# BARSKA®

User Manual

Overview

BQ14028 adopts low illumination at night, Sony dynamic CMOS sensor, external IR Illuminator, you can obtain excellent observation results both day and night. The novel structure patent design greatly improves the observation effect and observation experience, and the built-in infrared color filter greatly improves the observation effect of the equipment during the day, reduces the overexposure under natural light during the day, and restores more realistically.

BQ14028 strengthens the waterproof design and reaches the protection level of IP67. Using a single built-in rechargeable battery with a low power consumption design, the continuous working time can reach more than 5 hours, meeting the requirement of using without changing the battery all night. In addition, it has advanced fast start-up performance, fast imaging in 3 seconds after booting, which significantly improves the user's quick response ability. The high refresh rate design enables the operator to obtain the ability to observe fast-moving targets. At the same time, it is equipped with high-quality and high-performance objective lens, making it safe and reliable without being afraid of strong light. When installed on a tripod for long-distance night observation, the night observation distance can reach 300 meters.

BQ14028 is a rear clip-on model. The built-in WiFi module allows users to record and share videos, and comes with a Type-C interface for external power supply and data copying at the same time. It is mainly used in outdoor night shooting, hunting, outdoor adventure, and can be clipped onto a sniper scope to complete night hunting.
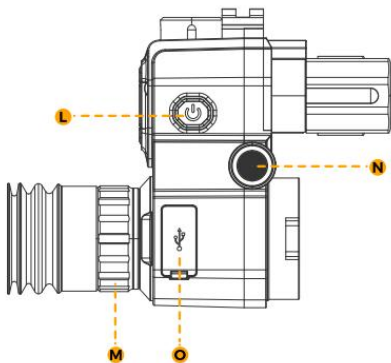
Interfaces
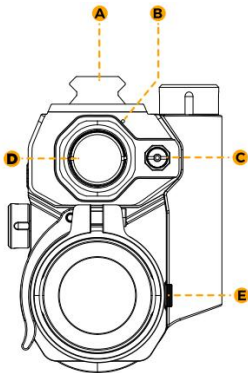
Front View

A. Picatinny rails, used for the installation of another IR flashlight

B. Photosensitive sensor, detects the brightness of external ambient light, and automatically switches between day or night mode

C. Laser red dot for fast positioning of targets at close range

D. IR Illuminator for night observation and make the image clearer

E. Latch, which is used to reinforce the connection between the adapter and the device
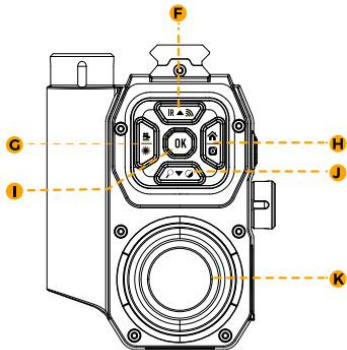
Back View

F. Upward / IR Illuminator / WiFi switch

G. Video/Laser red dot switch/Leftward

H. Menu/Photo/Rightward

I. OK button

J. Downward/Zoom(+) or Zoom (-)/ Black & White or Color mode Switch

K. Eyepiece lens

Left View

L. Power button, power on/off the scope

M. Eyepiece lens diopter adjustment ring

N. Objective lens focusing adjustment knob

O. TF card slot / HDMI interface/ Type-C power & data interface

Instructions for Shortcut Button Operation

① 🏠/📷 Button

Short press(<1s) to entry or exit the menu option, and long press (>1s) to take a photo.

② OK Button

Short press(<1s) to do item select.

③ IR▲🔊 Button

Firstly, long press the ⬤ button (>1s) to switch to Black & White mode, then short press(<1s) the IR button to adjust the IR Illuminator (IR1-3/Off) long press (>1s) to turn on & off WiFi;

④ 🔍▼⬤ Button

Short press(<1s) to realize Zoom (+) or (-), long press (>1s) to switch to Black & White or color mode;

⑤ 📹/💡 Button

Press for a short time (<1s) to turn on or off the laser light, long press (≥1s) to open the video recording function

Working Principle

The BQ14028 digital day & night vision scope collects external light through the objective lens, and then converts the optical signal into electrical signal through the digital CMOS sensor module. This signal is then transmitted to the CPU chipset for processing in the format of MIPI signals. Finally, the electrical signal is transmitted to the OLED screen, allowing users to view the image on the OLED screen on the eyepiece.

