Innovative Security Systems

POLUS ST

RADIOBARRIER

Wireless Perimeter Security System

ABOUT US

POLUS - ST is an international manufacturer of innovative security solutions that use seismic, microwave, thermal, video and infrared sensors for border security, law enforcement, perimeter and force protection, critical infrastructure, and tactical missions.

POLUS-ST is a company focused on innovations in security and defence. We develop a strong and mutually beneficial relationship with our clients to generate new ideas and turn them into reliable and efficient solutions.

With over 20 years' experience in designing & producing security products, as well as successfully implementing local and international projects, POLUS-ST is well positioned to offer reliable and effective autonomous wireless security solutions for:

- Borders
- Defense
- Armed Forces
- Law Enforcement
- Oil & Gas
- Infrastructure

20+ years' experience in security and defense

300 employees; 80 R&D experts and engineers

25+ unique technical solutions

6,500 sqm of fully owned production and R&D facilities

25 countries, 5 continents, 200+ clients & 9 climate zones

50,000+ products items manufactured annually

Over 8,500 km of various perimeters protected

SYSTEM DESCRIPTION

RADIOBARRIER is an advanced perimeter security system for area surveillance and perimeter protection of zones with little to no access to communication and infrastructure. This fully autonomous system utilizes different combinations of sensors to achieve the efficient detection of moving targets.

THE RADIOBARRIER SYSTEM

The RADIOBARRIER Wireless Perimeter Security System is a stand-alone autonomous solution for surveilling extended perimeters in remote areas with complex terrain.

SENSORS

This solution combines the detection devices of seismic (UGS), microwave and passive infra-red (PIR) to meet modern challenges in security and defense. The system protects any remote location regardless of size and shape.

COMMUNICATION

All system devices automatically form a mesh network, which enables remote system management, transmits alarm data to a desktop control centre or a handheld receiver with guaranteed delivery.

COMMAND AND CONTROL

Various types of receivers can be used to operate the system remotely, such as handheld, laptop or desktop PCs supplied with special command and control (C2) software.

SOFTWARE

GIS RADIOBARRIER command and control software collects and stores all information from the sensors and displays it on a digital map. The software allows binding sensors' GPS coordinates to the map to see their layout, analyze the situation and take necessary measures.

CCTV

For visual evidence, a CCTV subsystem supplements the main system. The CCTV subsystem includes thermal imaging and video sensors.

FEATURES & BENEFITS

MESH NETWORK

RADIOBARRIER implies wireless communication between all system components, so that the detection devices function as communication nodes in a mesh network.

LONG MISSION LIFE

RADIOBARRIER detection devices operate on batteries that ensure up to 5 years of autonomous operation.

RELIABILITY

A secure two-way radio channel provides complete control of the system remotely, transmits alarm data over long distances with guaranteed delivery.

ERGONOMIC DESIGN

RADIOBARRIER can be deployed in a few hours due to light-weight and small size of the devices and simple installation. A variety of configurations and detection principles makes the system flexible, scalable and suitable for a wide range of applications.

HIGH PERFORMANCE

RADIOBARRIER detection devices feature an unrivalled detection range and field-proven technology. This IP-rated equipment can be installed covertly on any terrain and in any climate conditions.

INTEGRATION

RADIOBARRIER can be used as a standalone security solution with the set of software programs, providing control over the entire system. However, the system can be utilized as the first layer of defense in complex security systems or any C2 software at your site.

COMMAND AND CONTROL

RADIOBARRIER OPERATOR'S CONSOLE WITH «GIS RADIOBARRIER» CONTROL SOFTWARE

The Operator's Console is a desktop or portable PC with the installed GIS RADIOBARRIER command and control software. It monitors and controls RADIOBARRIER devices and their status, and informs the operator of alarm events in the monitored area. It also receives, stores, and displays video acquired by the CCTV subsystem.

SYSTEM REQUIREMENTS:

- OS Windows XP SP3, Windows Vista, Windows 7, Windows 8;
- CPU speed of 1.6 GHz or higher;
- 1 GB of RAM;
- DirectX 9-compatible video adapter;
- 500 MB of hard drive space.

