



# Product Catalog



# Mission

To support safety of the Nation by offering innovative solutions in the areas of electronics, IT and communication technologies.

# Vision

To be the leading supplier of professional electronics systems for the Polish Armed Forces

# Values

The PIT-RADWAR S.A. is defined by values by which it is driven. The values set the Company's day-to-day activities, define priorities and form the grounds for the Company's operations and future.



## FUTURE ORIENTED

Progress is the highest value. All our activities are performed with a view to the future.



## CUSTOM ORIENTED

Our Customers make sense of the Company's existence. Therefore, all our activities are oriented at full recognition of the Customers' needs and offering such solutions that will satisfy the needs.



## CREATIVE

We are continuously looking for new concepts and solutions. Our knowledge allows us to create innovative products, being the basis of our success.



## RESULT ORIENTED

Stale poszukujemy szans rozwoju. Koncentrujemy się na działaniu, które pozwala nam osiągnąć wyniki.



## COOPERATION AND OPENNESS

We work collectively, we share knowledge. Our organisational system is oriented at cooperation.



## CONFIDENCE AND RESPECT

We work collectively, we share knowledge. Our organisational system is oriented at cooperation



**PIT-RADWAR S.A.** is one of the leading suppliers of professional electronic equipment for the Armed Forces of the Republic of Poland.

For decades, the Company has conducted research and development activities in the field of radar technology, electronic support and measures, C2 systems and related armament systems, especially air defence systems. The products of PIT-RADWAR S.A. are used by all types of the Armed Forces of the Republic of Poland, as well as abroad.

PIT-RADWAR S.A. handles the full supply cycle – starting from setting requirements, through research and development work and production to logistic support offered to the users. Permanent development, seeking new, innovative solutions, highly qualified staff, taking advantage of the most recent scientific and technical achievements allow the Company to continuously broaden its offer and deliver modern, unique solutions that fully satisfy the current more demanding customers.

# Localisations

## Warszawa

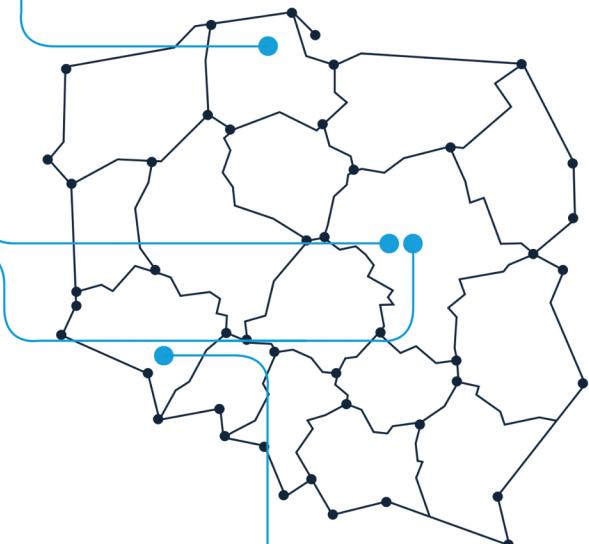
The headquarters of PIT-RADWAR S.A. is located in Warsaw. Most of the Company's laboratories and workrooms are located in the Warsaw headquarters wherein new technologies like radar devices, command support systems and armament systems are developed and manufactured.

## Kobyłka

The main part of the laboratory in Kobyłka is a antenna test range, which is equipped with modern instrumentation for measuring antenna patterns and with radar antennas assembling facilities. The Laboratory performs also measurements of electromagnetic fields in view of work and environmental safety. In this area there is also a manufacturing facility for ferrite materials.

## Gdańsk

The Gdańsk Office of PIT-RADWAR S.A. specialises in passive electronic recognition systems and solutions designed for the Navy of the Republic of Poland.



## Wrocław

The Wrocław Branch of PIT-RADWAR S.A. employs specialists in microwave technology.

**1934** | Przemysłowy Instytut  
Telekomunikacji (PIT)  
(date of origin)

**1954** | CNPEP RADWAR

**1961** | DOLAM

**2011** | Merger of Companies

**2014** | PIT-RADWAR S.A.



Since 2014 PIT-RADWAR S.A.  
belongs to PGZ Capital Group

# ACTIVITY AREAS

During decades of its operations in the field of defence, PIT-RADWAR S.A. has built a range of competencies in comprehensive air defence systems. We design, manufacture and service individual components of radar systems, radio electronic reconnaissance systems, automated command support systems, armament systems, as well as integrate the systems with national and allied infrastructure.

Our offering is based on state-of-the-art hardware, technology and programming solutions that enable swift customization of the offered systems.

## RADAR SYSTEMS

PIT-RADWAR S.A. supplies short/mid/long-range radar stations, hardly detectable shore based radars, state-of-the-art artillery reconnaissance systems operating in the L, S, C and X bands, and passive reconnaissance systems. All systems and equipment are dedicated to operation in all types of armed forces.

Our solutions stand out with a process of continuous technological advancement. On top of the high-vacuum transmitting tube technology, which has been offered for many years, our range of products includes devices that are based on modern semiconductor technologies and equipped with active antennas.

To enhance the offering of radar and radio-electronic reconnaissance equipment, we also develop our proprietary technology for IFF Mark XII A devices (identification friend or foe), in compliance with the current NATO standards.

## COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (C4ISR) SYSTEMS

C4ISR systems are aimed at improving the so-called situational awareness or knowledge of the current battlefield situation. C4ISR systems are equipped with decision-making support tools and battle command utilities. PIT-RADWAR S.A. focuses on C4ISR systems dedicated to the Air Defence and the Army. We develop systems that comply with the network-centric warfare architecture requirements, and we are the domestic leader in integration of such systems.

The main C4ISR component is software which defines functionality of C4ISR. The systems are capable of monitoring, presenting and distributing information about the current situation in the air space and on the battlefield. They support combat operations planning thanks to uploads and storage of manpower/equipment status data, action planning in distributed systems, distribution of orders and dispatches. In addition, the systems also support the decision-making process in battle command and control use of combat means.

## ARMAMENT SYSTEMS

**PIT-RADWAR S.A.** designs and integrates state-of-the-art missile systems for Very Short Range Air Defence (VSHORAD) systems. We also develop artillery systems with programmable ammunition that are complimentary to missile systems and used in naval and land based operations.

The offered short range missile launchers, artillery systems and radar stations are integrated into complete anti-aircraft defence systems by using dedicated command and control systems.



# RADAR SYSTEMS

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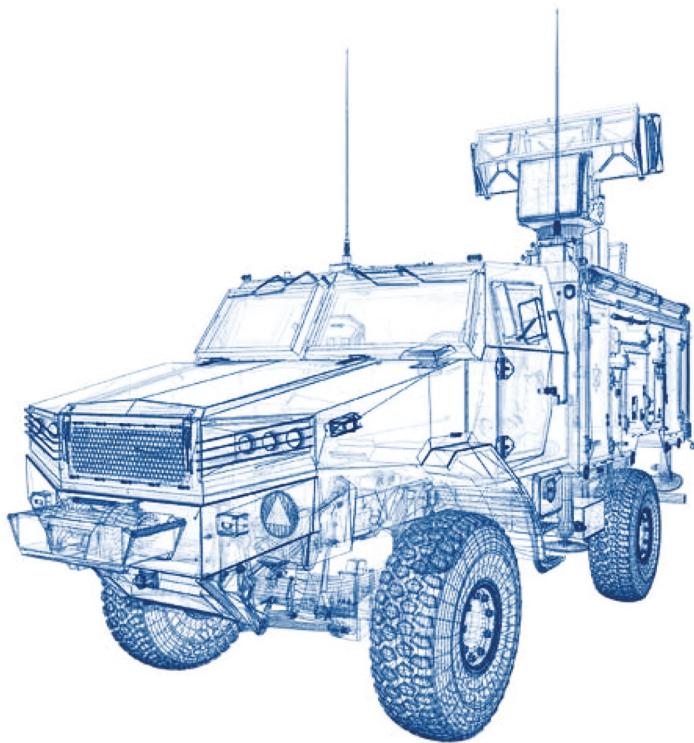


## TUGA Radar

TUGA is a 4D AESA radar based on FMCW techniques.

