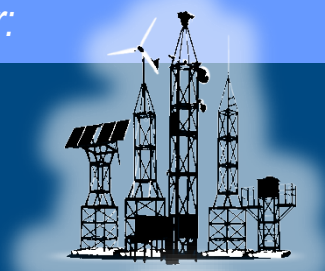
Technical means for perimeter protection and border control

Stil SOFT
Созидая совершенство

Integrated solution:

For effective control, protection and monitoring of long perimeters, approaches and routes of movement at the land and water sections of the critical facilities, it is advisable to use mentioned systems together:

- Stationary systems AVANPOST and Mobile systems MUROM for round-the-clock video and thermal imaging monitoring of the directions of possible movement of violators
- Off-road vehicle based SCORPIO system for video surveillance at remote areas.
- MONGOOSE system for local perimeters, approaches and routes of movement protection
- Radars STS-177 and STS-179 together with AVANPOST, MUROM and SCORPIO systems for monitoring open land and water spaces, detecting and displaying the trajectory of moving targets.
- UAV based systems for rapid response to the triggered technical means of protecting the state border, perimeter protection systems, monitoring hard-to-reach areas and directions of possible movement of violators, areas of illegal migration and cargo transportation, illegal fishing



The required number of systems can be calculated based on the results of the survey of the landscape, the climatic conditions of the area and the customer's technical specifications

AVANPOST

Autonomous system for video and thermal imaging surveillance

Intelligent video surveillance of LARGE open areas (land and water) in a real time mode

Automatical target detection and tracking

Wireless communication channel with remote monitoring center

Autonomous!

solar energy or wind energy powered

30 km data transmission in a real time mode

AVANPOST Optical Electronic Module

pan-tilt rotating platform provides 360 degrees view

The module automatically turns in the direction of the moving target in accordance with coordinates received from the radar (or by operator's manual command)

«Human» target detection by daylight video camera - up to 10 000m

«Human» target detection by thermal imaging camera - up to 4200m

«Automobile» target detection by daylight video camera - up to 10 000m

«Automobile» target detection by thermal imaging camera - up to 7900m

«Ship, boat» target detection by daylight camera - up to 10000 m

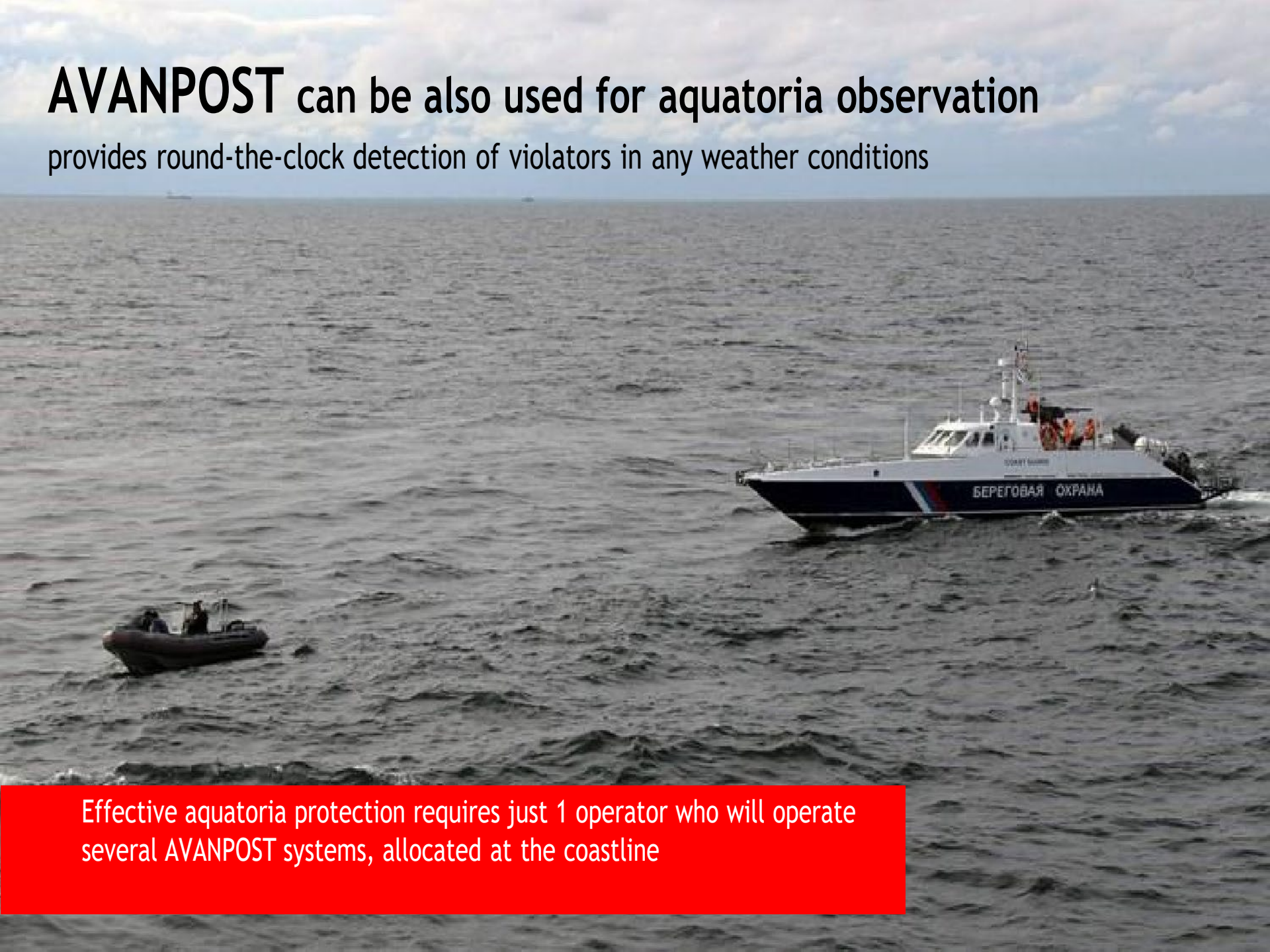
«Ship, boat» target detection by thermal imaging camera - up to 7900m

Human-type target detection by a long-range video camera, not less than	10000 m
Human-type target detection by thermal imaging camera, not less than	4000 m
Automobile, ship, boat- type target detection by a long-range video camera, not less than	10000 m
Automobile, ship, boat- type target detection by thermal imaging video camera, not less than	7900 m
Automatic scanning mode for pre-set control points with target detection	Up to 30 points
Pointing the video camera at the target by two clicks of the “mouse” on the video image	Yes
Pointing the camera at at the target by two clicks of the “mouse” on the map	Yes
Targets automatic detection and tracking	Yes
Intelligent power save mode	Yes
Receiving and intelligent processing of notifications from security detectors of any type installed on the protected perimeter	Yes

Transmission distance of a radio relay communication channel	Up to 30 km
Speed of information transmission in the radio channel, not less than	40 Mbit/sec
The power of the solar module (STL-717), not more than	800 W
Battery capacity	1600 Ah
Remote monitoring of rechargeable batteries	Yes
The range of frequencies of radio relay communication	2400-6425 Hz
Product lifetime	7 years
Temperature range of the line post	-40°C +50°C
Temperature range of the stationary post	+5°C +45°C
Line post power supply Stationary post power supply	48B±17% ~220B 50 Hz
Recovery time, no more than	5 min.
Autonomous work with fully charged batteries, not less	9 days

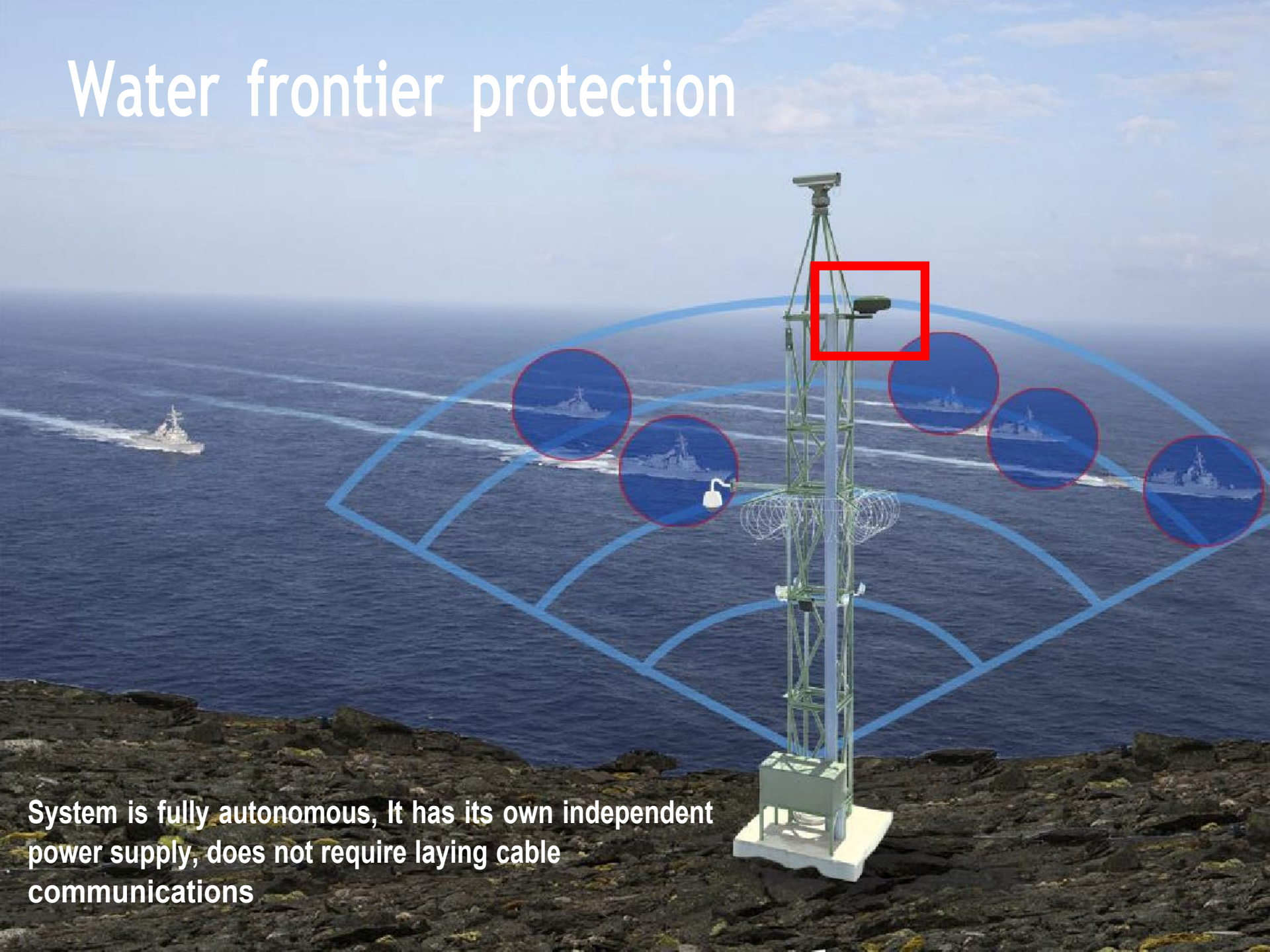
AVANPOST can be also used for aquatoria observation

