NITEVIZOR®
VN1-XTR

USER MANUAL

NITEVIZOR VN1-XTR

Thank you for choosing the NITEVIZOR VN1-XTR. Please read the user manual carefully before using the VN1-XTR.

Introduction

The VN1-XTR is a patented day and night vision device for hunting and observation.

It converts your rifle scope or spotting scope into a powerful night vision system which is quick and simple to set up. It achieves this using 940nm infrared illumination (virtually invisible to humans or animals) and will illuminate the target area immediately in front of where the scope is aiming, allowing clear target acquisition up to 100 meters depending on the scope optics and climatic conditions.

The infrared image is then captured through the scope by the camera module which is attached to the eyepiece of the scope, then viewed via the integral 2.4" LCD screen.

Important Information for your Safety

The system operates on 940nm infrared LED technology .

Never look directly into the infrared LED in front of the IR illuminator/LCD module. Do not leave the product un-supervised with persons under the age of 16.

The VN1-XTR can be powered by a USB Type-C Power Bank or 2x rechargeable 18650 Lithium-ion batteries. Please carefully read the safety information contained in this manual regarding the 18650 Lithium-ion battery use.

Features

Suitable for use with any rifle scope, the VN1-XTR can be installed in seconds and offers ultra clear Day and Night Vision. No need to re-zero the scope and no ambient light required.

Features include a 940nm IR illuminator, Full-HD Video and audio recording to the micro SD card, Wi-Fi sharing, a fully dimmable, large and bright 2.4" LCD screen and water resistance.

Intended Use

The VN1-XTR is designed for mounting on rifle scopes and other optical scopes, and can be used to view and record Full-HD colour video and images, IR-enhanced Black & White video and images with a range up to 100 meters depending on the scope optics and climatic conditions.

NITEVIZOR does not bear responsibility for the use of this product in countries or territories where the law prohibits its use. It is the sole responsibility of the operator to comply with the laws and regulations of the country or territories where the device is used.

VN1-XTR Kit Contents

Scope Clamps

LCR Screen
& IR Illuminator

Cables

Camera Module
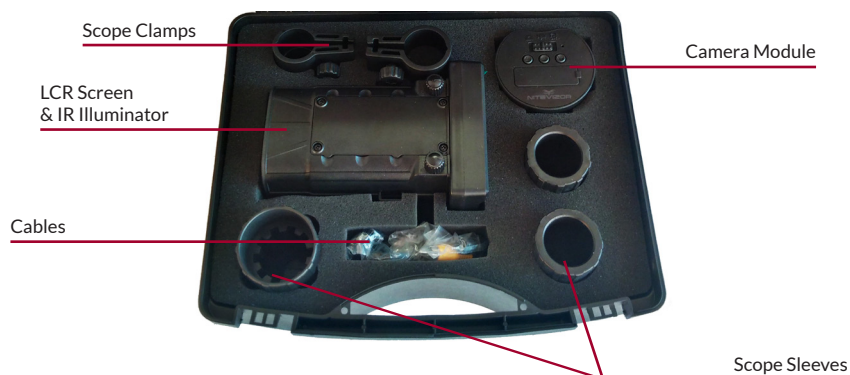
Scope Sleeves

1x Camera Module

1x LCD Screen & IR Illuminator

4x Scope Clamps

3x Scope Sleeves

1x USB-A to USB type C Cable
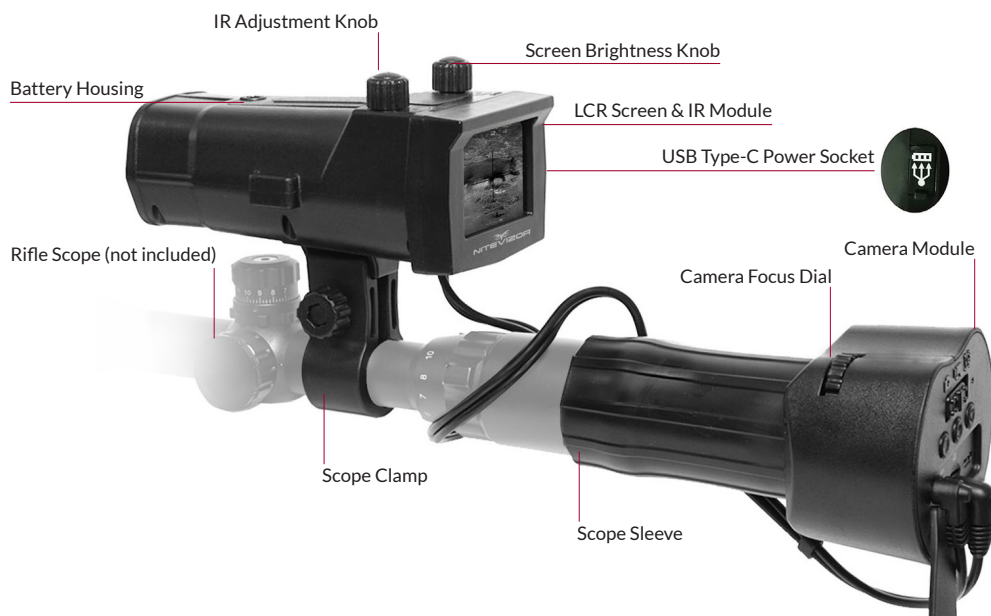
1x PAL/NTSC Cable

