

STATE UNITARY ENTERPRISE
PRODUCTION AMALGAMATION
"NOVOSIBIRSK INSTRUMENT-MAKING PLANT"



NIGHT POCKET SCOPE "HELIOS-05"

Operation Manual

The design of night pocket scope is the subject of continuous improvement. The manufacturer reserves the right to make any changes in the device without notice.

11.00

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1 GENERAL DIRECTIONS

The "Helios-05" night pocket scope is designed for observation and watching in dark time under natural moon- or star-light illumination or even in full darkness using the built-in IR illuminator.

The device can operate at ambient temperature from -10°C to $+40^{\circ}\text{C}$ and relative humidity up to 80% at temperature $+25^{\circ}\text{C}$.

The night pocket scope can use removable lenses with conjunction thread M 42x1 and back focal length 45,5 mm.

The night pocket scope is powered with two R6C cells of AA size.

WARNING! Do not switch on the night pocket scope by day without the protective cap or eyeshield. Do not aim the night pocket scope on bright luminous objects.

2 SPECIFICATIONS

Magnification, x	3
Field of view, deg	10
Limiting resolution, arc. sec.	120
Diopter adjustment range, d	±4
Supply voltage, V	3
Overall dimensions, mm	190x95x62
Weight of the night pocket scope, kg	0,6

3 PACKAGE

"Helios-05" night pocket scope	1
M37x0.75 adapter for "SONY CCD-TR350E" video camera	1
M49x0.75 adapter for "Zenit-E" photo camera	1
Light filter	1
Bag	1
Operation manual	1

4 SAFETY PRECAUTIONS

The device is safe to handle due to its principle of operation, design, components and materials used.

To avoid a pollution of environment it is recommended to utilize exhausted supply cells only in the special assigned places.

5 DESIGN AND PRINCIPLE OF OPERATION

"Helios-05" night pocket scope is an electrooptic device intensifying the low image brightness to level acceptable for eye. The scope consists of plastic housing, objective lens, image intensifier (II), eyepiece and power cells. The lens is equipped with the threaded cap 3 (fig.1) with light filter protecting the device against high light and impact damages. The rubber eyeshield 6 guides eye in proper position and protects it against injures and irrelevant light.

The button 1 (fig.2) switches on the night pocket scope with IR illuminator. The button 2 (fig.2) switches on it without the illuminator.

Two R6C power cells is placed under the cover 1 (fig.1) on top.

Focus adjustment is effected by means of lens mounting 4 rotation. The diopter adjustment is performed by rotation of eyepiece mount 5.

There are two adapters for video and photo cameras in the package. An adapter is mounted instead the eyeshield.

The device is provided with hand belt and thread socket for photographic tripod.

6 PRE-STARTING AND OPERATION

6.1 Remove the cover 1 (fig.1).

6.2 Insert two R6C cells providing their polarity according to the designations in the cells compartment.

6.3 Put on the cover 1.

6.4 Press the button 2 (fig.2), check if the screen shines and adjust the image of screen patterns by turning the eyepiece 5 (fig.1).

6.5 Use the instrument in day or twilight conditions with threaded cap 3 (fig.1) put on only. In night illumination condition the cap should be removed.

6.6 If surrounding illumination is not sufficient, switch on the scope with IR illuminator by means of button 1 (fig.2).

6.7 For operation together with a photo camera attach the camera to the scope in the following order:

- screw out the eyeshield 6 (fig.1) from the eyepiece;
- screw in the adapter M49x0.75 into the objective lens of photo camera (the diaphragm of camera should be full opened);
- attach the scope to the photo camera with adapter;
- set the camera on a tripod;
- switch on the scope pressing the button 2 (fig.2).

Adjust the sharp image rotating the objective lens and eyepiece of the scope and range scale ring of the photo camera.

The scope with camera are ready to operation.

6.8 For operation together with a video camera attach the camera to the scope in the following order:

- screw out the eyeshield 6 (fig.1) from the eyepiece;
- screw in the adapter M37x0.75 into the objective lens of photo camera by rotation of smaller knurled ring clockwise;
- attach the scope to the video camera with adapter by rotation of bigger knurled ring counterclockwise up to the tight connection;

For recording:

- switch on the camera;
- switch on the scope pressing button 2 (fig.2);
- adjust sharp image by rotation of scope objective lens.

