

# NOKTOWIZOR

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**5<sup>TH</sup> OPTOELECTRONIC  
CONFERENCE**  
13-14.11.2019



**PCO S.A. DURING  
THE XXVII MSPO**

# INNOVATIONS

**PARTICIPATION OF PCO S.A. IN CURRENT  
AND FUTURE ARMoured PROGRAMS**



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# Introduction



## Foreword by the President of the Board of the PCO S.A.



President of the Board of the PCO S.A. Paweł Glica

Our activity in the optoelectronics industry requires us to constantly develop, seek opportunities to expand our offer, cooperate with the world of science and build new solutions for the military in frames of the European programs. That is why PCO S.A. established the Innovation Centre described in this issue of "Noktowizor".

In our publication you will also find information about PCO S.A.'s participation in the International Defence Industry Exhibition (MSPO) in Kielce - the biggest event of the defence industry in Poland. We present, among others, new products that will have their premiere during the MSPO.

We also care about the development of the Company through new investments. In this issue of the "Noktowizor"

you will learn about the investments planned in the Company's headquarters.

In the current issue of "Noktowizor" we have paid a lot of attention to management policy, including project management as well as values and ethics in the PGZ Group. We are aware how important these areas are for building the Company's brand and position.

We also provide information about PCO S.A.'s cooperation with the world of science, as well as our participation in the Technical Modernization Programmes of armoured vehicles conducted by the Polish Armed Forces.

I invite you to read the current issue and hope that it will prove to be a source of valuable information about PCO S.A. for you.

Sincerely

Paweł Glica  
President of the Board  
of the PCO S.A.



# Main topic of this issue

## - The Innovation Centre

The Innovation Centre was established at PCO S.A. last May.

The Innovation Centre was started as a response of the Company's Management Board to questions concerning long-term development plans of PCO S.A. in terms of both technology and products. It will be a place where analyses of current directions of technology development will be conducted, including through participation in the work of international teams. These analyses will provide the basis for selecting the most promising market trends and formulating road maps for the development of these technologies at PCO S.A.

The Centre will work in cooperation with marketing and sales departments to connect the development of technologies to the development of new and modernized products, expected by the customer. It should be emphasized that the Innovation Centre complements the R&D department and its current resources will be used for the development of new products. It will also obtain external funds for innovations and related R&D projects.

An important part of the activities of the new organisational unit is to follow and analyze trends in the area of military optoelectronics:

- participation in EU, NATO and EDA groups;
- attendance at conferences;
- participating in discussions with international partners, universities and research institutes;
- participation in expert teams.

Activity in the optoelectronics industry requires cooperation with other organizations, including universities and research institutes in the field of R&D projects. It will be the responsibility of the Innovation Centre.

The Centre is also to participate in the development of new product / subsystem concepts in cooperation with the Sales and Technical Divisions.

The Innovation Centre will work with the Technical Division to define the requirements for new technologies and to develop demonstrators.

One of the tasks of the new unit is also to attract new staff from research and development centres.



Tests of the TYTAN Programme

## Three questions to Mr. Mariusz Andrzejczak - the Innovation Centre Director

Which directions of development do you consider to be the most important and providing PCO S.A. with the best prospects?

*We are now conducting analyses to answer this question in a more comprehensive way, but I came to PCO S.A. with a vision of the future directions of its development, which I will gladly share. In my opinion, the most important trend, which is definitely visible on the market, is the transition of optoelectronic companies from data providers to information providers. What does that mean in practice? Companies do not want to provide integrated heads, but rather they want to provide information about threats or potential targets obtained with sensors and devices on the heads. This is a visible sign of the transformation from hardware suppliers to IT service providers. Of course, the transformation is slow, but the trend is clearly visible. At PCO S.A. we cannot ignore this trend and therefore we need to significantly strengthen our programming resources in terms of both basic signal processing and advanced image recognition methods.*

**PCO S.A. is involved in many modernization programs of the Polish Armed Forces. Are the research and development activities currently in progress in the Company related to them and if the answer is positive, what is this relation?**

*The Armed Forces of the Republic of Poland are our main client, therefore the research and development activities conducted in the Company are obviously aimed at meeting the needs indicated in the modernization programmes of the Armed Forces. PCO aims not only to deliver sensors but also integrated systems such as the TYTAN system of which we are the main integrator. Additionally, our solutions and products can be found in virtually any of the systems to be acquired within the Technical Modernization Programmes. The greatest hopes are connected with the programmes of development of our capabilities in the field of artillery and rocket forces, modernisation of armoured and mechanised forces, unmanned systems and the anti-aircraft and anti-missile defence systems, NAREW*

*and WISŁA. The Company's research and development work reflects our plans to participate in these programmes.*

**Optoelectronics covers also space programmes and PCO S.A. is involved in them. Please describe the Company's activities in this field.**

*Space programmes are very often related to the use of optoelectronic devices as they are an extremely valuable and rich source of information in the space environment. PCO S.A. is involved in the implementation of projects related to missions planned to be carried out by ESA (the European Space Agency), and actively participates in the competition on space technologies announced by the National Centre for Research and Development (NCBR). It should be emphasized that we treat space projects as a source of knowledge and best practices related not only to the proper methodological management of projects, but also, above all, to the quality assurance of products and proper planning of tests. Every space project is a challenge and it must be well documented - from the concept phase to the testing of even the smallest screw or gasket. We hope that participation in the currently implemented programmes will allow us to be one of the contractors of the observation satellite programme for the Polish Armed Forces, which we are hoping to launch in the future.*





# PCO S.A. at the MSPO

## The question to...

### Paweł Glica - the President of the Board, on PCO S.A.'s commercial offer

**What are the most important contracts signed recently by the PCO and what groups of products do they involve?**

*For many years PCO is the main supplier of the optoelectronic devices for the Polish Armed Forces. We work to keep this position but develop also other directions of deliveries. Recently we have signed ia. Contracts on delivery of the NPL-1T thermal binoculars for the Border Guards, repairs of the small night vision devices and delivery of the spare parts for the Assistance Inspectorate. We are currently negotiating more contracts with the Arms Inspectorate to deliver individual soldiers' equipment.*