It is designed for detection and tracking of airplanes, helicopters and UAVs. TUGA radar determines positions of targets by measuring azimuth, altitude and distance as well as, their radial speeds.

Operating modes are software defined allowing optimum use of radar resources to meet the requirements of performed mission and tasks. Compact design enables portable application or straightforward integration with both mobile platforms or stationary objects.



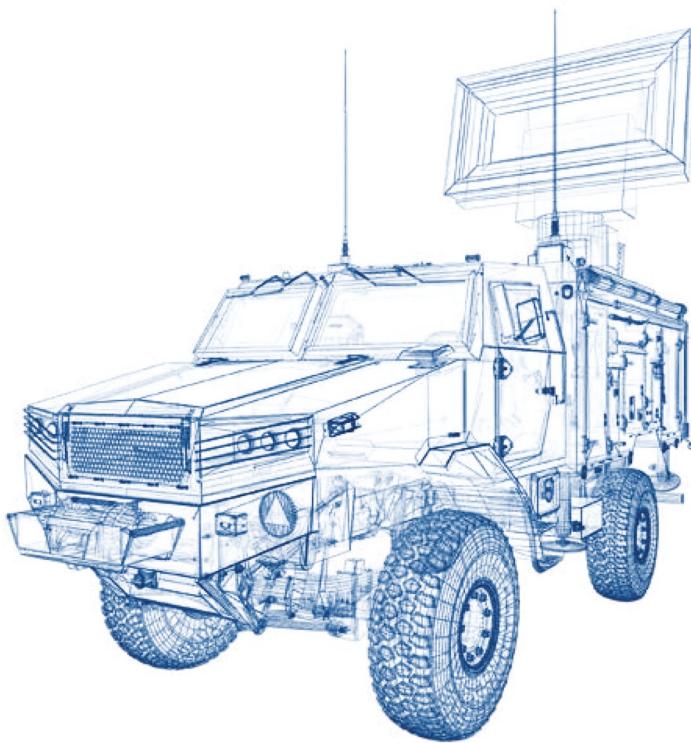
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## Redeployable Radar BYSTRA

The BYSTRA Redeployable Radar is designed for detecting and localizing air targets at short ranges and for supporting air-defense units that cover tactical battle groups against attacks from the air. BYSTRA is a multifunction and multi-mission radar with versatile capabilities and various applications, including detection and tracking of typical air threats as combat aircrafts and helicopters (also when hovering), as well as missiles, UAVs and mortar shells.

The radar can operate in several modes matched to the predefined combat missions. In each mode, an omnidirectional search is performed by rotating the antenna and by scanning space using software formed antenna beams. This enables the effective use of the radar resources and allows for adjusting search patterns to characteristics of a deployment site and to the accomplished function (detection/tracking) or the combat mission.

In the design of the BYSTRA Redeployable Radar, several new technologies are applied to obtain required performance in terms of ranges of targets detection and tracking the targets of different classes, jamming and clutter suppression, high measurement accuracy of targets' coordinates of the, increased resolution and enhanced reliability



## Redeployable Radar SOŁA

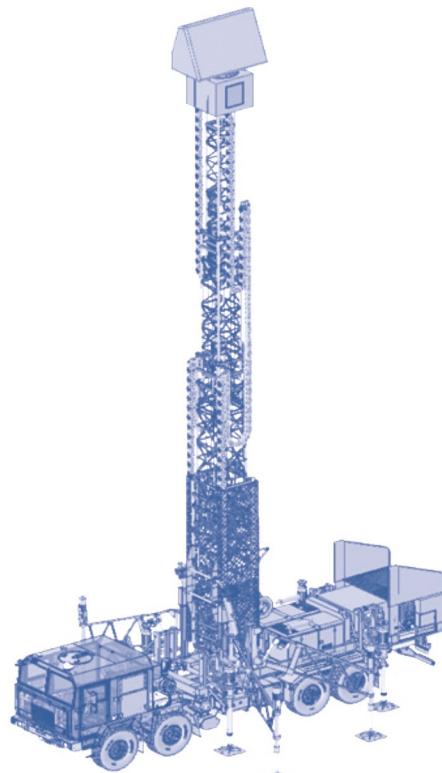
ZDPSR SOŁA is a multi-mission three-dimensional (3D) radar, which has been designed to detect and track the air targets. The radar output data contains the full information about the detected targets, including three location coordinates, speed, heading and classification of helicopters as a separate target category.

Besides the typical airborne vehicles, the radar can detect UAVs and mortar bombs. The radar is designed for anti-aircraft operations of land forces to provide protection of the military bases, troops in move and facilities of high importance.

The ZDPSR SOŁA can operate autonomously or as a sensor of an anti-aircraft defense systems of land forces, using built-in wire and wireless data transmission means.

The radar scans the searched space with several beams which are steered electronically in elevation plane and with a rotating antenna in the azimuth plane. The radar applies numerous ECCM techniques. Due to the requirement of operation within automated anti-aircraft systems, the radar provides very short time of information refreshment (1 sec). The radar operation is controlled from a local console or remotely at the distance up to 400 m.

In its basic version, the radar is installed on the Żubr-P armoured vehicle. Any platform of 3,5MT payload can be applied.

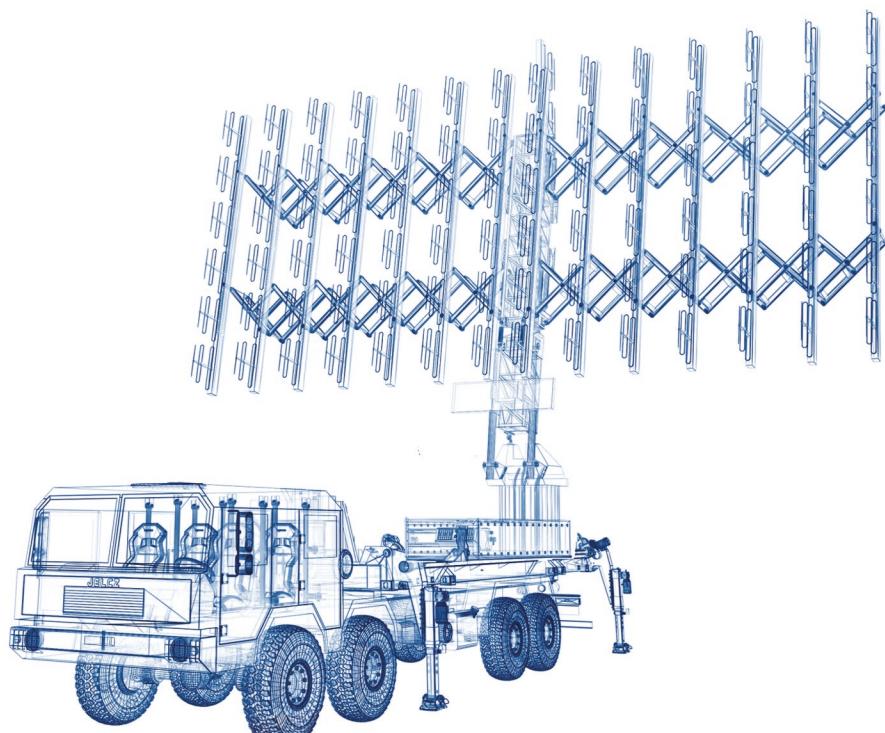


**NCBR**  
National Centre for Research  
and Development

## The multi-functional SAJNA fire control radar

The multi-functional SAJNA fire control radar is designed to control the fire of short-range anti-aircraft missile sets in the "NAREW" anti-aircraft and anti-missile defense system.

The radar performs the tasks of independent space search (omnidirectional or in a selected sector), detection and tracking of airborne objects. It also determines the coordinates of the target's movement, allowing the missiles to be programmed and initially guided at the targets until intercepted by the rocket sensor. In addition, the radar determines the type of threat by classifying the detected object.

