



WB GROUP 

CIS / AMSTA

Counter Intruder System

Advanced Monitoring of Stand-off Areas

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Counter Intruder System Advanced Monitoring of Stand-off Areas

AMSTA / CIS system

AMSTA / CIS comprises a number of smart sensors that act to detect the presence of intruders both on foot and in a vehicle. The components of the system are highly autonomous with a long battery lifecycle, and are connected in a wireless network, allowing data transmission between the different sensors within the system.

CIS systems are additionally equipped with effectors – integrated remote grenade and mine launchers which serve to slow the manoeuvrability of enemy troops *)

- Autonomous vehicle and human movement sensors
- Protects: temporary and permanent military bases, airports, and training zones, industrial areas, warehouses etc.
- Protection of critical infrastructure
- Low logistical requirements with a long lifecycle for each component
- Separate solutions: AMSTA – industrial area protection
CIS – military use*)

*) Solutions available only in CIS systems



CIS / AMSTA Key Features

High efficiency in both the detection and diagnosis of threats

Elimination of false alarms

Different configurations depending on the terrain and the national defence requirements

Rapid deployment of the system.
A single soldier can carry each component

Anti-tamper protection. Each detector/effector*) is equipped with a reorientation sensor, which sends an alarm signal in the case where its position is changed

Each device has an in-built GPS tracker, which allows for localisation of sensors removed from the guarded area

Long battery lifespan for each component, ranging from 3 months to 2 years

An open architecture allowing new elements to be added if required

Remote controlled grenade and mine launchers to combat human targets or armoured vehicles and tanks *)

*) Solutions available only in CIS systems



Sensors

VPS – Vader Picture Sensor

The Vader Picture Sensor (VPS) is an intelligent sensor, which comprises both day-night and thermal. It is sequestered in trees, bushes and between rocks within the sensitive area. It takes a series of photos following identification of a potential threat from surrounding SAS or MR sensors. Captured images are compressed and sent to the MC application using a built-in DCS component. The VPS is ruggedized and can withstand different environmental and weather conditions. Human recognition is possible from 400 m for day-night camera and 200 m for thermal camera.

Specifications

Detector type	Video D/N + thermal
Detection range [m]	-400/200
Sensor weight [kg]	1,8
Dimension LxWxH [mm]	236 x 150 x 116
WORK TIME [MONTHS]	
Up to 5 alarms/24h	6
Unlimited alarm count	2



SAS 3.0 – Acoustoseismic Sensor

The SAS is a smart acoustic and seismic sensor that is buried in the ground at the boundaries of a protected area. The SAS detects both sound and seismic waves allowing for the classification of the threat present. All signals are compared against a database of potential vehicles, objects and living species. However, the SAS only transmits information regarding potential threats, for example human or vehicular activity. False alarms, such as signals resulting from wildlife or atmospheric changes are not transmitted by SAS, allowing for a very long battery life for each unit of up to 2 years. Human detection is possible within a 150 m radius of each SAS, meaning that the sensors must be placed at 300 m intervals on the area perimeter.

Specifications

Detector type	Seismic + acoustic
Detection range [m]	150
Sensor weight [kg]	1,5
Dimension LxWxH [mm]	157 x 132 x 111
WORK TIME [MONTHS]	
Up to 5 alarms/24h	26
Unlimited alarm count	12



MR – miniradar – in development

The MR is a small and portable FMCW radar that can be used for the detection of moving objects in an area of interest. The radar is only operational following manual activation by operator. The radar allows for the tracking of the movement of objects and the verification of signals from other sensors. The MR is a co-collaboration with SIRC.

Specifications

Detector type	FMCW Radar
Detection range [m]	500 (option 1000)
Viewing angle [°]	120 (option 60)
Sensor weight [kg]	8
Dimension LxWxH [mm]	350 x 140 x 60
Working power [W] (operator-selected)	10 - 500
Work time [h]	10



Communication

Communication between the different components in the Counter Intruder System consists of two independent systems: LCS and DCS.

The LCS (Local Communication System) is a local area network, which ensures communication between different sensors of up to 500 m in an open area. Communication is provided by two different radio frequencies ensuring a very high percentage of coverage regardless of the location of the guarded area.

The DCS (Distant Communication System) ensures communication between LCS network and Command Centre. DCS nodes are inbuilt into each VPS device and supports communication with either Perad radios or mobile phones via the UTMS modem.

