

# AT Smartdec Perimeter Guard Ground sensors with UAV system

## AT Smartdec Perimeter Guard Ground sensors with UAV system

"AI" sensors linked to UAV systems.  
Complete situation awareness.

### SYSTEM FEATURES

Smartdec is a perimeter guard / situation awareness system for use in remote areas. It allows to easily monitor and protect land border, coastal areas and remote locations.

#### WIRELESS & MESH NETWORK

Proprietary low power mesh network. Supports up to 8 hops.

#### AI TECHNOLOGY REMOVES FALSE ALARMS

Custom AI model analyses received images, classifies recognised objects, adds movement, direction and speed estimates.

#### BEST BATTERY LIFETIME IN THE MARKET

up to 400 days or up to 50 000 low thumbnail images with one battery charge.

#### VIDEO LIKE EXPERIENCE

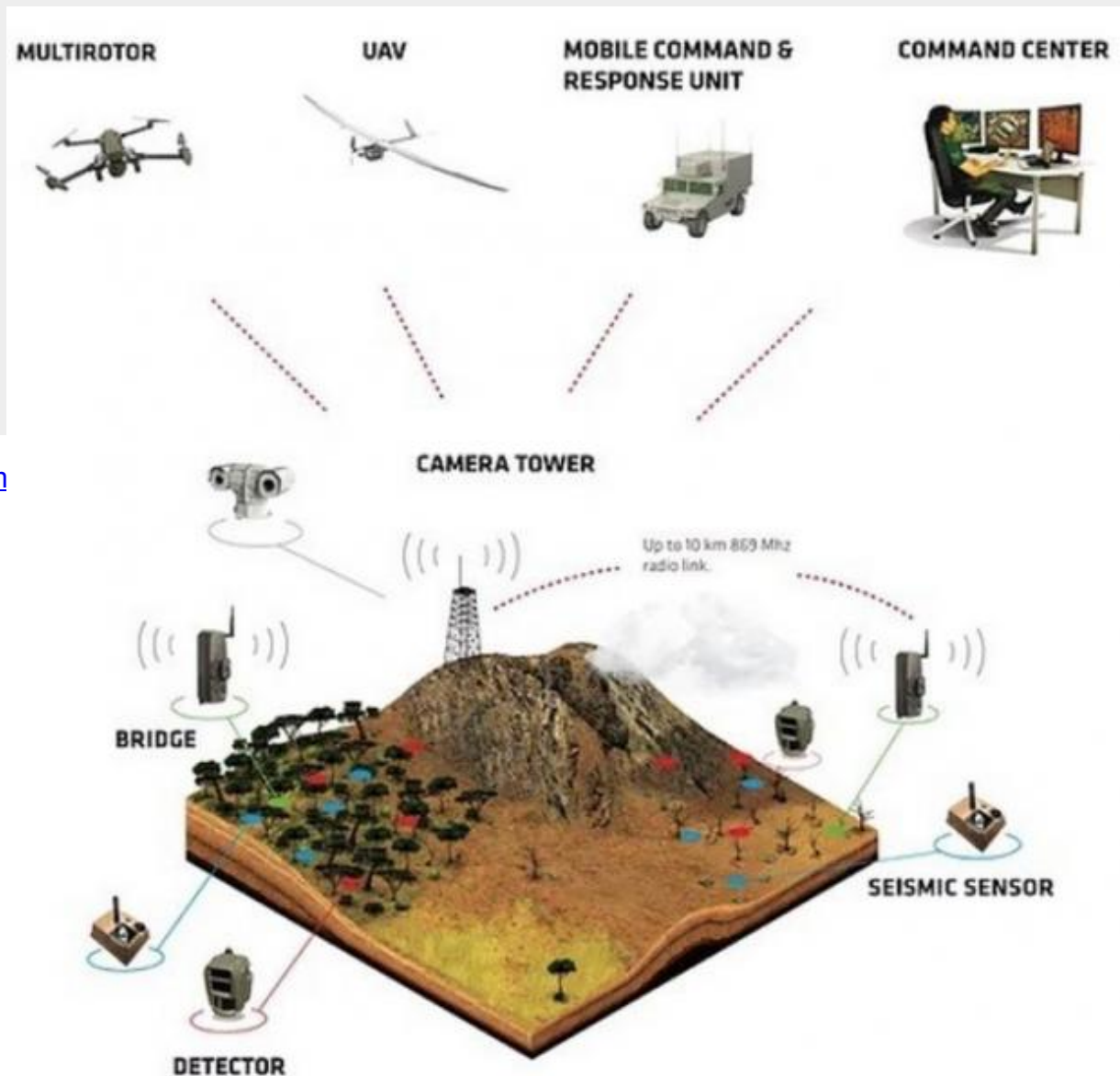
System sends Full HD images which are combined into video.

#### QUICK INSTALLATION

It takes 2 minutes to install one Detector and one Bridge.

#### MOBILE COMMAND CENTER

Command centre software can be deployed in tablets/cars. Monitor alarms from wherever you want.



[AT Comm](#)

Smartdec consists of 4 parts:

- ✓ Ground Sensors/Detectors Network
- ✓ Communication Bridges
- ✓ Mobile Command Centre
- ✓ UAV platform

### DETECTOR / GROUND SENSOR

Smartdec uses small, autonomous, battery powered, intelligent wireless sensors to monitor the environment and to make decisions about possible threats. Sensors in detectors register different types of information, such as:

- ✓ movement,
- ✓ humidity,
- ✓ date / time,

- ✓ temperature,
- ✓ geographical coordinates and location

It takes pictures of threats and sends alarms to the Bridge. The Detector includes a patented detection algorithm to analyse the threat.

