New Vision
Dedal-NV





DVS-8
Night vision goggles

OPERATION MANUAL

www.dedalnvoptics.com

Features

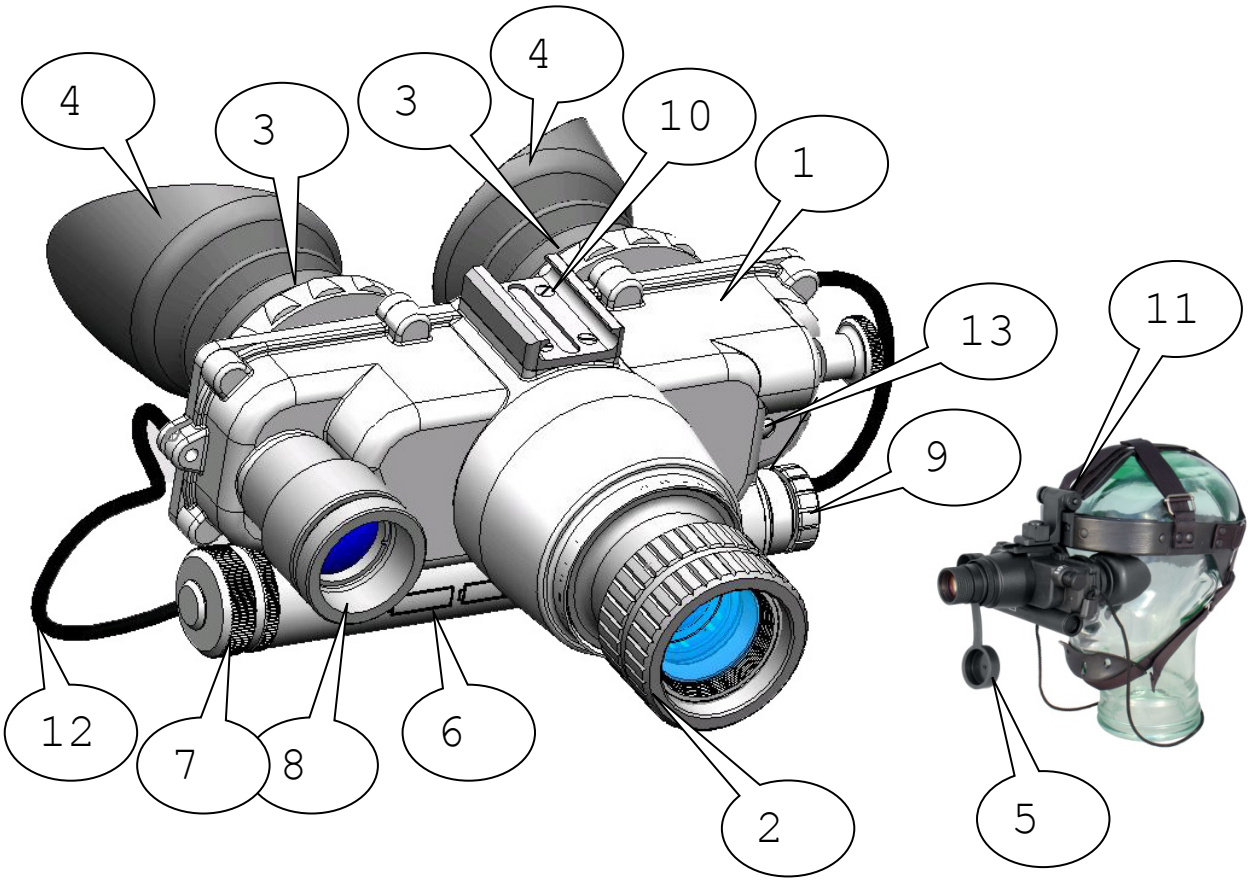
- *Special light-powerful optics*
- *Automatic brightness control*
- *Adjustment of interpupillary distance*
- *Large quantity of chargeable optics (1x,3x,4x,6.6x,9.6x)*
- *IR-on indicator*
- *Low battery indicator*
- *Automatic high-light cutoff*
- *Powerful hazard-free IR illuminator (805 or 940nm)*
- *Weather resistant/proof*
- *Light weight*

Carefully read the manual before using the night vision device!