provides round-the-clock detection of violators in any weather conditions



Effective aquatoria protection requires just 1 operator who will operate several AVANPOST systems, allocated at the coastline

Water frontier protection



System is fully autonomous, It has its own independent power supply, does not require laying cable communications

STS-177 Radar

Middle range, 2300 m

Display of moving trajectory and distance to different moving targets

Detection and identification of the moving objects on open ground and water surface

Up to 90 targets simultaneous tracking

Noise filtering for plants on the land and waves on the water surface

Special algorithm of radio signals processing

Low power of electromagnetic radiation

Low power consumption

Ideal for land, officially used by Russian Ministry of Defense

STS-179 Radar

Long range, 20000m

Monitoring of open maritime environment, displaying of trajectory, direction and distance to various moving targets

- Automatic target-tracking by camera according to the coordinates acquired from the radar
- Simultaneous tracking of target
- 20 km surveillance range
- Operating band 9410±30 MHz
- Operation mode 24/7 in any weather conditions
- Azimuth coverage - 360 deg.
- Vertical beam width 22 deg.

Max number of tracking targets - up to 60

Long-range camera and thermal-imager point at the target and track it according to data, obtained from the radar

Stable operation in poor visibility and difficult climatic conditions

Ideal for water areas, allows to detect boats approaching the coastline for illegal fishing, poachers boats, migrants **etc**

Portable fast-deployment systems

24/7 video surveillance and perimeter protection

MUROM

Fast deployment autonomous video and thermal imaging surveillance

SCORPIO

Off-road vehicle based video and thermal imaging surveillance

MONGOOSE

System for local perimeter protection

MUROM

Mobile Video Surveillance and Thermal Imaging System

- Independent power supply
- 10km/4,2km Day/Night human detection
- Automatic target detection

30 km wireless communications link

30 min deployment time

Can be used as a movable option for land and water area monitoring from the coastline

Transportation by car, mobile version of AVANPOST

Automatic scanning mode for pre-set control points with target detection		Up to 30 points
Video image resolution at a frequency of 25 fps, pixels -SDP-8615M thermal imaging camera - long-range video camera		640x480 2592x1944
Pointing the video camera at the target by two clicks of the “mouse” on the video image		Yes
Pointing the camera at at the target by two clicks of the “mouse” on the map		Yes
The video camera sector of view: - horizontally - vertically		360° ±45°
Transmission distance of a radio relay communication channel		Up to 8km
Speed of information transmission in the radio channel, not less than		Up to 40 Mbit/sec
Mast height, STS-10903		5,2 m
The power of the solar modules		400 W
Battery total capacity		200 Ah
Remote monitoring of rechargeable batteries		Yes
The range of frequencies of radio relay communication		5 GHz
Product lifetime		7 years
Power supply separate parts of the system	DC voltage	24V
	AC voltage	220V/50Hz
Required number of people for deployment		3
Approximate deployment time by 2 people		2 hours
Recovery time, no more than		5 min.

MUROM - mobile fast deployment day/night video surveillance system

Fully autonomous: solar energy or diesel energy powered

Human detection day 10km, night 4,2km

Signal transmission - up to 30 km

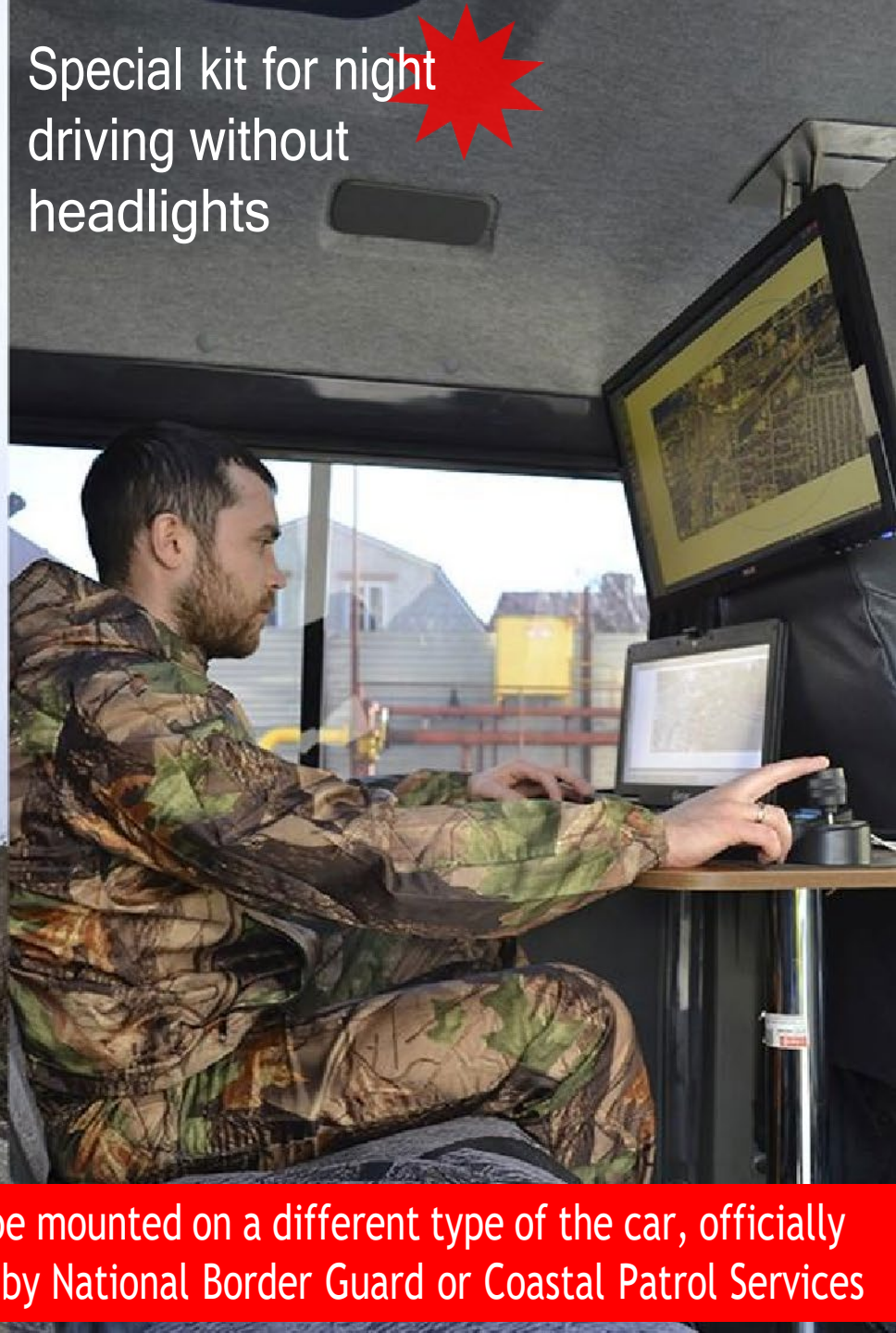
Target tracking - automatically

Autonomous work with no recharge 4 days

Scorpio

Off-Road Vehicle-Based Standalone Portable Video Surveillance and Thermal Imaging System

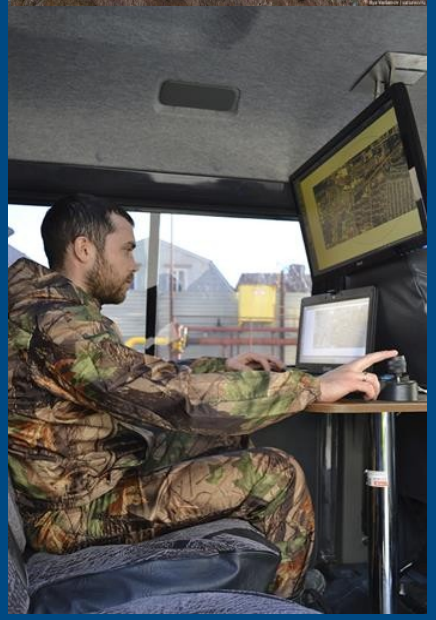
- 5 min deployment
- 10km/4,2km Day/Night human detection
- Automatic target detection
- Mongoose-based self-protection set
- Long-time standalone operation



Special kit for night driving without headlights

Can be mounted on a different type of the car, officially used by National Border Guard or Coastal Patrol Services

