones, routing paths, landing locations
- Drone swarms detection and mitigation
- White list for authorized drones
- Integration into VMS systems
- Automated or manual takeover
- Mounted on the EO system gimbal and aligned with the EO sensors line of sight

Locate & Track | **Forensics Extraction** | **Swarm** | **Detect & Alert** | **Take Control & Land** | **White List Management**

MOBILE COUNTER DRONE PLATFORMS

MOBILE HUBS

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STABILIZATION SYSTEM

4 Hydraulic poles that stabilize the vehicle and the system.

OPERATOR STATION

The system is operated from inside the vehicle with a special control system.

SPECIAL ADAPTATION

- “On the move” protection.
- Additional electric power supply for the system.
- Compatible hinges to connect and secure the system.
- Installation of SKYLOCK Radar and 360 RF detector