KOPR CONTROL RECEIVER

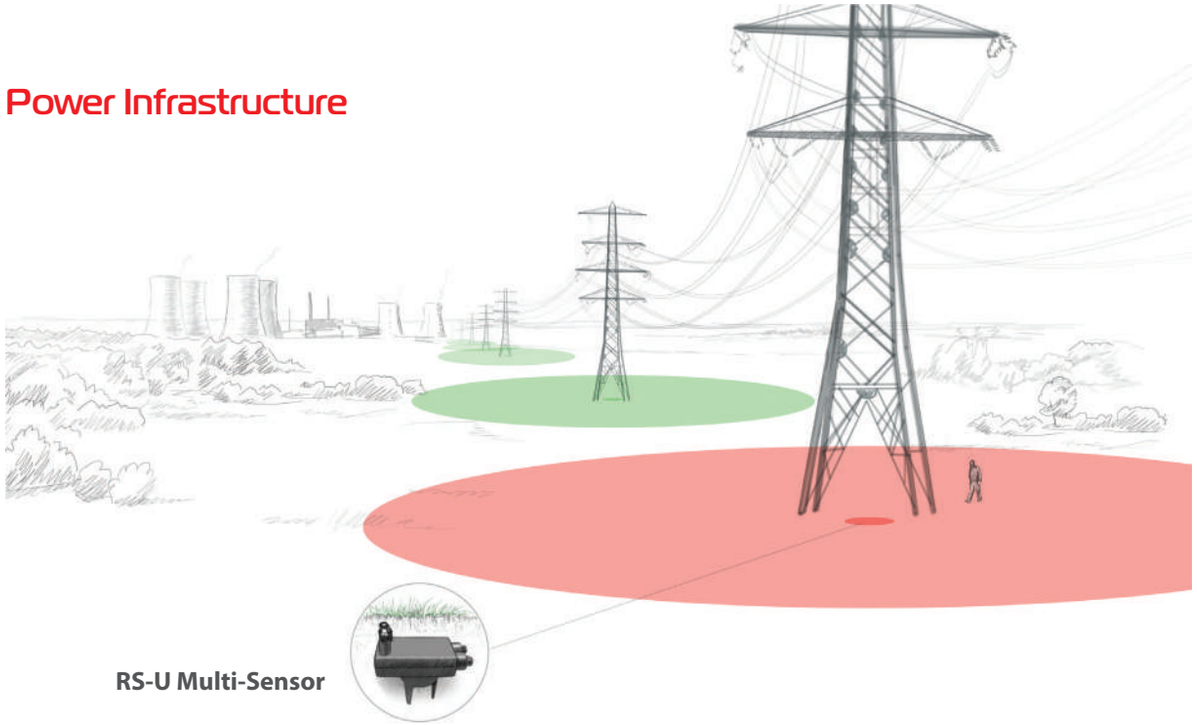
The KOPR manages RADIOBARRIER system devices, namely:

- sets up and configures sensors;
- registers sensor`s GPS/GNSS coordinates during installation to facilitate the finding of the sensors during their removal;
- monitors status of the RADIOBARRIER detection devices;
- receives and displays alarm and service messages;
- controls several networks.

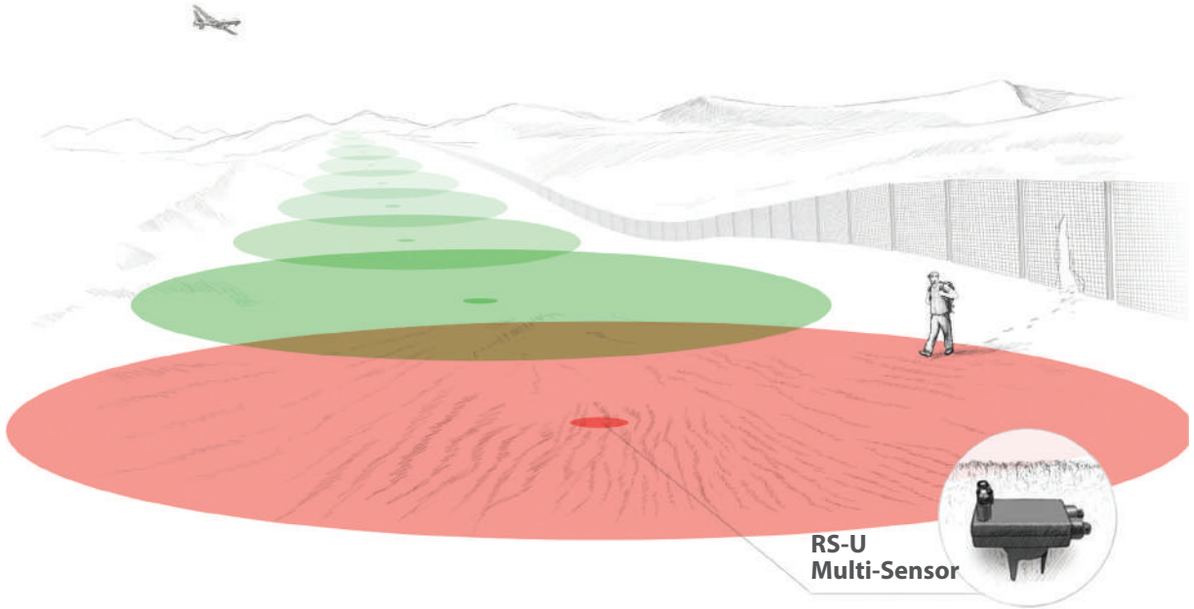
FEATURES:

- Up to 3 days with an built-in rechargeable battery;
- GPS/GNSS receiver;
- 0,5 km communication range;
- Operating temperature range: from -10 °C to +50 °C
- IP rating: IP53
- Weight: 0,7 kg
- Dimensions: 210×95×45 mm

Power Infrastructure



State Borders and Perimeters



DETECTION

RS-U MULTI-SENSOR

The RS-U is a multifunctional seismic sensor. It detects and classifies intruders based on the seismic signature they produce within a circular detection zone. The device is powered by an external battery.