Detection range of a human type target with a video camera	up to 10000 m
Detection range of a human type target with a thermal-imaging camera	up to 4000 m
Detection range of a vehicle/boat type target with a video camera	up to 10000 m
Detection range of vehicle/boat type target with a thermal-imaging camera	up to 7900 m
Auto scanning of predetermine positions with target detection mode	up to 30 positions
Resolution at 25 fps, px - thermal-imaging camera - long-range camera	 640x480 2048x1536
Camera pointing by double click on the image	Yes
Camera pointing by double click on the map	Yes
Video camera view angle, degrees: - vertical - horizontal	 360° ±45°
STS-10904 mast height with mounted equipment, max, m	4,2
Fuel distance with full tank, km	up to 600
Gross Vehicle Weight, kg	up to 3000
System lifetime	7 years
System operating temperature	from - 40°C to + 50°C
System autonomous operation time, h	up to 24
System deployment time, max, min	10
Personnel, people	2-3



MUROM / SCORPIO
Optical Electronic Module

pan-tilt rotating platform provides 360 degrees view

The module automatically turns in the direction of the moving target in accordance with coordinates received from the radar (or by operator's manual command)

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«Ship, boat» target detection by daylight camera - up to 10000 m

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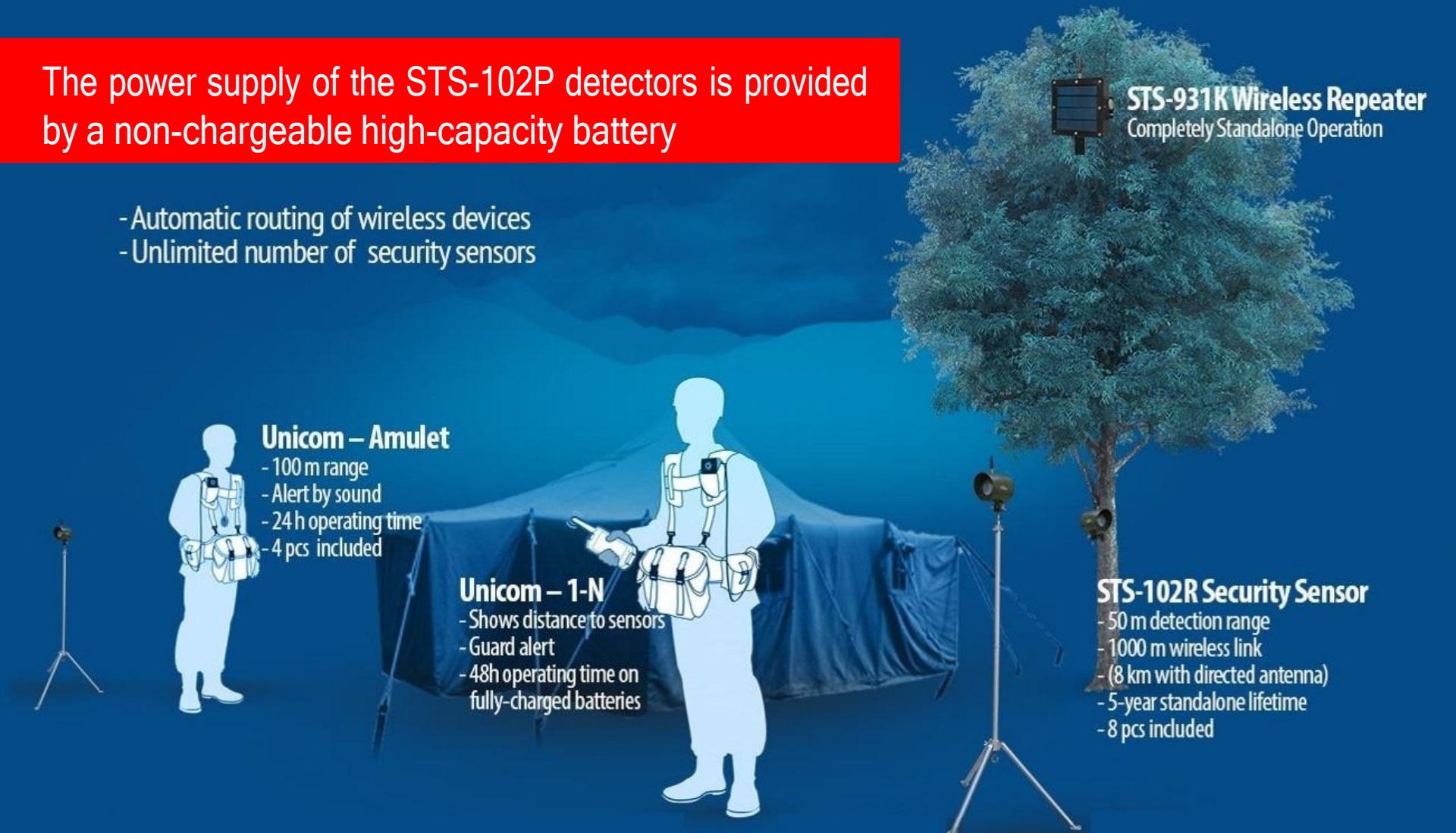
MONGOOSE - mobile system for local perimeter protection

The power supply of the STS-102P detectors is provided by a non-chargeable high-capacity battery



MONGOOSE

mobile system for local perimeter protection

STS-102P security sensors allocated one by one each 50m around protected perimeter

In case of intrusion, on-duty officer gets signal to Unicom-1-N communication device

Unicom-Amulet device provides light, sound, and vibration alerts

STS-931P Wireless repeater expands the coverage area of the MONGOOSE system network

5 years standalone lifetime!

Albatross - wearable, fast deployment, UAV-based surrounding territory control system

Fly around the hard-to-reach areas in order to detect possible intruders in advance

Operation via secured communication link (with directed antenna), 868 MHz

Coverage area up to 6 km

Video camera resolution 5 Mp

Set-up time by one person up to 10 min

Endurance up to 30 min
Radius 3 km

Max wind resistance for efficient en-route flight 14 m/s

Human detection distance up to 150m

Albatross P2

UAV-based surrounding territory control system: drone + start container

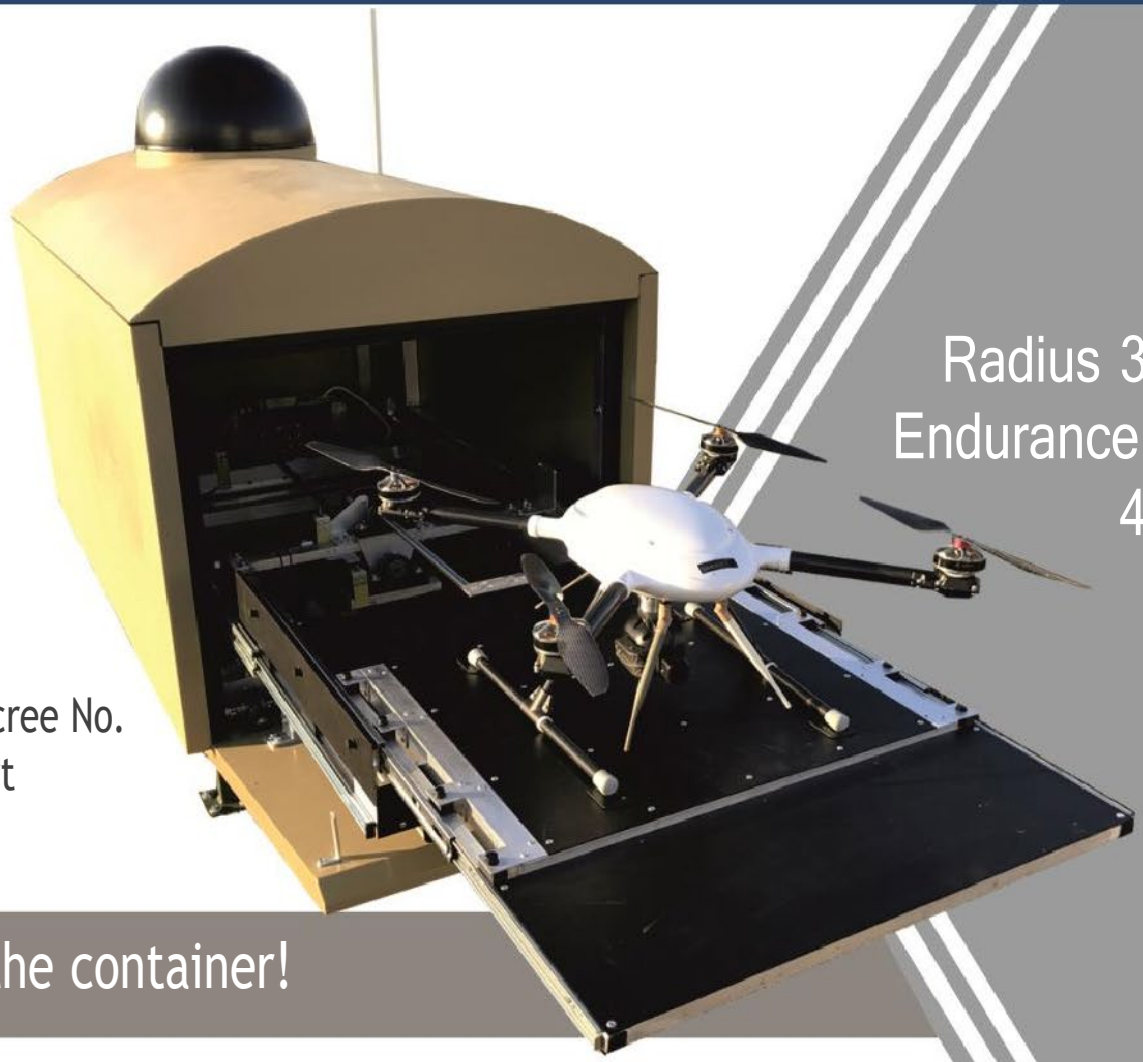
The system is used to observe remote points of the secured area, where it is impossible or impractical to organize local video surveillance

Integration with perimeter protection sensors or radar

Super quick response to a sensor's or radar triggering

Take off and landing in automatic mode

Certified in accordance with the requirements of Government Decree No. 969 of 26.09.2016 "On transport security"



Radius 3,5 km
Endurance up to 40 min

Battery charging inside the container!