1x Carry Case

Scope Mount Overview

The VN1-XTR has an identification range of up to 100 metres with zero ambient light, depending on your scope optics and climatic conditions.

The Screen Brightness knob allows the user to vary the infra-red light output from zero to maximum smoothly and silently. The range is obtained by the use of the dynamic patented IR lens system. The LCD has a colour module for daytime viewing. In darkness the video and images display in IR-enhanced Black and White.

The camera has three modes: Photo, Video and Timelapse recording. The frame resolution is 640 x480. The VN1-XTR has WI-Fi functionality to display the image on a mobile phone or tablet.

The LCD screen has a dimming feature that can reduce the LCD screen brightness from normal all the way down to off. The VN1-XTR can be powered by a USB Power Bank or 2x 18650 rechargeable batteries (not included).

IR Adjustment Knob

Screen Brightness Knob

Battery Housing

LCR Screen & IR Module

USB Type-C Power Socket

Rifle Scope (not included)

Camera Module

Camera Focus Dial

Scope Clamp

Scope Sleeve

Technical Specification

- LCD: Ratio 16:9
- Lens: Colour IR, 1/3 CMOS
- IR LED: 3x 940nM
- Infrared Cut Filter: Yes
- Dimmable LCD Screen: Yes
- Distance Range: 100 meters dependant on scope
- WIFI Share: Yes
- WIFI Password: 8-13bits (digit+letters). Default: 1234567890
- Picture Size: 12MP, 10MP, 8MP, 6MP
- Video Size: 1080P, 720P (30fps)
- Audio Recording: Yes
- Display Language: English, German, French, Spanish, Italian, Russian & Japanese
- Scope Clamps: 25-28-30-35mm
- Scope Sleeves: 35-50mm
- Batteries: 2x 18650 rechargeable (not included)
- Power Bank: USB 5v 2.5A
- Operational Run Time: Upto 15h, 3h with continuous IR use
- Video Output: TV: PAL/NTSC
- Micro SD card: Upto 32GB
- USB: Type 2.0
- Operating Temperatue: -10°C to +45°C
- Weight: 690g
- Conformity: CE, FCC, RoHs

IMPORTANT

Do not connect the LCD screen or IR-illuminator module to any other equipment other than the camera module. Never connect any other equipment to the (AV) socket on the back of the camera module. Failure to do so may result in damage to the equipment and may invalidate the warranty.

The equipment is water resistant, but not waterproof. Always cover the equipment in wet or rainy conditions.

Setting up the VN1-XTR

Step 1

Connect a Power Bank via the USB cable power cord to the right hand side of the LCD Screen/IR illuminator unit or install 2x 18650 batteries.

Use the USB-A socket (large) on the Power Bank.

Fully charge the Power Bank or batteries before using the product.

Step 2

Mount the LCD Screen / IR illuminator module to the rifle scope, using appropriate scope mount clamp from the kit (25mm, 30mm or 35mm).

Remove the fixing bolt from the clamp. Open up the clamp and slide over the scope. Then replace the fixing bolt and knob and tighten securely. Please do not overtighten the scope clamp as this could result in damage to the scope.

Slide the LCD Screen / IR-illuminator module into the slot of the clamp. Then tighten the knob until the LCD screen / IR-illuminator module is secure. Check that the LCD screen is facing the eye piece. Do not over tighten the clamp as this may cause damage to the clamp.

