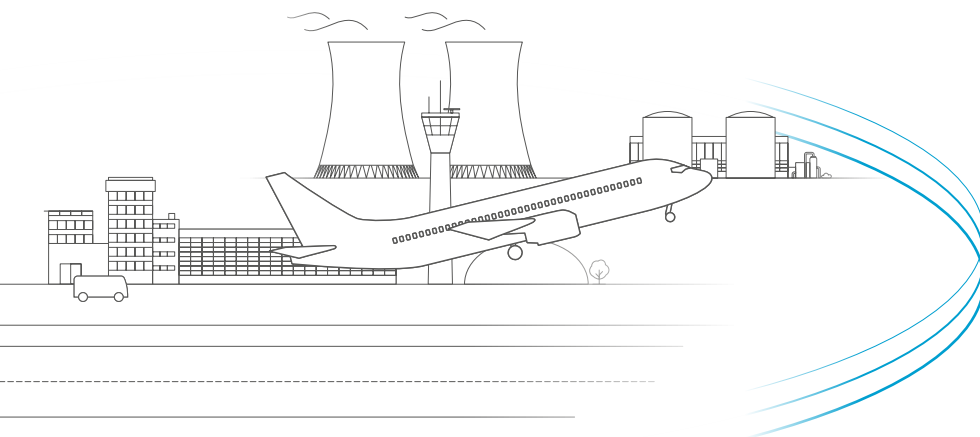




GUARD

RADAR
SECURITY
SYSTEM





GUARD is a modern perimeter security system based on a radar station. The GUARD operates on the principle of a virtual fence and represents an alternative to expensive traditional security systems such as safety fences, vibration sensors and others.

The radar solution is able to replace several dozen CCTV cameras and thermal cameras and reduce capital costs for additional equipment. The GUARD detects an intruder even in adverse weather conditions 24/7.

System operation

When the system detects a moving target, it shows its location on the map and precisely guides PTZ cameras and thermal cameras to the object. An unlimited number of targets are simultaneously detected on the interactive map including those difficult to recognize: rubber inflatable boats, swimmers, small animals.

