



# ТЕЛЕОПТИК-ГИРОСКОПЫ

OPTICS

&

LABORATORIES

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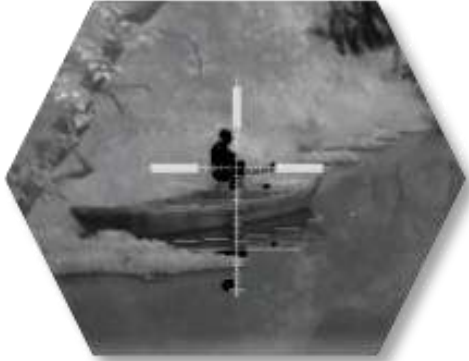
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## ABOUT US

**Teleoptik-Gyroscopes** is a modernly equipped company focused on the development of avionics and optoelectronics. In the last two years we have been participating in the project of modernization of the ORAO fighter airplane at the initiative of the Ministry of Defense (MoD) by working on hardware and software, as well as an offensive navigation system, with a carefully selected engineering team. We continue to improve the production of optical and thermal sights as well as sighting devices. We especially plan to invest in engineering staff in the field of avionics, optoelectronics, electronics, and mechanical engineering. We are able to create the most complex 3D models thanks to the investments of the Government of Republic of Serbia. Also we provide a surface protection service with the help of unique machine Rotamat for the application of nanotechnology which enables a serial procedure of applying NANO protection on a wide range of materials (steel, bronze, brass, aluminium alloys, plastics, wood, rubber). We have modernly equipped, certified laboratories by the Accreditation Institution of Serbia (optical and metrological, physical and chemical) provide testing, inspection and calibration service.)



# Thermal Imaging Sight NT-35



THERMAL IMAGING SIGHT – NT35 is a thermal weapon sight which is widely used for law enforcement.

It can detect heat of any targets against cooler background during day or night, especially in severe conditions such as total darkness, haze, dust, sleet, forest, grass, disguise ...

## Specifications ▼

### *Detector Data*

- ▶ IR Resolution 640x480
- ▶ Type Uncooled FPA

▶ Picatinny rail MIL-STD 1913

### *Lens Data*

- ▶ FOV/Focal distance: 18°x13,3°/35mm
- ▶ F 1.0
- ▶ Detection distance (human) 1140m
- ▶ Recognition distance (human) 320m
- ▶ Eye relief 27mm (50mm optional)
- ▶ Diopter -5~+5

▶ Operating temperature range -30°~ +60°C

### *Dimensions*

- ▶ LxHxW 156 x 61 x 66 mm
- ▶ Mass 560 g
- ▶ PC Connection USB

### *Image Performance*

- ▶ Display 800x600 OLED
- ▶ Zoom 2x, 4x
- ▶ Reticle color White/Black

Battery type 2pcs CR123 battery



# Thermal Imaging Sight NT-75

With the current technology, it can continuously detect heat of any targets against cooler background during day or night, especially in severe conditions such as total darkness, haze, dust, sleet, forest...

## Specifications ▼

### Detector Data

- ▶ IR Resolution 640x480
- ▶ Type Uncooled FPA
- ▶ NETD/Sensitivity  $\leq 50\text{mK}@30^\circ\text{C}$

### Lens Data

- ▶ FOV/Focal distance:  $8.3^\circ \times 6.5^\circ / 75\text{mm}$
- ▶ Focus range 8m~ $\infty$
- ▶ Detection distance (human) 2400m
- ▶ Recognition distance (human) 620m
- ▶ Eye relief 48mm
- ▶ Diopter -6~+4

### Image Performance

- ▶ Display 800x600 OLED
- ▶ Zoom 2x, 4x
- ▶ Reticle color White/Black

Battery type 2pcs 18650 lithium battery

- ▶ Picatinny rail MIL-STD 1913
- ▶ Operating temperature range  $-35^\circ \sim +60^\circ\text{C}$

### Dimensions

- ▶ LxHxW 252 x 99 x 87.5 mm
- ▶ Mass <1.2 kg
- ▶ PC Connection USB

▶ Video recording



# Passive Optical Sight POS-11

**Passive optical sight POS – 11** is intended for effective detection of the target and aiming in darkness.

The aiming mark brightness can be adjusted by the shooter and has a red luminescence colour. The sight can be equipped with an image intensifier tube of generation 2+ as well as generation 3.

