

# DEFENSE & SECURITY

INTERNATIONAL  
**ARMOUR**  
**GROUP** TM  
[www.armour.gr](http://www.armour.gr)

# DEACTIVATE ENGINE

## The ultimate in target deactivation technology

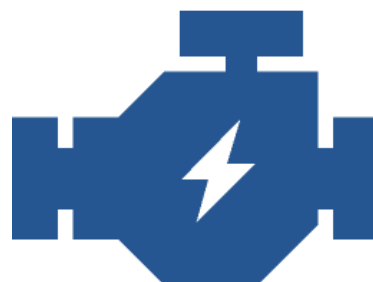
State-of-the-art, non-contact, non-kinetic disruption system

Minimal risk of collateral damage

**Jams the engine management system of vehicles, boats and UAVs;**

Safely brings vehicles/boats/UAVs to a controlled stop

Vehicle/boat/UAV is unable to restart until radio waves are turned off



**Stops Unmanned Aerial Vehicles**

The UAVs/Drones are stopped mid-flight, and can either be brought down (Hard Kill) or if preferred in some cases landed safely on the ground



**Field trials undertaken with high percentage success rate**

Cars, Trucks, Motorcycles, Outboard, Inboard Engines and UAVs Driver maintains control of steering and brakes (vehicles)

Static, dynamic and pursuit scenarios have been demonstrated



**RF Safe-Stop™**



LAND.SEA.AIR.