SCOPE OF USE

Airports

Fuel & Energy Complex

Oil & Gas Section

Ports and harbors

Borders

Trout farms

Livestock farms

Agricultural lands

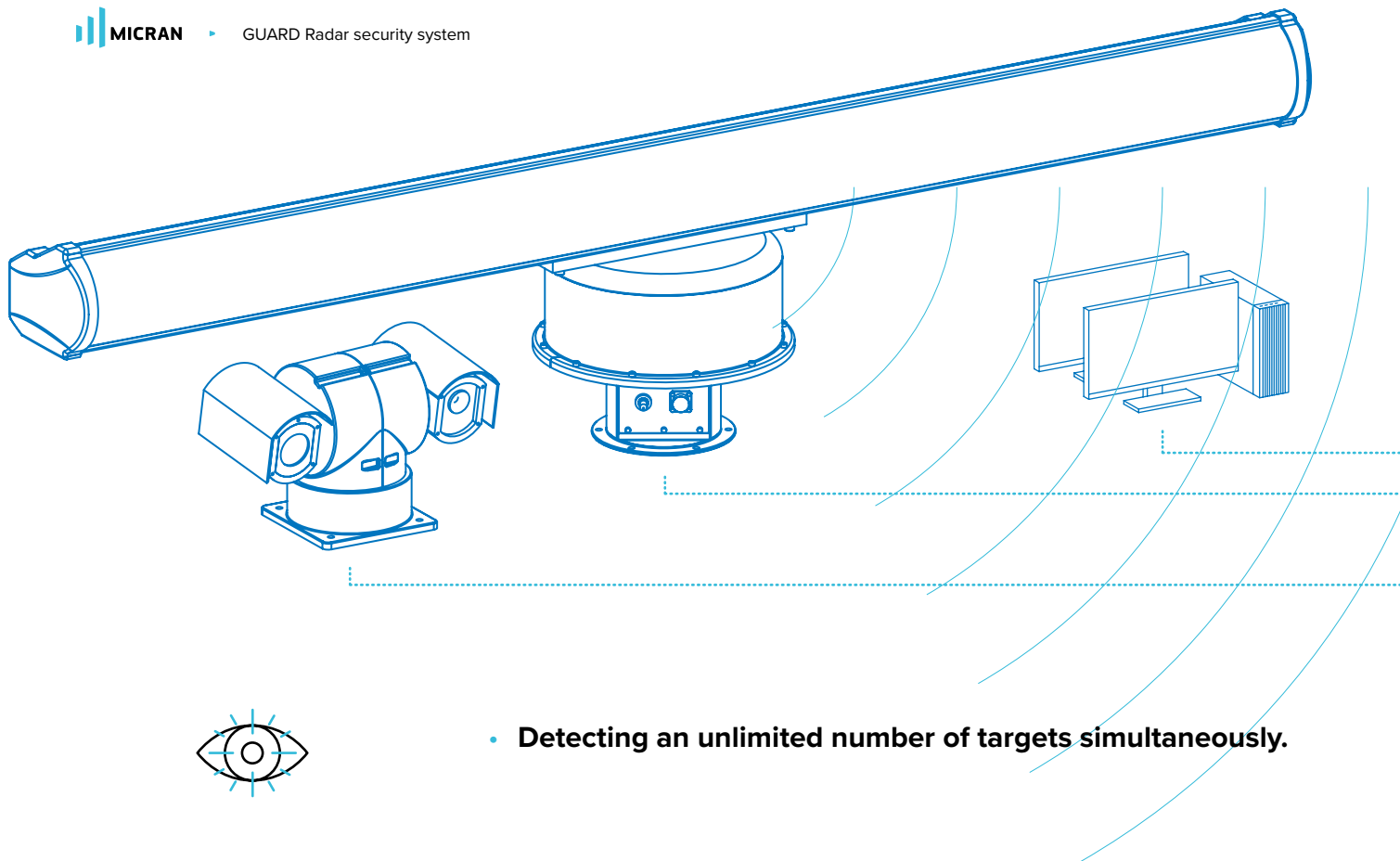
Private ownerships

Land plots

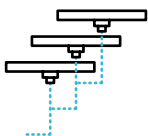
Cottage villages

Parks and recreation facilities

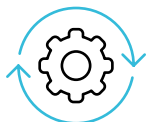
Resort zones



- **Detecting an unlimited number of targets simultaneously.**



- **Combining several radars into a single operator information window.**



- **Integration with other systems:
AMCS, geoinformation, other security alarm systems.**



- **Support for digital cameras using ONVIF, PELCO-D, VAPIX protocols.**



- **Effective false alarm filtering system.**



- **Free technical support from the manufacturer
for the entire period of system operation.**

Functionality

Geo referencing

The system implements the function of data binding to the area map. A mark appears on the plan of the object with precise information about the target: coordinates, speed, and trajectory of movement. Based on the received data, the system predicts the further movement of the intruder intruder.

Events logging

If there is an archiving server, the system can record all recorded information and store it in the archive. This allows to conduct a qualitative assessment of the situation and adjust threat scenarios.

Convenient data display

Just one operator is able to monitor the entire facility and control the interception group. The monitor screen displays information about all the detected targets simultaneously. The operator doesn't have to monitor dozens of images from video cameras. This feature reduces operator workload and probability of human error.