*Company received order for delivering laser warning system for the Harimau medium tank and wheeled APCs produced by the PT Pindad Company for the Indonesian Armed Forces.*

*PCO achieves also successes in delivering individual equipment for the special forces, armed forces and police in the South-East Asian countries. Interest in aviator's night vision goggles delivered to Ukrainian companies and Western European training facilities, remains high.*

**Which foreign markets do you perceive as the most promising for PCO S.A?**

*For several years we are working on gaining new foreign clients. We not only participate in fairs and exhibitions, where we have an opportunity to acknowledge users with our products but also meetings and dedicated shows for the representatives of various armies. High quality and many unique features of our products are qualities that may convince many of them into buying solutions developed by PCO S.A. There are many potential markets but we concentrate on South-East and East Asia, where, apart from deliveries of night vision devices for the individual soldier, we are planning to develop sales of sights and thermal binoculars. We must add that PCO is a supplier of the SSP-1 OBRA-3 laser warning system for the new Indonesian Harimau tank, and not only Indonesia, but also Philippines and Bangladesh are interested in buying it. This project is an international enterprise realized by the Turkish, Belgian and Indonesian companies, what shows not only technical advancement of our product but also ability to successfully implement solutions on the international level.*

*The other important market is Ukraine and other countries using post-Soviet equipment, that, as Polish experience shows,*

*may be successfully modernized, especially in scope of modern optoelectronics. Our devices for Ukrainian armoured vehicles significantly improved their abilities and gained positive comments, so we count on increasing this cooperation and talks on next modifications.*

*Of course modernization of armoured vehicles is not the only direction that interests us. For example the Western European NATO countries praise our night vision products for the individual soldier and we are planning to promote their use not only in the special forces but also police forces. We already have some successes on this field. We count that next year will bring new orders from this region. Western Europe, together with Ukraine, is a region where we are trying to reach clients using aviator's night vision goggles for helicopter pilots. PNL-3M goggles have certification of the European Aviation Safety Agency (EASA). We must also remember about increasing number of users of the aviators' night vision goggles – both in civilian and military version, produced by the PCO. They have various implementations in search and rescue missions, transport of equipment and personnel and also police actions. Currently they are used by helicopter crews in Asia, Africa and Middle east but also by training facilities around Europe.*

*We are optimistic about the prospects of activities in the Middle East, where our efforts concentrate on United Arab Emirates and Saudi Arabia, that are interested especially in individual night vision and thermal devices and this year we got first order for DCM-1 modular sights.*

**PCO S.A. takes part in consortiums preparing offers in frames of technical modernisation programs of the Polish Armed Forces. Can you give some more details about company's activities on this field?**

*We must mention that PCO for years delivers optoelectronic products used in numerous technical modernisation programs such as individual soldiers' equipment, equipment for the Poprad self-propelled anti-aircraft missile system, Pilica close range artillery-missile anti-aircraft system, aiming device for Piorun Manpad, optoelectronic system for the unmanned*



30 mm turret, new combat module of the Borsuk amphibious armoured car, Regina divisional fire module, company module for self-propelled Rak mortars and Rosomak APCs as well as for Advanced Individual Combat System TYTAN.

Currently PCO conducts activities to participate in more programs. We offer night vision and thermal devices for the commander, driver and gunner in frames of modernization of the T-72 tank. As we know, recently a contract on modification and repairs, was signed between consortium composed of PGZ, WZM Poznań, ZM Bumar-Łabędy a Support Inspectorate of the Polish Armed Forces, represented by the 1<sup>st</sup> Regional Logistical Base in Wałcz. Currently negotiations on contract between PCO and Consortium are ongoing. 8 modernisation sets for tanks are to be delivered until the end on 2019.

PCO participates in talks on modernization of the Mi-24 helicopters. The aim of the Company is to participate, in cooperation with a foreign partner by transfer of technology, in deliveries of the observation head.

Company closely cooperates with WZM Poznań to implement a set of cameras for the driver, commander and gunner in

Leopard 2A5 tanks, similarly as it was with modernization sets for the Leopard 2A4 tanks.

**What new products will PCO S.A. present during this year's edition of the MSPO?**

During this year's edition of the International Defence Industry Exhibition (MSPO) to be held on 3–6 September in Kielce, PCO S.A. will present its products in the exhibition hall of Polska Grupa Zbrojeniowa.

The Company's key products, already used by the Polish Armed Forces, such as MU-3M Night Vision Monocular, SCT Thermal Weapon Sight, KLW-1 Thermal Camera or SSP-1 Laser-Warning System, will be on display.

New products will be presented within PCO S.A.'s offer for individual soldiers and combat platforms: ZMO-3 Integrated Optoelectronic Module and CTP-1 Piorun Thermal Sight.

The NPL-1T Thermal Binoculars and the PCT-72 Periscopic Thermal Sight were nominated to the Defender award.

## New products and TYTAN Programme

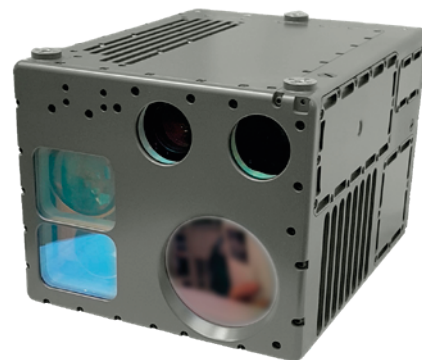
### ZMO-3 Integrated Optoelectronic Module

ZMO-3 Integrated Optoelectronic Module is designed for Remotely Controlled Armament Module (ZSMU) for the LOTR light armoured reconnaissance transporter.