# APPLICATIONS



**VEHICLE  
APPREHENSION**



**UAV  
AERIAL DENIAL**



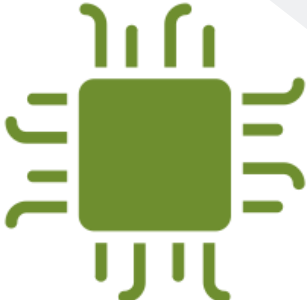
**MOBILE ASSET  
PROTECTION**



**MARINE ASSET  
PROTECTION**



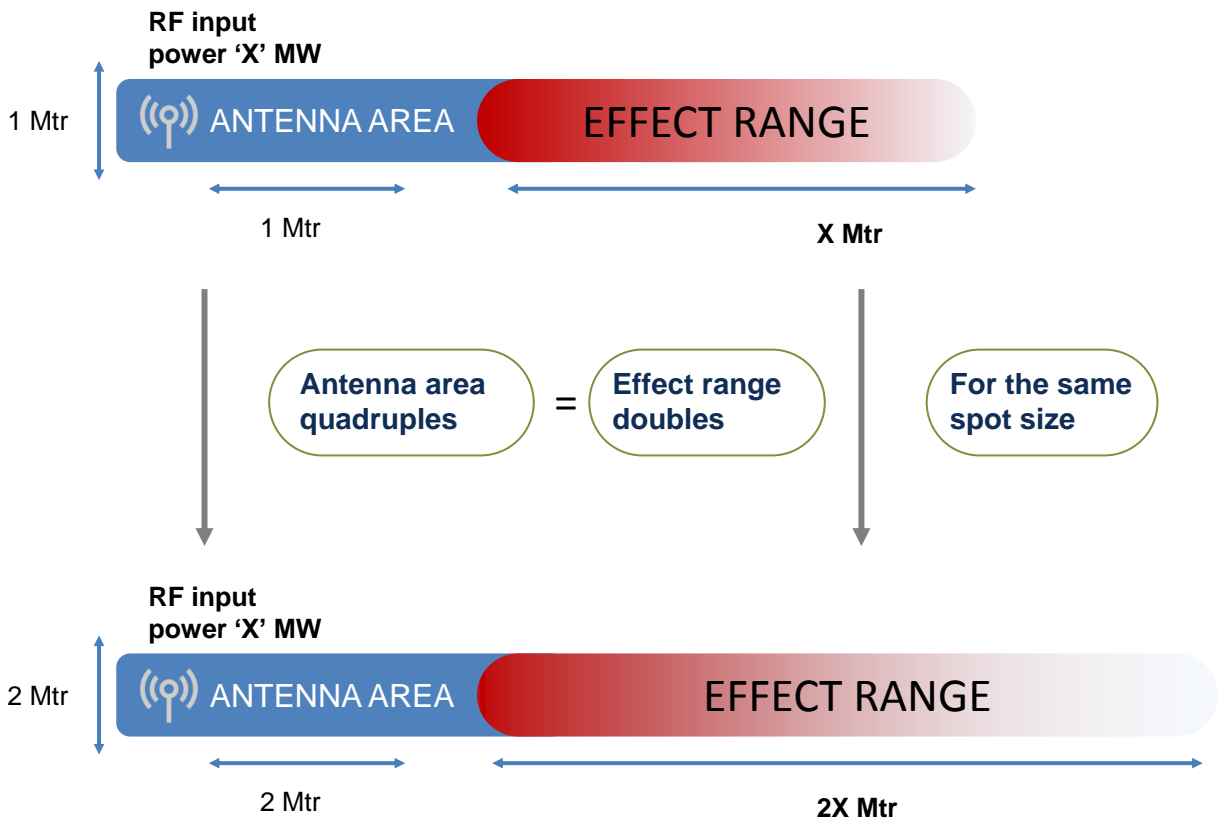
**HARBOUR  
ACCESS CONTROL**



**FIXED ASSET  
PROTECTION**

# POSSIBLE RANGE

System range was successfully demonstrated at hundreds of meters



## SYSTEM OPTIMISATION

The stopping range performance of Safe-Stop is strongly influenced by the RF input power and antenna area.

- Typically there is a direct correlation between these factors and system size/weight

For any proposed scenario of use, an assessment would be conducted to carefully consider;

- The balance between system performance
- The acceptable size and weight

# HEALTH & SAFETY

## Demonstration

All occupied testing has been carried out within the International Commission on Non-Ionising Radiation Protection (ICNIRP) guidelines 1998 [1]

Field strength measurements at 10m are better than 7 times lower than the threshold at which pacemakers may begin to be affected and >100 times lower than the threshold at which they may fail [2]

## System Deployment

A full risk assessment and safety case for scenario of use needs to be carried out prior to operation

## References

### [1] ICNIRP 1998 & 2010

Guidelines 'For Limiting Exposure to Time - Varying Electric, Magnetic and Electromagnetic Fields

### [2] HDL-TR-2197

November 1991- The Effects of Electromagnetic Pulse (EMP) on Cardiac Pacemakers

Vincent J. Ellis, U.S Army  
Laboratory Command, Harry  
Diamond Laboratories

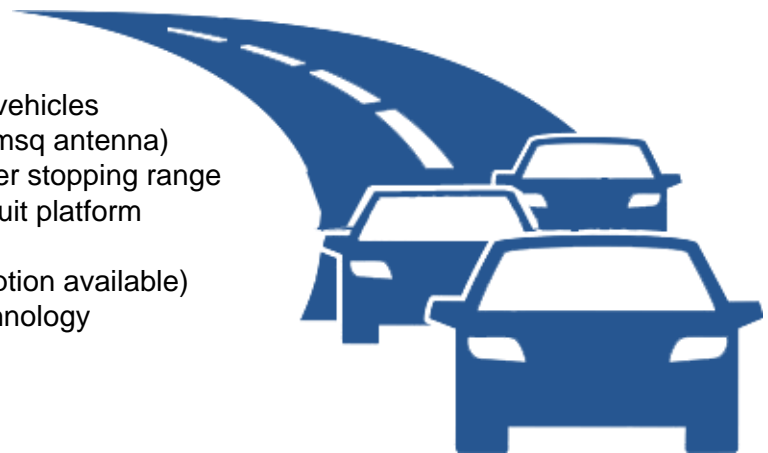
# LAND USE / KEY FEATURES

## Capabilities

When applied, the target vehicle retains limited controllability, resulting in steering and brakes maintaining functionality; the target will be unable to move until RF Safe-Stop™ is put back in passive mode. Vehicle occupants remain unharmed allowing greater precautionary use.