Adaptability

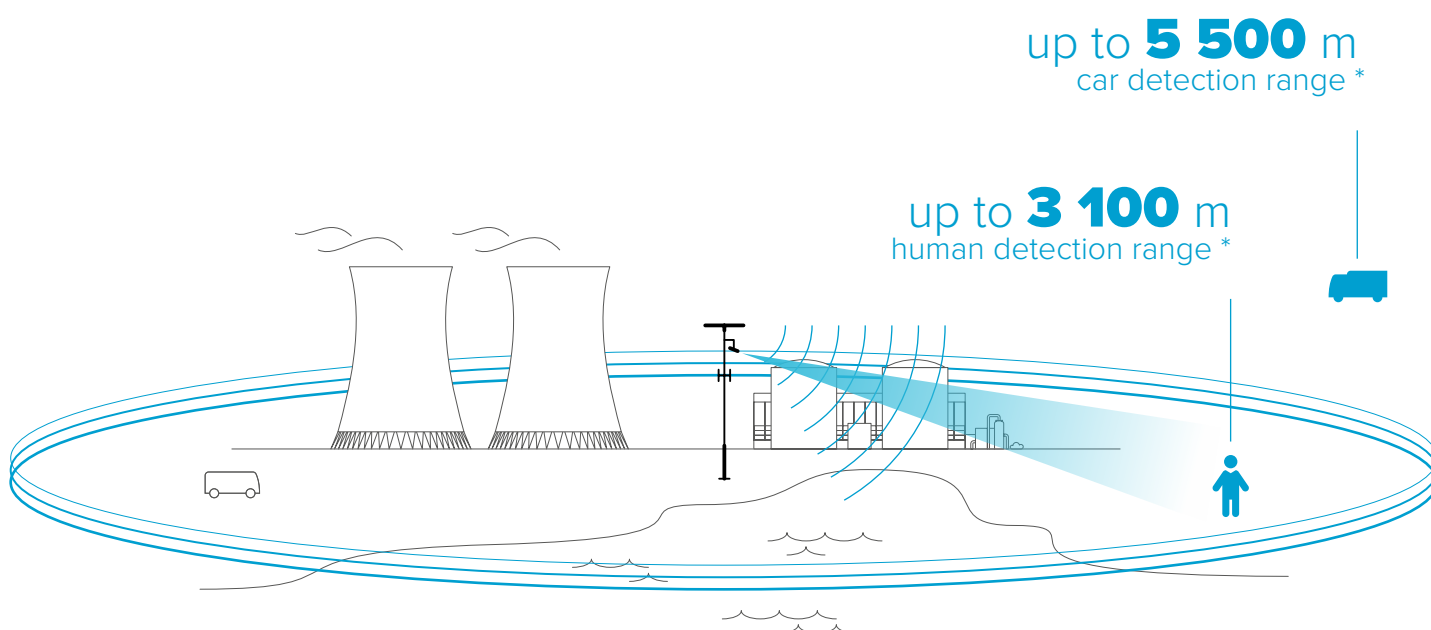
Guard can be used both as an autonomous system and as part of the overall infrastructure of an integrated security system, which includes a number of auxiliary security alarm tools: motion sensors, active infrared barriers, radio beam sensors, laser scanning sensors, vibration sensors, and others.

Flexible configuration

The security system is completed for the purposes and tasks of each facility individually and may include a different number of sensors, servers, operator workstations.

All-weather capability

The radar is effective even in conditions of poor optical visibility. The physical properties of X-band radar allow target detection even when CCTV cameras can be blinded by rain, fog, or snow.



* The actual detection range may vary, depending on the characteristics of the installation site and surrounding objects.