The BQ14028 digital day & night vision scope features a powerful high brightness dimmable IR Illuminator that can help to image object clearly and display them on the OLED screen in low light and total darkness scenery. The OLED display screen has high resolution and adjustable brightness. The image display adopts digital zoom, allowing users to magnify the displayed image by 1x, 2x, 3x, 4x and 5x .

Installation Instructions

1. Preparation

Please take out the device, adapter, rubber shims from the box. And prepare a riflescope (eyepiece diameter ≤ 48mm) and one 18650, 3. 7V battery.

2. Battery Installation

   (1) Rotate the battery cap counterclockwise and remove it：

   (2) Place the battery into the battery compartment as shown. Note that the

positive electrode should be facing downwards：
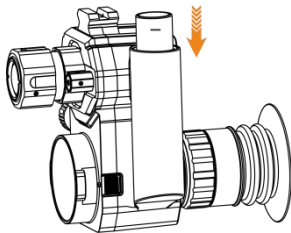
   (3) Put the battery cap back and tighten it.

3. Connect the adapter to the riflescope

   (1) Release the retainer clip of the adapter and place the appropriate thickness

shim in the adapter, and the bulge edge of the shim is stuck with the edge of the

adapter;
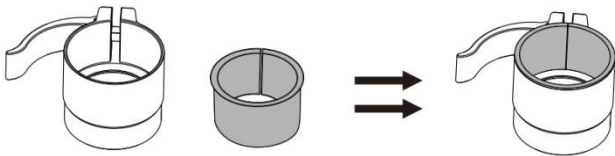
(2) Insert the eyepiece of the riflescope into the adapter, ensuring that the edge of the eyepiece aligns with the edge of the shim inside the adapter. The bulge on top of the adapter should be positioned facing directly upwards to prevent any misalignment of the reticle once the night vision device is installed. Finally, pull the retainer clip of the adapter downwards to secure the adapter firmly to the riflescope.
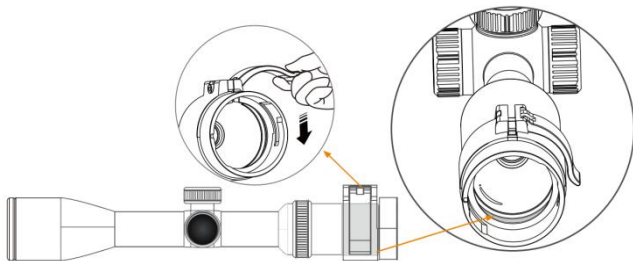
4. Connect the night vision scope to the riflescope

(1) Align the two bulge of the night vision scope with the two grooves in the adapter, insert and rotate clockwise the scope, and after hearing a "click", the installation is finished;
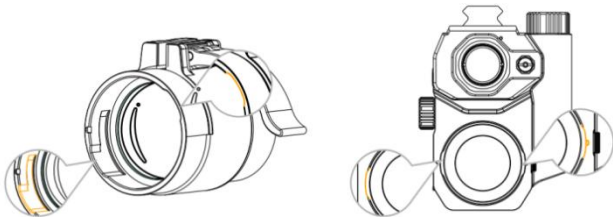
Note: How to separate?

Pull the latch backwards, and then rotate the night vision scope counterclockwise, then remove the scope.
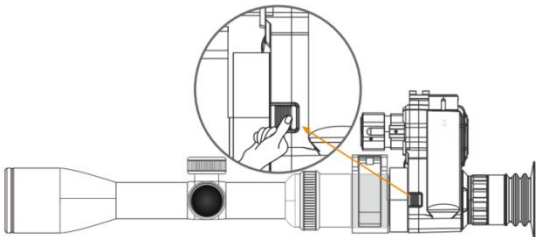
Focusing Adjustment

(2) Turn on the scope by long press the power button on the left side of the scope and check the image quality. You may need to adjust the eyepiece and objective lens to make the image clearer. Please follow the steps below：

① If you can't see the electronic icons on the screen clearly, rotate the diopter adjustment ring to suit your eyesight. If you can see them clearly, please skip this step；

② If you can't see the reticle of the riflescope clearly, please rotate the objective focusing adjustment knob on the left side of the night vision scope until you can see the reticle clearly, then the night vision scope has achieved the best imaging results. At the same time, you still need to manually adjust the focusing adjustment knob of your riflescope to get the best image quality at different distances.