## Key Features

- Compact and discreet: fits into 4x4 vehicles
- Stopping distance of up to 100m (1msq antenna)
- Larger antennas can produce greater stopping range
- Modular: allows reconfiguration to suit platform
- Silent, permits covert operation
- Energy efficient (battery-powered option available)
- Non destructive Utilises proven technology
- Easy to operate
- Output optimisation



# DEMONSTRATED VEHICLES

**69 Vehicle Types /33 Different Manufacturers**

*54 cars, 10 motorcycles, 7 trucks*

| Cross Section of Vehicles tested (Cars) |                     |                    |
|---|---------------------|--------------------|
| Audi A6                                 | Citroen Xara        | Mercedes E Class   |
| Ford Mondeo 56                          | MG ZT V6            | Mazda 6 Auto       |
| Jaguar S Type                           | Renault Laguna      | Volvo S40          |
| Nissan Maxima                           | BMW 3               | Mazda CX5          |
| BMW 735i                                | Opel Omega          | Citroen Berlingo   |
| Ford Mondeo V6                          | Opel Astra          | Nissan 100X        |
| Volvo 940                               | Mazda 6 man         | Seat Leon          |
| Subaru Forrester                        | Peugeot 406         | Hyundai Accent     |
| Citroen Jumpy                           | Jaguar X type       | Opel Vectra V6     |
| MG Z                                    | Toyota Land Cruiser | BMW 520i           |
| Honda Accord                            | Volvo V70           | Lexus GS300        |
| BMW 330                                 | Nissan Primera      | BMW 323i           |
| BMW 730                                 | Alfa 147            | Ford Mondeo Diesel |
| Citron Picasso C3                       | Toyota Corella      | Volkswagen Passat  |
| Toyota Celica                           | Ford Cougar         | Audi Q7            |
| BMW X5                                  | Citroen C5          | Audi A3            |
| VW Phaeton                              | Lancia Ypsilon      | Honda Accord       |
| Opel Combo Van                          | Mercedes E300       | Nissan Pathfinder  |