Dismounting the scope is made in the reverse sequence

7 MAINTENANCE

7.1 The device should be kept clean avoiding dust, moisture and dirt. The outer surfaces of the objective lens and eyepiece should be clean always.

7.2 The contacts of power section to be free of corrosion.

7.3 Clean the outer optical surfaces by napkin of cotton wool wetted with ethyl alcohol.

7.4 After using the night pocket scope in damp weather it should be wiped and dried out.

7.5 The instrument is to be stored in a dry heated room at ambient temperature above 5°C far from heating appliances.

8 TROUBLESHOOTING

In the case of trouble appearance check out the follows:

- the proper polarity of battery cells;
- the possible discharging of battery;
- the cleanness of optical surfaces;
- the cleanness of contacts of power supply.

If troubles is not eliminated with the methods listed in the table 1 the instrument should be sent to repair shop.

Table 1

Trouble	Possible cause	Method of elimination
The screen of image intensifier does not shine or shines weak	Batteries is discharged. Incorrect polarity of batteries	Replace the battery . Insert the battery properly
The image brightness rises to maximum and falls down fast or fluctuates disturbing the sight operation	Light overload	Put the protective cap on the objective lens
A falcate darkening at the margin of view-field appears	The image intensifier is overloaded by bright light sources	Switch off the sight for 30 minutes. The cup should be put on for mentioned time.
Image is degraded and blurred	Sweating or dirtying the outer optical surfaces	Wipe the outer optical surfaces

9 ACCEPTANCE CERTIFICATE

The "Helios-05" night pocket scope with serial № _____
is in compliance with specifications and found fit for service.

Date of manufacture _____

Signatures _____

State Unitary Enterprise

Production Amalgamation "Novosibirsk Instrument-Making Plant",

179/2, D.Kovalchuk,

Novosibirsk, 630049

Russia

Tel: (3832) 25-45-42; Tel/Fax : (3832) 26-17-68

10 WARRANTY

The Enterprise warrants the sight, if properly used. The warranty period is 12 month from the date of sale but no more than 24 month from the date of issue.

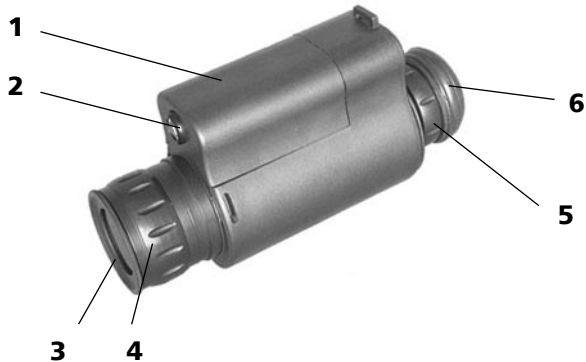
This warranty does not cover:

- the sights without the "Operation Manual";
- repaired by anyone not authorized by the Enterprise.
- the sights damaged because of violent the rules of operation or maintenance supplied in present guide;

Authorized service center:

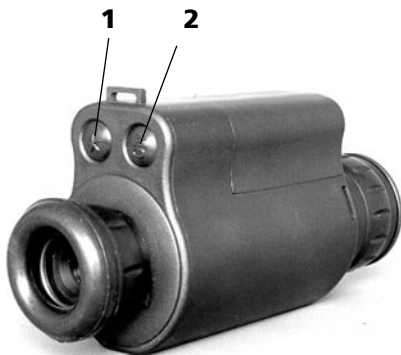
D.Kovalchuk, 179/2,
Novosibirsk, 630049,
Russia.

Tel. (3832) 26-17-68



1 - cover, 2 – IR illuminator, 3 – cover with light filter,
4 – objective lens, 5 – eyepiece, 6 – eyeshield.

Figure 1. **The "Helios-05" night pocket scope**



- 1 – button of passive scope operation,
2 – button of scope with IR illuminator operation.

Figure 2. **The "Helios-05" night pocket scope**