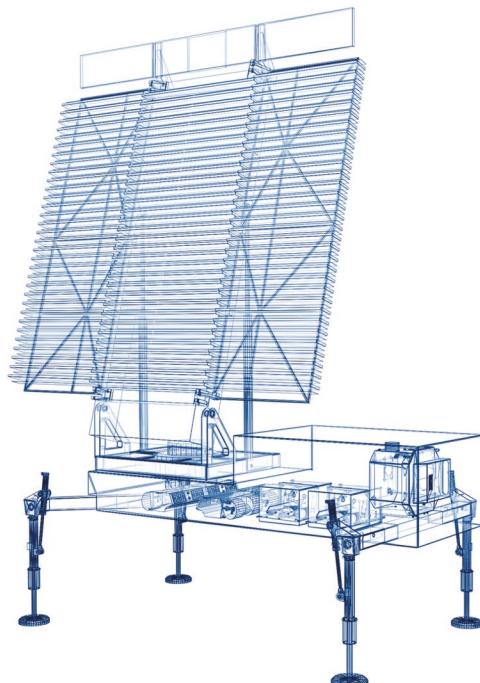


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and Development

## Mobile 3D Long Range Radar for Air Surveillance

The VHF Long Range Radar is an advanced 3D solution for air surveillance and TBM detection. It is designed for air targets detection, estimation of three coordinates of detected objects, its identification (IFF/SSR) and jamming strobes detection.

The radar operates in two modes: with rotating or with stopped antenna. In rotating mode the antenna works with fixed stack of beams whereas in second mode with electronic scanning in both azimuth and elevation planes (AESA). The effective operation of the radar in presence of jamming and clutter is achieved by using advanced adaptive signal processing techniques and advanced radar resources management.



## RDL-45

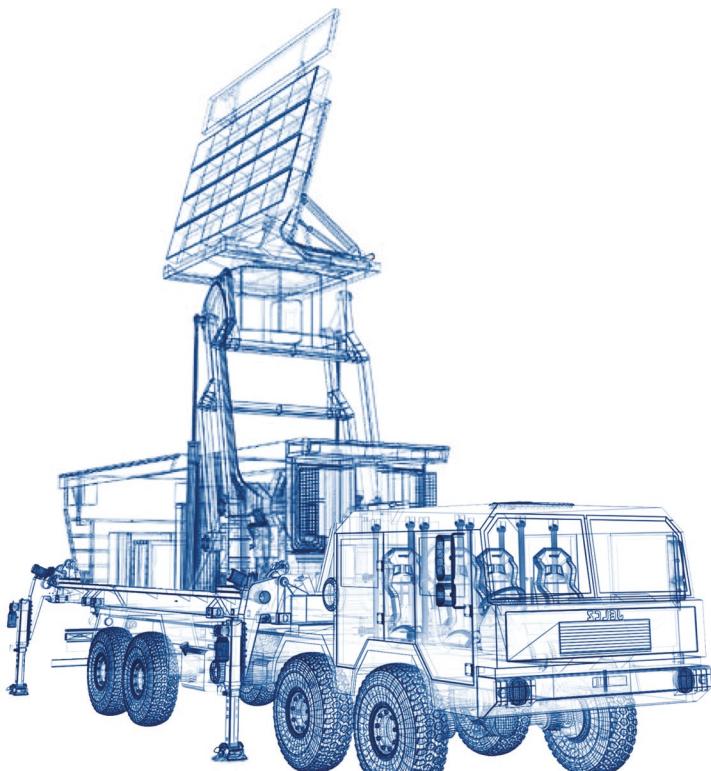
# Ground Based Long Range 3D Radar for Air Surveillance

The RDL-45 is a multi-mission, L-band solid-state phased array, 3D surveillance radar. The radar meets technical requirements of the current NATO Deployable Air Defence Radar (DADR) specifications.

The RDL-45 uses mechanical rotation of the antenna in azimuth and multiple simultaneous phase controlled in elevation beams to provide altitude scanning. Solid state distributed transmitter, unique waveform and advanced signal processing technology (Adaptive Digital Beam Forming – ADBF) make the RDL-45 adaptable to wide range of threat scenarios.

The effective operation of the radar in the presence of jamming and clutter is achieved by very low side-lobe antenna, reduced peak power, frequency agility, adaptive signal processing and advanced radar resources management techniques.

The RDL-45 can be controlled through the local radar console or through a remote console. Tracks of detected targets are automatically tracked. RIS-formatted Plots for all detected objects or merely for objects correlated with the tracks being traced are automatically transferred to the SRCC NATO Remote Control Console or to the National Supervisory System.



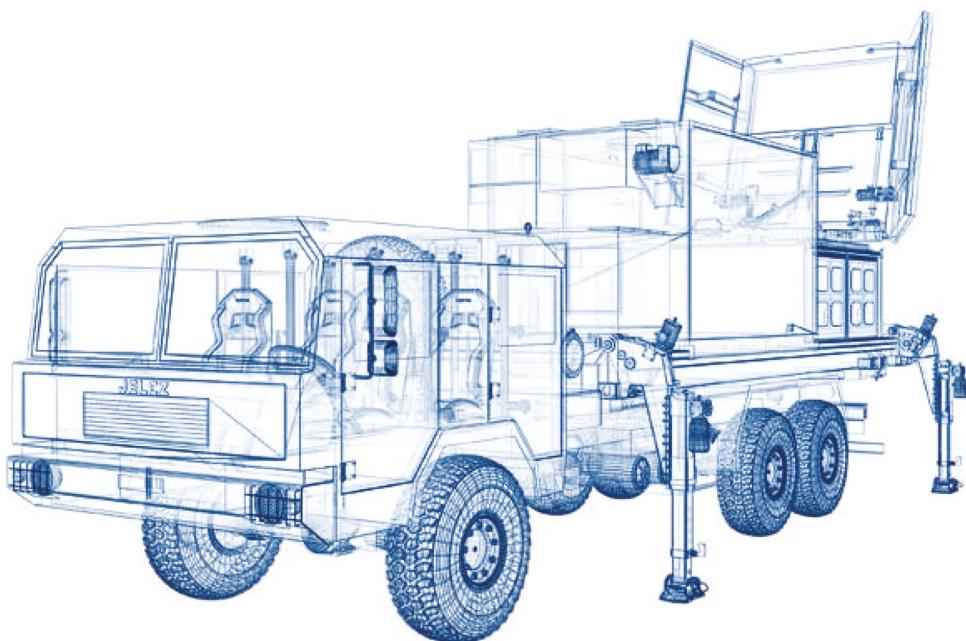
# 3D Mobile Medium Range Surveillance Radar TRS-15

The TRS-15 S-Band 3D Mobile Medium Range Surveillance Radar is a source of radar information for Air Defense command and control systems. With additional sea channel functionality, the radar can play the role of the sensor for coastal missile units.

The air targets are located in three dimensions using the stacked-beam monopulse technique in elevation and mechanical scanning in azimuth. The radar can also provide digital output of plots, tracks and IFF data.

The effective operation of the radar in the presence of jamming and clutter is achieved by using advanced, adaptive signal processing techniques, including adaptive clutter map, automated monitoring jamming, selection of less jammed frequency, staggered frequency repetition.

The TRS-15 radar system consists of antenna vehicle and display vehicle fitted with standard ISO 6 m locks and two power generator trailers. The antenna array can be deployed within 20 minutes by a crew of three using the antenna mast hydraulic system. The radar is fitted with an antenna levelling system and GPS-based positioning system.



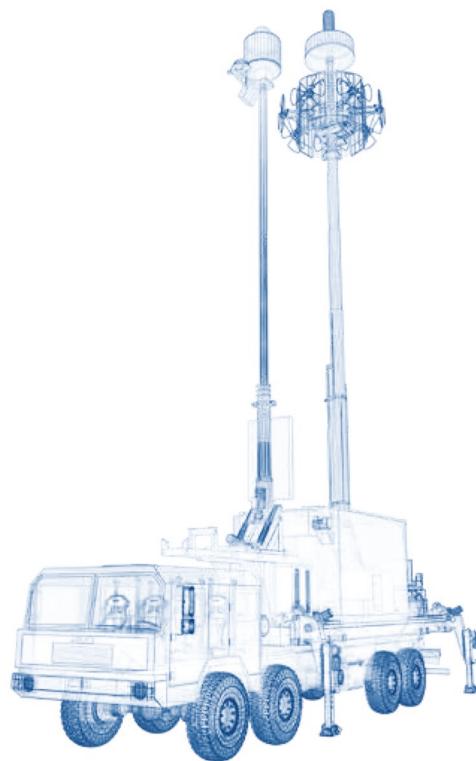
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## Weapon Locating Radar LIWIEC

The mobile LIWIEC Weapon Locating Radar is designed to co-operate with integrated artillery command and control systems as well as directly with batteries and individual guns. It can be used to protect military bases and important facilities.