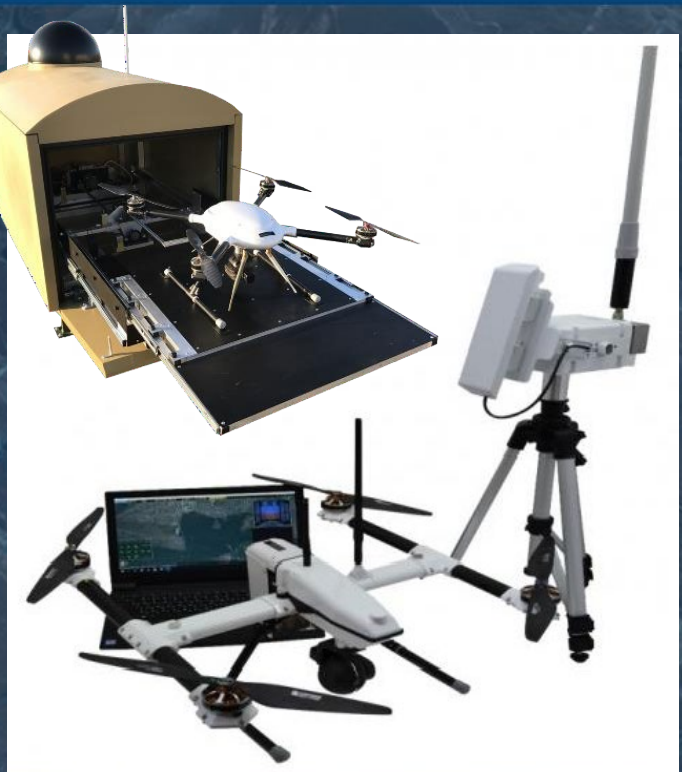
Albatross P2
technical characteristics

Max launch altitude above sea level, km	3000
Travel radius, up to, m	4000
Max wind resistance for efficient en-route flight, m/s	14
Max endurance time in normal weather conditions*, one set of batteries, up to, min	40
Position Hold/Preset waypoint flight/Positional data	GLONASS / GPS
Automatic take off from launching container	Yes
Automatic landing in launching container	Yes
Battery charging in launching container	Yes
Automatic UAV launch at PIDS sensor alert	Yes
Flight termination by operator command with manual control	Yes
Operating temperature, ºC**	from -25 up to +50

Albatros P2 - installation at the border post

ADVANTAGES of UAV-based surrounding territory control systems

- Fast response in case of security sensor's triggering;
- Effective solution for perimeters and border control
- Enhancing of area protection efficiency;
- Discreet observation and collecting information about intruding;
- Noise-resistance and protection of data in transit;
- Multi-level protection against operator's error;
- Broadcasting of video, obtained in real time mode
- Easy-to-use operator's interface



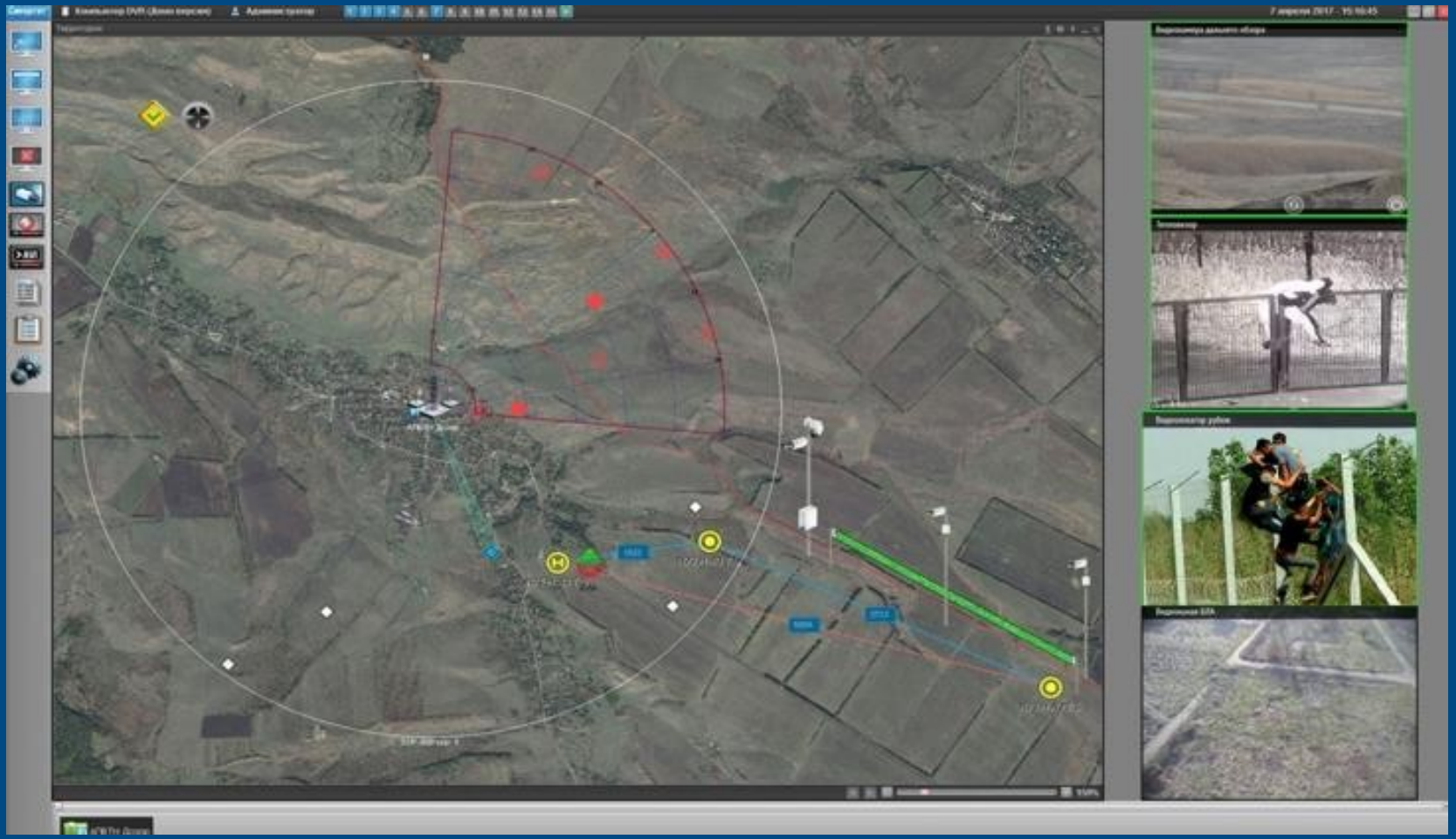
UAV based systems allow to dramatically decrease deployment of personnel and technical means as well as to enhance essential information obtaining flexibility

ADVANTAGES of integrated solution:

- Effective work in different weather conditions, smoke and in different time of the day
- High reliability
- Low power consumption and safe supply voltage
- Low probability of false alarms
- Effective target recognition in a poor and insufficient visibility
- The ability to deploy network structures from multiple sets of mutually overlapping working sectors protection

SPECIAL SOFTWARE

Allows to manage all protection devices in one operator's interface.



The system is intuitive. The functionality is easily accessible even to a new user!