The Perad radio, provided by WB Electronics, allows for the transmission of data to mobile users. The Perad radio has a capacity for large data packets and a radius of connectivity of up to 5 km. In addition, a series of radios can form a MESH network, where each individual handset is able to retransmit the data signal. This allows for operation in built up areas and extends the communication range of the radio to 20 km. Data transmitted to a Perad radio can be easily visualised by connection of the handset to any tablet or laptop computer using a USB port.

Further, Perad can be incorporated into the FONET vehicular data communication network allowing for further data transmission*).

A UMTS built-in modem, allows for the transmission of data from LCS network to mobile users using cellular connections.



*) Solutions available only in CIS systems



Management Centre

The management centre works with a specially designed application that is compatible with any ruggedized laptop or tablet computer. The application comprises several modes that allow for configuration of the system, the setup of the components within the CIS network, the analysis of data received from the sensors, and the training of users to operate the system. The application receives data from all the components of the CIS network, allowing the user to receive warnings of the presence of potential threats, photo data, and data reports. The user may also control possible effectors that can be incorporated into the CIS system.

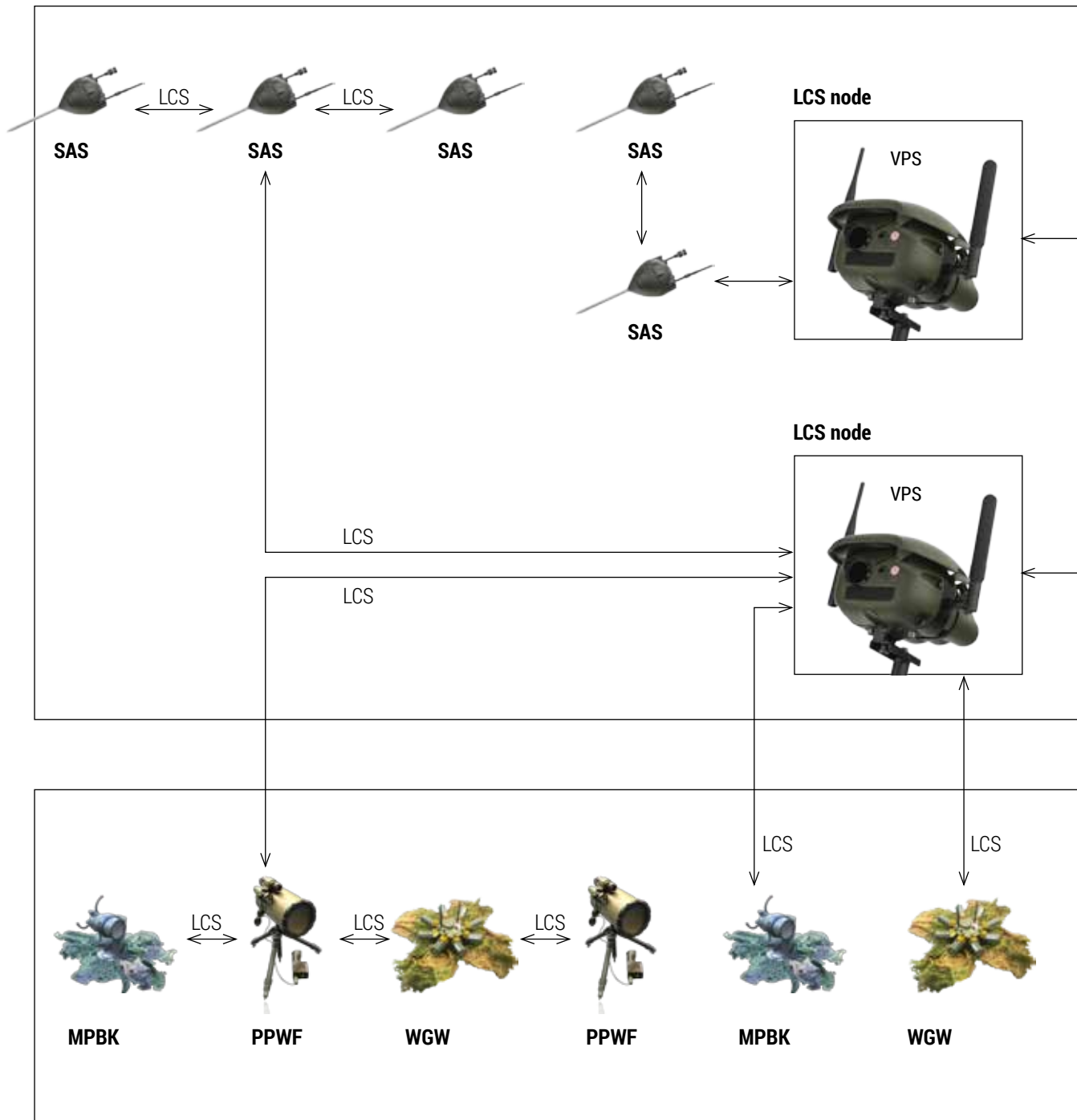
The user may also control possible effectors that can be incorporated into the CIS system*)

Mindmade can provide support both in the installation of the management centre software, and during the operation of the AMSTA/CIS network if required. Further, a tailored training programme can also be provided to show users how to operate the management centre and incorporate the different elements of the system.