Step 3

Select a rubber scope sleeve to suit your scope, and place onto the scope eye piece at the rear of the scope. Push the camera module into the end of the sleeve. Use the focusing wheel on the camera module to adapt to the rifle scope view.

Step 4

Connect the power supply cable and AV cable into the sockets on the rear of the camera module.

Step 5

Turn on the system with the Up button located on the rear of the camera module.

The LCD screen will power on and the system will be in day mode (colour).

For use in a dark environment, hold down the Down button for several seconds until the screen switches to IR-enhanced mode (Black and White). Adjust the infra-red LED intensity level by turning the IR knob on top of the LCD / IR-illuminator module.

Step 6

When using in a dark environment, the screen brightness level can be adjusted by turning the screen brightness knob on top of the LCD screen & illuminator module clockwise to darker screen.

CAUTION

The product must be used adopting a "heads up" shooting position. Please ensure the camera module, when fitted to the scope, is clear of the facial area as the recoil on some rifles may result in the camera module impacting the face.

VN1-XTR Camera Module

Focus Wheel

Mode Switch (Photo / Video / Timelapse)

Microphone

On/Off & OK/REC Button

Menu/Up Button

Down Button

Power Socket

USB Socket

AV Socket

Micro SD Card Slot

Operating the VN1-XTR

Focusing

The camera module has a focusing knob that allows the user to focus the reticle prior to use while attached to the scope.

The camera module has a unique focusing mechanism. It allows the camera lens to be adjusted via the external focus dial located on the upper side of the camera module. The user can focus the camera on the rifle scope reticle without removing the camera from the rifle scope sleeve. By turning the focusing dial this turns the lens wheel in the same direction. The camera lens is fully tightened in to the camera so by turning the focusing lens anti-clockwise when using for the first time it will focus the camera correctly.

Recording Modes
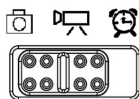
Three recording modes are available on the VN1-XTR: Photo, Video and Timelapse (photo only).

Powering On

1. Before powering on the camera module, insert the micro SD card into the slot on the face of the camera module. Ensure the micro SD card is correctly inserted.

2. Power on the camera module with the On/Off REC button on rear of the camera module. The red light will illuminate on the rear of the camera unit. The camera is now ready to record.

- Photo mode: Press REC button to take picture
- Video mode: Press REC button once to start and press again to end video
- Timelapse mode: Press REC button once, camera will countdown 60seconds then start to take photo as per the Timelapse setting

On/Off & REC Button

The record button is situated above the Micro SD card slot on the rear of the camera module. Always use the record button to stop recording before turning off the camera module. To view the files that have been captured, please remove the micro SD card and insert into your PC, laptop or tablet.

On/Off IR illuminator Button

Hold the Down button for 2 seconds to switch between Colour Full-HD and IR illuminator mode.

In IR mode, the screen is in enhanced IR Black and White, recording images and video in Black and White.

Hold the Down button again for 2 seconds to turn off IR illuminator mode and return to Colour Full-HD mode

Menu Button & Menu Operation

- Hold the Menu button for 2 seconds to enter and exit the Menu screen.
- Use the Up/Down button to navigate through the menu options.
- Use the On/Off REC button to select the desired option.
- To exit the Menu screen, hold down the Menu button for 2 seconds.

Wi-Fi Connectivity

General Information

The camera module has Wi-Fi capability. This allows the VN1-XTR to connect and share the image that is seen on the scope mounted LCD Screen / IR illuminator module.

The range of the Wi-Fi cabability is aproximately 5-6meters if you are viewing within a vehicle, or up to 15 meters in open areas with a clear line of sight.

To use the Wi-Fi feature, firstly download the free **Bestguarder Application** to your device via the iOS App store or Google Play Store.

Once the application is downloaded, the correct Wi-Fi option has to be selected on the viewing device (mobile telephone or tablet).

On the VN1-XTR Camera module hold down the Up and Down button simultaneously for several seconds. The device will start to search for Wi-Fi. Wait until the Bestguarder option appears in the menu. The Password is set as default to 1234567890. Then select the Bestguarder Wi-Fi option.

Once selected leave the settings menu and select the Bestguarder Player Application on the device (mobile phone or tablet). Add the default password 1234567890. It will take several seconds for the camera module and the device to synchronise.

