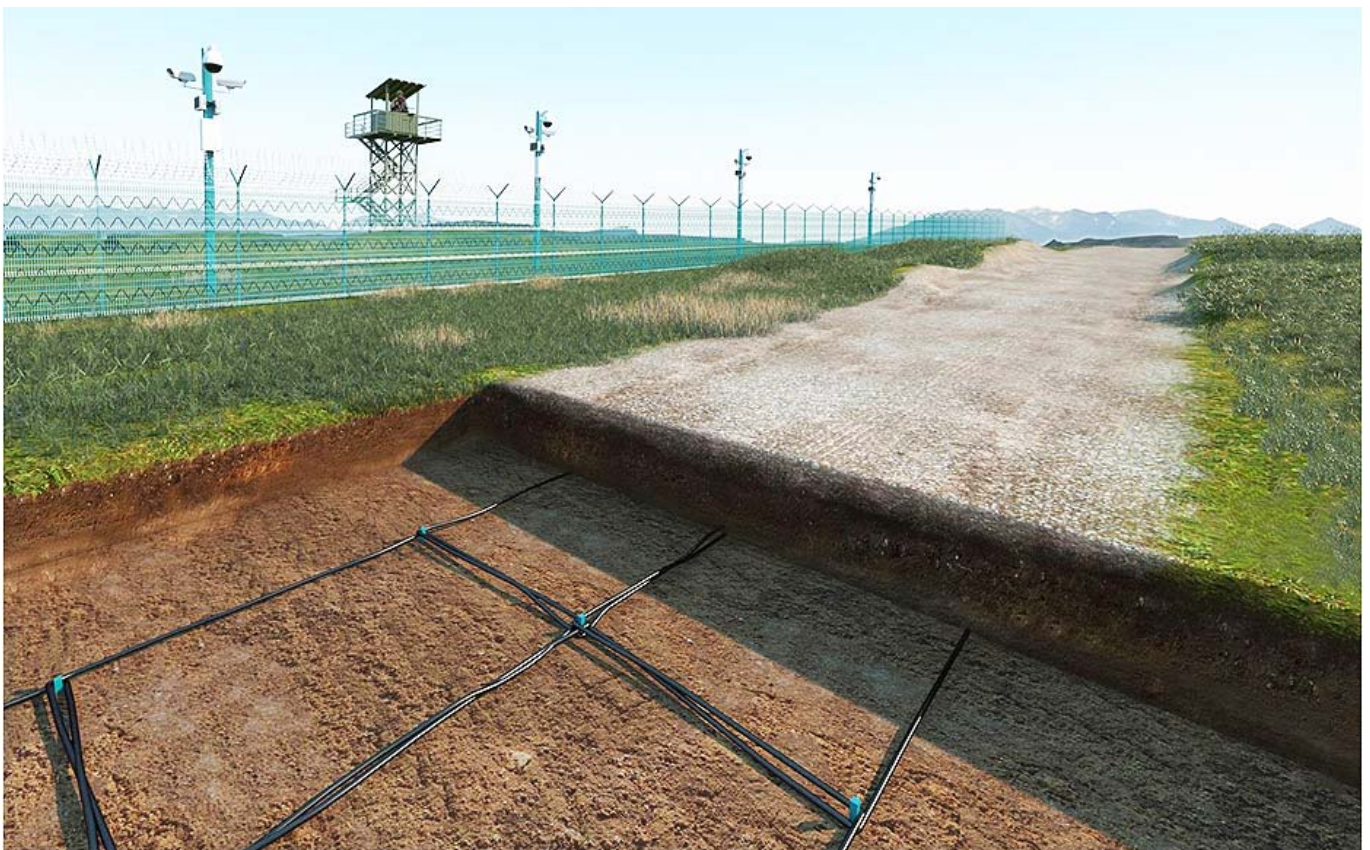


# **G-MAX- UPDS Loop Detection**

## **Underground Passive Magnetic Detection System**

### **WHITE PAPER**



# G-MAX- UPDS Loop Detection

## Introduction

UPDS is a powerful electronic system specifically designed for total perimeter protection of critical infrastructure facilities, correctional institutions, governmental and military sites as well as other such high risk facilities.

Concealed sensor based on magnetic-technology. "Virtual fence" armed penetrate detection (armed burglar or whit tools), The system creates a "virtual fence" 3 meters high and 3 meters depth. It is based on mapping of the magnetic flux of the Earth which is not affected by the movement of animals and changes or growth of vegetation.

## Overview

The Loop Detection is based on the principle of Magnetic Anomaly Detection (MAD). The Loops & Pole Detection can also effectively operate under any type of ground, concrete roads, and runways, between trees, under vegetation, under water, ice, snow and on the top of wall. Loops Detection detect in volume all around the loops. All global or local disturbances are filters out by the advance adaptive algorithms of the field controller.

