MOBILE SYSTEMS • ARMoured VEHICLES

Land, Naval And Air Optical Technologies Since 1971
Dear Customers,
Dear Partners,

Opticoelectron Group JSCo has more than 45 years long experience in production of optomechanical and optoelectronic devices and systems for military purposes.

Our focus has always been on providing you with high-quality products and solutions, and we work hard to ensure that our products and services have the features and functionality that best contribute to your success.

As always, customer service is our top priority. We appreciate your loyalty and look forward to serving you even better in the years to come.

Sincerely,

dipl.eng. Ivan Garchev

dipl.eng. Nikodim Kazandzhiev

Executive Managers of Opticoelectron Group JSCo
Optoelectron Group JSCo is one of the most advanced companies specialized in optomechanical, optoelectronic and laser devices and systems for defence and security, medicine, device-building, machine-building. The company has more than 45 years old history and traditions, and it is considered as a leader in the production of optical devices in Bulgaria and on the international market.

It has a closed cycle of production starting from research and development going through production process to marketing, promoting and trading finished products. The company head office and its premises are situated in the town of Panagyurishte which is 90 km. south-east of capital city Sofia and 80 km. north-west of Plovdiv (the second largest city in Bulgaria). It is located in an Industrial Park of 260 000 sq.m. where 108 000 sq.m. of the total area are production plots.

Over 97% of total production goes on export to EU countries, North America and the Middle East. Optoelectron Group JSC is ISO 9001, ISO 14001, ISO 18001 and ISO 27001 certified. Our NATO Commercial and Governmental Entity code (NCAGE) is 000DU. Optoelectron Group JSC has obtained a Certificate for Registry in the field of international relations “NATO-SECRET” and a Certificate for access to operate with state classified information. The company also has a statute of supplier for US Government - DUNS Registration.

Key defence products in our portfolio are as follows: anti-aircraft and ground artillery sights for firing in daytime and in nighttime; day, night and thermal optical sights, SWIR lenses, laser range finders, laser target designators, optical systems for armoured vehicles, video observation and surveillance systems.

**HI-TECH INDUSTRIAL PARK “OPTICOELECTRON”**

- Total site area: 260 000 m²
- Total building footprint: 50 100 m²
- Total building area: 108 500 m²
Optoelectron Group JSCo has facilities for material processing and production of border and field posts for observation and surveillance as well as their integration.

**STATIONARY POSTS**

- Cooled thermal imaging cameras with an identification range of the human body up to 25 km.

- Uncooled thermal imaging cameras with an identification range of the human body from 4 to 7 km.

- Daytime color HD/Full HD cameras with 32x or 50x magnification
Optoelectron Group JSCo has facilities for material processing and production of border and field posts for observation and surveillance as well as their integration.

**SEMI-STATIONARY POSTS**

- Cooled thermal imaging cameras with an identification range of the human body up to 25 km.

- Uncooled thermal imaging cameras with an identification range of the human body from 4 to 7 km.

- Daytime color HD/Full HD cameras with 32x or 50x magnification
SURVEILLANCE AND OBSERVATION MOBILE SYSTEM MUSON 12

- High effective border patrol
- Military or standard off-road vehicle
- Comfortable space and air conditioning
- Sensors for 24 hours surveillance
- Secure communication and real-time video transmission

- Cooled thermal imaging cameras with an identification range of the human body up to 25 km.
- Uncooled thermal imaging cameras with an identification range of the human body from 4 to 7 km.
  - Daytime color HD/Full HD cameras with 32x or 50x magnification

SURVEILLANCE AND OBSERVATION MOBILE SYSTEM MUSON 19 F

- High effective border patrol
- Military or standard off-road vehicle
- Comfortable space and air conditioning
- Sensors for 24 hours surveillance
- Secure communication and real-time video transmission

- Cooled thermal imaging cameras with an identification range of the human body up to 25 km.
- Uncooled thermal imaging cameras with an identification range of the human body from 4 to 7 km.
- Daytime color HD/Full HD cameras with 32x or 50x magnification
SURVEILLANCE AND OBSERVATION MOBILE SYSTEM **MUSON 17**

- Cooled thermal imaging cameras with an identification range of the human body up to 25 km.
- Uncooled thermal imaging cameras with an identification range of the human body from 4 to 7 km.
- Daytime color HD/Full HD cameras with 32x or 50x magnification
M-27; PC-1; PO-1

Periscopes
Technical characteristics:
- Overall dimensions: M-27 224x267x78 mm, PC-1 160x267x78 mm, PO-1 130x228x70 mm
- Magnification: 1x
- Periscopically: 1x
- Angular field of view, horizontal: 114°, 83°, 60°
- Angular field of view, vertical: 36°, 34°, 23°
- Clear aperture: 192x58 mm, 130x58 mm, 98x35 mm
- Eye relief: 40 mm
- Laser protection 1064 nm: Yes
- Operational temperature range: -70°C to +60°C

Description:
Designed for observation of the battlefield, enabling drivers or tank commanders to inspect their situation without leaving the safety of the tank. Various types of periscopes available in different overall sizes and various periscopically, field of view and aperture. Aluminum casting body and laser safety protection of the optical components.

