

OPTICS TRADE

Digital Night Vision
Optics

April, 2020

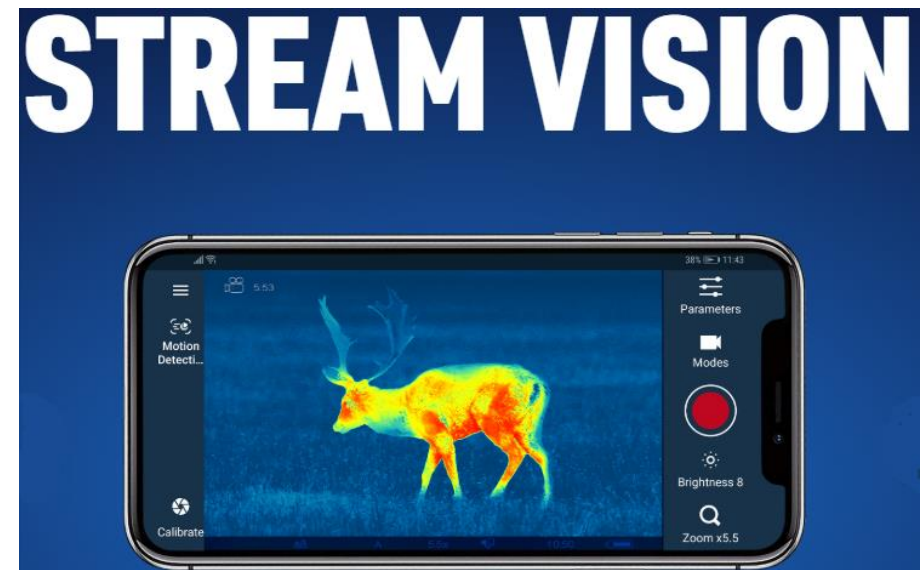
HISTORY

- Digital night vision is the newest technology on the market for night observations
- No image intensifier tube
- Consists of the following parts:
 - objective lens, a light-sensitive sensor (CCD or CMOS), blocks of electronics for image processing and control, a display, and an eyepiece
- First devices were introduced in 2013 by Pulsar and 2014 by ATN
- From Pulsar, the first device was Pulsar DFA 75, which was a digital night vision clip-on device
- The first devices from ATN were ATN BinoX and X-sight



ADVANTAGES OF DIGITAL NIGHT VISION

- An amplified picture with great details for a reasonable price
- A lot cheaper than Gen. 2 and 3 NV devices, sometimes even cheaper than Gen. 1 NV devices
- Better image quality, detail recognition, and observation range than with Gen. 1 analog NV devices
- Can be used during the day
- Many products offer also a full-color mode for daytime observations
- Possibility to take photos and videos
- Connectivity to smartphones, tablets and computers
- Smartphone/tablet app for streaming images and videos, updating the firmware, controlling the optic remotely, and so on
- Digital magnification
- Detection of longer wavelengths – can detect IR illuminator light up to 950nm-980nm
- No degradation after time



DISADVANTAGES OF DIGITAL NIGHT VISION

- Lower resolution
- Lower light amplification than Gen. 2 and 3 analog devices
- Higher battery consumption
- Refresh rate
- Bright display



INFRARED ILLUMINATORS SUITABLE FOR DIGITAL NIGHT VISION DEVICES

- Digital NV devices can detect wavelengths all up to 950nm or even 980nm
- Almost all infrared illuminators on the market will work
- We recommend using an IR illuminator with a wavelength above 850nm since they are invisible for all animals
- Laser IR illuminators emit light in an exact and very narrow band. For example, from 848nm to 852 nm
- IR LEDs have a much wider range of radiation output. For example an 850nm LED can radiate from 825nm to 875nm
- When buying an LED illuminator, we recommend one with a wavelength around 900nm or above
- IR illuminators are available with fixed or adjustable power or with fixed or adjustable beam



GENERAL CATEGORIES

- Like analog night vision devices, also digital ones are available in different shapes and sizes, each designed for a different purpose
- You can find digital NV devices in the following categories:
 - Digital night vision scopes (monoculars)
 - Digital night vision binoculars
 - Digital night vision Clip-On devices





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