



peo



OPTRONICS IN SERVICE OF LAND FORCES

EPIC TECHNOLOGY MEETING
ON PHOTONICS IN DEFENSE

Presented by
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Kielce, 7th September, 2023





COMPANY

47 years experience

650+ employees

proprietary designs

in-house production

PGZ



ACTIVITIES

visible light sensors

uncooled / cooled thermal imaging

night vision (I²)

lasers

Polish Armed Forces



COMBAT VEHICLES

Hand-held/ tripod mounted binoculars, target designators

Weapon-mounted sights, clip-ons, laser designators

Helmet-mounted monoculars, bioculars and goggles

SOLDIER MOUNTED

OPTRONICS FOR LAND FORCES

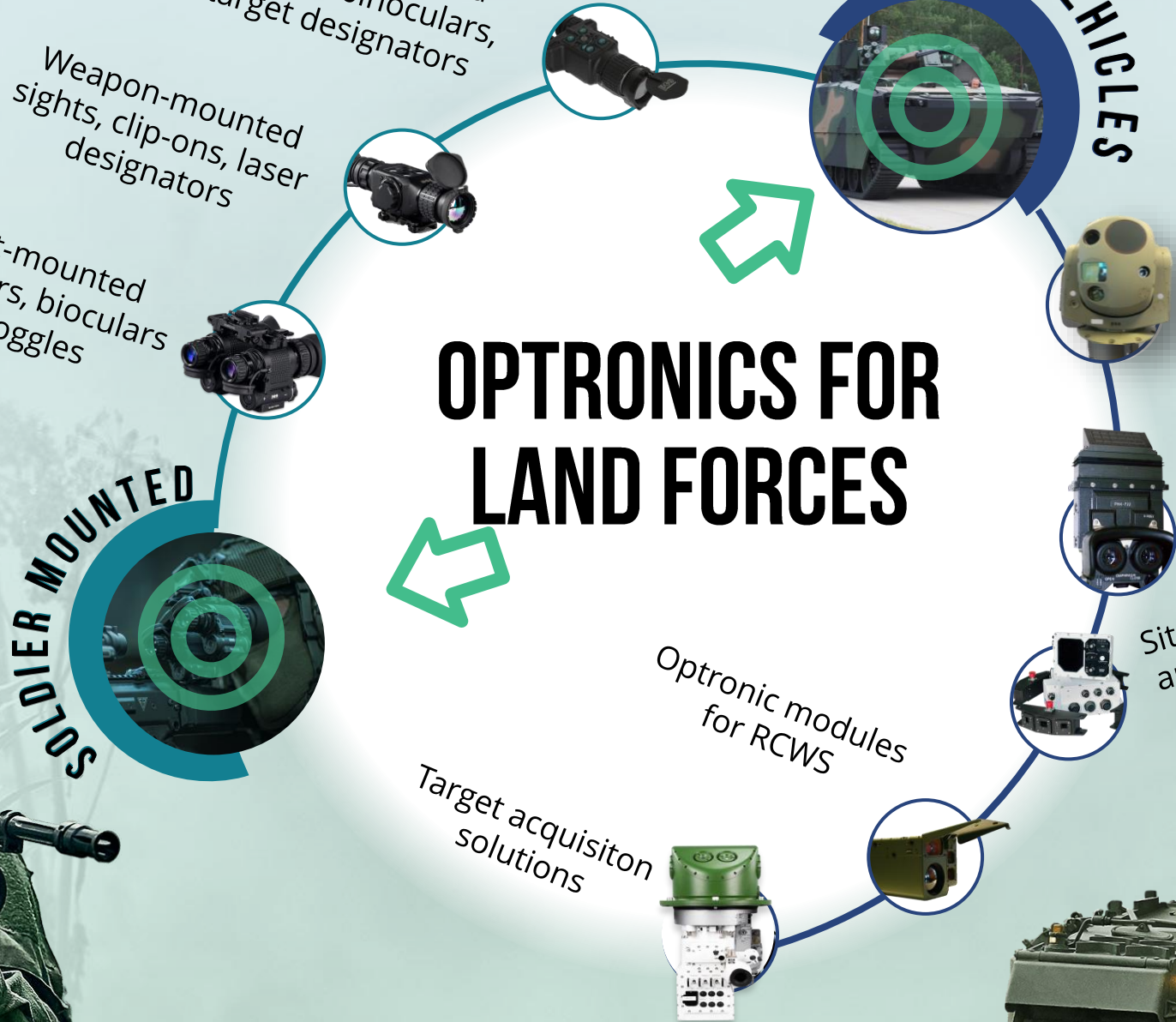
EO-IR stabilized systems

Drivers' vision enhancing solutions

Situational awareness and warning systems

Optronic modules for RCWS

Target acquisition solutions





Symmetric conflict
with heavy
equipment,
access denial,
deterrence

Need for
detection and
countermeasures
for UAV, loitering
munition, UGV

„We Don't Own the
Night Anymore“



solutions for DISMOUNTED TROOPS

New developments in analog night vision

- **Hight FOM**
- **Better auto-gating**
- **Lower HALO**



Fusion systems

Advantages of natural picture of IIT with detection capabilities of thermal imaging



Picture overlay and microdisplays

Additional information in the FOV



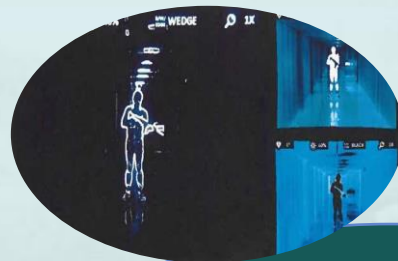
Digital night vision

Advantage of the digital signal processing



New developments in cooled and uncooled thermal technologies and sensors

Higher sensitivity
Smaller pixel size
Better SWaP



Live exchange of data

Sharing information about own position, enemy position



SWIR

Visibility of 1.5 μm lasers
Visibility through glass, smoke, haze, fog



solutions for
DISMOUNTED
TROOPS

Wireless helmet-mounted displays for thermal weapon sights

- No need for shouldering
- Around-the corner shooting

Smart-shooter systems

- Higher precision of fire
- First round on target
- Ammunition preservation

Aiming sights

Hit the target with the first round

Micro displays for image intensified night vision weapon aiming sights

Customized reticles and additional information in the FOV

solutions for
**DISMOUNTED
TROOPS**



Computer Vision

AI for video analysis and threat detection and categorization



VEHICLE-MOUNTED systems

See-through armour

Real-time all-around view

Multispectral and hyperspectral systems

Better detection of the objects of interest

Enhanced connectivity

share data among systems, with neighboring vehicles, nearby soldiers and distant commanders

Commanders' systems

Information rather than image

More accurate sensor system

Video analysis and threat detection and categorization

More accurate determination of threat position for active protection systems

Hunter-killer / Killer-killer solutions

Better task distribution

Enhanced targeting

Automatisation of detection, target prioritization

Gunners' aiming solutions

Eyes on multiple targets

High energy lasers

Efficient way to combat agile targets

Development of target tracking systems

Better algorithms to track smaller, faster targets regardless of the background and obstacles, multi-target tracking



VEHICLE-MOUNTED systems

FUSION vision

Ability to see through dust, haze, smoke, fog and other battlefield obscurants

Light Detection and Ranging (LiDAR) sensors

provide perception and mapping capabilities for autonomous capabilities of Unmanned Ground Vehicle (UGV)



Driver's vision enhancement

Situational awareness for driving

Extended FOV

elimination of blind spots



VEHICLE-MOUNTED systems

**THANK YOU
FOR YOUR ATTENTION**

PEO



PGZ