It is useable on assault rifle 7,62mm.

Recognition distance of a human figure on a background of green grass at a brightness of not less than 0.004 lx - 300m for image amplifier 2+ and 450m for image amplifier 3.

Distance recognition of human figure against the background of green grass in the brightness not less than 0,004 lx - 300 m for the image intensifier 2 + and 450m for the image intensifier 3.



## Specifications ▼

- ▶ Magnification 3,5x
- ▶ Field of view 12°
- ▶ Eye relief 35 mm
- ▶ Exit pupil diameter 7 mm
- ▶ Azimuth adjustment range  $\pm 0-10$
- ▶ Elevation adjustment range  $\pm 0-10$
- ▶ Levels of reticle brightness 6+2 work mode
- ▶ Image intensifier tube Gen 2+ ili Gen 3
- ▶ Power supply CR 123A
- ▶ Voltage 3V
- ▶ Mass < 1200 g
- ▶ Dimensions 185 x 90 x 90 mm
- ▶ Temperature range  $-40^{\circ}\text{C} \div 50^{\circ}\text{C}$
- ▶ Waterproof

# Monocular Night Vision



The MNV is intended for observation and movement at night, as well as for aiming and firing at night and in conditions of limited visibility from submachine guns, automatic rifles and other weapons (depending on configuration). The device can be used mounted on a helmet / head, mounted on arms and out of hand.

The MNV functions are compatible with optical reflex sights and mechanically compatible (mounting) according to the MIL-STD-1913 standard ("Picattiny" or "Weaver rail"). The MNV is compatible with laser target designator and target illuminators operating in the IR spectrum.



## Specifications ▼

- ▶ Magnification 1x
- ▶ Field of view 40°
- ▶ Size of target 1,8x05m:
  - Detection  $\geq 200$  m
  - Recognition  $\geq 100$  m
- ▶ The range of diopter adjustment of the eyepiece 0,25m -  $\infty$
- ▶ Dioptic eyepiece adjustment -4 dptr ... +2dptr
- ▶ Time of autonomous operation > 24h
- ▶ Image intensifier tube Gen 2+ ili Gen 3
- ▶ Power supply CR 123A
- ▶ Mass with battery 500g, with mount 900g
- ▶ Temperature range  $-30^{\circ}\text{C} \div 50^{\circ}\text{C}$



# Optical Sight M20 (4x32)



Optical sight 4x32 is designed for targeting fixed and moving targets at firing an automatic rifles at distances up to 500m by day, by day in low visibility conditions and at night by visible targets.

## Specifications ▼

- ▶ Magnification: 4x
- ▶ Field of view: 7°
- ▶ Exit pupil diameter: 6mm
- ▶ Range of sight rectification:  $\pm 0-10$
- ▶ Distance scale on reticle: 100m, 300m, 500m for calibers 5,56 and 7,62
- ▶ Distance scale on reticle: 100m, 300m, 500m and 800m for caliber 6,5
- ▶ Working temperature: from  $-30^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$
- ▶ Minimum work autonomy: 200h
- ▶ Dimensions: 140 x 80 x 75 mm
- ▶ Mass:  $\leq 0,65$  kg





# Optical Sight M10

Optical sight NO M10 is designed for targeting fixed and moving targets at firing an automatic rifle 5,56 mm M21 at distances up to 500m by day, by day in low visibility conditions and at night the visible targets. This configuration of sight enables fast and reliable mounting on Picatinny sight rail. The optical sight was designed on the model of the best-known manufacturers, modern design, manufactured from the highest quality materials, enabling reliable long-term use in the most extreme conditions.