FEATURES:

- Seismic sensor;
- Break-wire sensor;
- Autonomous repeater;
- Network controller.

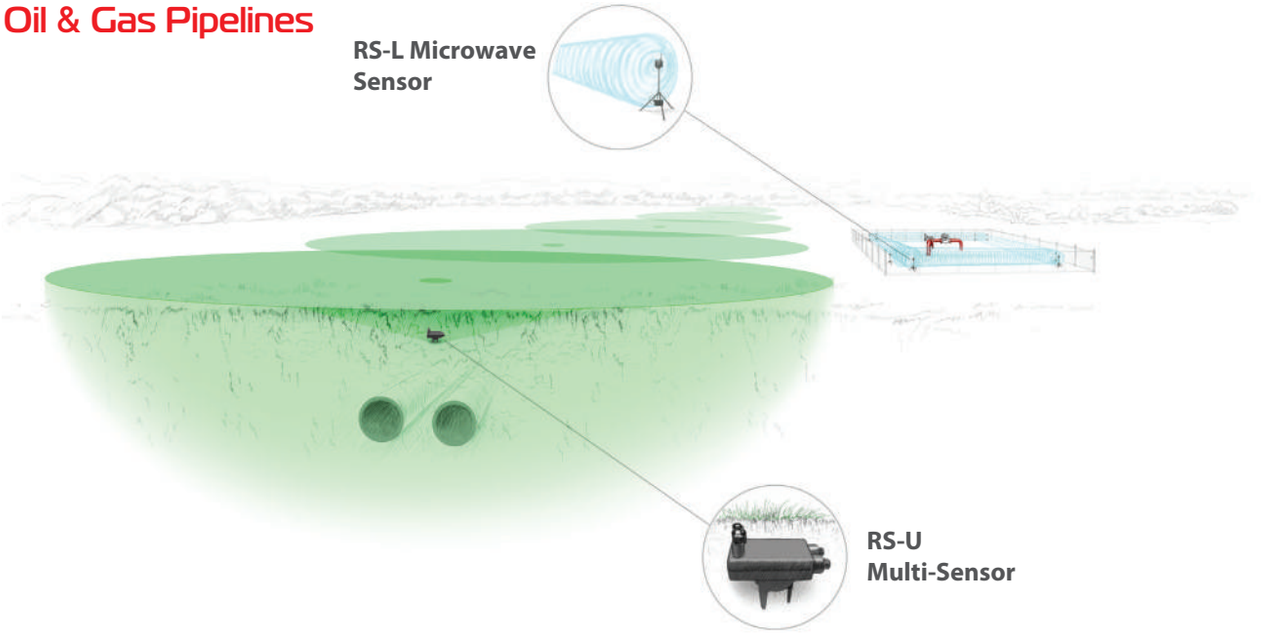
RS-N DIRECTIONAL MULTI-SENSOR

The RS-N is a multifunctional seismic sensor. It detects and classifies intruders by registering and processing the seismic signals they produce. It determines and tracks their movement, and then sends an alarm to a receiver. The device is powered by an external battery.

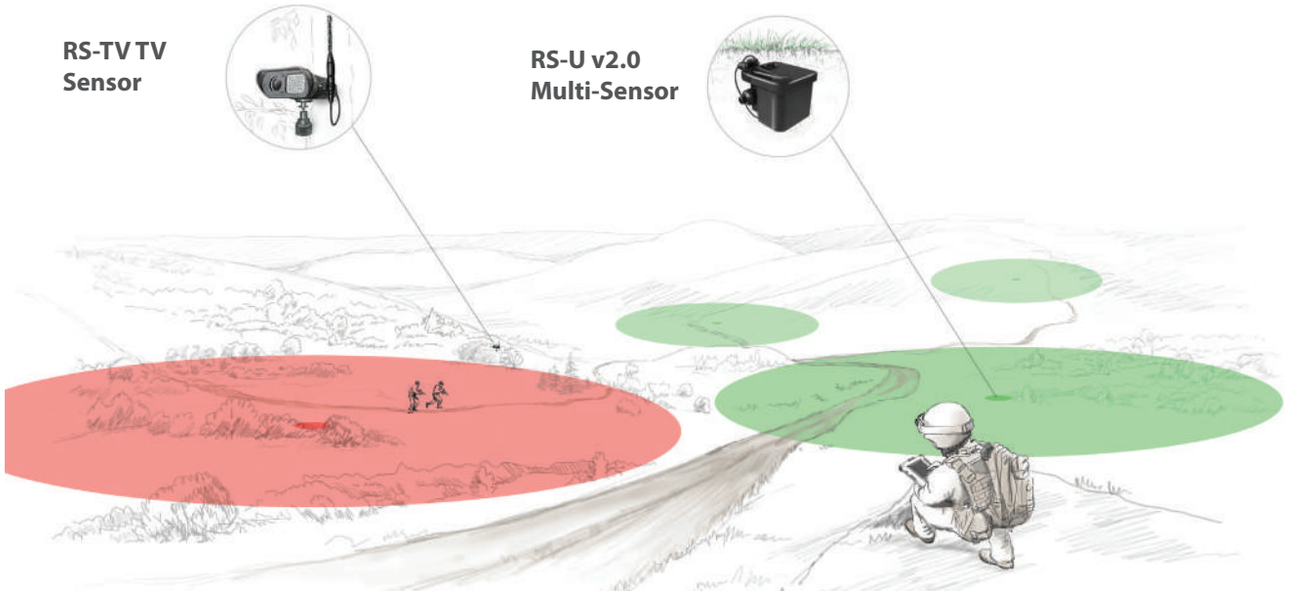
FEATURES:

- Directional seismic sensor;
- Seismic sensor;
- Autonomous repeater.

Oil & Gas Pipelines



Force Protection



DETECTION

RS-U v2.0 MULTI-SENSOR

The RS-U v2.0 is a compact version of the RS-U Multi-Sensor. It is powered by a built-in battery and is used during short-term missions and special operations.

FEATURES:

- Seismic sensor;
- Break-wire sensor;
- Autonomous repeater.

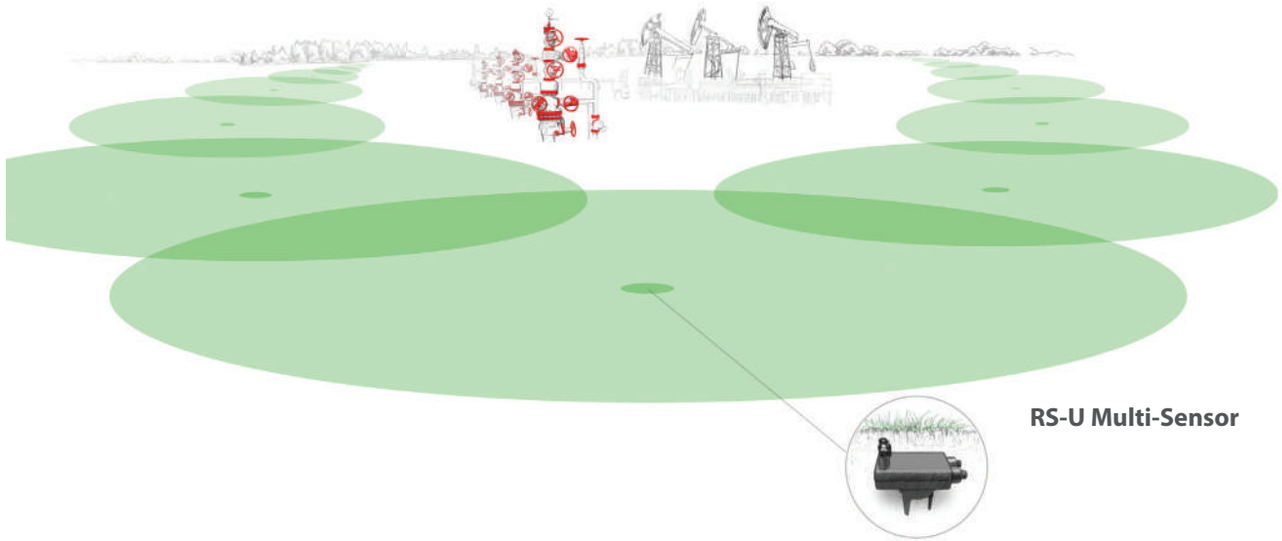
RS-IK INFRA-RED SENSOR

The RS-IK is a passive, infrared (PIR) sensor that measures and processes the changes in the infrared radiation of the environment caused by an intrusion in its field-of-view. It is powered by an external battery.