Interface

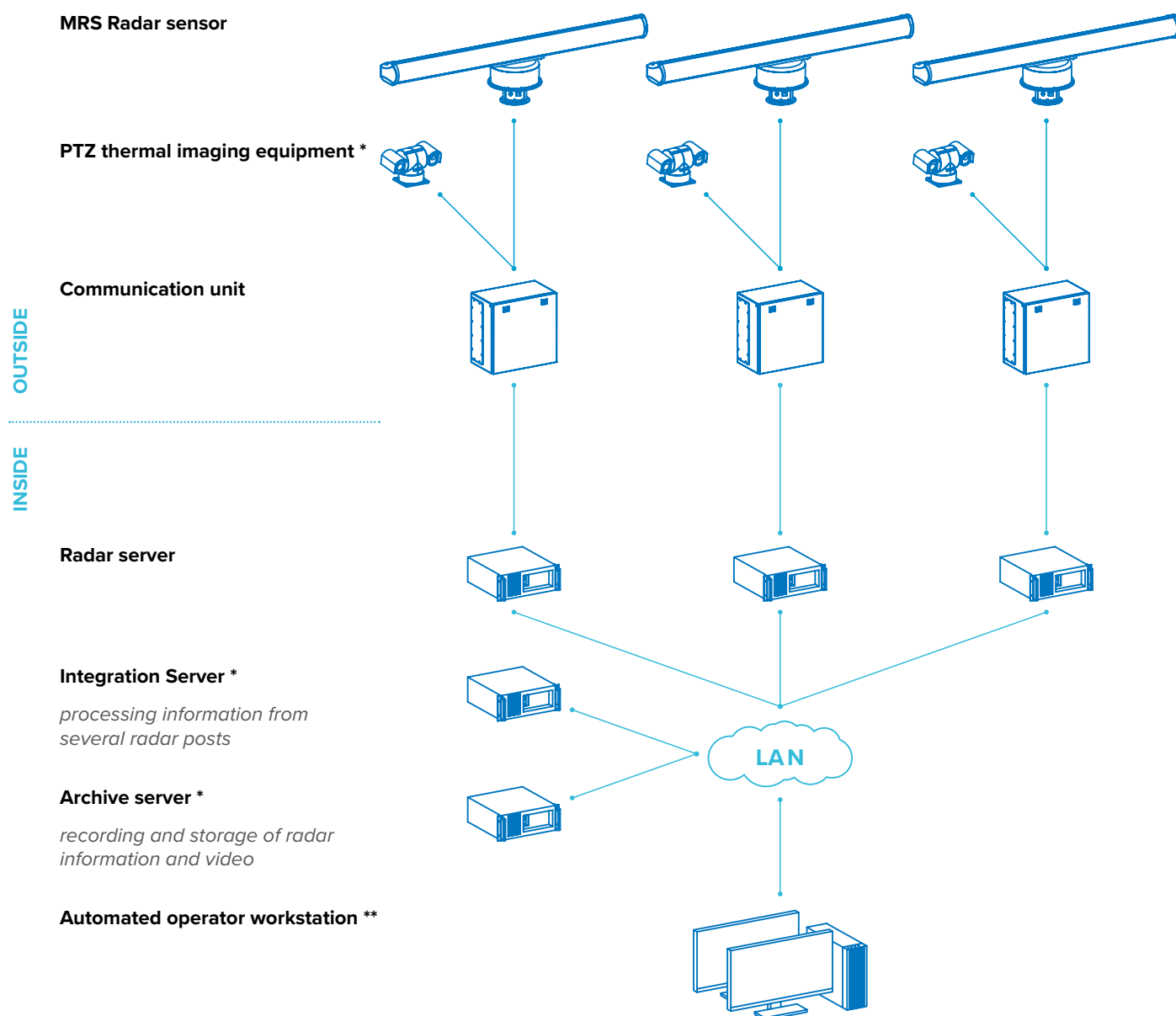
The GUARD security system has a convenient user interface. Information from video and thermal cameras is displayed in separate windows. The windows can be arranged in a convenient way, even on different monitors. Moving targets detected in the configured zones are displayed on the map as pins with a number.

In the tab of the "Alarm" window, a list of all fixed moving targets is displayed. The operator only needs to react to the occurrence of an event.

Zones can be allocated in the protected area. The area map can be divided into a freeform with assigned hazard levels and characteristic system response to detected targets in each zone. The zones can be switched on and off both in manual and automatic mode according to a set schedule. The number of allocated zones is not limited.



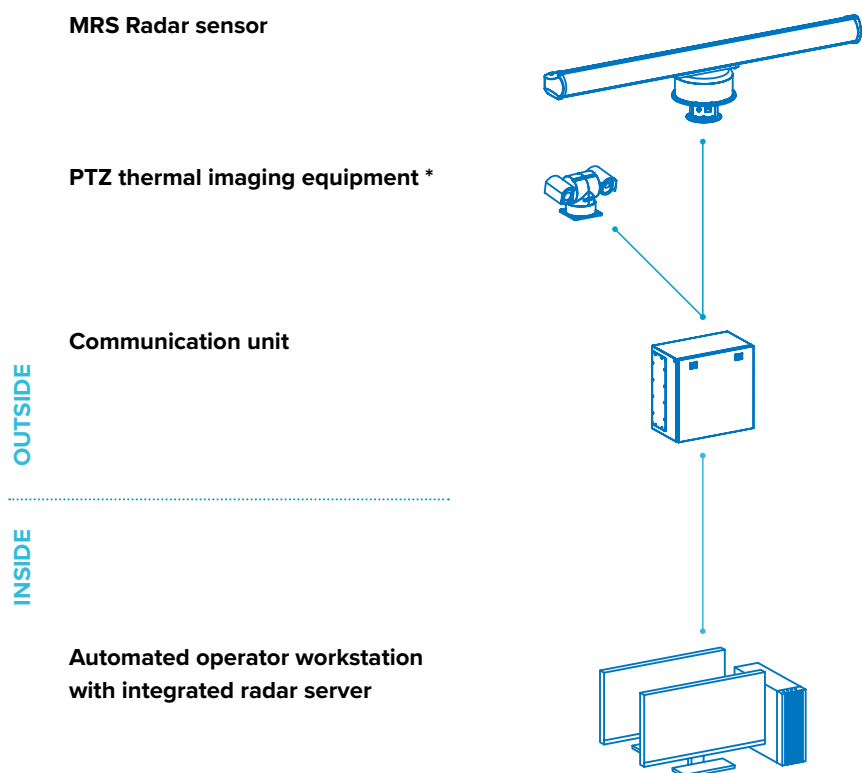
System composition of GUARD



* Equipment is supplied at the request of the customer.