PERIMETER PRTOECTION SENSORS

Autonomous and stationary ones

BRDM
Unit to receive signal from sensor by VHF link

STS-102
Security sensor

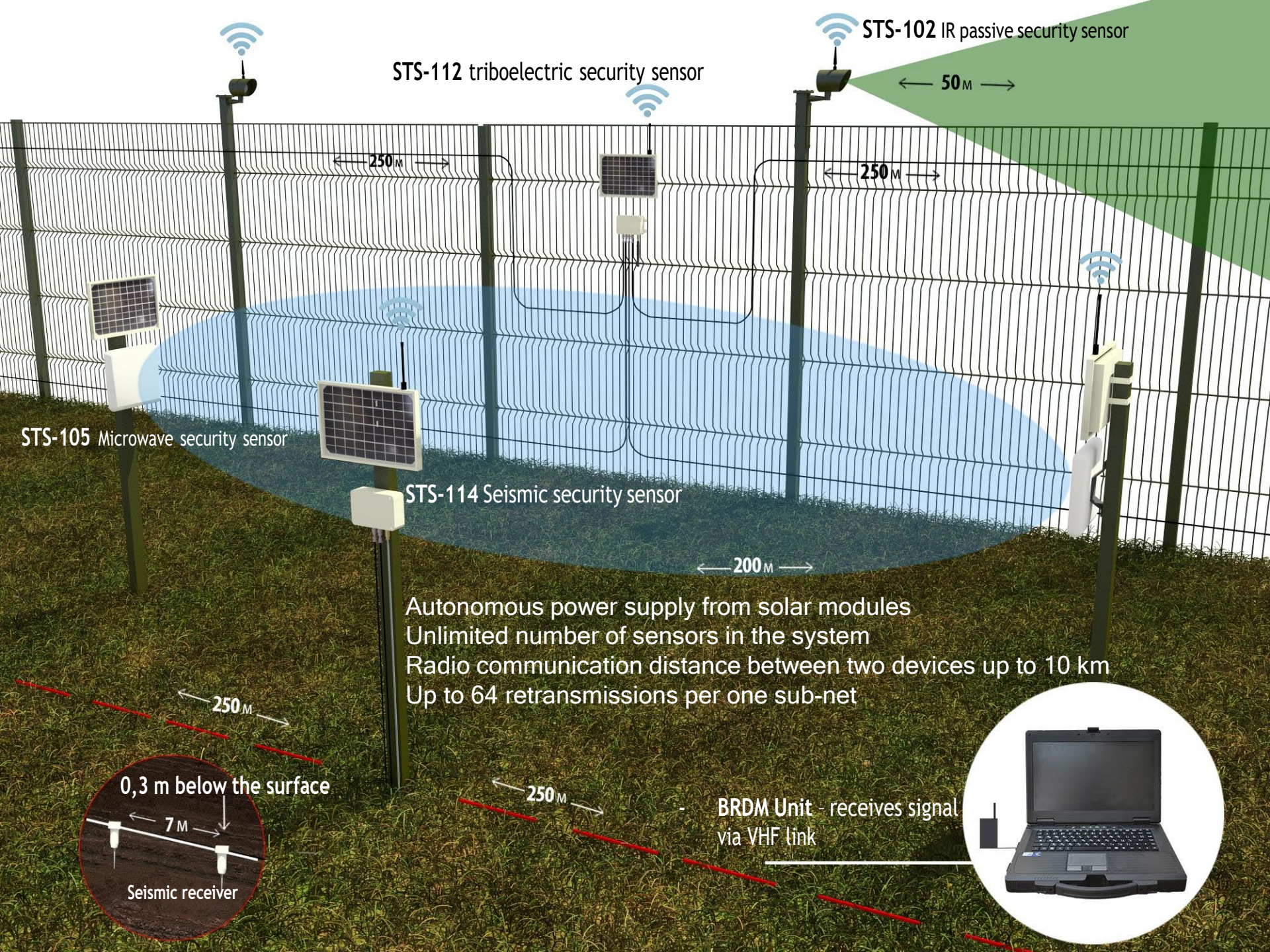
STS-931
Signal repeater

STS-105
Security sensor

STS-111
Security sensor

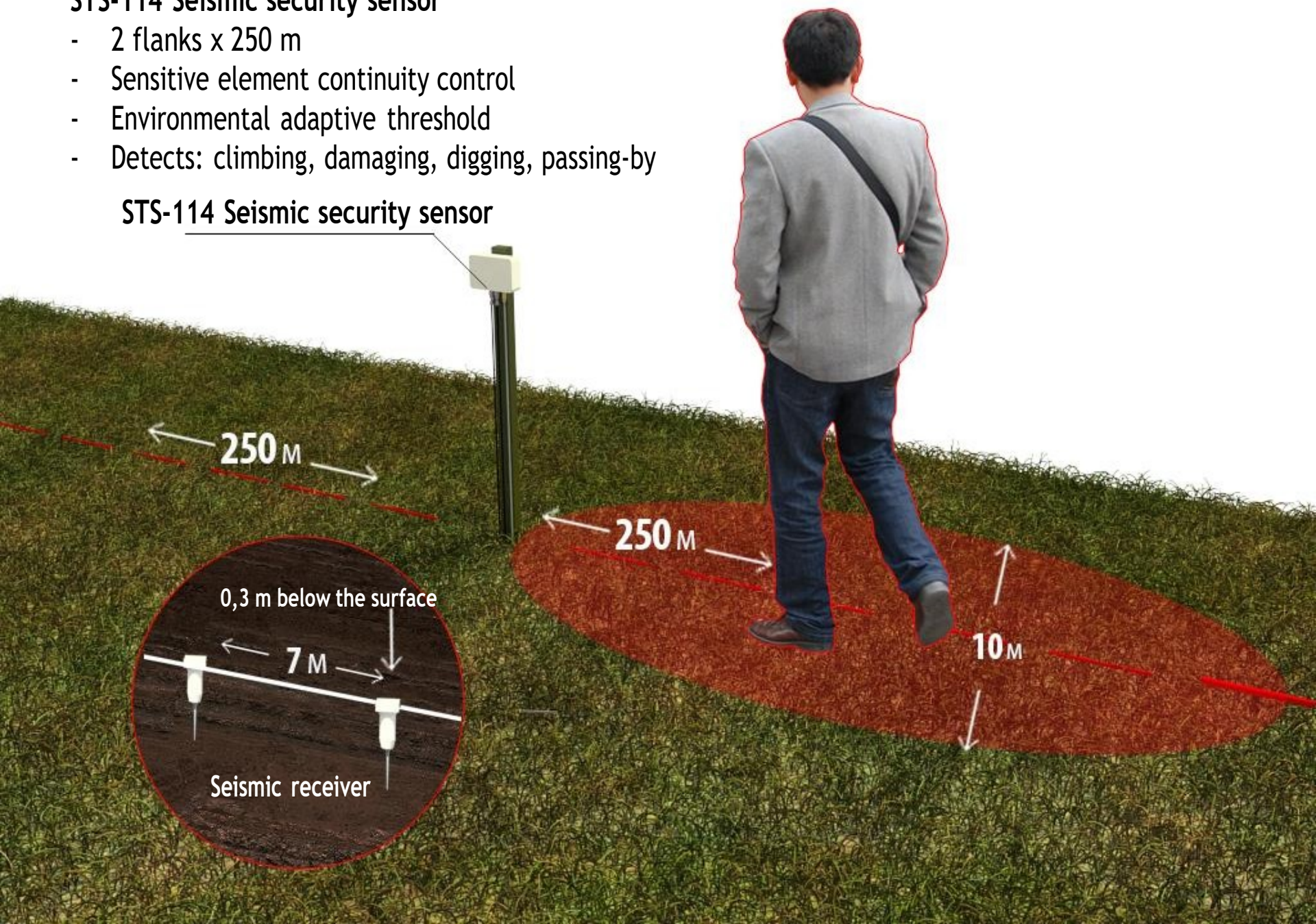
STS-114
Security sensor

Integration with perimeter security sensors allows to protect secured area against violators independently of the presence or absence of fencing and power supply


STS-102 IR passive security sensor
STS-112 triboelectric security sensor
50 M
250 M
250 M
STS-105 Microwave security sensor
STS-114 Seismic security sensor
200 M
Autonomous power supply from solar modules
Unlimited number of sensors in the system
Radio communication distance between two devices up to 10 km
Up to 64 retransmissions per one sub-net
250 M
0,3 m below the surface
7 M
Seismic receiver
250 M
- BRDM Unit - receives signal via VHF link

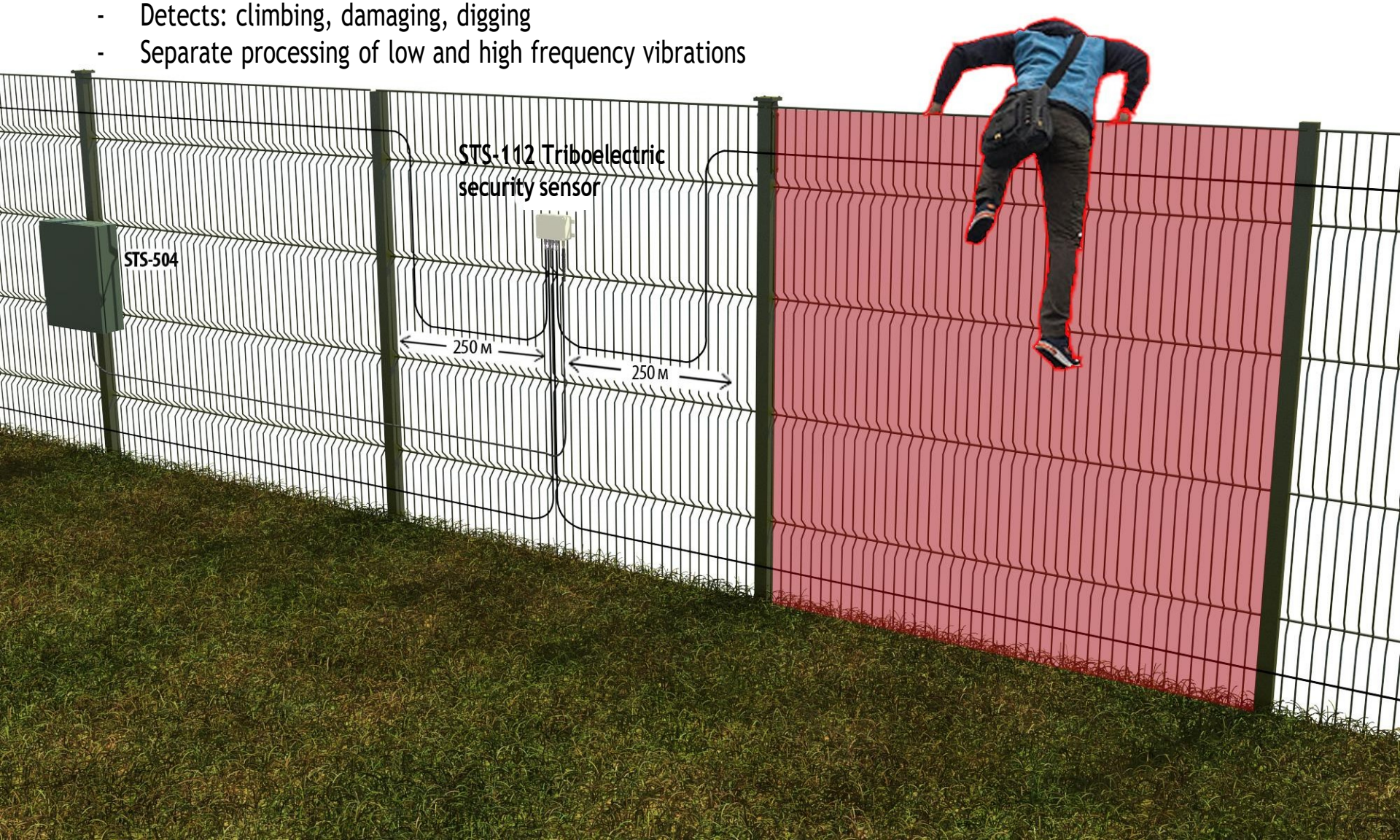
STS-114 Seismic security sensor

- 2 flanks x 250 m
- Sensitive element continuity control
- Environmental adaptive threshold
- Detects: climbing, damaging, digging, passing-by

