

OPTICS TRADE

Analog night vision
scopes (Monoculars)

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NIGHT VISION MONOCULARS (SCOPES)

- Available as digital or analog devices
- Available in many magnifications
- 1x magnification scopes are designed for the military (helmet mounted use)
- Monoculars with magnification are mostly used by hunters
- Bigger magnification is better for spotting and identifying animals on bigger distances



MOST COMMON USE EXAMPLES

- Monoculars with fixed 1x magnification offer a wide field of view for small distance observing like streets, forests, or even rooms
- With 1x magnification, the user can also aim through a rifle mounted optic
- With fixed 1x magnification the user can walk, drive a car, etc.
- Analog NV scopes are available with IIT's of all 3 common generations
- Gen. 1 NV scopes need an IR illuminator, with Gen. 2 and Gen. 3 IIT the illuminator is mostly not needed



ANALOG VS DIGITAL NIGHT VISION MONOCULARS (SCOPES)

- Analog devices are available with IIT's of all generations
- Gen. 1 analog NV scopes are very cheap, but are very limited in the distance of observing
- With Gen. 2 and Gen. 3 the observing distance increases, and the IR illuminator is not always needed
- With an analog night vision device, you see the image directly through the device without a screen
- Analog devices do not have a refresh rate (the image is displayed in normal time without any delay)
- Battery consumption is very low



ANALOG VS DIGITAL NIGHT VISION MONOCULARS (SCOPES)

- With a digital night vision device, the image gets into the device with a sensor that is right behind the objective lens
- This sensor processes and converts the to an electric signal, which is showed on the screen in the ocular
- All digital night vision devices have a refresh rate.
- Good digital NV devices have a refresh rate of 50 or even 60 frames per second
- Screen resolution is very important
- Possible to take photos and videos
- Digital magnification – not forced to use only 1 fixed magnification
- Can be turned ON during the day
- Consume a lot of energy



NV BINOCULARS VS NV SCOPES (NV MONOCULARS)

Pros and cons of each

- Night vision scopes (monoculars)
 - Lighter in weight
 - Smaller, so easier to carry around
 - Cheaper – only one Image intensifier tube
 - Hard to combine rifle scopes and NV scope on the same eye
- Night vision binoculars
 - better viewing experiences
 - eyes were made to be used both at the same time
 - hard to set: both tubes need to be focused and proper diopter correction needs to be set



GREEN VS. BLACK&WHITE IIT

- The main difference makes the generation of the IIT and not the color of the image
- Black & white devices are available only from the 2nd generation upwards
- For many people, observing for a long period of time is more comfortable with a night vision device that features a green IIT
- Green IIT's have often a brighter appearance
- The detail recognition is mostly better with a black & white IIT
- Night vision devices with a black & white IIT are more expensive



NV MONOCULARS (SCOPES) VS NV CLIP-ON DEVICES

- Night vision clip-on devices are designed to be mounted on the objective or on the ocular of a day time optic
- Can be used in combination with regular binoculars, day-time scopes or even rifle scopes
- Different ocular design (for best image when mounted)
- Still possible to observe when not mounted (small picture and tunnel effect)
- Many NV clip-on devices do not have a diopter
- Attaching NV monoculars on rifle scopes is very dangerous on centerfire calibers (can damage the NV device and harm the user because of the recoil)





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