



## CORE FEATURES

- Runs along rail attached to fence
- Speed - up to 20 km/h
- Coverage of up to 1 km per robot
- Powered by a rechargeable battery
- Wi/Fi communication
- Variety of payloads:
  - Laser scanner
  - Fixed or PTZ cameras
  - IR illuminator
  - Two-way intercom
  - Flash beacon
  - And more ...
- Automatic modes include:
  - Laser based surveillance for fence damage and suspicious objects at the vicinity of the fence
  - Rapid homing-in on the location of an alert
- Manual mode includes manual driving of the robot and PTZ camera control
- Operated via Magal's Fortis4G Security Management System (SMS)
- Unique in the market



## DESCRIPTION

**RoboGuard** is a revolutionary agile scout robot, which runs along secured fences, ensuring perimeter integrity and capable of responding promptly to intrusion alerts. It consists of an autonomous unit, traveling on a monorail and carrying several sensors.

The robot has two modes of operation:

- **Routine patrol**, in which it travels autonomously at about 5 kilometers per hour, scanning and searching for perimeter anomalies such as fence holes or nearby suspected objects
- **Response mode**, in which the robot rushes promptly to home in on a suspected intrusion, acting as a first responder

A typical RoboGuard configuration includes:

- Laser scanner that acts as a short range 3D LIDAR (Light Radar) for perimeter inspection
- Fixed camera with IR illuminator for short range perimeter surveillance and threat verification
- PTZ camera with IR illuminator for medium range
- Two-way intercom between the control room and a potential intruder

## HOW IT WORKS

- The robot, powered by a rechargeable battery, travels along a monorail, which is attached to the fence structure; several optional preset gear combinations are supported in order to provide the optimum speed / slope performance
- Wi-Fi communication ensures constant link between the robot and the control room; this is achieved through RF antennas at the docking stations and any other locations covering the rail
- The sophisticated laser scanner uses a rotating laser beam perpendicular to the fence, covering the lower hemisphere (270°); it scans up to 10 meters of each side of the perimeter, capable of detecting holes in the fence or new objects left close to the fence
- The two-way intercom onboard the robot enables conversation between the control room and a person standing a few meters away from the robot

## SITE LAYOUT

- Each robot typically covers 1,000 meters, mostly pending the required response time
- A docking station is located at every 2,000 meters, serving the two adjacent robots with battery recharging and Wi-Fi communication
- Each docking station is powered by 230/110 VAC. The average time between battery recharges is about 50 minutes

## APPLICATIONS & BENEFITS

**RoboGuard** is the ideal choice for sensitive unattended critical sites, where the site is remotely monitored yet prompt first-response is highly recommended.

As an affordable "unmanned first response vehicle" **RoboGuard** is useful as a complementary solution for almost any perimeter application, such as airports, seaports, prisons, military and other sensitive sites;

- It can offload the burden of routine regular inspection of the perimeter
- It can offload the burden of checking areas where frequent nuisance alarms occur
- And most importantly - save manpower by performing some of the tasks typically done by first responders

## TECHNICAL SPECIFICATIONS

### ROBOT UNIT

Speed: 5-10 km/h in patrol mode  
 Up to 20 km/h when alerted to intrusion location  
 Motor: 48VDC 960W 4.55Nm Electric motor, 4WD  
 Battery: 48V 20Ah, Lithium, Cycle life: ~8000 cycles  
 Battery capacity: at least 50 minutes of constant travel  
 Operating temperature: -20°C to 55°C (-4°F to 130°F)  
 Optional: -40°C to 65°C (-40°F to 150°F)  
 Completely weather proof IP 66  
 Size: 85 x 75 x 26 cm (33.5 x 29.5 x 10.5 in)  
 Weight (including battery): 37 kg

### Rail

Material: Welded galvanized steel pipe, outer diameter 60 mm  
 Rail distance from the fence: 50-120cm (20-47 in)  
 Slope: Maximum 6°  
 Horizontal radius: 2.5 m, inclination limiter required  
 10 m without the need for inclination limiter  
 Vertical radius: Minimum 5 m  
 Carrying posts: 50 x 50 x 5 mm angle galvanized steel  
 End/Corner carrying costs: Galvanized RHS 60 x 60 x 3 mm