## Specifications ▼

- ▶ Magnification 2x
- ▶ Field of view 14°
- ▶ Exit pupil diameter 7,5 mm
- ▶ Eye relief 50 mm
- ▶ Parallax  $\leq 0,2$  dpt
- ▶ Dimensions WxHxL 81x74x180 mm
- ▶ Mass 590 g
- ▶ Reticle illumination: LED
- ▶ Temperature range  $-30^{\circ}\text{C} + 50^{\circ}\text{C}$
- ▶ Power supply: 3V

# Optical Sight ONS-1

► Optical sight ONS-1 is designed for targeting fixed and moving targets at firing an automatic rifle 7,62mm at distances up to 800m by day, by day in low visibility and night at the visible targets.



► Magnification of 3.5x and field view of extraordinary 12°.

► This configuration of sight enables fast and reliable mounting on Picatinny sight rail.



Specifications ▼

- Magnification 3,5x
- Field of view 12°
- Exit pupil distance 35 mm
- Objective diameter 21 mm
- Exit pupil diameter 6 mm
- Constant diopter -0,5 ... -0,75 dpt
- Parallax  $\leq 0,2$  dpt
- Resolution  $\leq 15''$
- Elevation and azimuth adjustment
- Dimensions LxWxH 180x89x83 mm
- Mass 935 g
- Temperature range  $-30^{\circ}\text{C} \div 50^{\circ}\text{C}$
- Mount Base requirement MIL-STD-1913 Picatinny rail
- Attachment Clamps

# Optical Sight 4x20



▶ Optical sight 4x20 is designed for targeting fixed and moving targets at firing an automatic rifles at distances up to 500m by day, by day in low visibility conditions and at night the visible targets



▶ Magnification of 4x and field view of extraordinary 7°.

▶ Meets all the requirements of high precision. It has the practical use in extreme weather conditions and terrain conditions



## Specifications ▼

- ▶ Magnification 4x
- ▶ Field of view 7°
- ▶ Objective diameter 20 mm
- ▶ Reticle ballistic
- ▶ Exit relief position  $\geq 50$  mm
- ▶ Resolution up to 15"
- ▶ Parallax  $\leq 0,2$  dpt
- ▶ Dimensions 170x81x75 mm
- ▶ Mass 600 g

# Optical Sight 8x56 (Long Range Sniper Rifle)

► Reliable device which guarantees long-term usage in all environmental circumstances

► Advanced design and first-class optics as well, image is clear and well-illuminated

► Reticle is movable according to direction and height, providing a stability of position taken during rectification



## Specifications ▼

- Magnification 8x
- Field of view 3°
- Exit pupil distance 75 mm
- Objective diameter 56 mm
- Exit pupil diameter 7 mm
- Dioptric adjustment  $\pm 2,5$  dpt
- Length 400 mm
- Mass 850 g

# Optical Sight 10x42 (Sniper Rifle)

- ▶ Magnification: 10x
- ▶ Field of view: 2°
- ▶ Entrance pupil diameter: 42mm
- ▶ Exit pupil diameter: 4,2mm
- ▶ Exit pupil distance: 85mm
- ▶ Resolution: to 7"
- ▶ Reticle: MilDot
- ▶ Eyepiece dioptic range: -2,5 dpt ...+ 2,5 dpt
- ▶ Parallax:  $\leq 0,2$  dpt
- ▶ Length:  $\sim 340$  mm
- ▶ Temperature range: -30°C ... + 55°C

## ◀ Specifications

▶ Optical sight 10x42 is designed for targeting fixed and moving targets by day, by day in low visibility and at night at the visible targets. This optical sight is useable for long range sniper rifles.

▶ Range of reticle moving 60 MOA.

▶ Meets all the requirements of high precision over long distances, as well as the practical use in extreme climatic and terrain conditions.



# Reflex Sight RS-C

These sights are an optoelectronic devices from the Red dot group of sights. The sight is easily mounted on weapons that have a picatinny rail through a specially designed adapter and is designed for precise aiming of moving and stationary targets in day conditions, low visibility conditions and at night, combined with night-vision devices.