An electronically steered narrow microwave beam in C-band (NATO-G) seeks the horizon line in a 90° sector for each antenna position, with data refreshment time 0,5 s. The mechanical setting of angle of antenna within 180° sector combined with 90° electronic steering, result in full coverage of 270° in azimuth.

The RAM-type target after being detected is tracked with data refreshment rate of 0,1 to 0,5 s. In the ascending part of the projectile trajectory, its parameters are calculated, thus the points of launching and impact. Besides the RAM targets also air vehicles can be tracked, as aircrafts, helicopters, missiles, and UAVs as well as weather phenomena and land vehicles. The radar is capable of detection and tracking of 23 mm artillery shells. The LIWIEC applies digital maps (WGS-84, UTM) and enables archiving of recognition, history of cooperation with superordinate systems and operator's activity. The radar uses two BITE subsystems. The radar is powered by a diesel generator mounted on a standard shelter, which is backed-up by an auxiliary vehicle engine driven generator.



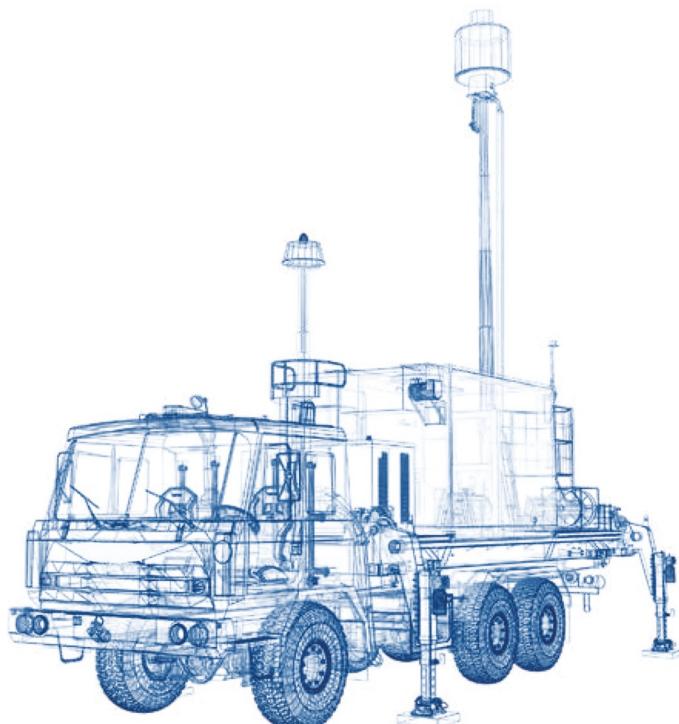
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# Passive Location System PLS

Is a state-of-the-art innovative solution to radar air surveillance. This system provides continuous airspace surveillance and recognition regardless of active radars while being completely quiet and hidden from enemy ESM systems. The PLS has been designed and developed by PIT-RADWAR S.A. company.

PLS combines two passive subsystems: PCL subsystem (Passive Coherent Location) and PET subsystem (Passive Emitter Tracking) for a multistatic, multiband and multimode operation. The PLS is deployed as 4 identical PCL/PET stations each of which, on the common platform, includes the same hardware and software configuration. The key to great performance lies in fusion module which performs fusion of these two subsystems on the bistatic plot level and provides continuous tracking of targets.

While characteristics of all stations in the system are alike, choice of the master station is made to provide the highest quality of detection and tracking as well as maintaining the best communication link with Command and Control Systems.



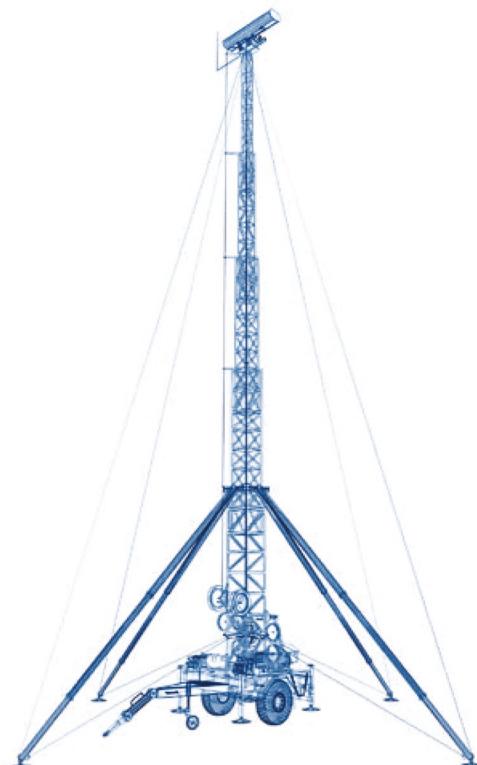
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# ELINT System of Recognition of On-Board RF Emitters PRP-25

The PRP-25M and PRP-25S stations make an ELINT System of recognition of on-board emitters which is dedicated to Air Forces Electronic Warfare detachments for automated detection, identification, direction finding, monitoring and tracking of sources of every type of RF emissions (0.5÷18.0 GHz) installed on airborne, ground or maritime platforms and for location the platforms.

In the system mode the PRP-25M performs the Master function for 2÷3 Slave PRP-25S stations, i.e. the Master station manages the Slaves operation, gathers and processes the data recorded by the Slave stations to work out recognition solution. The PRP-25S Slave stations detect and process the reconnaissance data, related then to the Master PRP-25M station. The set of Master and Slaves provides: location and tracking of the emission sources by TDoA (Time Difference of Arrival) method, location and tracking of the emission sources by triangulation method, completing the RAP with reconnaissance data, co-operation with an Air Force automated electronic recognition command and control system.

The both location techniques, when applied jointly, provide continuous tracking of the air vehicles regardless of type of emission.

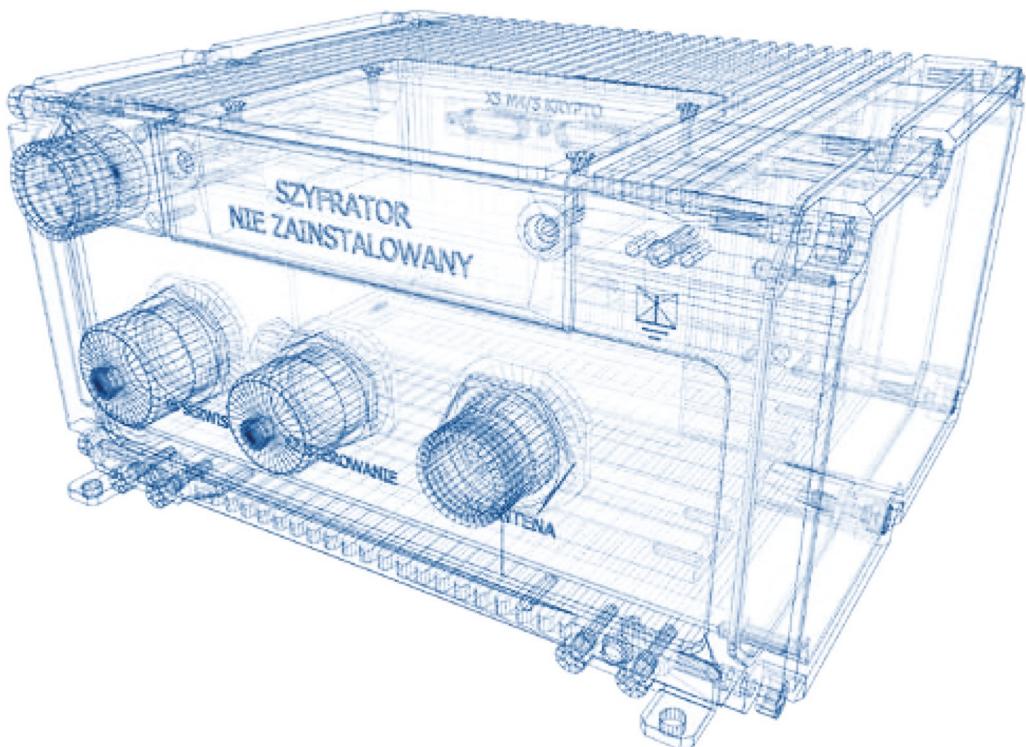


## Mobile Radar RM-100

The RM-100 Mobile Radar is a surveillance system, which employs a X-Band FMCW CRM-100M quiet maritime radar in conjunction with AIS receiver, data-fusion and datatransmission systems, relaying the data to the automated naval command and control system. It was designed to detect and automatically track the maritime surface objects and determine their coordinates. It is intended to use for littoral waters monitoring, including the economic zone protection.