The optoelectronic module includes:

- a thermal camera (range 3–5  $\mu\text{m}$ );
- a set of television cameras;
- a mono-pulse, eye-safe laser rangefinder.

They enable detection, recognition, identification and measurement of the distance to the detected target. The functions of the module are controlled from the multifunctional desktops used in the system.



ZMO-3 Integrated Optoelectronic Module

## CTP-1 Thermal Sight

CTP-1 Thermal Sight is designed for the Portable Anti-Aircraft Missile Set. It is used to observe, target, aim and fire day and night flying targets with the use of Man-Portable Air-Defense System (MANPAD), regardless of lighting conditions, as well as in adverse weather conditions (light fog, smoke).

The CTP-1 Thermal Sight is equipped with an athermal lens, which allows you to use the sight when the ambient temperature changes, without having to adjust the focus of the image. With the CTP-1 Sight it is possible to conduct combat operations both day and night, under normal and limited visibility conditions, under various climatic and atmospheric conditions. The CTP-1 also features an electronic compass that allows azimuth measurement from 0° to 360° with an accuracy of  $\pm 8^\circ$ . The value of 0° means north.



CTP-1 Thermal Sight

## Presentation of the TYTAN Programme

During the MSPO the TYTAN Advanced Individual Combat System will be presented, which is worked upon by a consortium whose works are coordinated by the PCO S.A.



TYTAN Programme



# Investments at PCO S.A.



## Mr. Tadeusz Araszkiwicz, the Director of Traffic Maintenance and Investment Execution, on investments planned at PCO S.A.

Is the extension of PCO S.A. headquarters currently planned?

*PCO S.A. resumed the procedure for the selection of the General Contractor of new building, designed as a multi-functional building with production, research, technical and commercial facilities, an elegant conference room and an underground car park.*

*The building will increase the PCO S.A.'s premises by 7370 m<sup>2</sup>, enabling the development of production in the field of new technologies especially integration of the TYTAN System. The construction is part of a larger project called "Modernization and expansion of the production capacity and technology of the production of military optoelectronic equipment using infrared for the needs of technical modernization programmes of the Polish Armed Forces". PCO S.A. will gain co-funding of the investment from funds other than state aid.*

*The execution of the above described construction is planned from July 2019 to December 2021.*

*By November 2019, the bidding for the selection of the Investor Supervision Inspector, Author's Supervision and General*



*Contractor will have been completed. From December 2019 the actual construction will begin, which is scheduled to be completed in November 2021.*

## Modernization of the technical infrastructure of building C - the Testing Station

Building C, adapted to the needs of the Testing Station based on a project from 2006–2007, no longer meets the requirements in terms of network efficiency and installation of technical infrastructure and available floor space. It was necessary to modernize and reorganize this facility.

This necessity results from the increase in the number of machines and equipment implemented in the recent years, as well as plans for subsequent implementations in the coming years, resulting, among other things, from the increase in production.

In the period of April–June 2019, on behalf of PCO S.A., the PNP Inżynieria design office developed detailed designs and cost estimates for Stage I of the project, including the adaptation of the building to both current and future production needs.

The investment listed in the above mentioned project documentation includes relocation of some machines and equipment within the building, construction of a mezzanine allowing for additional space and modernization of infrastructure, in particular power, ventilation and technological networks of cooling equipment.

Stage II is to be the physical execution of the modernization of building C on the basis of drawn up projects.

The effects of the planned adaptation of the Testing Station to the new needs include the possibility of installing new machines and equipment, increased production capacity, improved working conditions and improved ergonomics of processes in the field of testing PCO S.A.'s products.



# Scientific cooperation

## 5<sup>th</sup> Optoelectronic Conference

The 5<sup>th</sup> Optoelectronic Conference will be held on 13–14 November 2019 in the Windsor Hotel in Jachranka. The Conference is organized by PCO S.A. with the support of Warsaw University of Technology, Military University of Technology and the Association of Employers of the Polish Technological Platform on Photonics.

The Optoelectronics Conference brings together representatives of the defence industry, the Polish Army and the world of science. The aim of the Conference is to increase the efficiency and innovativeness level of cooperation between science, industry and user in the field of photonic technology development, with particular emphasis on technologies for safety and comfort of life. This event is an opportunity to establish contacts, exchange experiences and broaden knowledge in an extremely important and present in all areas of life field of science and technology, which is optoelectronics. The conference annually gathers experts in the field of optoelectronics. During these two days filled with lectures and discussions they can share knowledge and conclusions on the current state of affairs and the development of this field of science. Numerous presentations and speeches bring current scientific trends in the photonic industry closer together and enable a more ac-

curate adaptation to the requirements of the changing market. The conference is devoted to optoelectronics, including thermal imaging and photonics, which is currently one of the EU's key technologies according to the Europe 2020 Strategy. The Conference also discusses the subject of research and scientific cooperation between the military industry, universities and research institutes.

The fifth edition of the Optoelectronic Conference has been covered by the Honorary Patronage of the Head of the National Security Bureau and the Patronage of the Ministry of Science and Higher Education.

### The main topics of the conference:

- The potential of Polish photonics in defence and security systems;
- Photonics in communication systems and virtual and extended reality;
- Sensory systems - image analysis and processing; multispectral analysis;
- Photonics in navigation;
- Use of photonics in robotics and autonomous vehicles.

## Other events

On 17 May, at the Faculty of Physics of the Warsaw University of Technology, within the framework of the International Day of Light, a meeting of the Polish Society of Photonics was held, co-organized by the Association of Employers of the Polish Technology Platform for Photonics. The meeting was accompanied by a presentation of companies operating in the photonic industry, including PCO S.A.

On 21 March, the conference "Industry Days" organized by the Department of Armaments Policy of the Ministry of National Defence took place. The conference consisted of several panels concerning the Ministry's expectations towards the Polish defence industry and the product offer proposed by the industry. The topic of cooperation with the European Defence Fund was also discussed. During the conference PCO S.A. presented the offer of optoelectronic products.