## Specifications ▼

- ▶ Magnification  $1x \pm 0,1$
- ▶ The adjustment step 1 MOA (3cm on 100m)
- ▶ Reticle illumination (aiming point) > 6 levels
- ▶ Parallax  $\leq 0,2$  dptr
- ▶ Power source battery type 3V CR2032
- ▶ The range of sight rectification  $\pm 1^\circ$
- ▶ Mass of the sight including the power source 130 g
- ▶ Minimum work autonomy > 100h
- ▶ Dimensions 59 x 52 x 48 mm
- ▶ Operating temperature range  $-30^\circ\text{C} \dots 50^\circ\text{C}$



# Reflex Sight RS-M



These optical sights were designed on the model of the best-known manufacturers, modern design, manufactured from the highest quality materials, enabling reliable long-term use in the most extreme conditions.



## ▼ Specifications

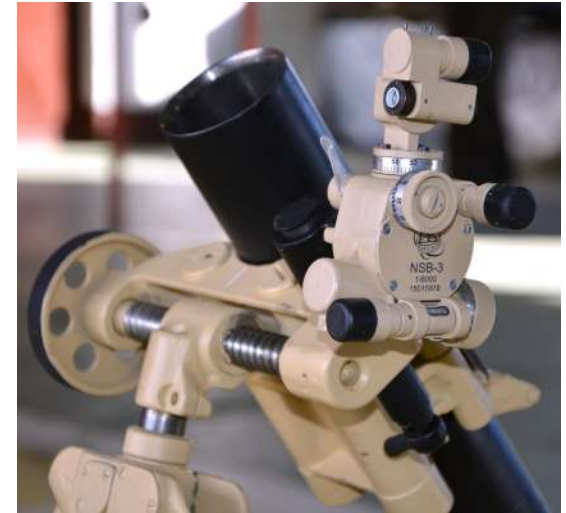
- ▶ Magnification 1x
- ▶ Red dot size 4 MOA
- ▶ Aiming mark brightness gradation number 11
- ▶ Range of sight rectification  $\pm 1^\circ$
- ▶ Power source battery type CR2032
- ▶ Rated voltage 3V
- ▶ Mass of the sight including the power source 180 g
- ▶ Minimum work autonomy > 400h
- ▶ Dimensions 77x52x55 mm
- ▶ Operating temperature range -30°C ... 55°C

# Sighting Device NSB-3 (Light Mortar 60-82 mm)

## ▼ Specifications

- ▶ Angular division: 1/6000 and 1/6400
- ▶ Elevation angle scale: 0-00 to 10-00
- ▶ Azimuth angle scale: 0-00 to 60-00
- ▶ Value of division, azimuth drum: 1-00 (100 mils)
- ▶ Value of division, azimuth plate: 0-01 (1 MIL)
- ▶ Value of division, elevation drum: 1-00 (100 MILS)
- ▶ Value of division, elevation plate: 0-01 (1 MIL)
- ▶ Bubble level sensitivity 5' to 7'
- ▶ Temperature range: -30°C to 50°C
- ▶ Mass: 0,8 kg

Sighting Device NSB-3/M17 serves for sighting of both moving and stationary targets when firing with the light mortar 60m, 80mm, 81mm and 82 mm in day and night time conditions.



Collimator reticle is being used for sighting. To take sighting elements (line of sight adjustment in azimuth and elevation), azimuth and elevation adjustment mechanisms are used. The sighting device is provided with scales for taking of horizontal and vertical angles and with collimator for sighting.



# Sighting Device NSB-4B (Light Mortar 120 mm)

Sighting device NSB-4B serves for sighting of both moving and stationary targets when firing with the light mortar 120 mm, in day and night time conditions. Aiming in traverse is done via binoculars with cross-hair to achieve alignment with the picket or some other reference denoting the main weapon direction.

NSB-4B/M17 is made in both versions: **1/6000** and **1/6400**.