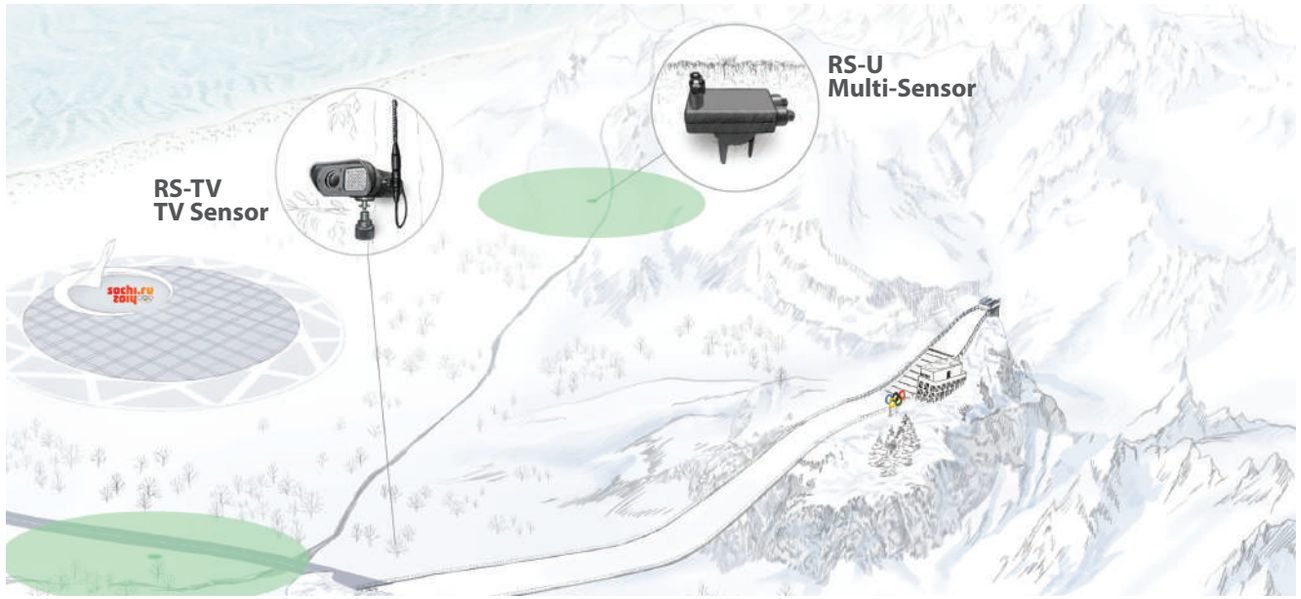
FEATURES:

- Passive infra-red sensor;
- Autonomous repeater;
- Allows establishing a perimeter with a narrow detection zone.

Oil & Gas Critical Infrastructure



Sports and Events



DETECTION

RS-L 100/200 MICROWAVE SENSOR

The RS-L is a microwave sensor that detects intruders based on variations within the volumetric electromagnetic field formed between its constituent parts: the PRM Receiver and PRD Transmitter Units. The units are powered by external batteries.

FEATURES:

- Microwave sensor;
- Break-wire sensor;
- Autonomous repeater;
- Two versions available:

- with the range up to 100m
- with the range up to 200m

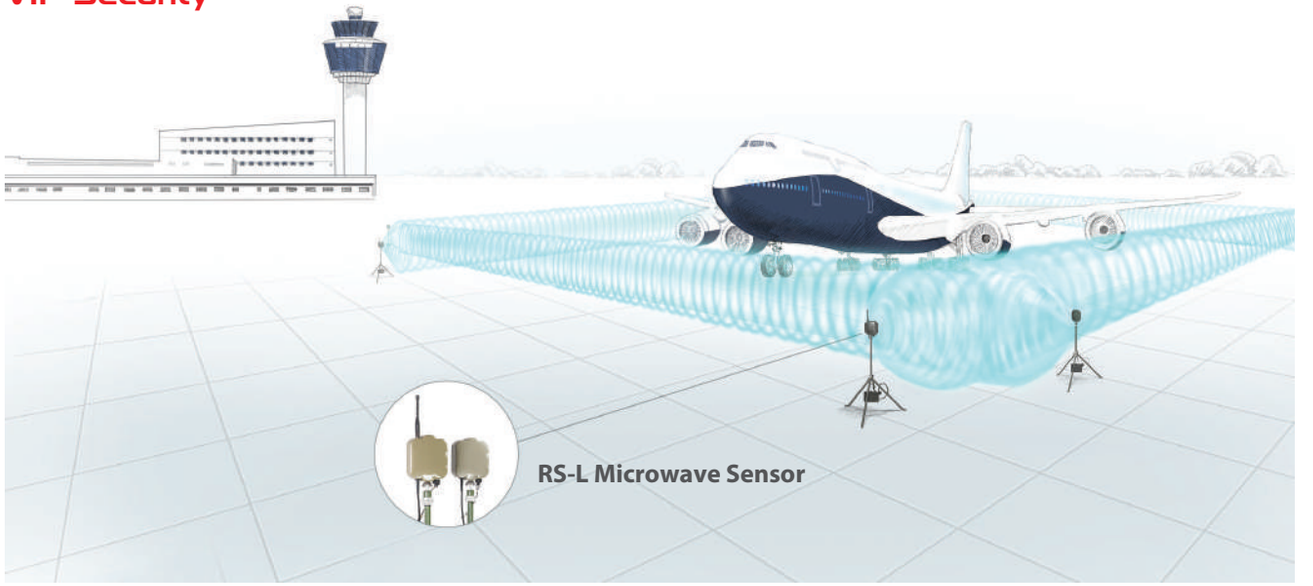
RS-L/433-EX MICROWAVE SENSOR

The RS-L/433-Ex is a microwave sensor housed in an explosion-proof casing to be used in potentially explosive zones. Installed underground, the RS-L/433-Ex protects chain-link or welded wire fence enclosures where the electromagnetic field reflects off the metal fence and fills the entire enclosure volume. The RS-L/433-Ex consists of two units: the PRM Receiver Unit and the PRD Transmitter Unit.
The units are powered by external batteries.