On 19 March representatives of PCO S.A. participated in the conference "Sensory and photonic technologies for industry", which took place in the Ministry of Entrepreneurship and Technology. During the event, the Company's products were presented: MU-3M Night Vision Monocular, NPL-1T Thermal Binoculars and DCM-1 Modular Weapon Sight. The optoelec-



tronic products were introduced to Ms Jadwiga Emilewicz, the Minister of Entrepreneurship and Development.

The conference "Enterprises of the future of the Polish defence industry" organized by the Academy of Military Art took place on March 15<sup>th</sup>. During the conference, scientists, representatives of the Polish Army and the Polish defence industry discussed the development of the defence industry, as well as the management of products and companies from the industry. A representative of PCO S.A. participated in the debate.

Główny organizator



Współorganizatorzy:

Politechnika  
Warszawska



# V KONFERENCJA OPTOELEKTRONICZNA

FOTONIKA TECHNOLOGIĄ  
BEZPIECZEŃSTWA I KOMFORTU ŻYCIA

## WYBRANE TEMATY KONFERENCJI:

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- Fotonika w systemach komunikacji oraz wirtualnej i poszerzonej rzeczywistości
- Systemy sensoryczne, analiza i przetwarzanie obrazów, analiza wielospektralna
- Fotonika w nawigacji
- Wykorzystanie fotoniki w systemach robotycznych i pojazdach autonomicznych

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# Participation of PCO S.A. in current and future armoured programs

Supplies of optoelectronic equipment for combat vehicles are one of the key areas of activity of PCO S.A. Due to the fact that the Polish Army initiated large armoured programmes, this area may become a leading one for the Company in the coming years. This should also make it possible to standardise optoelectronic equipment for the Polish armed forces.

The Company has extensive experience in the development and manufacture of on-board optoelectronic equipment. The first works carried out in the 1980s were related to the modernization of the T-55 family of tanks to the "Merida" variant. It was connected with the launch of production of the fire control system of the same name, the "Bobrawa" self-shielding laser radiation warning system and the observation devices for the driver and the commander, "Radomka" and "Liswarta", respectively. The next historic undertakings concerned the thorough modernization of T-72 family of tanks to the PT-91 variant.

Currently, the activities of PCO S.A. in the field of on-board optoelectronic devices can be divided into several areas. The first one concerns the passivation of observation and sighting devices for currently used vehicles of Soviet origin. The second is the supply of equipment, mainly observation equipment, for modern, currently produced vehicles. The third one is connected with the modernization of Leopard 2A4 tanks to the 2PL variant. Finally, the fourth one covers the new programmes, which are at different stages of implementation and should lead to the creation of a whole spectrum of series-produced new-generation devices in the coming years.

## Passivation

One of the biggest drawbacks of T-72 tanks and BWP-1 infantry combat vehicles was their equipment in active, night vision observation and sighting devices. In addition to small detection ranges, the infrared illuminators in the foreground have been perfectly visible from a long distance for the observation systems of potential enemy.

Therefore, as part of periodic renovations, the PNK passive periscopes for drivers and the POD observation devices for commanders are installed in vehicles of these types. They use modern image amplifiers with an entrance window based on glass optics allowing to meet modern user requirements.

## For Polish vehicles

PCO S.A. supplies also equipment for new artillery combat vehicles, including the Krab howitzer cannons, the Rak au-

tomatic mortars and the KTO Rosomak Advanced Modular Vehicles. For the former, the COB-1 Direct Fire Sight has been developed, combining day and night optics with night vision.

The Rosomak transporters, and thus also the Rak mortars on the chassis of this vehicle, receive the PNK periscopes. In addition, the Rak mortars are equipped with a SOD omnidirectional observation system. Thanks to the use of four sets of television and thermal cameras, the system allows you to



Omnidirectional Observation System SOD-1

detect the human figure - regardless of the time of day and weather conditions - from a distance of up to 200 meters, in any direction. The system has a motion detection function, it also allows for any configuration of the image on the crew's displays.

The equipment of both artillery vehicles also includes the Laser Warning System SSP-1 OBRA-3, which detects and warns against laser irradiation of the vehicle and allows for the installation of a smoke screen. The grenades can be fired in manual, semi-automatic and automatic mode.

## Modernization of Leopard 2A4

Launching of thermal imaging devices manufacturing was a real breakthrough in the recent history of PCO S.A. The cameras of the KLW-1 family have become the most important product from the point of view of armoured programs. These are devices operating in the range of 7.7-9.4  $\mu\text{m}$ , with a cooled detector with a resolution of 640x512 pixels. They meet all user requirements and were first of all designed to be used in the deep modernization of Leopard 2A4 tanks to the 2PL variant. They replace the old, unmodifiable thermal cameras of German production in the cannon observation and sighting device, and are also installed in the periscope of the commander, originally having only a daytime track.

The KDN-1T Driver's Rear View Camera has also been developed for the modernization programme consisting of a daytime TV camera and a thermal camera, along with a MFM-3 display. They allow the driver to detect the silhouette of a human being from a distance of up to 250 meters, and use the OSD system, which visualizes the far lines of the vehicle and operating parameters. The KDN-1T makes it easy to manoeuvre backwards and increases the safety of infantry soldiers accompanying tanks.

## New programmes

Solutions developed for Leopards 2A4 can be directly used in A5 vehicles. In total, this creates a potential market for as many as 247 vehicles.

The T-72 and PT-91 tanks have a great potential. Currently, talks are being finalised on the potential modification of about 300 vehicles of the first type. Apart from the PNK and POD devices, PCO S.A. has also proposed for this program the PCT-72 periscope thermal sight for the gunner, which is to replace the old TPN-1-21-11 night vision sight. The PCT-72 consists of: KLW-1 Asteria family camera, MFM-2 multifunctional display, MD-1 gunner display and a new periscope head. In T-72 modification it is also possible to use the KND-1T Driver's Rear View Camera.