## ▼ Specifications

- ▶ Angular division: **1/6000** and **1-6400**
- ▶ Magnification: **1,8x** and **2,5x**
- ▶ Field of view: **8°** and **9°** (magnification **2,5x**)
- ▶ Exit pupil diameter: **5,5mm**
- ▶ Exit pupil distance: **26,5mm**
- ▶ Resolution: **20"**
- ▶ Value of division, elevation drum: **1-00 (100 MILS)**
- ▶ Value of division, azimuth plate: **0-01 (1 MIL)**
- ▶ Bubble level sensitivity **5' to 7'**
- ▶ Temperature range: **-30°C to 55°C**
- ▶ Mass: **0,910 kg**

# Laser Target Designator

Opto-electronic device which is used for marking targets with laser beam at night and low visibility conditions. The main purpose is a fast and efficient targeting in these conditions. It can be mounted on any type of weapon which has a Picatinny rail. Laser target designator can be produced in visible or invisible spectrum.

## ▼ Specifications

- ▶ Power: 5 mW (visible/invisible)
- ▶ Visibility at night conditions (brightness 5 lx):  
200 m (visible), 500 m (invisible)
- ▶ Work autonomy: 5 hours (visible/invisible)
- ▶ Temperature range: -10 C° to + 50 C° (visible/invisible)
- ▶ Mass: 230 g (without battery)
- ▶ Lithium battery CR-123A



# Rectification Telescope



## ▼ Specifications

- ▶ Magnification: 5,5x
- ▶ Field of view: 6°
- ▶ Dioptic adjustment: -0,5 to -1,5 dpt
- ▶ Parallax:  $\leq 0,2$  dpt
- ▶ Centricity of caliber axis and optical axis:  $\leq 0-01$
- ▶ Temperature range: -30°C to 50°C

Rectification Telescope enables reduction of barrel axis in different weapon calibers in the desired position on board for rectification or distant target.

Rectification Telescope is produced in following calibers: 5.56 / 7.62 / 12.7 / 20 / 30mm / 40mm or by customers demand.

Spindle of rectification telescope is manufactured by CNC machines followed by nitrating or hardening treatment. It is provided with high-precision optics.

# Hand-Bearing Compass (Type M53)

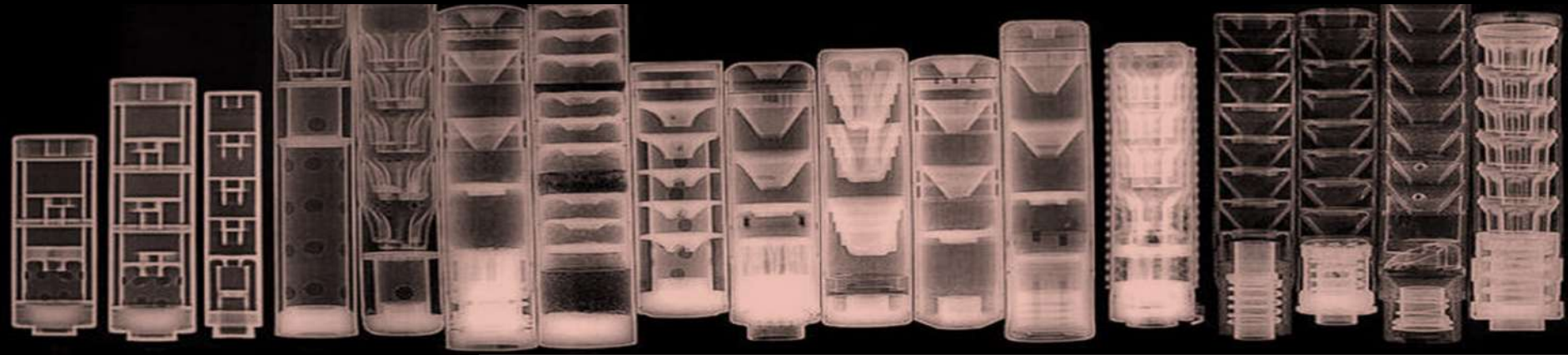
Compass type M-53 uses for determination sides of the world and a general orientation, the orientation of the map, measuring and entering coordinates. Compass works on the principle of magnetic needle which on every position with one of its parts shows the direction of the north. It could be used in sports and recreation and a variety of other outdoor activities or as needed in ordinary life.