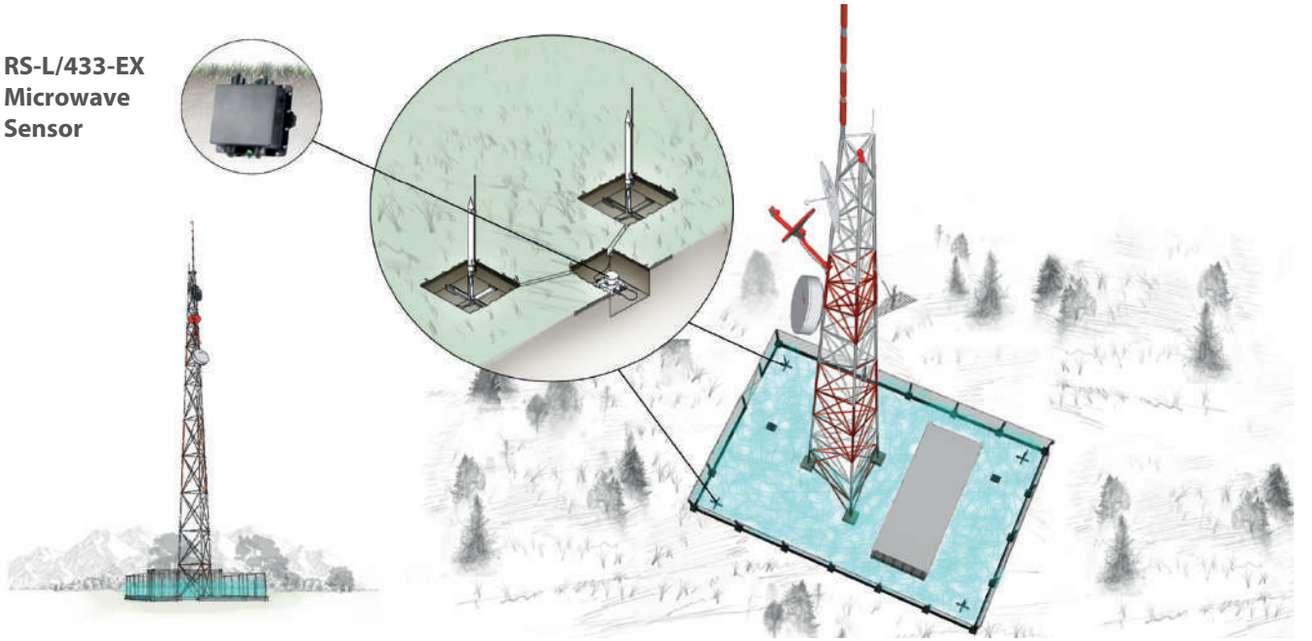
FEATURES:

- Microwave sensor;
- Break-wire sensor;
- Autonomous repeater.

VIP Security



Telecommunications



SENSORS' SPECIFICATIONS:

	Communication range*	Detection Range	Operation time**	Operating temperature range	IP rating	Weight	Dimensions
RS-U MULTI-SENSOR	up to 21 km	Personnel – up to 170 m Vehicle – up to 300 m	up to 5 years (ext. battery)	from -40 °C to +50 °C	IP68	0.65 kg	140×80×70 mm
RS-U v2.0 MULTI-SENSOR	up to 21 km	Personnel – up to 170 m Vehicle – up to 300 m	up to 5 months (built-in battery)	from -40 °C to +50 °C	IP68	0.55 kg	110×95×85 mm
RS-N DIRECTIONAL MULTI-SENSOR	up to 21 km	Personnel – up to 100 m Vehicle – up to 200 m	up to 5 years (ext. battery)	from -40 °C to +50 °C	IP68	0.9 kg	140×150×90 mm
RS-IK INFRA-RED SENSOR	up to 21 km	Personnel/Vehicle – up to 70m Horizontal angle: 5° Vertical angle: 2.4°	up to 4 years (ext. battery)	from -40 °C to +50 °C	IP65	0.5 kg	175×100×70 mm
RS-L MICROWAVE SENSOR	up to 21 km	- up to 100 m - up to 200 m (depends on the version)	up to 4 years (ext. battery)	from -40 °C to +50 °C	IP55	PRD – 0.7 kg, PRM – 0.8 kg	PRD 185×140×50 mm PRM 200×140×50 mm
RS-L/433-EX MICROWAVE SENSOR	up to 21 km	Detection zone: length: 12 m width: 6 m height: 1.6 m	up to 3 years (ext. battery)	from -40 °C to +50 °C	IP68	3.65 kg	260×250×80 mm

* Depends on the type of antenna installed.

** Depends on the type of battery installed.

CCTV

RS-TV TV SENSOR

The RS-TV provides autonomous video surveillance in any weather and any time of day. It is equipped with an IR illuminator for operation in low light conditions. The video feed is transmitted via radio network and can be processed by the PTV portable receiver or by the RADIOBARRIER operator's console. The broadcast can be engaged manually or triggered by the RADIOBARRIER sensor alarm. The RS-TV is powered by an external battery.