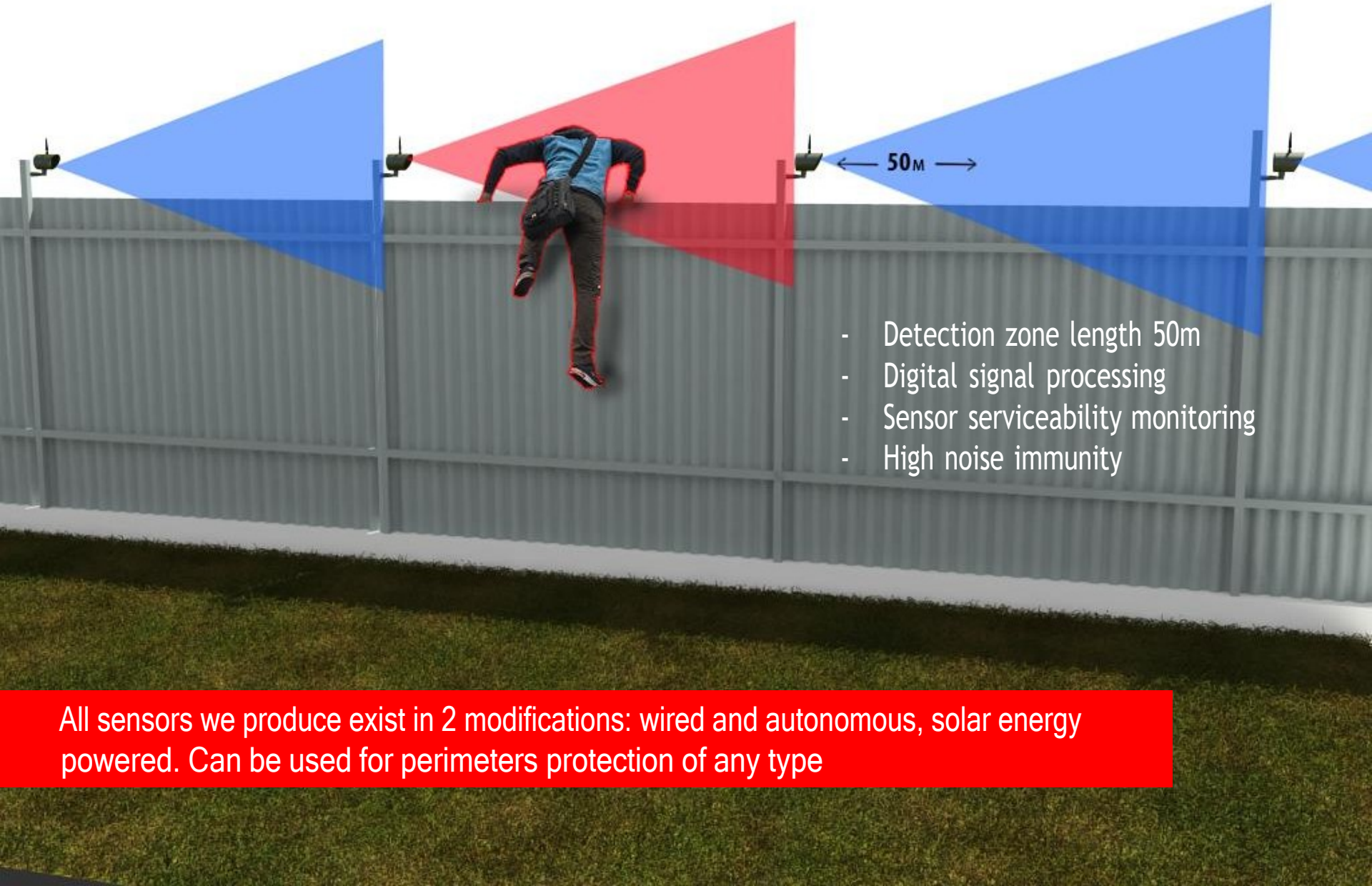


STS-112 Triboelectric security sensor

- 2 flanks x 250 m
- Sensitive element continuity control
- Environmental adaptive threshold
- Detects: climbing, damaging, digging
- Separate processing of low and high frequency vibrations



STS-102 IR-passive security sensor

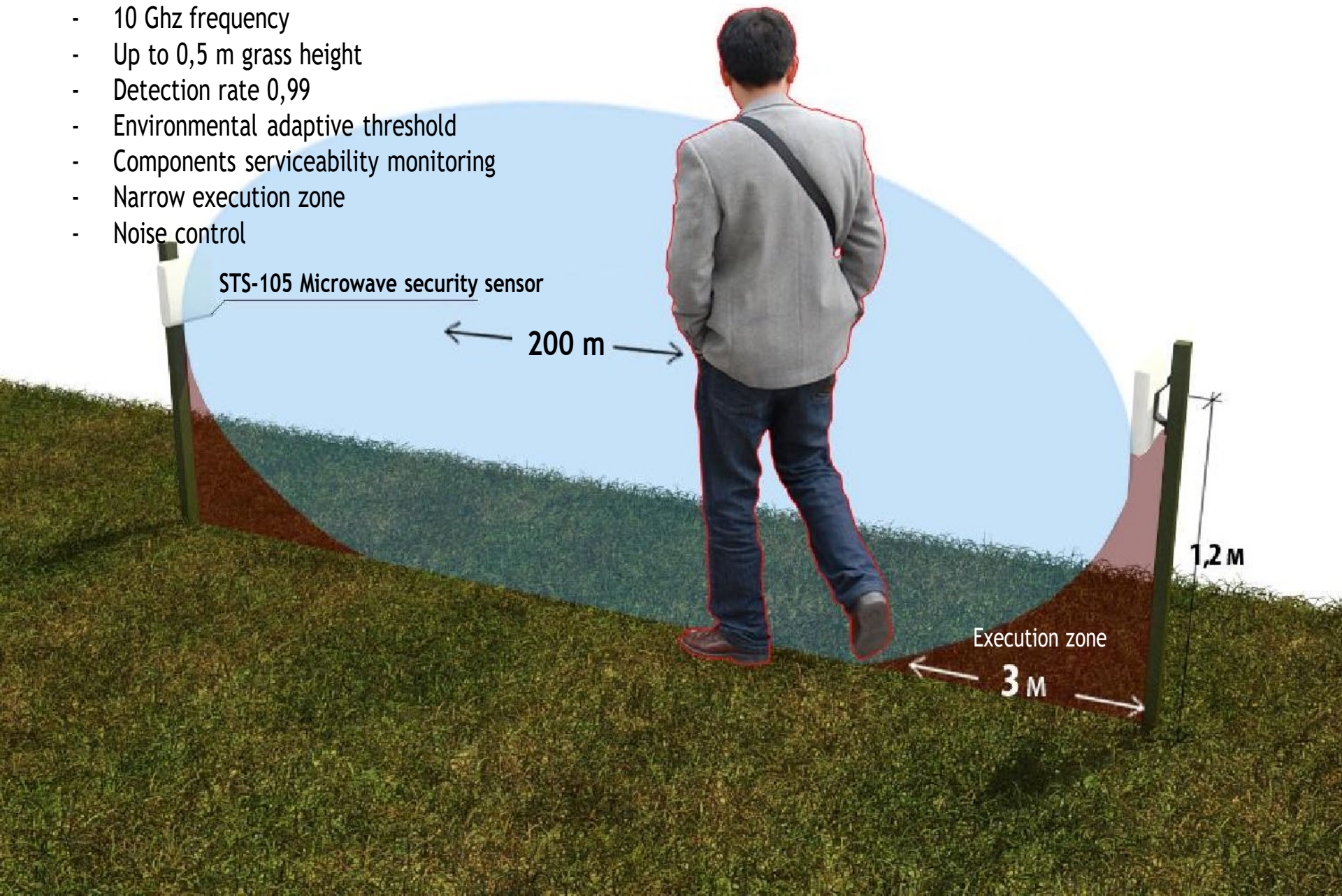


- Detection zone length 50m
- Digital signal processing
- Sensor serviceability monitoring
- High noise immunity

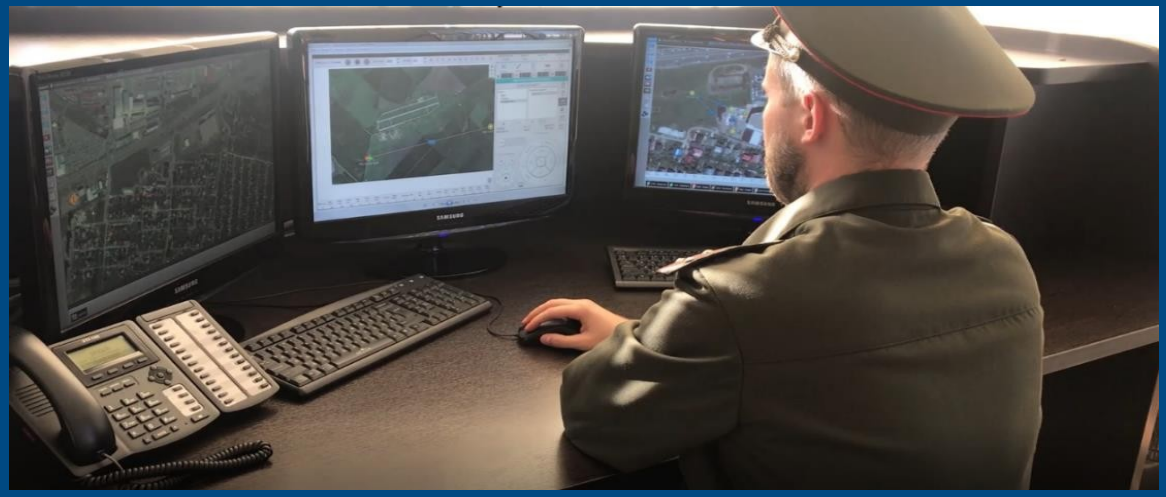
All sensors we produce exist in 2 modifications: wired and autonomous, solar energy powered. Can be used for perimeters protection of any type

STS-105 Microwave security sensor

- 200 m detection area
- 10 Ghz frequency
- Up to 0,5 m grass height
- Detection rate 0,99
- Environmental adaptive threshold
- Components serviceability monitoring
- Narrow execution zone
- Noise control