③ If you are still unable to see the image clearly after completing the above steps. Please remove the riflescope out, make 1 circles counterclockwise and pull out the edge of the eyepiece of your riflescope. Then repeat the above steps to install and adjust again.
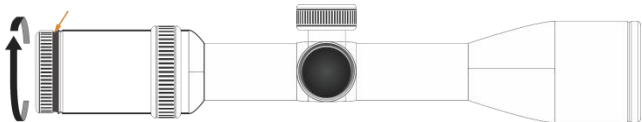
Menu Operation Instructions

1. Reticle Center Position Adjustment

Press the 🏠 button, and press the OK button to select the "Reticle Center Position Adjustment" option, long press the OK button (3s) and then pop up with Reset/Save two options, select the "Reset" and adjust the XY coordinate position of the center of the reticle. Press ▲ and ▼ to adjust the Y coordinate of the center line. Press ◀ and ▶ to adjust the X coordinate of the center line. After completion, press OK button to select the "Save". Choosing "Reset" can cancel all the X/Y configuration and go back to default state.

Note: This feature is only available for certain batches of products.

2. Language

Press the 🏠 button firstly and press the ▼ button to select the option "Language", and press the OK button to enter. Users can choose the option according to actual needs. Include "Chinese/English/Spanish/Portuguese/French/German/Italian/Polish/Turkish/Russian". After confirmation, the system can switch to the corresponding language.

3. Picture in Picture

Press the 🏠 button first and press the ▼ button to select the option "Picture in Picture", and press the OK button to enter the "PIP" option, then pop up with options such as "Off/2x/4x/6x". You can choose 2x/4x/6x magnification according to the actual observation requirements, or turn off this function. This function is turned off by default.

4. G Sensitivity

Press the 🏠 button first and press the ▼ button to select the option "G sensitivity", and press the OK button to enter the "G sensitivity" option, and then pop up with three options such as "high/medium/low". Users can choose the option according to actual needs.

5. Pitch Angle

Press the 🏠 button first and press the ▼ button to select the option "Pitch Angle", and press the OK button to enter the "Pitch Angle" option, and then pop up the "off/on" option. Users can choose to turn the pitch angle on or off according to the actual needs of the real-time display.

6. Default Color

Press the 🏠 button first and press the ▼ button to select the option "Default Color", and press the OK button to enter the sub-menu. Users can choose the color according to actual needs.

7. LCD Brightness

Press the 🏠 button first and press the ▼ button to select the "LCD Brightness" option, and press the OK button to enter the sub-menu. Then adjust the brightness on the pop-up sub-menu, including "1(Super Dark)", "2(Dark)", "3(Normal)", "4(Bright)", and "5(Super Bright)".

8. IR Illuminator

Press the 🏠 button first and press ▼ the button to select the "IR Illuminator" option, and press the OK button to enter the sub-menu, the sub-menu will pop up with "Off", "Auto" and other 3 levels of IR Illuminator intensity selection switch: "IR1", "IR2", "IR3". Users can choose the color according to actual needs. To save battery power, this switch is not saved by default and will be turned off after restarting. When in Black & White mode, it can be adjusted and turned off by press the IR button.

Note: The "Auto" option is related to the sensor. After choosing Auto option, the IR Illuminator will be automatically on when the environment light is low and automatically off when the environment light is bright.

9. Exposure

Press the ⌂ button first and press the ▼ button to select the "Exposure" option, and press OK the button to enter the sub-menu, then select "+2/3" or "+1/3", "+0. 0", "-1/3"or other parameters on the pop-up sub-menu. After confirmation, the system can realize the corresponding exposure compensation intensity.

10. Automatic Recording

Press the ⌂ button first and press the ▼ button to select the "Automatic Recording" option, and press the OK button to enter the submenu, then select "On" or "Off" on the sub-menu that pops up. After confirmation, the system will automatically enter the recording mode to record the external scenery in real time.

11. Loop Recording

Press the ⌂ button first and press the ▼ button to select the "Loop Recording" option, and press the OK button to enter the sub-menu, then select one of the options of "Off", "3 minutes", "5 minutes", "10 minutes" on the pop-up sub-menu. After confirmation, the system will automatically enter the loop recording mode to record the external scenery in real time and in a loop.