For the PT-91, the Company is already supplying a modification kit for the ZMKT thermal camera using the KLW-1 camera. The kit replaces the older generation equipment of Israeli production.

PCO S.A. has significantly contributed to the program of developing the USSW-30 unmanned tower for the next batch of the KTO Rosomak wheeled armoured vehicles and new "Borsuk" combat infantry vehicles. The Company developed completely new products for this program: observation and sighting heads for the commander (GOD-1) and for the gunner (GOC-1). Both operate in the hunter-killer mode and use thermal cameras and a laser rangefinder in addition to TV cameras.

The tower system is equipped with the SSP-1 Obra-3 Laser Warning System, which in the future may become a part of the active vehicle defence system. PCO S.A. has also developed the CAD-1 emergency sight, which allows to fire in the event of failure of the main vehicle systems. The total purchase order for new cars can be estimated at several hundred pieces.

Additional orders can also be connected with the group of auxiliary vehicles, including the accompanying bridges or command vehicles, as well as with the successors of the BRDM-2 reconnaissance vehicles, developed within the framework of the "Kleszcz" program ("LOTR"). PCO S.A. sup-

plies them with day-night observation instruments. A large part of these vehicles will be equipped with a remote-controlled armament module, which also involves the use of integrated optoelectronic modules, such as ZMO-3, which have a similar role as the GOC-1 heads, providing the operator of a machine gun or automatic grenade launcher with the ability to observe and aim at day and night and to accurately determine the distance to the target with a laser rangefinder.

Completely new perspectives for PCO S.A. have been created by the program of building a new Polish tank. The Company currently has ready-made products that can be used in the development of a complete set of optoelectronic devices of a modern combat vehicle. However, it is also possible to modify them or create completely new solutions, depending on the requirements of the future user.

## Standardization

Currently, military vehicles use optoelectronic devices from various manufacturers. Starting with Soviet instruments, through Israeli, Italian or German, to Polish ones which have been produced in recent years. With regard to old or foreign equipment, this generates huge logistical problems and the costs of current use which are difficult to accept.

However, the programs already implemented as well as the planned projects should lead to standardization of optoelectronic equipment for the Polish Army vehicles, based on the equipment manufactured by PCO S.A. From the user's point of view, this will lead to a reduction in purchase and usage costs, improve logistics and increase security of supply.

On July 22, 2019, the PGZ S.A. Consortium concluded a contract with the 1st Regional Logistics Base [1. Regionalna Baza Logistyczna] in Wałcz for the T-72 tanks' renovation with modification. PCO S.A., among others, will be involved in the modification works. The agreement provides for the implementation of the task in the years 2019-2025.



Rosomak APC



# Management Policy

## Project Management

Authors: Ewa Przysucha – Project Management Director;  
Piotr Antkowiak – Project Management Coordinator

In 2011, the Management Board of PCO S.A., wishing to achieve the ambitious objectives adopted in the Company's Strategy, the achievement of which involved the implementation of many projects requiring significant but limited resources, decided to launch activities related to the implementation of the programme, project and project portfolio management.

In order to develop the culture of such management, the Project Management Office (PMO) was established. Based on the solutions of global methodologies and standards - with particular emphasis on the PRINCE2® methodology - it developed the Project Management Regulations, which - by virtue of a resolution of the Management Board - were adopted as binding for the PCO S.A. Capital Group (then the Bumar Żołnierz S.A.).

On the initiative of the Project Management Office, intensive training of staff was launched resulting in a significant increase in the level of knowledge in the area of programme and project management, with particular emphasis on risk management. This has been confirmed by numerous certificates obtained by the employees: PRINCE2, M\_o\_R, MSP, P3O.

The experience gathered during the implementation and the reported needs of internal stakeholders allowed us to develop the best standards, adjusted to the requirements and expectations of PCO S.A. and to apply them, among others, in the IT tool supporting the Company in managing projects, programmes and project portfolios (SZaPro).

The main tasks of the PCO S.A. Project Management Office include:

- initiating and conducting activities aimed at broadening the knowledge and developing the Company's competence in the area of programme and project portfolio management;
- reporting the status of projects and programmes carried out in the Company to the Management Board;

- management of the project environment, including standardization and synchronization, training and control;
- carrying out consultative or mentoring activities on project, programme and project portfolio management;
- classification and management of knowledge about projects and programmes implemented in the Company.

The implementation of the above tasks brings the following benefits to the Company:

- reflecting the strategic objectives of the Company in the projects implemented;
- optimization of the project portfolio;
- minimizing risks;
- minimizing delays;
- efficient management of the Company's resources;
- effective and reliable analysis of the project profitability;
- increasing the level of employees' involvement in the implementation of projects;
- shared and understandable project language, work rules and practices.

The Project Management Office, bearing in mind the concern of the Management Board of the Company for the effective and efficient implementation of projects, monitors the development and updates knowledge of the best practices and standards in the field of programme, project and project portfolio management applied globally, improving the processes and procedures applied in the Company. The Company's active involvement in the International Project Management Association (IPMA Polska), an international, leading organization associating professionals and institutions wishing to improve their skills in managing programmes, projects and project portfolios, of which PCO S.A. is a member, enables sharing of experience, knowledge and good practices with experts related to project management in the broad sense as well as with representatives of other PMOs being members of IPMA Polska.

## Values and Ethics in the Capital Group, including PCO S.A.

The PGZ Capital Group observes the highest standards in its activities, in accordance with universal standards of ethics, honesty, transparency and responsibility.

The Code of Ethics and Anti-Corruption Procedure in force in the PGZ Capital Group sets out the basic principles that all employees of the Group companies must follow and explains the values to be followed when making decisions. The adopted standards allow to build trust in the Group.

The Group companies meet all legal requirements, take care of good practices and respond to the expectations of customers with regard to the quality and safety of manufactured products. Research and development is constantly carried out to ensure that the offer is properly tailored to the requirements and contractors are invited to participate actively in product development processes. Customers are guaranteed support at every stage of the product life cycle.