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Appearance of the goggles (magnification 1x)



1 - Body of the device
2 - Objective lens
3 - Eyepiece
4 - Rubber eyepiece
5 – Lens cap
6 - Battery compartment
7 – Battery cap
8 - Infrared illuminator and optical piece
9 - On/off switch of the device and of IR illuminator
10 – Head mount fastener
11 – Head mount
12 – Neck cord
13 –Photo receiver

Short description

Your DVS-8 night vision goggles is a modern Night vision device, meant for a wide range of activities from professional to amateur activity:

-night observation,
- guarding, search, hunting,
- technical provision of law enforcement,
- navigational safety of ships.

Image intensifier tubes of generation II+, III, XR-5 operating on the principle of multiple increasing of image brightness within visible and near infrared spectrum.

Specifications

<u>General</u>	
Magnification, x	1.0 (3.0*) (4.0**) (6.6***) (9.6***)
Field of view, degrees	40 (10*) (10**) (6.3***) (4.0****)
<u>Objective lens</u>	
Focus, mm	26 (100) (165) (250)
Aperturerratio	1:1.1(1.2) (1:1.5**) (1:2.0***) (1:2.0****)
Focusing	from 0.6 m to infinity (from 10 m to infinity**) (from 30 m to infinity***) (from 30 m to infinity****)

Eyepiece

Focus, mm	15
Diopter setting	+4,-3.5

Mechanical characteristics

Overall dimensions, mm

length	172	(260*)	(292**)	(372***)
width	148	(148*)	(148**)	(148***)
height	73	(80*)	(80**)	(100***)

Weight(1x,w/out head-mount),kg	0.42-mod. DVS-8-A,C
Weight(1x,w/out head-mount),kg	0.49-mod. DVS-8-DEP_XR-5, DK2, DK3
Weight of head-mount, kg	0.28
Weight of helmet mount, kg	0.24
Weight of lens for IR illuminator, kg	0.02
Weight of3x-magnifier lens, kg	0.24
Weight of objective 100mmF/1.5, kg	0.42
Weight of objective 165mmF/2.0, kg	0.63
Weight of objective 250mmF/2.0, kg	1.40

Electric parameters

Power source, AA type batteries set	2 pc.
Voltage, V	3
Continuous operation time, h	
- in passive mode	min. 60
- in active mode(with max. IR illuminator)	5

Image intensifier tube

(Tube type, photocathode sensitivity (μA/Lm), resolution (lp/mm), hole pitch of MCP (μm), screen colour)

mod. DVS-8-A	Gen.II+, (min.350, min.45, 12.1, -)
mod. DVS-8-C	Gen.II+, (min.540, min.57,-, -)
mod. DVS-8-DEP_XR-5	XR-5, (min.700, min. 64,-, -)
mod. DVS-8-DK2/g	Gen.III, (min.1800, min.57,-, -)
mod. DVS-8-DK3/f	Gen.III, (min.1800, min.64,-, -)
mod. DVS-8-DK3/f/bw	Gen.III, (min.1800, min.64, -, black&white)

NOTE.
In DVS-8-DK2/g device there is installed the tube with input/output construction - glass/glass. In DVS-8-DK3/f there is installed the tube with input/output construction - glass/fiber that provides bigger contrast of supervision in comparison with the device with the tube glass/glass.

Infrared illuminator

Type	IR light diode
Power of light radiation, mW	5, 25,75
Angle of radiation, degrees	40
Angle of radiation with optical piece, degrees	4-10
Radiation wave length, Nm	805 or 940

Operation conditions

Operation temperatures range, ^{o}C	-40 до +50
Relative humidity, %	0 to 98

* - with 3x magnifier lens
** - with 100mmF/1.5 objective lens
*** - with 165mmF/2.0 objective lens
**** - with 250mmF/2.0 objective lens

P.S.
1. The screen may have separate black dots or small groups of dots allowed by the technology of tubes' production at the manufacturing plants.
2.Two dark dots can be visible in the withdrawal point of signal light diodes at the field of vision in some positions of eye-glasses.
3. Performances and appearance may be improved without prior notification.