12. Playback

Press the ⌂ button first and press the ▼ button to select the "Playback" option, and then press the OK button to enter the album. Press ▲ , ▼ , ◀ , ▶ to select the file you want to check or delete, and short press the OK button. Delete: short press ⌂ button, then select "Delete Current" or "Delete All" according to your needs. Then long press OK button(3s) to return to the album, then long press OK button again to exit.

13. Audio Synchronization

Press the ⌂ button first and press ▼ the button to select the "Audio Synchronization" option, and press the OK button to enter the submenu, and then press the ▼ and OK button to select "On" or "Off" on the pop-up sub-menu for the voice recording.

14. Date Stamp

Press the ⌂ button first and press the ▼ button to select the "Date Stamp" option, and press the OK button to enter the sub-menu, then press the ▼ and OK button to select "On" or "Off" on the pop-up sub-menu to select whether to show the date label for videos and photos.

15. WiFi

Press the ⌂ button first and press the ▼ button to select the "WiFi" option, and press the OK button to enter the sub-menu, then press the ▼ and OK button to select "On" or "Off" on the sub-menu. After confirmation, the system can turn On or Off the WiFi.

Note: WiFi starts with "Ten Rings" and the default password is 12345678. You need to download the corresponding "TenRings Shots" software from APP store, or scan the QR code attached to this manual. The password can be changed on the APP.

16. Date/Time

Press the ⌂ button first and press the ▼ button to select Date/Time option, Cursor choice in the year position, press ▲ or ▼ button to adjust the year. After the adjustment, press the OK button to jump to the month setting. Repeat the above operations to complete the changes to the remaining items(month, day, hour, minute, second). After the adjustment, press the OK button to jump to date display format. Press ▲ or ▼ to select three display formats: "YY/MM/DD", "MM/DD/YY", "DD/MM/YY". After confirmation, you can press the ⌂ button to exit.

17. Format

Press the 🏠 button first and press the ▼ button to select "Format" option, and press the OK button to enter the sub-menu, and then press the ▼ and OK button to select "TF Card" on the pop-up sub-menu. After confirmation, "Cancel" and "OK" options will pop up, press the ▼ and OK button again to select "OK" option. Please choose carefully because the data cannot be recovered after deletion!

18. Default Setting

Press the 🏠 button first and press the ▼ button to select the "Default Setting" option, and press the OK button to enter the sub-menu, and then select "OK" or "Cancel" on the pop-up sub-menu, press the ▼ and OK button to select OK option. Please operate carefully!

19. Version

Press the 🏠 button first and press the ▼ button to select the "Version" option, then software version information and serial number will be displayed on the screen by pressing the button.

Warning

1. Do not look directly at the IR Illuminator in a short distance, otherwise it will cause damage to the eyes!
2. The infrared light of this product will gather a lot of energy when it is on. It is strictly prohibited to aim at combustible objects in close range, otherwise it may cause fire. Please turn off the infrared light or go to sleep mode when it is not in use!
3. This product needs to be adapted to an optical riflescope with focusing function, otherwise it may not work!
4. Due to the design of optical path, some riflescopes may not be suitable for this product!
5. Never look at the sun through this night vision device (or any other optical instrument). It may permanently damage your eyes and equipment!
6. Do not walk, run, or use any form of transportation (bicycle, motorcycle, car etc.)when viewing through BQ14028. Doing so may prevent you from fully understanding your surroundings, including any potential obstacles or other hazards in your path!

Maintenance

When using the BQ14028 digital night vision device. please follow the following recommendations, guidelines and precautions:
1. Keep the device away from any heating, direct sunlight, moisture, air conditioning vents or other heating equipment.