*) Solutions available only in CIS systems

CIS Exemplary schematic diagram

Sensors – MESH-type network communication



Internet/Intranet



SERVER
Possible config:
server built-in
in computer
with MC app.

Management Centre

- MC #1
- PC
 - MV App
 - DCS



Optional

possible connection
with any number of MC

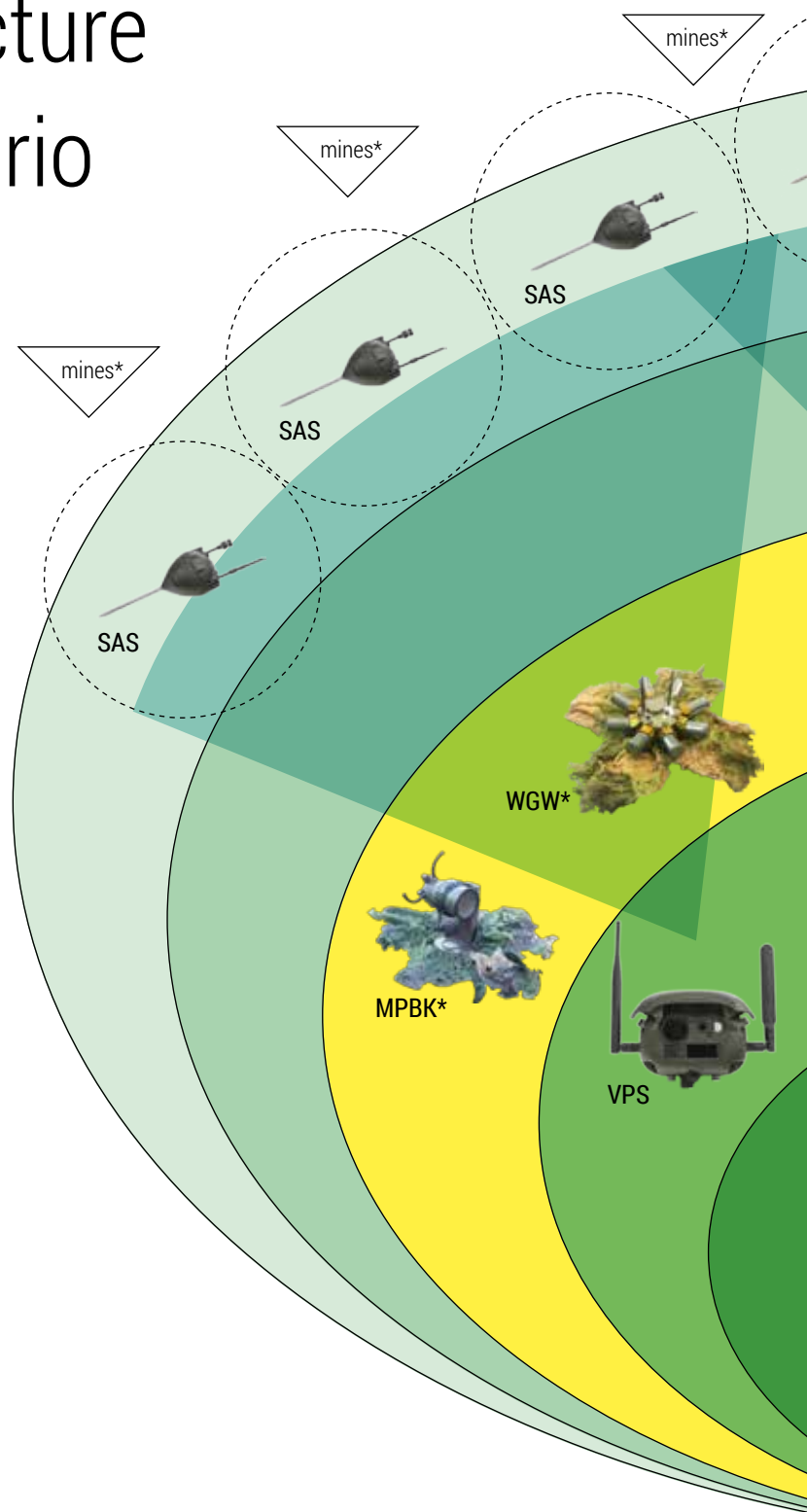


- MC #2
-
-



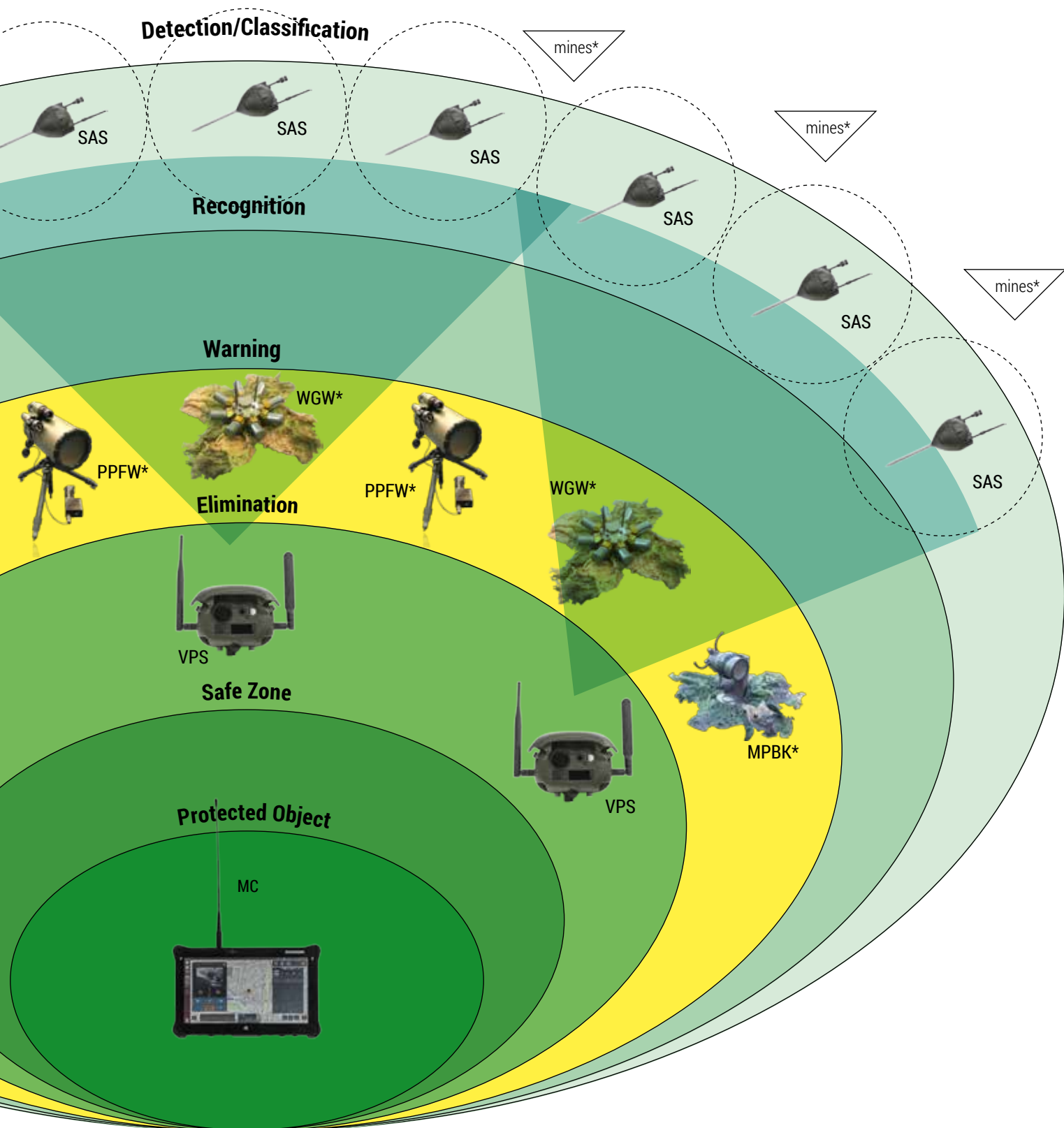
MC #n

Military Base / Critical Infrastructure Protection Scenario



* devices present only in CIS system

■ zones present only in CIS system





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