Contents of Package

DVS-8 device is supplied in the following standard set of articles:

- the device with lens of 26mmF/1.1 or 26mmF/1.2	- 1 pc
- lens cap	- 1 pc
- rubber eyepiece guard	- 2 pc
- operating manual	- 1 pc
- case	- 1 pc

Additional accessories (optional):
- optical piece for IR illuminator,
- 3x magnifier lens,
- **DL105 -** 100mmF/1.5 objective lens,
- **DL166 -** 165mmF/2.0 objective lens for «DVS-8»(Gen.II+),
- **DL167 -** 165mmF/2.0 objective lens for «DVS-8»(Gen.III),
- **DL250 -** 250mmF/2.0 objective lens,
- head mount to fix the goggles on the head (is recommended to buy for the device with magnification 1.0)
- helmet mount (is recommended to buy for the device with magnification 1.0),
- tripod.

Appearance of the goggles
on head mount and helmet mount



DVS-8 device with 3x magnifier lens and objectives 165mm
(magnification 6.6x)



DVS-8 device with different objective lenses



Rigid and semi-rigid case for device DVS-8





Batteries installation

DVS-8 goggles require two batteries AA type. Be sure they are in good condition and installed per the picture inside battery section (minus end directed inside goggles).

In the goggles made with «low battery indicator» the blinking light diode appears in the left side of the image by the voltage fall less than 1.9 V. It indicates the necessity to change the batteries.

To replace the batteries it is necessary to unscrew the cap of battery section (7) and replace old batteries with new ones observing polarity.

NOTE.
To provide the most prolonged time of continuous operation of the device (with one set of batteries) alkaline batteries are recommended to use.

Operating instructions

1.Remove the lens cap.
2.Switch on the scope (position ON of the switch (9). Green light should appear on the screen (the device works in a passive mode).
3. Adjust (3) interpupillary distance optimal for you.
4. To get a sharp image focus the device through rotating objectives (2) and eyepieces (3).

NOTE.
Observation and identification range provided by the device depends on the value natural night light, type of the objective

used, transparency of the atmosphere and contrast between the target and background. The identification range increases in the conditions of good lightning, at moony night given outside illumination if the target is situated on the light background (sand, snow). The identification range decreases in the conditions of weak lightning, low transparency of the atmosphere if the target is situated on the dark background (plough-land, stems of trees, etc.).

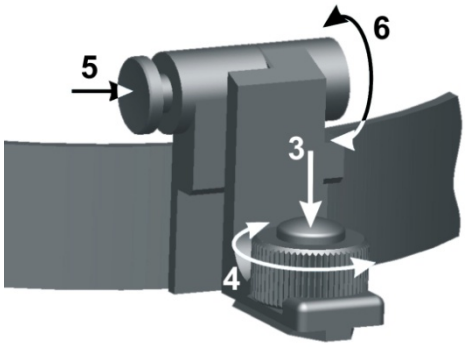
5.If necessity arises to illuminate the object observed IR illuminator is to be activated by toggle switch (9) (active mode). With toggle switch (9) one of three lighter power positions (5, 25 or 75 mW) can be set.
In night vision goggles made with IR on indicator the light diode appears in the right side of the image when IR illuminator is switched on.

NOTE.
The device with the turned on IR illuminator does not guarantee the hidden observation because luminescence spot of light diode is visible in a red color (if length of wave of IR illumination is 805 nm) and ray of IR illumination can be seen throw other night vision device. If you use IR illumination with length of wave is 940 nm, luminescence spot of light diode is not visible, but IR illumination's range of vision decreases. According to this length of wave, sensitivity of intensifier falls.

6. To provide a more effective reach of IR illuminator auxiliary optical piece is to be set to the IR illuminator.

NOTE.
It is not allowed to use goggles with lens for IR illumination at a distance closer than 30 meters. If a distance is less, the power of IR incident is excessive and it can be equal to extra flash of bright spot source of light. It leads to darkening in central part of device's field of vision. Such darkening cannot be removed.

7. To fix the goggles on the head you should use the head mount (11). For secure and comfortable fixation of goggles on the head adjust the head-mount straps. According to figure below push button (1) and put together spectacles and the mechanism along the conductor (2) on the head-mount. Put on the device and the head-mount on your head and select an optimal distance for your eyes moving the scope along the conductor (2). Fix the selected position rotating mechanism (4) clockwise.