A wide range of perimeter security sensors for various applications, autonomous and stationary, working with and without fencing, allows to protect extended perimeters, regardless of the availability of infrastructure

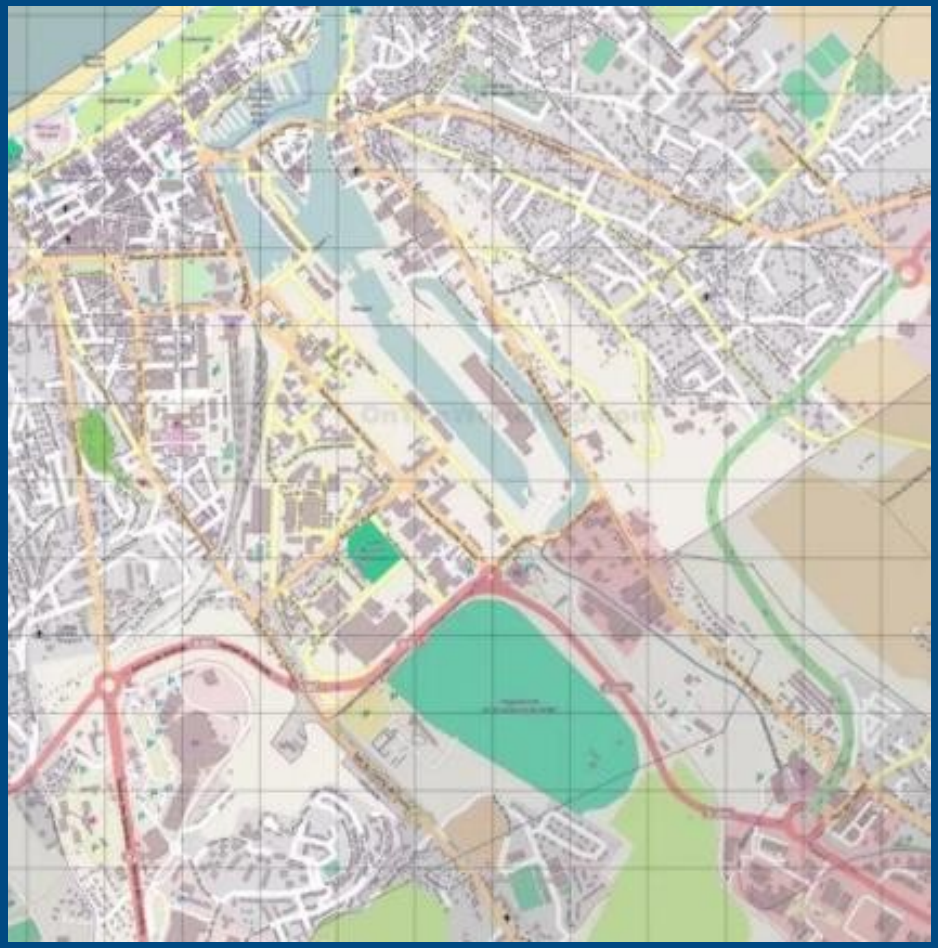


Data collection and processing system:

The system of data collection and processing can be implemented both within a single facility, or within several facilities united in a single hierarchy.

Operator see all information from all linear posts, radars, sensors in one interface. He doesn't need to switch between windows. System automatically opens related window at operator's computer in case of the moving target appearance and offers variants of actions. It makes operator's reaction in case of the intrusion more effective

All the operator's actions, communications, and camera video archives are saved for further analysis by the management



The system displays GIS-linked hierarchical maps with interactive pictograms of security equipment installed. Security equipment is being allocated by their geographical coordinates.

Video channels at operator's workstation open automatically by click on the area of interest on the map or by alarm.

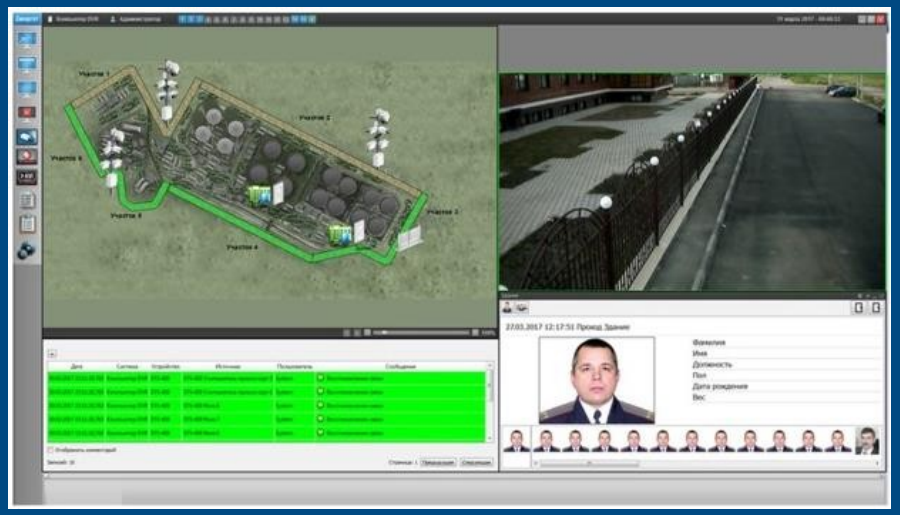
Moving targets will be visible on the map with their geographical coordinates, speed, type, direction

Automatically, in case of no reaction of the operator for a long time:

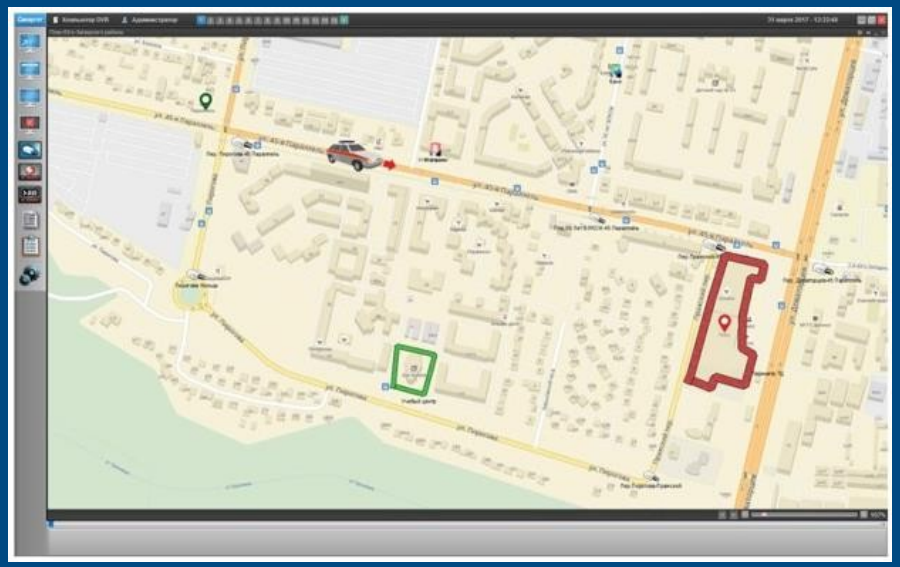
- Broadcasting an emergency message to the notification system
- Transferring incident management to the upper level
- Calling the police or other services to the place of the incident/intrusion
- And other actions possible in the existing system

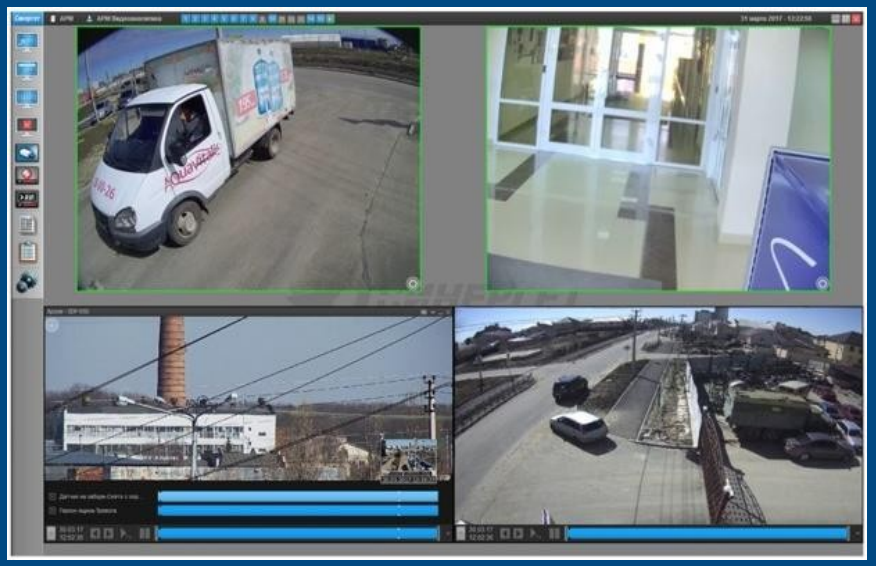
- The system of operational dispatch communication can be based on IP PBX of any type
- The system allows to integrate existing telephone lines, tranking radio communications, communication channels with emergency operational services into one system
- Circular broadcasting notification of management and employees
- Video conferencing with an arbitrary number of participants using the system
- Audio recording of negotiations over all communication channels

CONTROL ALL SYSTEMS IN ONE SOFTWARE INTERFACE



- Collection and processing of data acquired from all facility security subsystems;
- Perimeter intrusion detection;
- Facility control;
- Video surveillance of the facility and adjacent infrastructure;
- Access control for staff, visitors, passengers and vehicles entering the area
- Facility intercom and dispatching communication
- Public address and mass notification
- Security information and incident management.





PROJECT development:

All the offered products can be integrated into a single monitoring system, operate under software interface with data transmission to the monitoring center for analysis and rapid response to protect sensitive places on the land and water areas. Technical means can operate from autonomous energy sources and provide wireless communication channels with observation posts.