The system is passive detection system no power required to operate the loops. No any electromagnetic radiation is generated out of the loops for the detection.

The protected perimeter is divided into zones, each of which can be as short as 10 m' (33 ft.) or as long as 600m' (1,968 ft.).

Up to 3 zones are connected to an FU (Field Unit) analyzer and corresponding alarm circuitry.

The sensors, FU and control cables are concealed underground. Should the protected perimeter be crossed by a potential intruder, an audio-visual alarm is instantly activated at the control center.

The movement of ferromagnetic materials (iron or steel) is one source that causes local changes to the magnetic flux of the earth.

In principle, the UPDS is a moving iron or steel detector. Its high probability of detection is based on the proven assumption that intruders carry weapons, military equipment, cameras, wire-cutters, keys, cellular telephones, or other such tools of their trade.

These and many other items contain ferromagnetic material and when passed across the system, a measurable current is induced to the system's sensors.

UPDS serves either as a stand-alone system or can be integrated with any other type of sensor, to provide dual technology detection at a given perimeter.

## Solution Details

UPDS sensor is a concealed, passive buried cable. That is designed to detect and locate intruders moving over unseen boundary lines and perimeters.

The magnetic sensor installed in multiple configurations:

1. Single Loop

Base on sensor cable, armored cable with multiple wires with 100% coverage of armoring steel. Installation of will give from 10m' (33 ft.) up to 600m' (1,968 ft.) length of each detection loops with sub loop width of 1.2m' (4 ft.). Providing detection zone of 3 m' (10 ft.) above and below the loops.

## 2. Double Loop

Base on sensor cable, armored cable with multiple wires with 100% coverage of armoring steel. Installation in the double loop configuration two loops installed in parallel, each two loop create alarm zone, the double loop configuration give more probability of detection with more immunity to false alarm and intrusion direction in or out of the protected site.

Each loop is up to 300m' (984 ft.) per alarm channel, width of 2.8m'(9 ft.). Providing detection zone of 3 m' (10 ft.) Above and below the loops.

## 3. High Detection Loop

Base on sensor cable, armored cable with multiple wires with 100% coverage of armoring steel. The sensor cable installed in format of loops width of 8 m' (24 ft.) providing detection zone of 6 m' (20 ft.).

## System Advantages

- **Aesthetics:** being that the sensor cables are buried, the detection field is therefore invisible and does not change the aesthetics of the site.
- **Fully concealed & passive:** possible intruders are unaware of the presence or exact location of the UPDS detection field which contributes to the avoidance of any attempt to tamper with, or defeat the system.
- **Installation under any substrate:** The UPDS hidden magnetic sensor enables installation in harsh conditions, under any type of ground installation: soil, concrete, asphalt, water, snow, ice.
- **Unaffected by:** animals, vegetation, rain, hail, snow, fog.
- **Low maintenance costs & Highly durable:** The magnetic sensor system lifetime is very high; the cable used is standard armored power cables direct burial of a long life, while upgrades are being made only in electronics and cable deployed; there are systems that installed 30 years ago and still active.
- **Low false alarm rate:** False alarms rate is extremely low because the magnetic sensor is not affected by: animals, vegetation, rain, snow, fog. **All weather operation (365 days per year).**
- **Reducing the costs of large projects:** Large projects can supply locally produced of magnetic sensor cable, in order to save cost of freight and customs.
- **Integration:** The UPDS system can be integrated to all sizes with integrated intelligent communication modules and combines the product with the integrated system G-Max4000 or any existing CCTV system.
- **Protection of water channels:** The UPDS Magnetic sensor allows solution for the protection of water channels at a depth of up to 10 meters to detect divers or boats.
- **Simple to install:**
- **Intrusion location with optional direction:**

## System applications

- Underground concealed detection system.
- Underwater concealed detection system.
- On Wall concealed detection system.

## Specification

### CMS communication:

Computerized Multiplex  
System G-MAX4000 RS-  
485 Communication

### Detection Configuration:

Double Loop – Two zones  
Double line Pole detection –  
Two zones

### Length of Detection Line:

Detection Loops up to  
600m', Depends on type of  
Sensor Cable. Poles Units up  
to 150m'.

### Typical Detection Area:

Volumetric Detection above and below  
the ground. With Loops Detection 2 m'  
radius each Loop. With Pole Detection  
1m' radius each Line.

### Environment Conditions:

All weather operation (365 days per  
year).  
Max operating temperature +70°C  
Minimum operating temperature -30°C  
or - 50°C with additional Internal 5W  
heater(special 32VAC power line will be  
required).

### International Standard:

EMC directive of CE standards.

**Signal Processing:** Special  
adaptive algorithm.

**Power:** 3 Watt max. 18-48VDC  
(20-72VDC option by special order)

**Sealing:** IP 67 Protected against  
immersion in  
water.

**Dimension:** Diameter 150mm  
Height 180mm.  
Net weight: 2 kg.