The Frequency Modulated Continuous Wave (FMCW) technology ensures low power level of the transmit signal (0.1W to 2 W), which makes RM-100 a stealth Low Probability of Intercept radar. The detection performance is comparable to that of conventional navigational pulse radar, radiating up to 25 kW peak power, what offers a tactical advantage of normal operation under radar silence conditions.

The RM-100 Mobile Radar post, which is furnished with a land navigation system and a communication system enabling operating within automated Naval Command and Control System, is installed within one 15-feet EMC-shielded operational container, fitted onto a Jelcz P66D.43 6 x 6 off-road truck. The antenna array is mounted atop a 20-meter mast, deployed within 30 minutes by a crew of three.

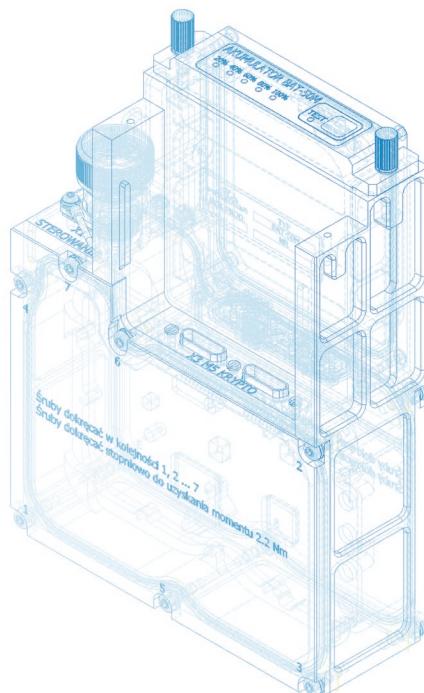


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## IFF MARK XIIA IKZ-50P

The IKZ-50P is a short-range IFF Mark XIIA interrogator dedicated for close-range air defense systems (SHORAD and VSHORAD). The device supports both fixed and rotating antenna systems, and provides discrete control interface for MANPAD systems. State-of-the-art digital circuitry and advanced signal processing, including monopulse detection, ensure superior accuracy, performance and noise immunity.

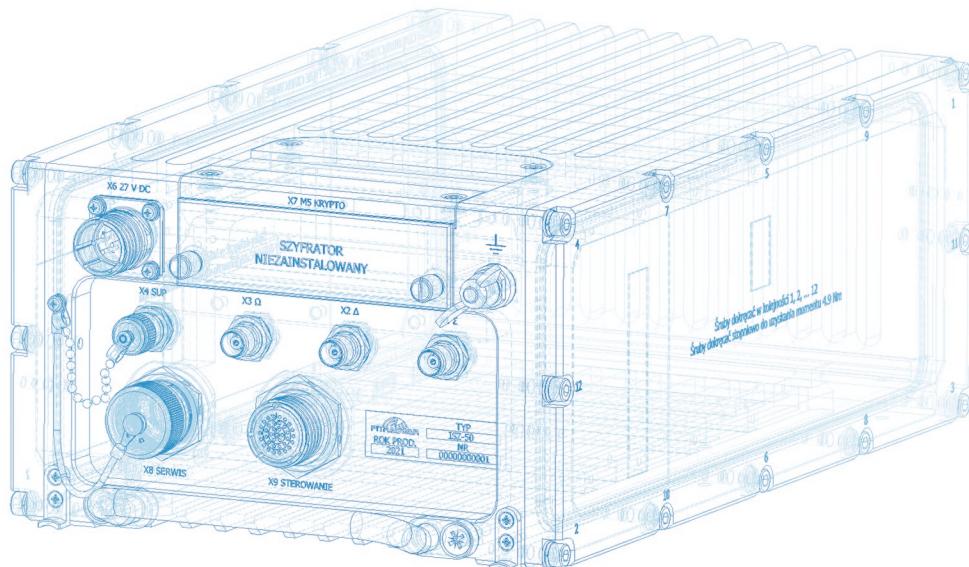
The IKZ-50P supports military identification in Modes 4 and 5 (with an appropriate crypto computer installed). Sophisticated built-in test (BIT) procedures and modular design ensure efficient fault detection and repair, and software updates provide future growth capability. The IKZ-50P's small size and low power consumption, combined with support for fixed and rotating antenna systems, make it a versatile short-range IFF device compatible with a wide array of air defense platforms.



## IFF MARK XIIA IKZ-M IFF Set

The IKZ-M set adds IFF capability to the GROM and PIORUN MANPADS, allowing the missile operator to identify the air target prior to launch. A complete IKZ-M set consists of an IKZ-50M short-range IFF interrogator, detachable IFF antenna, battery pack, battery charging kit, cabling and fastening elements. A dedicated tactical backpack with launch tube carrier is also provided for easy transportation.

The IKZ-M set supports IFF Mode 5 identification with a dedicated crypto appliqué attached. Identification is performed automatically immediately before missile launch. Extensive self-test functionality and modular design allow rapid troubleshooting and repair. Low power consumption and small size make the IKZ-M highly portable. The IKZ-M is compatible with the GROM and PIORUN MANPADS. It can also be integrated with any other MANPADS that provides an external control interface.

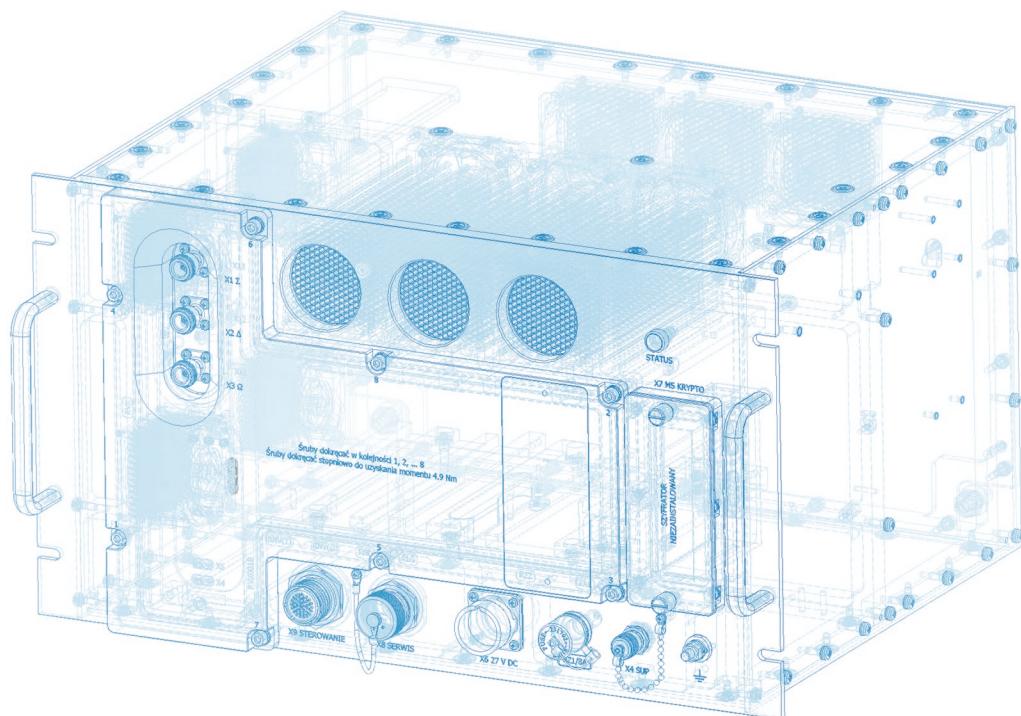


## IFF MARK XIIA System Device Interrogator ISZ-50

The IFF MARK XIIA system interrogators IDZ-50 and ISZ-50 are designed to co-operate with long and medium range radars, respectively. They operate in mode 1, 2, 3/A, C and S, and, when the appropriate cryptographic computer is plugged, also in mode 4 and/or 5. The interrogators are suited to receive the antenna position angle data (North pulses / azimuth clock pulses), as well to co-operate with antennas featuring three radiation patterns in azimuth plane: sigma, delta and omega

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The interrogators are suited to co-operate with a GPS receiver.