FEATURES:

- Angle of view:
- Horizontal: 20.0º
- Vertical: 12.50º

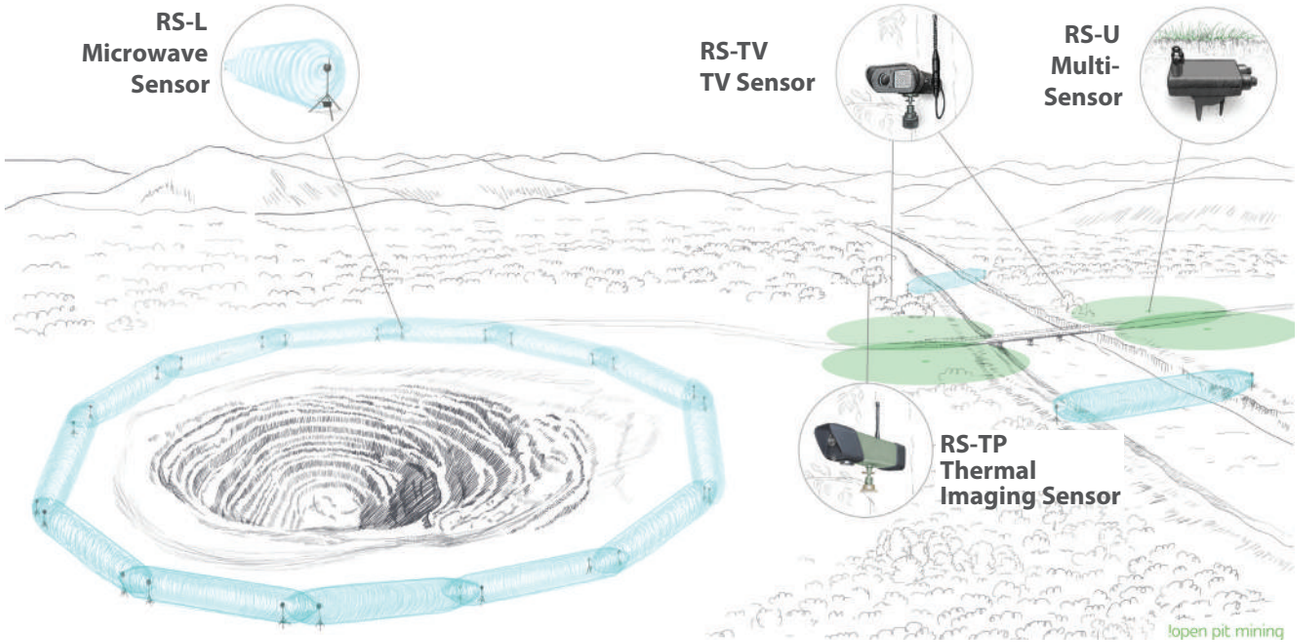
RS-TP THERMAL IMAGING SENSOR

The RS-TP captures black-and-white halftone video of the monitored area based on objects' heat signatures and transmits it to a video receiver or to the operator's console via a radio network.
The RS-TP detects moving targets in real time and in low-light conditions. The RS-TP is activated manually by the operator's command or automatically, by a sensor that is triggered by an intruder.

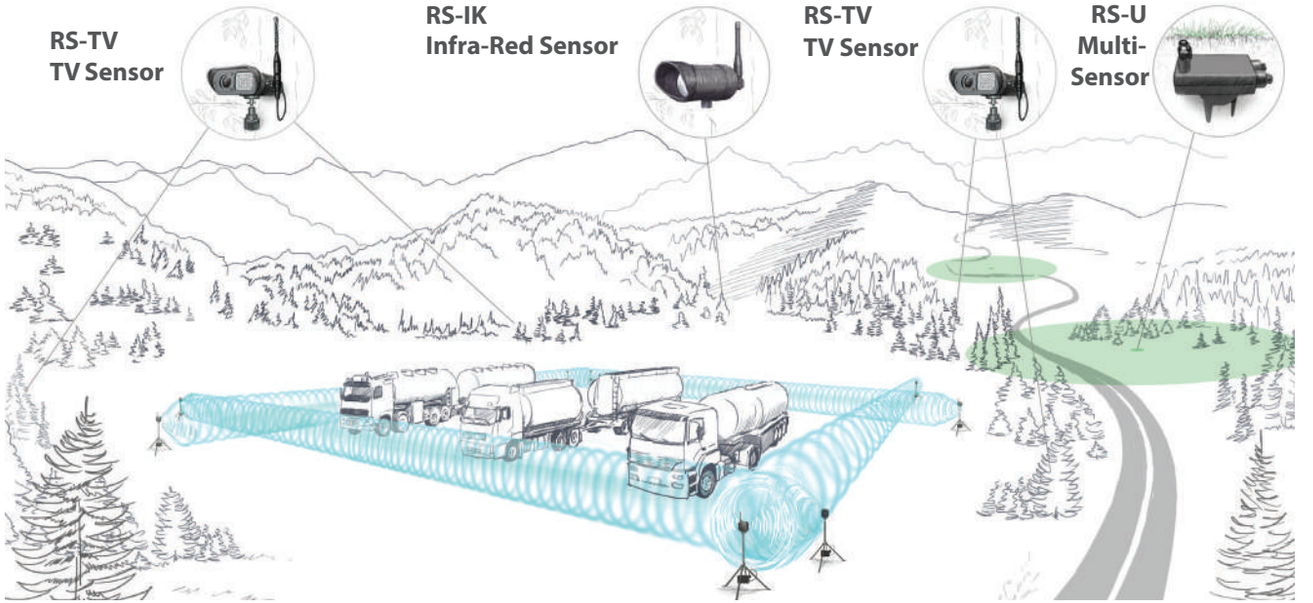
FEATURES*:

- Black and white halftone video;
- Angle of view:
- Horizontal: 23.0º
- Vertical: 17.0º

Milling & Mining



Mobile Assets



* The RS-TP parameters may vary depending on the country.

CCTV

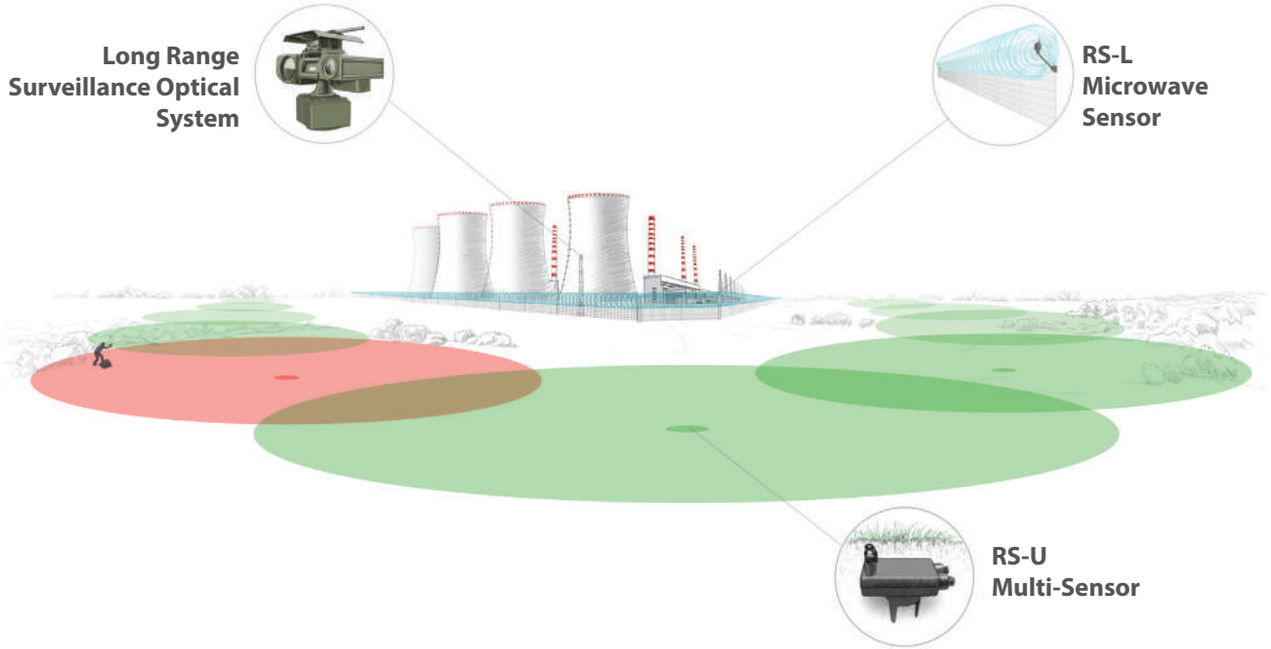
PTV PORTABLE TV RECEIVER

The PTV is a portable TV receiver that displays the video signal from the RADIOBARRIER CCTV subsystem. The TV receiver is used to adjust video signal quality and the camera position of the CCTV devices. The PTV provides visual control of the monitored area and displays black-and-white video.

FEATURES:

- Built-in battery;
- Black and white half-tone LCD.

Industrial Facilities



SENSORS' SPECIFICATIONS:

	Communication range *	Detection Range	Operation time**	Operating temperature range	IP rating	Weight	Dimensions
RS-TV TV SENSOR	up to 15 km	up to 100 m	up to 12 months (ext. battery)	from -40 °C to +50 °C	IP67	2 kg	185×140×65 mm
RS-TP THERMAL IMAGING SENSOR ***	up to 15 km	up to 200 m	up to 12 months (ext. battery)	from -40 °C to +50 °C	IP67	1.6 kg	230×90×75 mm
PTV PORTABLE TV RECEIVER	up to 15 km	-	up to 3 hours (built-in battery)	from -40 °C to +50 °C	IP53	0.9 kg	220×110×50 mm

* Depends on the antenna type installed and the retranslator configuration applied.

** Depends on the battery type installed.

*** The RS-TP parameters may vary depending on the country.

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