Caring for the reliability of products and constant development, emphasis on the implementation of modern technologies and involvement in research and development are the hallmarks of all producers belonging to the PGZ Capital Group.

One of the most important pillars of the PGZ Group's operations is information security. Information security is the responsibility of every employee, both inside and outside the company. The PGZ Group complies with strict legal regulations governing the flow of confidential and strategic information, which constitutes business secrets.

Employer-employee relations in the PGZ Group are based on respect for personal dignity. No form of discrimination is tolerated. The companies of the PGZ Group support the development of employees. Special attention is paid to safety at work and the creation of friendly workplaces.

In PGZ there is a principle of "Zero tolerance for corruption" and this applies to all forms of corrupt behaviour in business activities. The companies as business entities, employees and other persons acting on behalf of the PGZ Group, are obliged to comply with the Anti-Corruption Procedure of Polska Grupa Zbrojeniowa S.A. It prohibits PGZ S.A. em-

ployees and intermediaries from offering and/or accepting financial or personal benefits in order to improperly obtain or maintain contracts, business contacts or permits granted by state or local government institutions.

The PGZ S.A. Group conducts its business operations with business partners all over the world, therefore it is obliged to comply with the legal acts in force in other countries aimed at combating corruption, including the US FCPA - Foreign Corruption Practices Act, UKBA - United Kingdom Bribery Act and guidelines contained in international agreements, including the OECD Convention and the Arms Trade Treaty adopted by the UN General Assembly.

Employees of the PGZ S.A. Capital Group and external partners may report suspected violations of the PGZ S.A. Anti-Corruption Policy through an independent communication channel: [liniaetyki@pgzsa.pl](mailto:liniaetyki@pgzsa.pl), where they are treated in a confidential manner and examined with due diligence.

The Code of Ethics of PGZ S.A. was introduced in PCO S.A. on 3 January 2017. Since March 2013, the Company has also been bound by the Code of Ethics of PCO S.A., which is a development of the principles and procedures resulting from universally applicable laws, including the work regulations in force in PCO S.A. The Code describes in detail the most important values and principles guiding the Company's employees, as well as the PCO S.A.'s ways of proceeding in relation to the most important areas in the defence industry. The Code of Ethics is to shape the proper culture of work within the Company and its environment, as well as to promote ethical values among PCO S.A. employees by indicating the key values constituting a signpost of conduct during the performance of entrusted duties. The employee, performing his / her tasks in a manner universally recognized as ethical, inspires trust and strengthens the positive perception of the Company by other employees, contractors and the society.

The Code of Ethics of PGZ S.A. and the Code of Ethics of PCO S.A. are valid concurrently and support the Company in striving to be an exemplary, reliable and honest partner in business, as well as a trustworthy employer. These documents provide a guideline for all employees and the basis for their daily work in a constantly changing environment.



# From the life of PCO S.A.

## Events at a glance

(February - 15 August 2019)

### Territorial Defence Force (WOT) - training

PCO S.A. organized a training on the use of optoelectronic equipment for soldiers of the Territorial Defence Force. The training took place at the end of March on the premises of the 1<sup>st</sup> Radioelectronic Centre in Grójec. The participants focused on learning how to use the observation and sighting devices manufactured by PCO S.A. - goggles, night vision mon-

oculars and night vision and thermal sights for MSBS Grot 5,56 mm carabiners, which are included in the equipment of the WOT. During the training, the participants performed series of shooting in simulated day and night conditions on a container shooting range provided by Zakłady Mechaniczne from Tarnów.

### Visits of delegations and meetings organized at PCO S.A.

The headquarters of PCO S.A. are visited by delegations from all over the world. Guests can watch a multimedia presentation, visit the production departments and learn about the Company's products for individual soldiers and combat platforms. At the end of July, Minister Tomasz Zdzikot from the Ministry of National Defence and Mrs Karolina Grenda, Director of the Department of Science and Military Education of the Ministry of National Defence, visited the headquarters of PCO S.A. On 23 July, PCO S.A. hosted a delegation from the National Security Bureau, headed by the Minister, Mr. Paweł Soloch. On the same day, the Air Force Chief of Staff - Commander of the Islamic Republic of Pakistan Air Force visited PCO S.A. headquarters. He was accompanied by the Ambassador of the Islamic Republic of Pakistan in Warsaw and the Defence Attache at the Embassy. On 10 July the headquarters of PCO S.A. was visited by Mohammed Madani, Ambassador of the Kingdom of Saudi Arabia in Warsaw. He was accompanied by the Attache for Defense of the Kingdom of Saudi Arabia.

In June, a delegation from Tanzania visited the headquarters of PCO S.A. In May, the Company was visited by representatives of the Ministry of Defence of the Republic of Indonesia. In April, PCO S.A. was visited by a delegation from the National Defence Academy of Kenya. At the beginning of the year the Company was visited by delegations from Vietnam and Uzbekistan.

PCO S.A. also organizes meetings of representatives of uniformed services, during which comments and suggestions of optoelectronic equipment users are submitted, as well as expectations of potential equipment buyers are discussed. PCO S.A. also hosted students of Postgraduate Studies in Military Foreign Service and Course on Preparation of Foreign Service Military Staff at the Academy of Military Art, who had the opportunity to visit the production departments of the plant.



Visit of Minister Tomasz Zdzikot



Visit of National Security Bureau



Delegation from Pakistan



In May, PCO S.A. headquarters was visited by representatives of NATO Industrial Advisory Group. Representatives of industry and science from Member States and NATO partners were invited by PGZ S.A. The conducted talks concerned the search for opportunities for building an international network of contacts and industrial cooperation and in the area of R&D, including NIAG's works.