### DOCKING STATION

Power: 110/230 VAC, 1600 W  
 Size: Station 85 W x 50 H x 70 D cm  
 Cabinet 75 W x 55 H x 32 D cm

### WIFI

Standards: IEEE 802.11b/g and 802.11n draft for Wireless LAN  
 IEEE 802.11i Wireless Security  
 IEEE 802.3u for 10/100Base-TX  
 IEEE802.1D Spanning Tree Protocol

### REGULATORY COMPLIANCE

CE, RoHS 2 and FCC

### ROBOT PAYLOAD

#### Laser Scanner

Field of view: 270°  
 Scanning range: 20 m  
 Angular resolution: 0.25°  
 Laser class: class 1 (eye safe) as per EN 60825-1  
 Wave length: 905nm

#### PTZ Camera (IR illuminated)

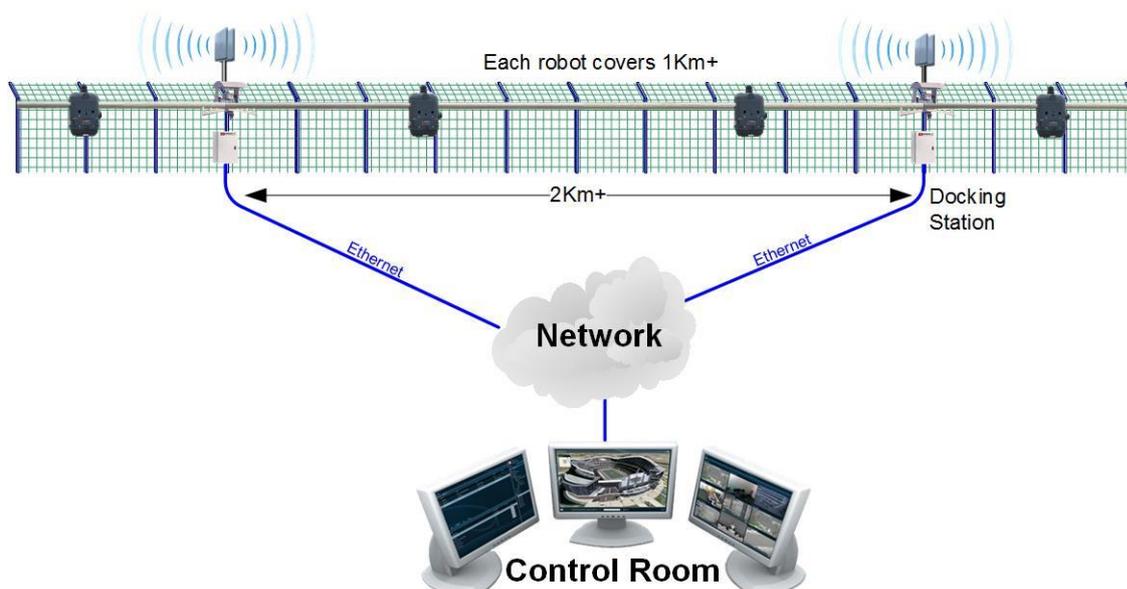
Image sensor: 1/4" Sony EX-View HAD CCD  
 Effective pixels: PAL: 752(H)×582(V); NTSC:768(H)×494(V)  
 Horizontal resolution: 550 TVL  
 Optical zoom: 36X  
 Lens: focal length 3.4mm to 122.4 mm; F1.6 to F4.5  
 Viewing angle (horizontal): 57.8° (wide) to 1.7° (tele)  
 Illuminator wave length: 850nm  
 Illuminator range: 60 m  
 Minimum illumination: 0 lux (Lights On), 0.01 lux (Lights Off)  
 Pan range: 360° Continuous  
 Tilt range: -15° to 90°

#### Fix Camera (IR illuminated)

Image sensor: 1/3" DIS Camera  
 Resolution: 976(H)×496(V)  
 Illuminator range: 10 m  
 Lens: focal length 2.8 mm, F1.2  
 Viewing angle: H: 80° V: 65°  
 Minimum illumination: 0 lux (Lights On)

#### Audio

Speaker power output: 15W  
 Speaker frequency response: 20 Hz to 20 kHz  
 Microphone type: Omni directional  
 Microphone frequency response: 200 Hz to 16 kHz



### SYSTEM CONFIGURATION