Technical solutions implemented with the proposed systems will allow:

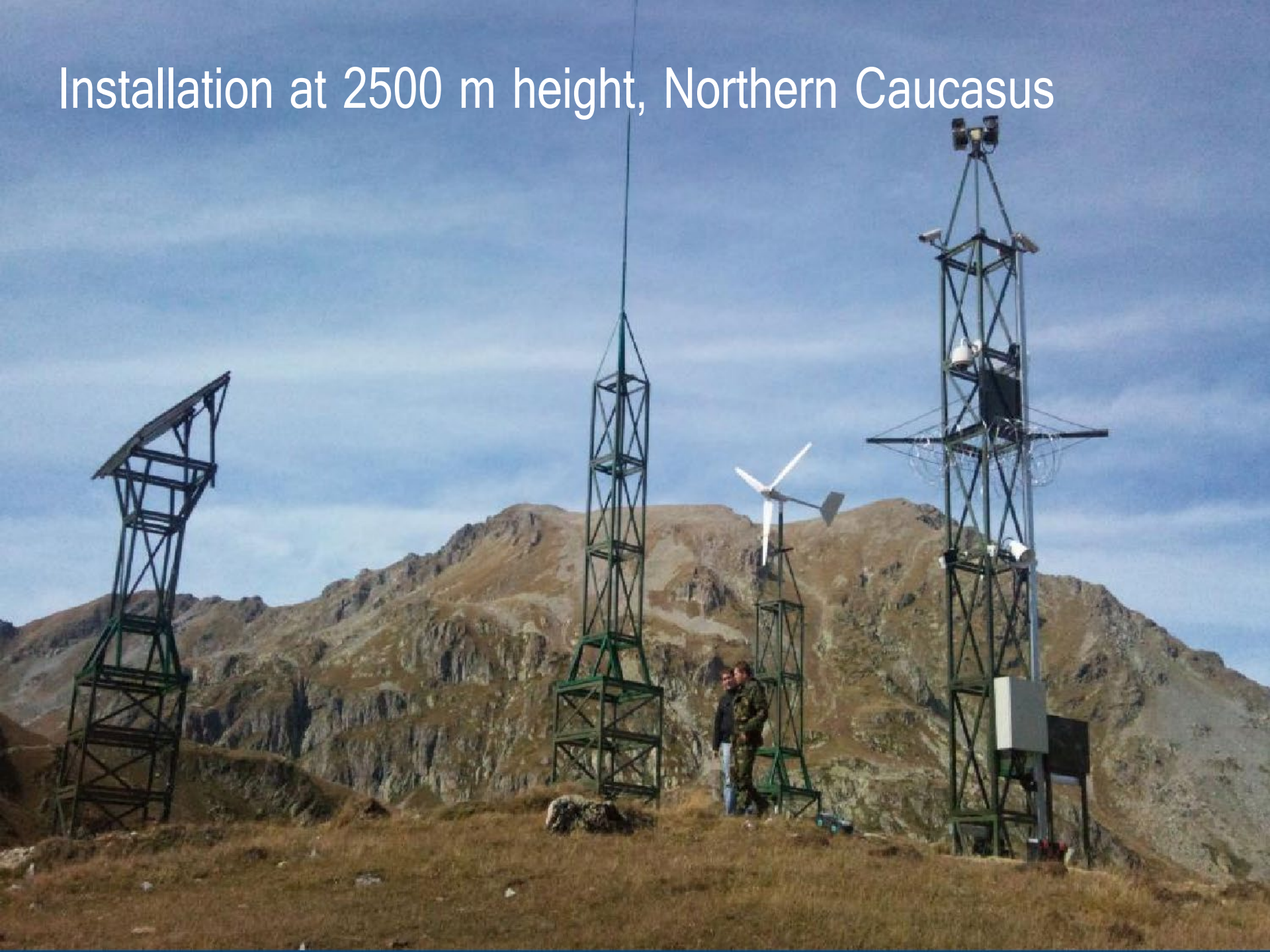
- to create a modern effective system of border protection, which allows to prevent the illegal movement of people and goods across the border through all-weather and round-the-clock monitoring of land and water sections of the border against illegal fishing;
- equip existing units of the border and coast guard troops with technical means to obtain the necessary information to take measures to counter illegal border crossing and monitor the surrounding water areas.

A technical and commercial proposal for a full-scale security system for a specific section of the border is formed on the basis of a pre-project survey, infrastructure facilities and landscape survey and customer system requirements at each concrete section of the border / perimeter.

HIGH RELIABILITY in a various climate and terrain conditions

Systems can be applied to protect mountainous,
flat land and water frontier area

Installation at 2500 m height, Northern Caucasus



Installation in tropical climate, works since 2016 year

Murmansk installation, extremely cold climate, works since 2012 year


Installation in mountains, works since 2012 year


Signal repeater for
wireless data
transmission in places
with complicated terrain


Mentioned products are widely used by Ministry of Defense of Russian Federation, Border Service of Russian Federation and other Governmental and big commercial customers

Our regular customers in Russia

Federal Security Service of Russia

Ministry of Defence

Federal Guard Service

Ministry of Internal Affairs

Border Service

Federal Penal Correction Service

Emergency Ministry

Federal Tax Service

Ministry of Transport

Magistrates Court

Federal Reserve Agency

Customs Service

Ministry of Education

Transneft

Lukoil

Fuel & Energy Complex

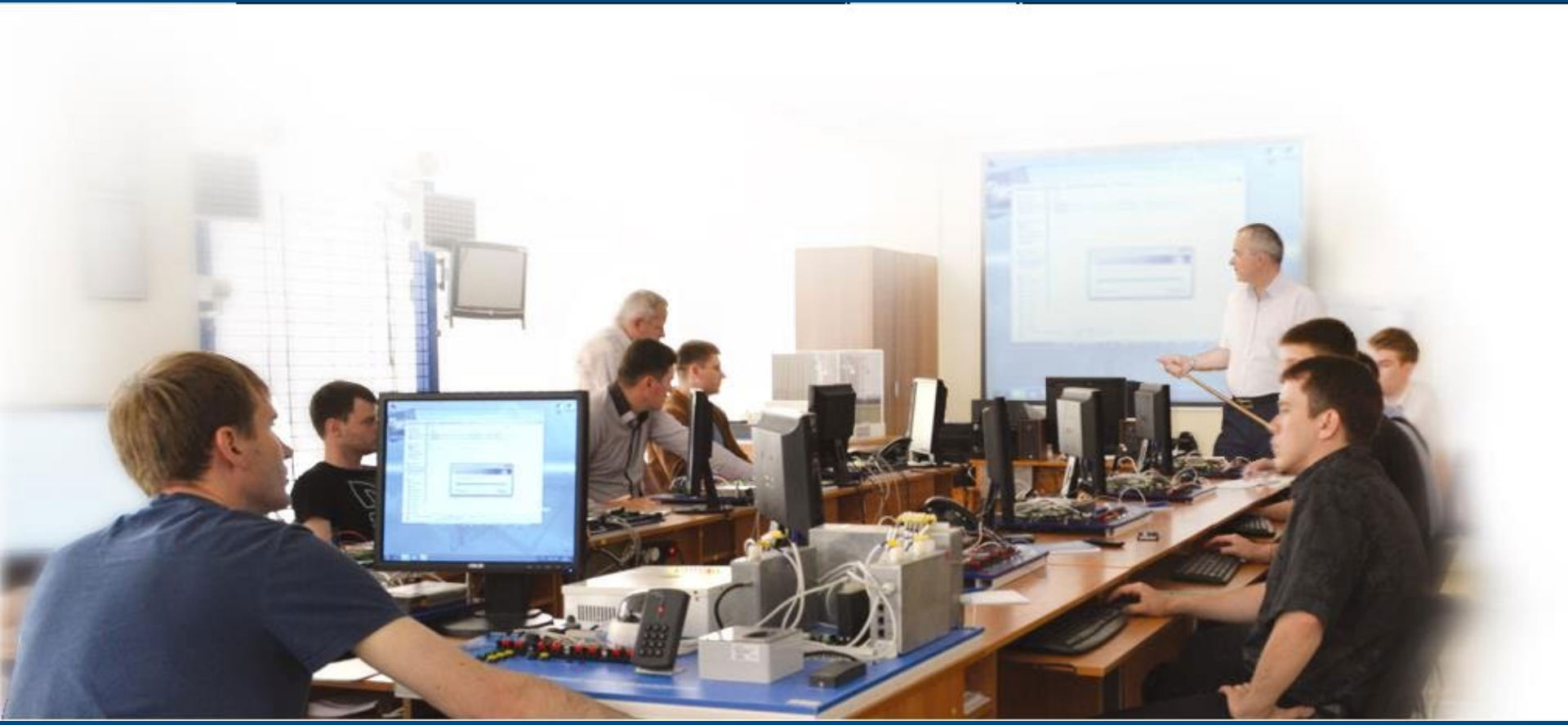
Northern Caucasus Resorts

Chairman of STILSOFT Group presenting new products to the Country Leaders

Regular demonstrations of all systems in motion to international and domestic delegations at our own trial ground

DEMONSTRATIONS for international customers:

EDUCATION for international customers:



STILSOFT Training Center - the only specialized center in the Stavropol territory for training specialists working with integrated security systems. The classroom is equipped with 11 educational and 5 demonstration stands, 15 computer workstations. For foreign customers, we are ready to organize educational process with consecutive translation into English language.

EDUCATION for international customers:

For our customers education is provided **FREE OF CHARGE**. We educate technical specialists on how to operate our systems, how to use our software most effectively, using all options it provides

For the software products study we provide more than 50 visual tutorials, operating equipment samples, demo versions and educational posters.

Practical training is carried out at the trial ground, which is located next to the Training Center. The trial ground demonstrates main products manufactured by STILSOFT.

Stil® SOFT
Созидая совершенство

RUSTEC

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Official Supplier: DIVISUS by STILSOFT
Official Representative Chile Rustec Ltda.
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