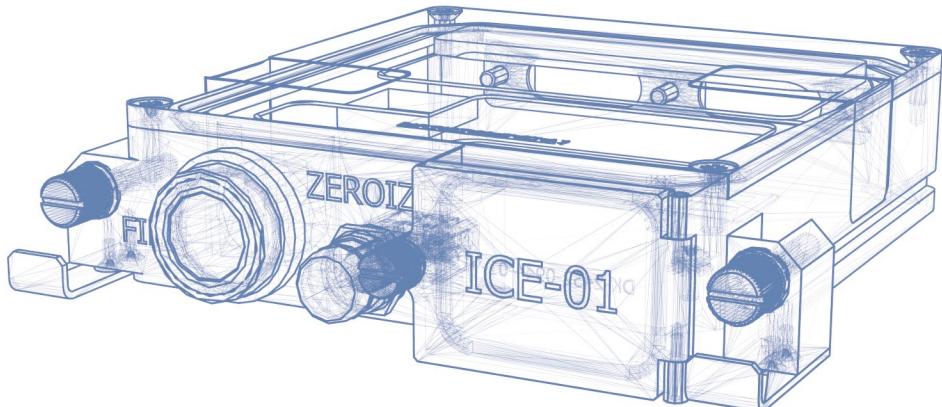


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## IFF MARK XIIA ICE-01 Crypto Emulator

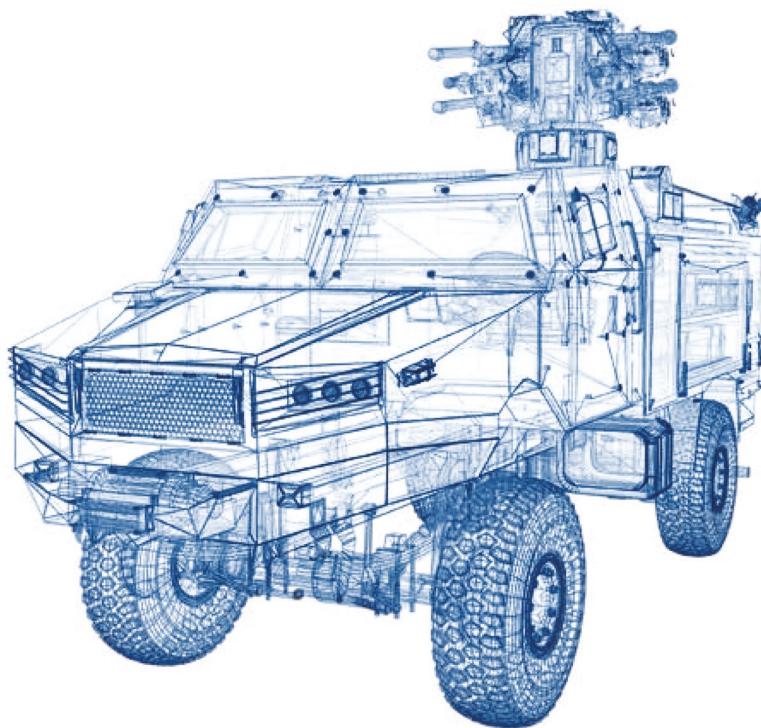
ICE-01 is an IFF Mark XIIA (Mode 5) crypto emulator compliant with US DoD AIMS 04-900(A) Option B. It provides all necessary functionality required to test IFF Mark XIIA interrogators and transponders, both at box and platform testing levels. The emulator can be used for training and exercises involving IFF capability without the need to use actual crypto devices (KIV-77 or equivalent).

As with real crypto devices, testing and training applications require two complementary ICE-01 units. One unit is installed in the device under test, the other one in an IFF tester. The emulator is equipped with diagnostic circuitry that performs automatic self-test on power-up. ICE-01 is not a Crypto Controlled Item (CCI) and does not store or process any classified information.



# ARMAMENT SYSTEMS





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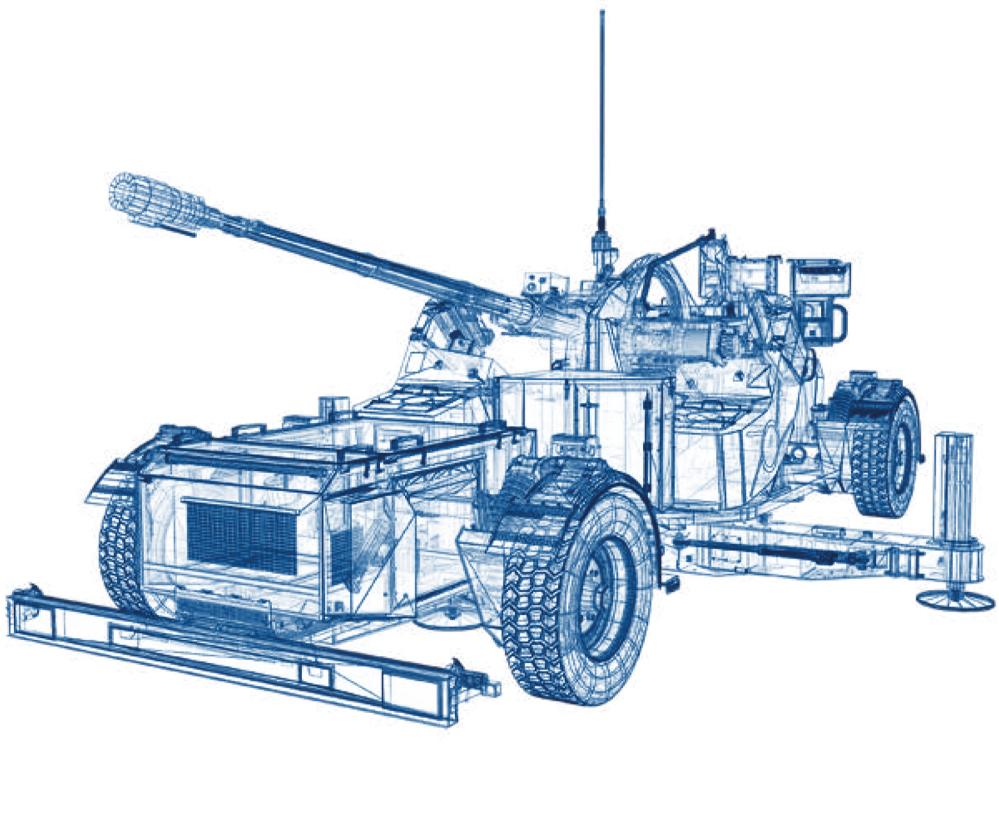
## Anti-Aircraft Missile System **POPRAD**

The POPRAD self-propelled anti-aircraft missile system is intended for fighting low and medium altitude air targets with use of heat-seeking missiles.

The basic functions of POPRAD are accomplished by a tracking-aiming head, which contains a set of electrooptical sensors (thermal camera and laser range-finder), four launchers of GROM missiles, IFF, two-axis drive. The system uses a fireguiding computer and a navigation and orientation system.

Target acquisition is based on digital data radio-link from the automated air defense command and control system or is worked-out autonomously.

The missile launching system is mounted on the Žubr-P off-road truck, other carriers can be used as well.



## Towed Anti-Aircraft 35mm Gun A-35/AG-35

The AG-35 and A-35 Towed Anti-Aircraft 35mm Guns are fire means designed to operate in an AA battery. They are intended to fight air targets as aircrafts (wing and rotary), cruise missiles and UAVs flying at low and very low altitudes, as well as light-armored ground and sea targets.