On February 8<sup>th</sup>, a meeting of representatives of the PGZ Group companies entitled "Development of cooperation within the PGZ Group" took place in PCO S.A. headquarters. The participants discussed the potential of the Group's companies and took part in thematic workshops. They had the opportunity to visit the production departments of PCO S.A. and learn about the latest products of the Company for individual soldiers and combat platforms, including thermal cameras for tanks and anti-aircraft systems.



Delegation from Indonesia



PGZ Meeting

## PCO S.A. awards



In June 2019, PCO S.A. received an award in the 7<sup>th</sup> edition of the National Competition "Leader of the States Security - 2019" awarded by the Association of Suppliers for Uniformed Services. The Company received an award in the "PRODUCT" category for the PNL-3M Aviator's Night Vision Goggles. The aim of the National Security Leader competition is to promote technical products and technologies that can be used in weapon systems and equipment of uniformed services, as well as those that can improve the functioning of crisis management systems.



In May, the Company was awarded the title of the Eagle by the weekly "Wprost" in the category of Business Leader. The "Wprost" Eagle is a prestigious award granted to companies which make a special contribution to the development of the regional and national economy.



On February 12<sup>th</sup>, 2012, PCO S.A. received the seventh diamond for the Golden Statuette of the Polish Business Leader - a prestigious Business Centre Club award granted to dynamically developing companies.

## Trade fairs and other events

PCO S.A. is a company actively participating in trade fairs and events. During the June Dragon-19 exercise at the Drawsko training ground, a demonstration of the products of the companies belonging to PGZ S.A. took place. PCO S.A. present-



Dragon-19

ed optoelectronic products for individual soldier - MU-3M Night Vision Monocular, MU-3ADM Night Vision Goggles, SCT Thermal Weapon Sight, DCM-1 Modular Weapon Sight, as well as binoculars - NPL-1T and NPL-1M. The PNL-3M Aviator's Night Vision Goggles were also presented.



PCO S.A. stand during AirFair 2019

On 17-18 May, PCO S.A. participated in the AirFair 2019 exhibition in Bydgoszcz. The Company's stand included, among others, the PNL-3M Aviator's Night Vision Goggles intended for civilian customers, including rescue services, as well as the NPL-1T Night Vision Binoculars and SCT Thermal Sight.

PCO S.A. also presented its offer of observation and sighting devices during the EUROPOLTECH 2019 fair, which took place on 8-10 May in the Warsaw EXPO XXI Centre. The fair is organized in close cooperation with the services subordinate to the Ministry of Interior and Administration, the Special Forces, the Military Police, the Internal Security Agency, the Intelligence Agency, the Central Anti-Corruption Bureau and the Prison Service. Participation in the EUROPOLTECH fair is reserved only for representatives of Polish and foreign police services, civil and military security formations, politicians and civil servants working and dealing with broadly understood security issues.



EUROPOLTECH

At the beginning of April, during the Milipol Asia-Pacific fair held in Singapore, PCO S.A. presented the MU-3M Night Vision Monoculars, PNL-4 Aviator's Night Vision Goggles, DCM-1 Modular Weapon Sight, SCT Thermal Weapon Sight and NPL-1T Thermal Binoculars. At the same time, in the military base of Camp de Souge near Bordeaux, the SOFINS International Salon was held, dedicated to equipment for special units, where PCO S.A. exhibited MU-3M Night Vision Monocular. The offer for the Prison Service was presented by the Company during the Prison Service Fair, which took place on 3-4 April in Lublin. The honorary patronage of the fair was held by the Minister of Justice and the Director General of the Prison Service. At the stand of PCO S.A. one could see the DCM-1 Modular Weapon Sight and the NPL-1T Thermal Binoculars.

On 6-7 March, PCO S.A. participated in the Enforce Tac fair taking place in Nuremberg. Enforce Tac is an event during which manufacturers of products for security and uniformed services are exhibiting. The PCO S.A. presented the PNL-3M Aviator's Night Vision Goggles, the SCT Thermal Weapon Sight and the MU-3M Night Vision Monocular.

HAI HELI EXPO fair took place on 4-7 March in Atlanta, during which PCO S.A. presented PNL-3M Aviator's Night Vision Goggles designed for civilian customers. HAI HELI EXPO is the world's largest trade fair for helicopter crew equipment, organized by the International Helicopter Association.

This year, Polska Grupa Zbrojeniowa (the PGZ), including PCO S.A., participated for the very first time in IDEX 2019, the largest defence industry fair in the Middle East. PCO S.A. exhibited innovative optoelectronic systems, including MU-3M and MU-3MS Night Vision Monoculars, International PNL-4 Aviator's Night Vision Goggles, NPL-1T Thermal Binoculars and SCT Thermal Weapon Sight, DCM-1 Modular Weapon Sight and SSP-1 Laser Warning System. IDEX-2019 (International Defence Exhibition) fair was held from 17 to 21 February 2019 in Abu Dhabi, the capital of the United Arab Emirates.

On January 24–25, 2012, in Rzeszów, the 12<sup>th</sup> Europe-Ukraine Forum took place using the slogan “Ukraine after 2019. How much change, how much continuation.” It was attended by representatives of PCO S.A. Plenary sessions were one of many items on the agenda - one of them dealt with the prospects for cooperation in the armaments industry. The Forum was accompanied by the 3<sup>rd</sup> Eastern Fair, during which PCO S.A. presented, among others, the MU-3M Night Vision Monocular, the PNL-3M Aviator’s Night Vision Goggles, the SCT Thermal Weapon Sight, the DCM-1 Modular Weapon Sight, the PNL-2ADM Miniaturized Night Vision Goggles, the NPL-2 Night Vision Goggles as well as the NPL-1M Night Vision Binoculars and the NPL-1T Thermal Binoculars.



12<sup>th</sup> Europe-Ukraine Forum

PCO S.A. supported soldiers injured and otherwise harmed during foreign missions by participating in a charity ball, which took place on 19 January 2019 in the Centre for Veteran of

Operations Carried-out Outside State Borders. The Company took part in a charity auction for rehabilitation camps for injured soldiers.