2. Always store the device in a suitcase in a dry, well-ventilated space with a temperature above +15'C (60°F) and below +48'C (118°F). Do not store near heating equipment, in direct sunlight or high humidity (above 70%).
3. Clean the optical lens with camera lens cleaning products, and clean the outside of the device with a clean soft cloth.
4. If the device is not used for more than a few weeks, please remove the battery.
5. Do not drop or shake the device in other ways. Although it has a rugged shockproof design for outdoor use, the device contains complex digital circuitry that can be damaged in extreme circumstances.
6. Do not open the device or attempt to repair the device in other ways.
7. Do not pour alcohol or any other liquid directly into the lens surface.
8. Do not use paper products (such as newspaper, textbook paper, etc) to clean the surface of the lens and unit, because it may damage the coating.
9. Do not attempt to remove the eyepiece, as the OLED display may be damaged.
10. Do not place the device in direct sunlight or rain. The device is waterproof, but not suitable for prolonged use which exposed to moisture and cannot be immersed in water.
11. Wait at room temperature for at least 3 hours after the equipment is operated at temperatures below zero degrees Celsius to avoid the accumulation of condensed water on the internal surface of the lens and the consequent atomization temperature difference due to extreme conditions.

Troubleshooting

1. The device does not turn on.

(1) Reinstall the battery and ensure that the polarity(+/- terminal) direction is correct. Please refer to the silkscreen instructions on the battery installation direction on the cover.

(2) Replace the battery.

(3) Clean the battery compartment, especially the contact points.

2. Image Fuzzy

    (1) Refocus by adjusting the objective lens focusing adjustment ring.

    (2) Adjust the diopter setting by rotating the eyepiece as necessary until the display icon is clear.

    (3) Check the condition of the objective lens surface and eyepiece, and clean it if necessary.

3. In low-light conditions, the image disappears or degrades in quality.

    First make sure you are in night mode and activate infrared lighting, while bright light sources (such as street lamps at night) may cause a decrease in visibility or contrast. Keep the device away from the light source and the visibility will be restored immediately.

4. Images viewed or recorded at night appear black and white.

    This is a normal phenomenon and color cannot be reproduced in dim conditions when infrared lighting is used as the primary source of light.

5. When taking photos or recording videos, it is prompted that"please insert TF card".

    (1) Check if the insertion method of the TF card is correct.

    (2) Press the menu button and format the TF card.

6. When connecting the scope to the APP, it cannot be connected or is unstable.

    When the battery of the device is too low, the connection to the APP will be unstable. Please avoid connecting in a low battery state.

Technical Specifications

Product Model	BQ14028
Product Name	Digital Day & Night Vision scope
Sensor	
Resolution(pixel)	1920×1080
Sensitivity(lux)	0. 001
Pixel Size(μm)	29
Frame Rate(fps)	60
Optics	
Magnification(x)	2~10 (5x zoom)
Focal Length(mm)	16(fixed focus)
Objective Lens Size	Φ16
Field of View(H*V)	22°x16°
Operation Control	Manual focus
Entrance Pupil Diameter	6mm
Eye Relief	35mm/50mm
Focusing Angle Range(D)	-5~+5

IR Illuminator	
Installation	Built-in, support additional flashlight
Max. Power(W)	5
Illuminating Level	3 levels
Detection Range(m)	300
Wavelength(nm)	850/940
Power Supply	
Power Supply Mode	18650 Li-ion battery
Output Voltage(V)	3. 7
Working Time with Battery(h)	≤8
External Power Supply	USB Type-C, 5V, 2A
Display	
Type	OLED
Size	0. 39''
Resolution(pixel)	1024x768
Brightness	5 levels
System	
Video Resolution(pixel)	1920x1080

Video Format	. MP4
Photo Resolution(pixel)	3072 x 1728
Photo Format	. JPG
Internal RAM	2Gb
Storage Type	TF Card (support 4G~128G)
Reticle Shape	6
Auto Recording	Yes
Loop Recording	Yes
Audio Recording	Yes
WiFi	Yes
APP	TenRings Shots
Exposure Compensation	Yes
Geomagnetism	3-axis Gyroscope
Picture-in-Picture	Yes
Playback	Yes
Pitch Angel	Yes
Language	Chinese/English/Spanish/Portugue-se/ French/German/Italian/Polish/Tu-rkish/

	Russian
Mean Time Between Failures	> 50000h
Interface	
USB Type-C	Battery Charge and Data Transfer
HDMI output	Video Transmission
Connection Adapter	
Size(mm)	48
Material	Aluminium Alloy
General	
Dimensions (L*W*H)(mm)	143*82*113
Housing	Plastic & Aluminium Alloy
Body Color	Black
Net Weight(g)	330
Protection	IP67
Operating Temperature(℃)	-25~50
Storage Temperature(℃)	-30~75
Recoil Resistance(J)	6000

BC807