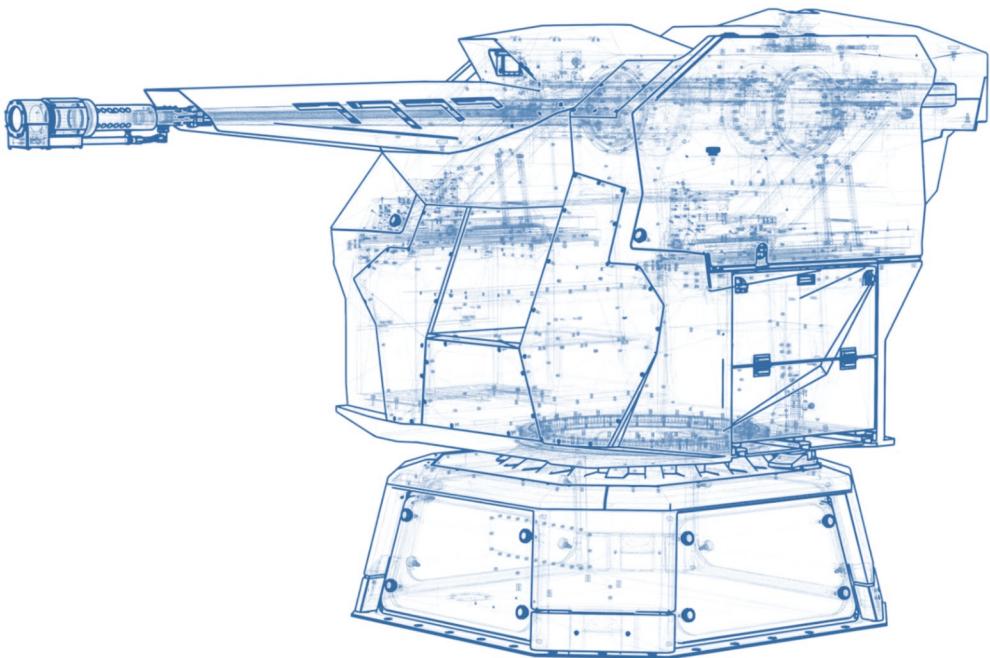
The guns have common design based on the 35mm automatic cannon (HSW), and differ in solution of aiming subsystem and fire control

The A-35 gun is to be connected to the tracking head vehicle and to work out the controls provided by vehicle's fire control system. The integrated aiming sight can be used to fight the ground and sea surface targets.

The AG-35 includes an additional integrated opto-electronic tracking head, a ballistic computer and a videotracker to set a fully operational aiming channel, capable of autonomous intercepting the threat and combat engagement.

The common components of the AG-35 and A-35 guns, besides of the 35mm HSW-produced automatic cannon which has a replaceable barrel, are a hydraulic gun control subsystem, a hydraulically deployed chassis, subsystem of drives, an automatic orientation and positioning subsystem, a communication and data exchange subsystem and an automated subsystem for programmable ammunition including the muzzle velocity measurement.

The subsystem of control of the automatic gun has dual-sided ammunition feeding from two magazines placed on both opposite sides of the automatic cannon. Two types of ammunition for example the FAPDS-T and ABM, can be switched over.

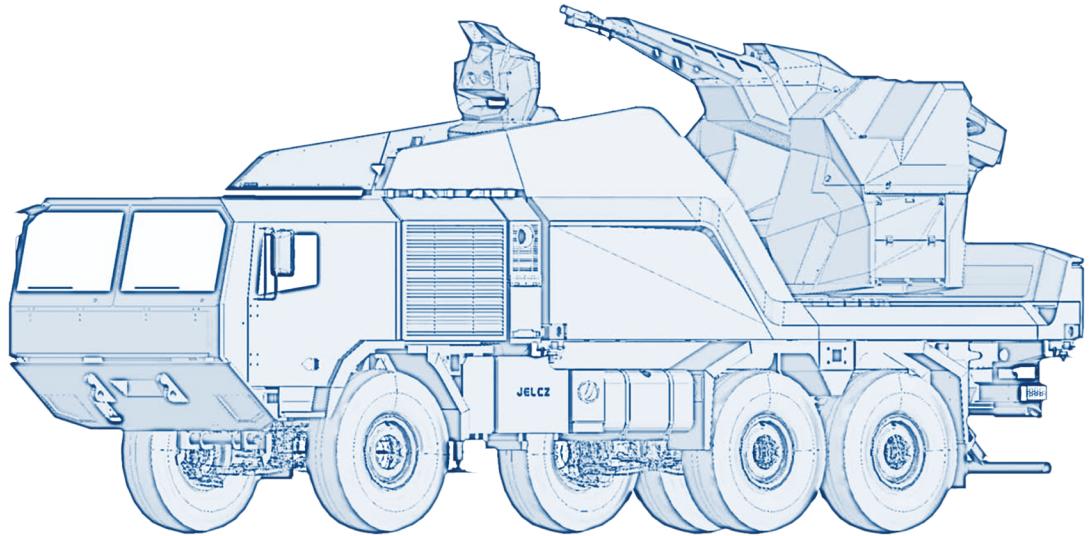


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## 35 mm Naval Gun System OSU-35K

Naval Gun System is a remotely controlled, stabilized ship weapon system, equipped with automatic a 35 mm caliber cannon with an independent optoelectronic one target tracking system. The main elements of the system is: automatic cannon (AM-35), integrated warhead observation and tracker (ZGS-35), system block fire control (BSKO) and a reserve position fire control (RSKO). OSU-35K provides combat air targets performing the maneuver course, speed and altitude in the fire zone, and surface targets. The system is designed to work with CMS (Combat Management System).

Open architecture system, its modularity and scalability they enable integration on ships of many classes. The design of the AM-35 is made using the technology carbon fibers. AM-35 can work in the mode autonomous with its own remote control console or in integration with the management system fight (CMS). The AM-35 is equipped with a sighting camera.



## 35 mm Self-propelled gun SA-35

SA-35 self-propelled gun system is dedicated to combat air targets and land targets (light armoured).

State of the art combination of AM-35mm superior fire power, integrated with programmable munition system, an independent optoelectronic target tracking system ZGS-35, Hybrid Fire Control System with Tuga radar and optoelectronic sensors, as well as a highly mobile third-generation 6x6 JELCZ platform.

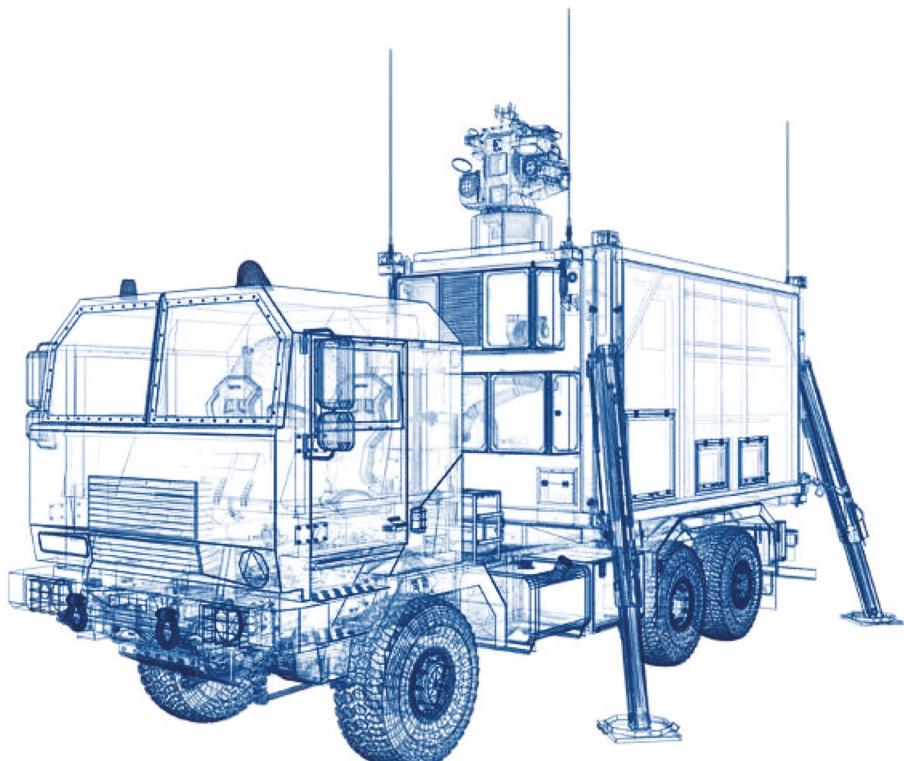
Developed for a dynamic change of a combat position with an intention to engage winged and rotary aircrafts, cruise missiles and UAV's.