## Optoelectronics Specialist’s Day

Thinking about the people who contributed to the development and strengthening of the position of the Company with their professional work, in 2010 the PCO S.A. created a procedure for awarding the “Meritorious for PCO S.A.” Honorary Medal. The date of awarding the badges by virtue of a decree of the President of the Management Board has been known at PCO S.A. as the Optoelectronics Specialist’s Day. This unique, internal celebration within the Company became an opportunity for a non-standard form of rewarding employees and appreciating their contribution to the implementation of the mission, strategy and activity of the Company. This year, the celebration of the Optoelectronics Specialist’s Day and the 43<sup>rd</sup> anniversary of PCO S.A.’s establishment took place on April 25<sup>th</sup>. Selected employees, who had contributed to the development and strengthening of the Company with their work and activity, were awarded the honorary badge “Meritorious for PCO S.A.”



“Meritorious for PCO S.A.”

For the first time this year, “Achievements in the PCO” awards were presented for exemplary duty performance, high commitment to work, as well as increasing productivity and quality of work.



“Achievements in the PCO”

The establishment and celebration of the Optoelectronics Specialist’s Day is a unique form of expressing gratitude to the best employees. It confirms that it is worthwhile to carry out thoughtful internal actions aimed at building the employer’s brand not only in corporations, but also in companies in the defence sector.



# Media about us

(8 February - 15 August 2019)

## Defence24

Bezpieczeństwo Wojsko Przemysł

### TYTAN will come in spring

19 July 2019 Defence24.pl

Author: Maciej Szopa

The author describes the progress in the development of the TYTAN Advanced Individual Combat System. PCO S.A. is the leader of the consortium established to develop the Tytan System. According to the information provided by the Armaments Inspectorate, the end of the development work of the TYTAN Advanced Individual Combat System is expected by the end of March 2020.

## Defence24

Bezpieczeństwo Wojsko Przemysł

### Dragon-19: PCO S.A. presents optoelectronic equipment

17 June 2019 Defence24.pl

Press release concerns the presentation of PCO-produced optoelectronic products intended for individual soldiers during Dragon-19 exercises at the Drawsko training ground.

The Company has exhibited, among others: MU-3M Night Vision Monocular, MU-3ADM Night Vision Goggles, SCT Thermal Sight, DCM-1 Modular Weapon Sight, and binoculars – the thermal NPL-1T and the night vision NPL-1M. The PNL-3M Aviator's Night Vision Goggles were also presented. The equipment was made available to soldiers participating in the exercises, including representatives of the NATO allied armies.



### State Security Leader for PCO S.A.

17 June 2019, Portal Mundurowy.

A brief information on PCO S.A. having been awarded in the 7<sup>th</sup> edition of the National Competition "State Security Leader - 2019", which was granted on 14 June 2019 by the Association of Suppliers for Uniformed Services. The company received an award in the "PRODUCT" category for the PNL-3M Aviator's Night Vision Goggles - modern, ultra-light passive stereoscopic night vision goggles for helicopter crews. This device is certified by the European Aviation Safety Agency (EASA) and can be used in civil aviation, including emergency services.



### PCO S.A.'s Aviator's Night Vision Goggles awarded

17 June 2019 Wirtualny Nowy Przemysł

Author: Włodek Kaleta

The author informs about the prize in the 7<sup>th</sup> edition of the National Competition "State Security Leader - 2019" awarded by the Association of Suppliers for Uniformed Services to PCO S.A. The company was awarded in the "PRODUCT" category for its PNL-3M Aviator's Night Vision Goggles.

## Defence24

Bezpieczeństwo Wojsko Przemysł

### PCO S.A.'s night vision goggles for civil aviation

23 May 2019 Defence24.pl

Author: Maciej Szopa

The article concerns the PNL-3M Aviator's Night Vision Goggles, which PCO S.A. presented at the stand of PGZ during the Air Fair exhibition in Bydgoszcz on 17-18 May, 2019. The PNL-3M goggles use the latest technical solutions, also for civil aviation. They are offered for both domestic and foreign markets. Certified by the European Aviation Safety Agency.

## InfoSecurity 24

### Night-time services

14 May 2019 Infosecurity24

During the International Fair of Technology and Equipment for Police Services and State Security Formation (EUROPOLTECH 2019), PCO S.A. presented, among others, MU-3M Night Vision Monocular and its latest version: the MU-3MS. The Company's stand also featured DCM-1 and SCT sights as well as NPL-1M night vision binoculars.



### **Europoltech2019: PCO S.A.'s Advanced Optoelectronics for uniformed formations**

9 May 2019 Altair TV

The video includes an interview with Radosław Pochylski, the Head of Product Management and Sales Support Department, on the subject of PNL-3M Aviator's Night Vision Goggles.



### **Polish T-72 tanks to be modified?**

4 February 2019 Defence24.pl

Author: Jakub Palowski

The article informs about the modification of T-72M1 tanks planned by the Ministry of Defence. As far as armoured weapons are concerned, the Polish Army is currently implementing, among others, a programme of replacement of Israeli thermal cameras with Polish K LW-1 ones in PT-91 Twardy tanks. The next modification is to include BWR-1S/D combat reconnaissance vehicles, which are to be equipped, among others, with the SSP-1N OBRA-3 Laser Warning System from PCO S.A.



### **PCO S.A. at the Europe-Ukraine Forum**

16 January 2019 Podkarpacka Gospodarka

Information about the presence of PCO S.A. at the 12<sup>th</sup> Europe-Ukraine Forum held under the slogan "Ukraine after 2019. How much change, how much continuation" in Jasionka. The debates of the Europe-Ukraine Forum 2019 focused on the key issues of modernization and development of Ukraine's economic potential, building local self-government, comprehensive use of its natural resources, opportunities of regions and cooperation with partners from Poland and other European countries. The issues of Ukraine's security within the system of European and global relations were also discussed.



**PCO S.A.**

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