** The quantity and configuration of the equipment are determined by the customer.

System composition of GUARD Light



GUARD Light

**LOW
COST**

**FAST
DEPLOYMENT**

**LOW POWER
CONSUMPTION**

GUARD Light is a simplified GUARD-based radar security system.

The user gets access to all the necessary information about the protected object:

- the coordinates of the intruder on the site map;
- the trajectory and speed of the offender;
- thermal optical image of what is happening.

Comparison of GUARD and GUARD Light systems

| Security system | GUARD | GUARD Light |
|--|-------|-------------|
| Radar module | | |
| Track an unlimited number of simultaneous targets | ✓ | ✓ |
| Algorithm settings | ✓ | ✓ |
| Combining several radars into a single operator information window | ✓ | |
| Dedicated radar server | ✓ | |
| Automated operator workstation with built-in radar server | | ✓ |
| Integration with other systems | | |
| Integration with a geoinformation system | ✓ | ✓ |
| Integration with a observation system | ✓ | ✓ |
| Integration into the upper-level system | ✓ | |
| Integration with the ACS system | ✓ | |
| Integration with video analytics system | ✓ | |
| Archive module | | |
| Archive of screenshots | ✓ | ✓ |
| Archive of radar information | ✓ | |
| Archive of targets | ✓ | |

Specifications

Maximum detection range of GUARD and GUARD Light systems, km

| Sensor type | MRS-1000 | MRS-1001 | MRS-1010 | MRS-1011 |
|-------------|----------|----------|----------|----------|
| Car/boat * | 3.5 | 5.5 | 3.5 | 5.5 |
| Human * | 2 | 3.1 | 2 | 3.1 |

* The actual detection range may vary, depending on the characteristics of the installation site and surrounding objects.

GUARD and GUARD Light systems power consumption, W

| Security system | GUARD | GUARD Light |
|---|-------|-------------|
| Radar sensor MRS-1000 / MRS-1001 | 100 | 100 |
| Radar sensor MRS-1010 / MRS-1011 | 500 | 500 |
| Radar server | 700 | not |
| Integration server | 700 | not |
| Archive server | 500 | not |
| Automated operator workstation | 500 | not |
| Automated operator workstation with integrated radar server | not | 500 |
| Altogether, max. | 2 500 | 600 |

MRS series radar sensors

| Sensor type | MRS-1000 | | MRS-1001 | MRS-1010 | MRS-1011 |
|---------------------------------------|--|--------|----------|---------------|----------|
| Working frequency range, MHz | 9 200...9 500 (X-band) | | | | |
| Type of transmit/receive module | solid-state | | | | |
| Type of antenna array | passive | active | passive | active | |
| Polarisation | horizontal | | | | |
| Type of radiation | frequency-modulated continuous wave (FMCW) | | | | |
| Max transmitter output power, W, max. | 1 | | | | |
| Max range resolution, m | 3 | | | | |
| Beam width in the vertical plane, ° | 30 | | | | |
| Beam width in the horizontal plane, ° | 1 | | | | |
| Minimum detection range, m | 1 | | | | |
| Rated speed of rotation, rpm | 24 | | | | |
| Resistance to wind loads, mps, min. | 28 | | | 50 | |
| Communication interface | Ethernet 100Base-T | | | | |
| DC power supply, V | +17...+27 | | | | |
| Protection level | IP65 | | | | |
| Operating temperature range, °C | -40...+50 | | | | |
| Dimensions, cm | 37 × 40 × 200 | | | 36 × 38 × 200 | |
| Weight, kg | 29.5 | | | 38.9 | |

Communication unit

| | |
|---------------------------------|--------------|
| Protection level | IP55 |
| Operating temperature range, °C | -40...+55 |
| Dimensions, cm | 50 × 50 × 30 |
| Weight, kg | 23 |

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This information is subject to change without notice.

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