# USE AT SEA / KEY FEATURES

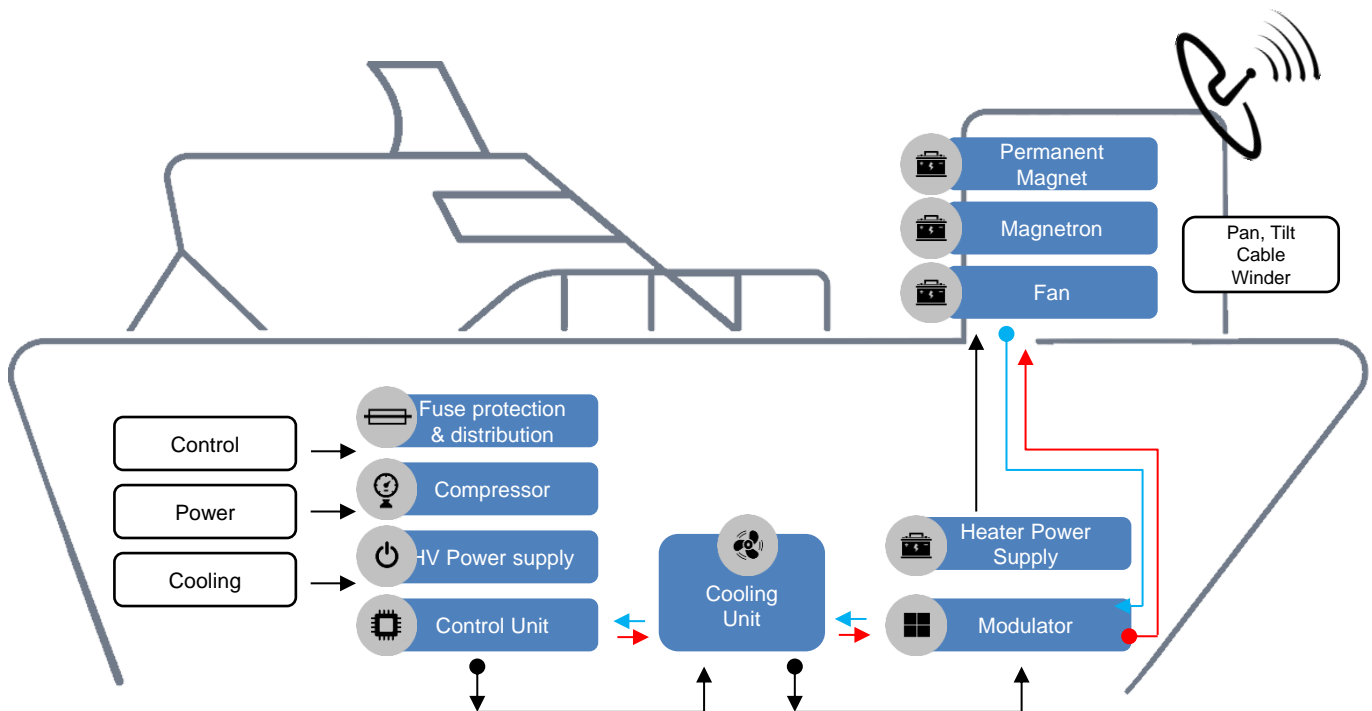
## Capabilities

Typically applied for harbour entry protection, maritime policing and anti-piracy, target vessel retains limited controllability, and will be unable to move until RF Safe-Stop™ is put back in passive mode. Vessel occupants remain unharmed allowing greater precautionary use.

## Key Features

- Compact and discreet Stopping distance in excess of 100m (1msq antenna)
- Larger antennas can produce greater stopping range
- Modular: allows reconfiguration to suit platform
- Silent, permits covert operation
- Energy efficient (battery-powered option available)
- Non destructive
- Utilises proven technology
- Easy to operate
- Output optimisation

## BOAT STOP



# DEMONSTRATED VESSELS

| Brand   | Type                        | Brand             | Type                                  |
|---------|-----------------------------|-------------------|---------------------------------------|
| Mercury | 30HP Outboard (2 Stroke)    | Boomerang Inboard | Twin Rolls Royce 500HP Diesel Inboard |
| Mercury | 115 HP Outboard             | Fishing Boat      | Twin 550HP Outboard                   |
| Mercury | 200 HP Outboard (2 Stroke)  | Suzuki            | 200 HP Outboard                       |
| Mercury | 225 HP Outboard             | Suzuki            | 40 HP Outboard                        |
| Mercury | 300 HP Outboard             | Tohatsu           | 25 HP Outboard                        |
| Mercury | 300V HP Outboard            | Tohatsu           | 150 HP Outboard                       |
| Yamaha  | 300HP Outboard              | Evinrude          | 75 HP Outboard                        |
| Yamaha  | 242HP Twin Jet Boat Inboard | Evinrude          | 250 HP Outboard                       |
| Yamaha  | 115Hp Outboard              | Honda             | 40 HP Outboard                        |
| Yamaha  | 225 HP Outboard             | Sea Doo           | C400 Jet Ski                          |
| Yamaha  | 250G HP Outboard            |                   |                                       |
| Yamaha  | 250HP Jet Ski               |                   |                                       |





# USE IN AIR DEMONSTRATED UAVs/DRONES



| Brand                        | Type                   |
|------------------------------|------------------------|
| DJI                          | Phantom 2              |
| DJI                          | Phantom 2 +            |
| DJI                          | Phantom 3              |
| DJI                          | Phantom 4              |
| Yuneec                       | Typhoon G              |
| Blade                        | 350 QX3                |
| 3DR                          | Solo SA11A Smart UAV   |
| Dromida                      | Ominus FPV             |
| Traxxas                      | TRX37054               |
| E-flite                      | APPRENTICE ESP 15E RTF |
| HobbyZone                    | Sport Cub S RTF        |
| ..... And many - many other! |                        |