All battery powered devices come with a battery charger.



## TECHNICAL PARAMETERS

Movement detection radius: 35 m day or night

Motion detection angle: 14° vertical and 50° horizontal angle

Operating temperature: -40°C to + 55°C

Minimum time between alarms: 1 sec. User can define longer delay with the Handheld device.

## CAMERA

Image capture: 0.5 sec

Image capture speed: 2 FPS

Memory: NAND Flash 8 GB. Capacity 2000+ pictures.

Stored image size: 4 MB. Sent image size user configurable.

Day resolution: Color HDR 2048x1536 (QXGA)

Horizontal angle (day): 71°

Night resolution : Monochrome HDR 1280x960 (SXGA-)

Horizontal angle (night): 65°

Infrared flash: 940 nm

Minimum illumination: 0.1 lux

## DIMENSIONS AND DURABILITY

Battery lifetime: 1 year or up to 50,000 photos

Battery: Li-Ion 3.7V 10400 mAh.

Enclosure: weather proof (IP67)

Detector weight: 700 g  
Detector size: 8.5x12x10 cm

## COMMUNICATION

Range: up to 500 m line of sight,  
Standard: IEEE 802.15.4 (2,4 GHz)  
Bandwidth: 2 MHz  
Data rate: 250 kbps  
Modulation: QPSK  
Antenna: omnidirectional  
EIRP: configurable up to 12 dBm  
Security: Elliptic Curve Cryptography (secp160r1) Message authentication & encryption (AES 128)  
Multi hop data transmission supported

## INSTALLATION

A screw or wire fastener is used to install the Detector



## BRIDGE

The device bridges the data communication between detectors and Mobile Command Centre. It is an autonomous communication device equipped with a battery, a Long Range Radio (GSM/CDMA) module for communication with MCS and a Short Range Radio (2,4 GHz) module for gathering data from detectors network.

One Bridge supports up to 8 Detectors under average conditions (GPRS/EDGE/3G/3.5G/LTE/CDMA).

## COMMUNICATION



Short Range Radio (Detector to Bridge) range: 500 m line of sight  
Radio: IEEE 802.15.4 (2,4 GHz)  
Bandwidth: 2 MHz  
Data rate: 250 kbps  
Modulation: QPSK  
Antenna: omnidirectional  
EIRP: configurable up to 12 dBm  
Security: Elliptic Curve Cryptography (secp160r1)  
Message authentication & encryption (AES 128)  
Long-range communication (Bridge to Server)  
Radio: GSM/GPRS/EDGE/UMTS/CDMA/LTE. 850/950/1850/1900/2100 MHz .  
GPS support.  
Secure end to end encryption.



## DIMENSIONS AND DURABILITY

Battery lifetime: 1 year or 10,000 pictures  
Batteries: 4 x Li-Ion 3.7V 10400 mAh  
Operating temperature range: -40°C to +55°C  
Enclosure: weather proof (IP 67)  
Bridge weight: 1.5 kg (with 4 batteries and mounting supports)  
Bridge size: 9.5x7.5x24.5 cm

## TYPES OF ALARM

Theft alarm  
Battery low alarm  
Routine check message  
Connection lost (if Routine check has not been received)



## MOBILE SURVEILLANCE TOWER & COMMAND CENTER

Transportable camouflaged mobile tower, up to 25m/80ft available as part of Smartdec Shield and is integrated with Detectors, Command Center software and UAV missions. Mobile Tower is equipped with solar panel or generator and is weatherproof. Mobile Tower has EO/IR camera and ground radar for detecting vehicles 15km and humans 8km. Laser rangefinder is up to 8km. Customized requirements are available on request.

Mobile command center is portable, equipped with electricity (solar or generator or batteries), AC, up to 2 seats with computers and radio link to Detectors and radio link to HQ. Easily relocatable with small truck and rapid installation in desired location. Camouflaged and weatherproof special container is mobile command center.



Heart of the Command Centre is a browser-based software application with an AI module. The AI module classifies alarm images into predefined categories (e.g. person, car, truck).



### SMARTDEC BENEFITS

- ✓ Radio-based System
- ✓ AI-powered
- ✓ Wide area coverage

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- ✓ Battery-operated
- ✓ Quick and easy relocation
- ✓ Mesh Network
- ✓ Small cameras easy to camouflage
- ✓ Encrypted communications
- ✓ UAV-integration
- ✓ No nuisance alarms
- ✓ Reduces manpower, maintenance and operation costs



## SMARTDEC MARKETS

### BORDER SURVEILLANCE

The electronic border guard system is designed for green border areas such as hot spots in forests. It is also well-suited for mountainous and desert areas. The wireless and long-lasting battery powered system tracks intruders and movements along border roads and footpaths. Rapid installation and relocation make it possible to respond efficiently to changing operational conditions and to apply the system in high speed operations. The system aids border police interested in reducing smuggling, and increasing tax revenue, capture human smugglers, detecting border trespassers, and controlling immigration.

Smartdec is an ideal border guard solution for detecting intruders in border areas far away from border checkpoints and stations.

### DEFENCE FORCES

The Smartdec system can be used to gather information from sites that need to be monitored remotely and it can assess threats from a distance. Smartdec makes it possible to gather data more effectively, more rapidly and from farther distances—and it does all this without putting lives in danger. The Smartdec defense system makes reconnaissance and intelligence in an open terrain scenario more effective and as a result reduces risks and saves lives.

**AT Smartdec - Border Security - Ground Sensors - UAV**