## ▼ Specifications

- ▶ Division in thousands:  $0 \div 6400$   
(smallest 50/1000)
- ▶ Division in degrees:  $0 \div 360^\circ$  (smallest  $2^\circ$ )
- ▶ Accuracy in thousands:  $\pm 35/1000$
- ▶ Temperature range:  $-40^\circ\text{C} \div +60^\circ\text{C}$
- ▶ Mass: 155 g



# Silencers



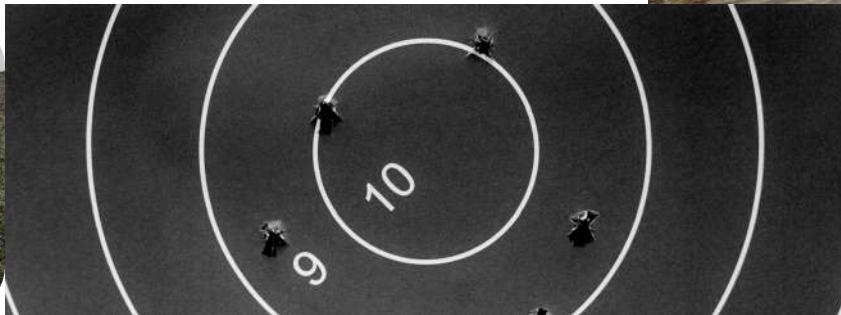
A suppressor or silencer is a device attached to or part of the barrel of a firearm or air gun which reduces the amount of noise and visible muzzle flash generated by firing the weapon.

Dimensions, mass and suppression level are harmonized with international manufacturers. These are made of high quality materials and robust construction.

We are able to make any silencer for any caliber in accordance with the requirements of the customer.



Not affect the accuracy and precision shooting. They are resistant to various shocks and falls.



# LABORATORIES

OPTICAL

& METROLOGICAL

& CHEMICAL

& PHYSICAL

OUR LABORATORIES ARE ACCREDITED BY THE ACCREDITATION INSTITUTION OF SERBIA



▶ Testing laboratories have the necessary measuring equipment for the implementation of the testing process

▶ Equipment is continuously monitored, calibrated, supplied current assurance and doesn't leave space laboratory

▶ Equipment handled by qualified laboratory personnel, which is certified

▶ Laboratories provide opinions and interpretation of the results of its tests to customer

▶ In the process of testing laboratories using standardized methods exclusively



Optical Test Station OTS 200



Coordinate measuring machine



Climate chamber



XRF Spectrometer



# New Technologies

- ▶ In our factory are present new technologies of products surface protection with nanoparticles
- ▶ Production of **printed electronic boards**
- ▶ Automated application of components have been updated
- ▶ "White room" has been renovated for final adjustments



▶ Teleoptik-Gyroscopes has always been a pioneer in the development, testing and acquisition of new technologies

▶ In order to increase anticorrosion, antifriction, thermal resistance and other protection of various materials, we got it a unique machine in the Balkans - **Rotamat**, for the application of nanotechnology, which allows a series of **NANO protection** applications on a wide range of materials (steel, bronze, brass, aluminium, plastic, rubber).





► Machine workshop is equipped with the latest milling machines, lathes, machining centers

► We create the most complex 3D models of system components in the field of optoelectronics, aircraft and rocket techniques





# New Technologies

## ◀ Circular vibrator

- ▶ **Circular vibrator** is a machine made for cleaning surfaces, grinding, trimming edges, rounding edges, smoothing surfaces, polishing surfaces, passivation
- ▶ Types of materials that can be treated: steel, bronze, brass, Al alloys, plastic
- ▶ Drastically shortens the processing time compared to manual work (16h manually, 2h machine)
- ▶ Unification of parts processing



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