# COMMAND, CONTROL, SURVEILLANCE, AND RECONNAISSANCE SYSTEMS

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## Anti-Aircraft System UMBRELLA

The UMBRELLA Anti-Aircraft system is dedicated for fighting low-altitude flying airborne targets (fixed or rotary-wing) as well as lightweight ar-mored ground and naval surface targets, day and night, all weather. The UMBRELLA makes use of gun or gun/missile anti-aircraft sets with MANPADS-class missiles (GROM or STRELA-2M)

The command vehicle is furnished with equipment designed to detect and track the targets, to control a battery of guns and to co-operate with superordinate command post as well as with remote radars. Anti-aircraft guns of various calibers (23, 35 or 57 mm), or gun/missile anti-aircraft VSHORAD systems can be applied.

Autonomous detection and tracking of targets is provided with use of integrated optoelectronic sensor head which consists of a FLIR camera, a CCTV camera, a laser range-finder and an IFF interrogator.

The system is powered by an auxiliary 20 kW power unit which is towed by the Command Vehicle on a single-axle trailer.



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## Fire Control Vehicle WG-35

The WG-35 Fire Control Vehicle, jointly with its integrated tracking head and its software is an element of the VSHORAD anti-aircraft battery. WG-35 receives preliminary information on the air picture from the superordinate command level or a local radar, and subsequently intercepts and tracks the target with use of the optoelectronic tracking head and the videotracker. As the fire means, typically the 35mm guns can be employed. The WG-35 can configure a single aiming channel (effector) of high fire power and accuracy, composed of several (up to 8) A-35 guns, operated jointly and in automatic mode.

The basic functionality of the WG-35 Fire Control Vehicle is accomplished by its command subsystem connected by the communication and data exchange system with guns and superordinate command level. For tracking the target, a multisensor optoelectronic head and a videotracker are responsible.

The tracking head has its own subsystem of precise controlling the azimuth and elevation drives.

The WG-35 vehicle is equipped with a remote observation post to provide setting the head on the target. The post is connected with a fiber optic link. A registration means and meteo station are included.



## Air Defense Command Post SAMOC SDP-20

The SAMOC System is a mobile air defense brigade-level command and control post which provide both capability to command and control legacy post-Soviet SAM launchers (2K11 Krug/SA-4 Ganef, or S-125 Neva/SA-3 Goa etc.) and interoperability with NATO systems.

Basic functions of the SAMOC include: planning of air defense cluster and SAM units deployment, subordinated units RAP-based fire control, threat evaluation and recommendations for optimal weapon assignment, real-time monitoring of the combat units status.

SAMOC is a mobile system, installed in containers on basic vehicle, providing: power supply, air-conditioning, heating, ventilation, EMP protection, automatic fire and radiation detection.

SAMOC has four operators' stations.



## Anti-Aircraft Defense C2 System REGA

The REGA family of systems is meant for lower tactical air defense levels for command and control support by automating the data processing. The REGA system ensures precise target indication and fire solutions for the air defense weapons.

REGA-1 WD-2001 anti-aircraft battery level command vehicle. Basic vehicle – 4 x 4 vehicle, computer work station with display and keyboard, three radios, digital switchboard and telephone sets for wire.

REGA-2 – command and control suite for artillery weapon sets (e.g. ZSU-23-4 Shilka) or missile sets (e.g. SA-6 Gainful – 2K12 KUB and SA-8 Gecko-9K3 OSA) computer workstation with display and keyboard, two radios, digital switchboard and telephone sets for wire communication.

REGA-3 – command and control suite for command posts of anti-aircraft defense subunits with towed AA guns (e.g. ZU-23-2, ZUR-23-2S, -2J) or MANPADS (e.g. SA-7 Grail or Polish GROM).

REGA-4 – command and control panel for direct integration with individual towed guns and MANPADS launchers:- data exchange computer terminal, hand-held transceiver, GPS receiver.

The REGA complex solution comprises four co-operating software-hardware modules, dedicated to the commanders, from battery level down to squadron level. The solution enables complete air and tactical situation picture and cooperation with other REGA components working alongside. Owing to optimized fire solutions and up to 12-fold shortening of the fire solution working-out time in comparison to older systems, the battle performance of an anti-aircraft system is significantly enhanced



## Automated Tactical C2 Information System SZAFRAN

The SZAFRAN Command and Control System is designed to support the Land Forces battalion-, brigade-, division- or corps-level command, and to assist the staff work by enabling automated command activities and processes. The SZAFRAN solutions ensure monitoring of the battlefield operational and tactical picture and providing support to the complete command cycle.

The SZAFRAN system is composed of a family of command vehicles and dedicated software. The system operates with LANs developed at the relevant level command posts. The LANs are networked via dedicated data transfer communication links, separated from the tactical communication system.

Functional capabilities: current battlefield situation monitoring and digital map overlays, terrain analysis based on digital maps and digital terrain model, preparing, management and exchange of the staff graphical and text documents, planning/modelling of the operational intentions (decision variants), computation of the force ratios, creation and exchange of the formatted messages (ADatP-3)

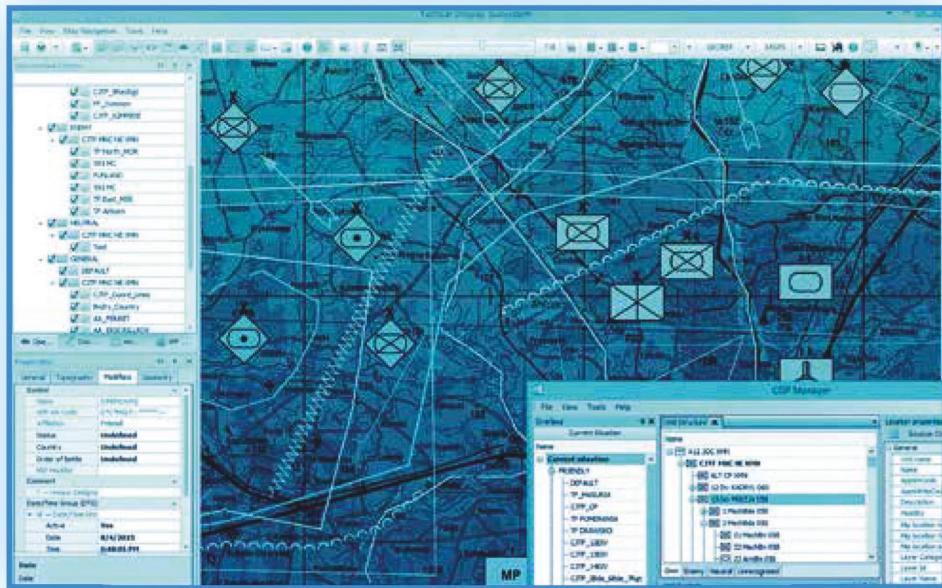


## Automated Air Defense Command and Control System LA-3

The LA-3 (ŁOWCZA) is an anti-aircraft battalion-level or regiment-level anti-aircraft defense command and control system, meant for automated assistance in air attack threat evaluation and air defense fire command decision optimization. Its architecture enables controlling SAM, AAA or mixed gun-missile batteries

The LA-3 system is designed to receive, associate and extrapolate the air picture data acquired from mobile early warning radar posts and from air-defense C2I system. The system provides also visualization and exchanging the operational and tactical data with superordinate and subordinate units. The fire units status and readiness are monitored continuously in real time. As a result of the automated, computer-supported analysis of all the data, optimal decisions to engage the available means are being worked-out, the tasks are being allocated, and subsequently the reports on the results are being received and processed. Thanks to optimization of firing decision and due to shortening the decision time, the battle efficiency of the anti-aircraft system can be significantly increased.

The architecture of the LA-3 system is based on a server coupled with a central database and a software, which enables data acquisition, threat evaluation, decision optimization and data transmission control. The system consists of specialized modules for digital data exchange between the components of the anti-aircraft defense system.



## Feniks C2IS

Feniks C2IS – software for high level Command Posts, intended for operation in IT structure built from Data Communication Nodes and Workplaces installed in mobile modules or stationary rooms.



## Feniks BMS

Feniks BMS (ROSOMAK-BMS) – Battle Management System for tactical units or subunits, mobile system with IT equipment installed in combat wheeled or tracked vehicles.

## Notes





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