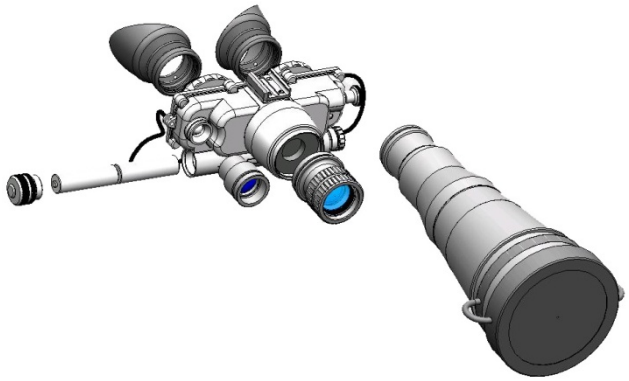
The head mount mechanism provides a possibility of goggles raising without removing the head mount. For this purpose push (5) and raise the goggles by rotating (6).
The removal of the head mount is effected in the inverted sequence.
8.To increase the magnification of the device , you can use the optional 3x magnifier lens which provides 3x image magnification.
The 3x magnifier lens can be fitted in two ways:
- Install 3x magnifier lens with the turned adapter on the objective lens of DVS-8. This variant is recommended for the fast increase of the magnification;
- Leave the adaptor ring off and screw the magnifier lens directly in to the screw thread inside the front of the DVS-8's objective lens. This is a more secure assembly designed for long term observation.

DVS-8 device with 3x magnifier lens



To provide a greater magnification factor of observation the regular objective of 26mm is to be unscrewed with the device in off mode. For this purpose holding the cylindrical body in which the objective is set with one hand turn the objective counter clockwise. Screw 100mm focus objective (magnification 4.0x) or 165mm focus objective (magnification 6.6x) into the released place.

The goggles
with the standard objective lens, batteries, optical piece on the IR illuminator and objective lens 165mmF/2.0



9. For finishing your work switch off the power toggle switch into OFF position.
10. Cover the lens with the cap after completing the goggles operation.
11. The neck cord is used for carrying the goggles hanging around the neck.

Recommendation.
When the device is stored for a long time it is recommended not to leave batteries in the compartment of the device in order to avoid leakage of the batteries.

WARNING.
1.Humidity may get inside while lens is being replaced. This may lead to optics sweat. In such a case the device must be dried up with the lens removed.
2. Operating device must not be pointed at bright light sources: bright lamps, sun, welding light, etc., as this may lead to the device brightness increase factor decreasing.
3.To exclude the photo cathode fatigue the device in operation is not to be left in stationary position more than for 30 min. (during day light, morning and evening hours)

DO NOT FORGET TO SWITCH OFF the device AFTER USE!

NOTE.
In DVS-8 goggles there was made «automatic high-light cutoff» protection the electronics switch off the device in 20-30 seconds of its operation by bright light, illumination more than 500 Lux.

Storage and maintenance

Keep and carry the goggles in closed goggles-case with the lens safely covered with the cap.

Protect the device from hits and direct influence of rain, snow and dust on the optical parts.

The device should be kept in a warm, dry place far from heating devices, batteries should be taken out. Storage temperature must not exceed 60°C.

Troubleshooting...

The goggles DVS-8 does not function...

Make sure the batteries are in good condition and polarity is correct.

The goggles DVS-8 does not focus...

Rotate the objective and ocular as the present Manual corresponding section instructs. If the scope would not focus, wipe the optical parts to remove possible humidity on external surfaces of the objective and ocular.

The picture diminished or completely disappeared...

A bright light source may be the reason of the fact that the picture diminished or completely disappeared. It is the automatic electronic protection of the device. If DVS-8 switches off automatically, set the switch into position OFF. The device is to be ready for use within one-two minutes.

Moisture condensation effect on Instrument...

In cold weather periods *moisture condensation* is possible on the outer surfaces of the ocular. In this case it is recommended that the optical surfaces be covered periodically with special anti-sweat liquid.

There are some black spots on the screen...

Small black spots on the image are allowed. Most black spots are visible only in the daytime but when the device is used in operation mode they are practically invisible.

Notes

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