Steps to Connect the VN1-XTR via Wi-FI

1. Download the **Bestguarder Application** from the iOS App store or Google Play Store, and then install the app into your mobile device. This app is a free application developed by NITEVIZOR.
2. After the application is successfully installed, a small icon - Bestguarder - will be displayed on the mobile device's screen.
3. Hold the Up and Down button together on the camera module for several seconds to turn on Wi-Fi.
4. Mobile device Wi-Fi connection: search the device name "Bestguarder_52F8F9" and connect. The Wi-Fi password will be requested. The default password is 1234567890.
5. Click the Bestguarder Player icon, then click "Add New Camera" to add the VN1-XTR and enter the User Interface.
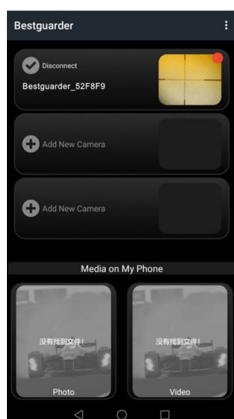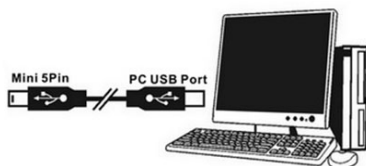
Note

When WIFI is connected successfully, the camera module and the Application will be synchronised. Changes on the Application will be the same as on camera module.
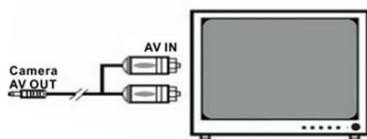
Other Ways to connect the VN1-XTR

Connecting via USB to a PC

Ensure the VN1-XTR camera unit is powerer on, then use a USB cable to connect to a PC. After a successful connection, you can read, copy, paste, and delete the videos and images in the memory card.

Connecting to a TV

Use the suplied TV cable to connect the AV OUT output port on the camera module to a TV. AV OUT can synchronize the video screen to a PAL/NTSC TV, and you can set or shoot the TV or monitor operation settings.

Battery Selection & Operation

The VN1-XTR can also be used with optional 18650 3.7v 2400mAh (or above) batteries.

- The battery must be 18650 with a protuding positive electrode.
- Please completely charge all 18650 batteries before using for the first time.
- Insert the batteries into the battery compartment with the correct positive electrode and negative electrode (as indicated in the battery compartment).

Rifle Scopes and Lens Coatings

The VN1-XTR system functions, in night vision mode, with the use of infra-red light. The infra-red light is emitted from the front of the LCD screen & IR illuminator module.

In darkness the system relies on the camera module receiving as much infra-red light through the scope as possible.

Some scope manufacturers have a coating that reduces infra-red light passing through the scope optic. This coating improves the image visibility at low ambient light levels.

The VN1-XTR system is not as effective with scope lenses that have such coatings.

To get the best use of the VN1-XTR system, please use a scope that has a variable zoom feature with front or side parallax focus capability.
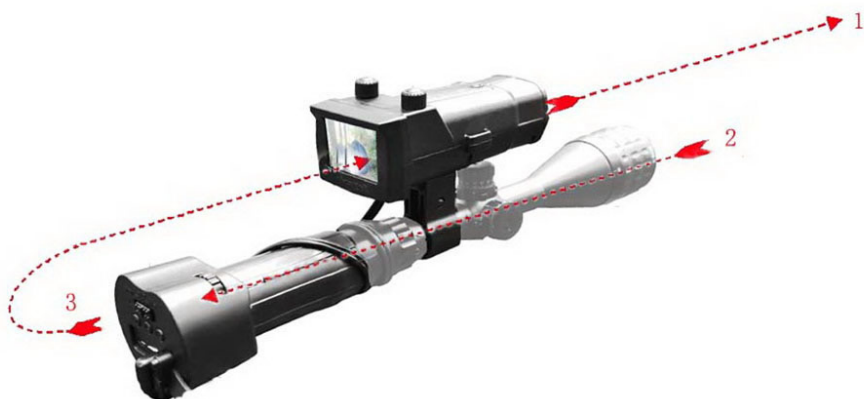
Frequenty Asked Questions

The unit is not switching on!
Make sure the batteries are fully charged. Make sure the battery plug is firmly connected to the camera module power socket. Make sure the on/off button on the back of the camera module is in the ON position (pushed in).