BRAN
Gunner Passive Night Vision Periscope

Technical characteristics:
- Magnification: 6x
- Field of view: 8°
- Operational distance range:
  - at moonlight: 2700 m
  - at starlight: 1300 m
- Periscopically: 250 mm

Description:
Provides passive night vision for the Gunner in “T” series tanks (T-55, T-62 etc). BRAN replaces the standard active infrared device without any other required modifications in the vehicle. The upgrading can be accomplished at the maintenance level.

BDIN
Commander Night Vision Device

Technical characteristics:
- Magnification: 5x
- Field of view: 12°
- Operational distance range:
  - at moonlight: 2000 m
  - at starlight: 1000 m
- Periscopically: 200 mm

Description:
Provides passive night vision for the Commander in “T” series tanks like T-54, T-55, T-62, Infantry Battle Vehicles (BM-1, BM-2) etc. Field observation in low visibility conditions in the daytime, at dusk and night; Land targets seeking and reconnaissance; Measuring the distance to targets and objects at day and night time. Target designating and fire correction.

TVN-M2
Driver Passive Night Vision Device
NSN 5855-50-001-2543

Technical characteristics:
- Magnification: 1 ± 0.1
- Field of view: ≥ 36°
- Resolution: ≥ 40 lpm
- Periscope length/periscopically: 236 mm
- Exit pupil distance: 35 – 250 mm
- Operational distance: ≥ 200 m
- Power supply: 27 V
- Weight: 6.8 kg
- Laser protection: 1064nm: Yes
- Operational temperature range: -70°C to +60°C

Description:
Provides passive night vision for the Driver in “T” series tanks like T-54, T-55, T-62 etc. Field observation in low visibility conditions in the daytime, at dusk and night; - 6 x 10⁴ Lux.
**Technical characteristics:**

- **Type:** Quadcopter
- **Frame:** Foldable
- **Type:** Carbon fiber, Aluminium, ABS plastic
- **Motors (per piece):**
  - **Type:** Brushless Outrunner
  - **Thrust:** > 2 kg
  - **Propeller size:** 35.1 cm
  - **Battery:** LiPo 6S - 8000mAh or 10000mAh
  - **Flight time:** 30 - 40 min. (depending on battery pack, tested in lab conditions)
- **Onboard FPV camera:** PAL
- **Main:**
  - **Video:** 1080p 30fps, 720p 60fps
  - **Pictures:** 2304 x 1536, 1920 x 1080, 1280 x 720
  - **Parallel FPV and recording**
  - **2 axis stabilization gimbal (standard)**
  - **3 axis stabilization gimbal (brushless motors) (optional)**
- **Thermal camera:**
  - **Optic:** 9 mm, 13 mm or 25 mm
- **Sensors (optional):**
  - Gas sensors
  - Laser radar (LIDAR)
  - Sonar
  - Head tracker

**Payload:**
- Payload weight 1+ kg

**Flight Controller:**
- 3 axis Gyroscope
- 3 axis Accelerometer
- 3 axis Magnetometer
- GPS
- Battery monitor
- Manual and Automatic (missions) control
- Lights (optional):
  - Front LED projectors
  - Front direction light - green
  - Back direction light - red

**Velocity:**
- ~ 50 km/h (up to 100 km/h peak values)

**Altitude:**
- max 300 m, according civil regulation
- Flying up to 2 500 m above sea level

**Weight:**
- ~ 5kg

**Weather conditions:**
- rain
- snow
- wind - 10 m/s stable (36 km/h)

**Ranges:**
- Manual control – 15 km (up to ~ 30 km)
- Ground station control – 7 km (up to ~ 15 km)
- Video transmission ~ 3 - 10 km (with direct line transmitter and emitter)

*This is a base model of the drone SENSORS. The drone may also be produced in accordance with customer’s requirements and parameters.*

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**OPTICOELECTRON’S SECURITY SYSTEMS**

Opticoelectron Group JSC offers a broad range of security systems, developed according to your specific needs. Not only does our company provide complex services and optimal solutions, but also the opportunity that our clients purchase the desired equipment and perform the installation on their own. In this case they can rely on our consulting team’s help and support.

Opticoelectron Group JSC offers:
- Video observation, video guard and video surveillance systems;
- Video Intercom systems;
- Access control systems enabling the working hours to be marked;
- Integrated systems for hotels applications;
- Satellite and cable TV systems;
- Structure cable systems;
- Active net equipment and telephone stations;
- Handheld and frame metal detectors;
- GPS systems;
- Complete service by advanced technologies and complete solutions;
- Solutions that optimize the ratio between expenses and benefits and bring the maximum investments return for our clients;
- Control of working process as whole and individual production operations in order to be eliminated defects, irregularities and shortages;
- Video surveillance from your office, home and any place around the world.
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