Does the system consume when powered down?
No. Providing the on/off button on the back of the camera module is in the off position (pushed out) the unit will no longer consume power.

Is the VN1-XTR water-proof?
No, the VN1-XTR is only water resistant. Cover the camera module and IR illuminator / LCD screen in rainy conditions.

What type of scopes work best with the VN1-XTR?
You get the very best from the system with turn collar zoom and front or side parallax focussing. Also scopes with fewer or no lens coatings that can filter out the infra-red light.

My VN1-XTR does not give visibility at night at the ranges specified?
The VN1-XTR is dependant on the camera receiving as much reflected infra-red light from the illuminator as possible. Some scopes have special coatings that can filter out the infra-red light thus reducing the range of visibility. Always check your scope manufacturers details.

Will the VN1-XTR work in freezing conditions?
Yes. The product units have an operating temperature approximately between -10 and 45 degrees centigrade.

Can the VN1-XTR withstand the recoil of large calibre rifles?
The VN1-XTR has been successfully tested with 100 rounds consecutively fired from a range of centre fire rifles up to and including a .450 calibre rifle without moderators. Spring air rifles are also suitable.

The rubber scope sleeve does not fit my scope eye piece.
Try warming the scope sleeve in very hot water (boiling is acceptable). This technique will make the sleeve more pliable to fit over most eye pieces.

I cannot mount the scope sleeve on my eyepiece because it's not a perfect circle.
Try un-screwing the eye piece to its maximum point. This may create a longer distance for the scope sleeve to grip the scope, then follow the instructions for re-focus the camera module.

I cannot get my scope crosshair in focus.
Try un-screwing the eye piece to its maximum point. This may create alonger distance for the scope sleeve to grip the scope, then follow the instructions for re-focus the camera module.

The Wi-Fi share is not working.
Turn off and on the camera module and wait for the device to synchronise with the camera module. Also try turning the Wi-Fi off and on again on viewing device.

When I use the zoom feature on my scope the distance I can see is reduced.
This is a normal feature of the system the scope when increasing the magnification is reducing the angle of vision thus reducing the visible light therefore reducing the visible range.

There is no image on my LCD screen when I switch on the unit.
Check that the LCD screen dimmer has not been turned down to the off position (fully anticlockwise).

Firmware Update

Attention

During the frimware update, please ensure that the device has a full battery charge.

Steps to Update the Firmware

1. Prepare a Micro SD(TF) card and format the Micro SD card.
2. Copy the firmware file SPHOST.BRN onto the Micro SD.
3. Insert the Micro SD card to the card slot and put the connect the Power Bank or insert fully charged batteries.
4. Power on the device and hold down the Up button and enter the MENU setting, then choose "FW Update" and then select enter "YES".
5. Choose "YES" ,then the device will start the firmware upgrade automatically. Once finished, the, device will turn off automatically.
6. To check if the firmware update has been successful, power on the device and enter MENU setting, choose "System" and then check the firmware version. If the new version is different from previous version, then the firmware update has been successful.

Important Usage Information

- Please install batteries according to the advised polarity.
- Please use good quality 18650 batteries and remove the batteries when the device will not be used for longer then a few weeks.
- It is recommended to format the Micro SD-card which will be used for the device before using for the first time.
- Keep the device away from any heating and air conditioning vents or other heating devices, direct sunlight, and moisture.
- Always store the unit in its carrying case in a dry, well ventilated, space in temperature above +15°C(60°F). Do not store near heating devices. Do not store in direct sunlight or high humidity conditions (higher than 70%).

NOTE: The VN1-XTR is a precision electronic device. Do not attempt to service this camera, LCR or IR illuminator yourself, as opening or removing covers may expose you to dangerous voltage points or other risks.

FCC NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cable must be used with the equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

Specifications and designs are subject to change without any notice or obligation on the part of the manufacturer.

Disposal of Electric and Electronic Equipment

(Applicable in the EU and other European countries with separate collection systems)

This equipment contains electric and/or electronic parts and must therefore not be disposed of as normal household waste. Instead, it should be disposed at the respective collection points for recycling provided by the communities. For you, this is free of charge.

If the equipment contains exchangeable (rechargeable) batteries, these too must be removed before and, if necessary, in turn be disposed of according to the relevant regulations (see also the respective comments in this unit's instructions). Further information about the subject is available at your community administration, your local waste collection company, or in the store where you purchased this equipment.

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