

Ork Hunter
AT-1 Astronomical Telescope

User Manual

Ork Hunter

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1. Product overview

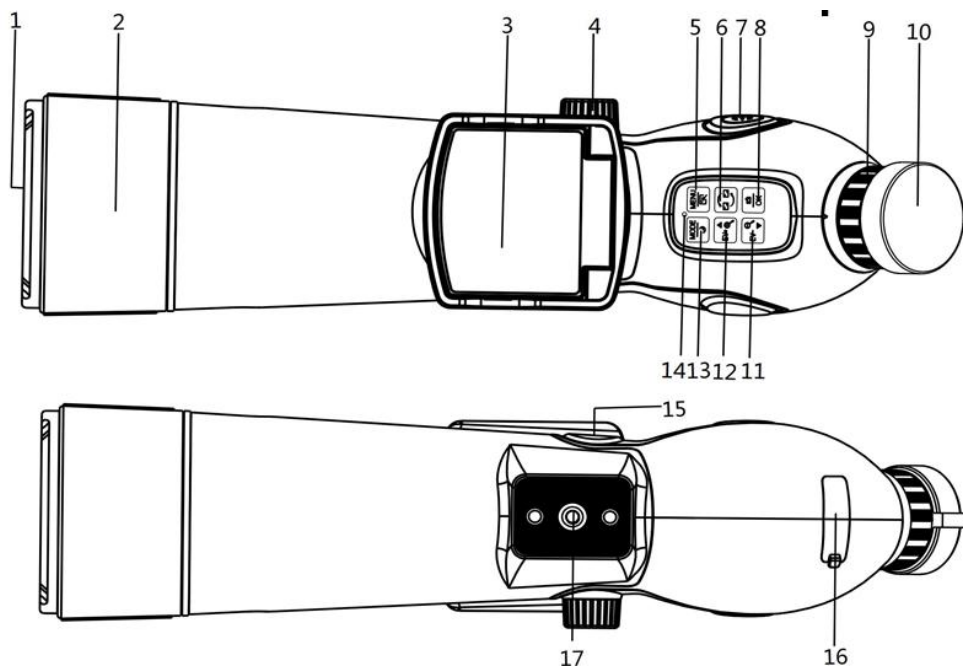


Fig.1. Product overview

1. Objective/ protective cover
2. Lens hood (retractable)
3. Display (external screen)
4. Objective focus wheel
5. Menu/ color effect button
6. Internal and external screen conversion button
7. Power button
8. Shutter/OK button
9. Eyepiece diopter adjusting wheel
10. Eyepiece (Internal screen)
11. Down /EV-/ zoom out button
12. Up /EV+/ zoom button
13. Mode/ Moon viewing button
14. Status indicator light
15. Microphone
16. USB port /Micro SD card slot/reset hole
17. Tripod screws

Description of Button

Power button: Press the power button for 3 seconds to power on or power off.

MODE/ Moon viewing button: short press (photo/video/ playback mode cycle switch); Long press(normal/moon/ Universe mode cycle switch).

Up /EV+/ Zoom button: short press (up , EV+); Long press (digital zoom in).

Down /EV-/ Zoom button: short press (down , EV-); Long press (digital zoom out).

MENU/ Color effects button: short press (to enter and exit the menu Settings); long press (Color effects loop switch: normal/ black and white/green/film).

Internal and external screen conversion button: short press (external /internal screen cycle switch).

Shutter /OK button: short press (take photo/video / confirm).

2. Specification

Image sensor	5MP superstarlight CMOS sensor chip
Resolution of photo	30MP 1.5°x1.1°,24MP 1.5°x1.1°, 16MP 1.5°x1.1°,8MP 1.5°x1.1°, 5MP 1.5°x1.1°,1.2MP Moon viewing, VGA view of universe
Video Clip	4 K 1.5 ° X0.9 ° , 2.7 K 1.4 ° X0.9 ° and 1.3 ° FHD X0.8 ° , 1080 p 1.5 ° X1.1 ° , HD 1.5 ° X0.9 ° , 60 FPS HD 1.5 ° X0.9 ° , HD moongazing, VGA view of the universe
Magnification	Up to 350x
Focus Mode	Manual focus adjustment
Eyepiece	Adjustable vision compensation (refractive adjustment range plus/minus +/-4, both short-sighted/far-sighted 400 adjustment compensation)
Aperture	F4.0
Focus Distance	300mm
Primary mirror caliber	78mm
Limiting magnitude	11
Digital Zoom	18X
Display screen	IPS HD screen (3.0-inch external screen, built-in 10-inch enlarged display)
Button	Touch button anti-shake
Split Selection	Split 1/Split 2/Split 3/Split 4/Split 5
Continuous shooting	3 /5 /10 sheets
Self Timer	3 seconds /5 seconds /10 seconds
Storage medium	Micro SD card (up to 512GB, Class 10 or above recommended)
Power Save	1/3/5/10 minutes/Off
Power supply	Built-in 4500mAh lithium battery, rechargeable
USB interface	TYPE-C
Language	Multiple languages are available
Microphone & Speaker	Built-in
Operating temperature	-20°C to +50°C
Storage Temperature	-30°C to +60°C

Dimensions & Weight	About. 369*94*135mm / 960g
Accessories	USB cable, manual, external screen anti-glare hood, tripod (optional)

3. Installation Guide

3.1. How To Charge The Battery

This device has a built-in rechargeable battery, please fully charge it before first use.

- Power off and charge the device using a universal USB power adapter *(DC 5V/2A) (* not included) and the included Type-C USB cable.
- When charging, the charging indicator will be red; When fully charged, the charging indicator turns blue.
- Disconnect the telescope charging connection after full charge.

3.2. How To Insert The Memory Card

This astronomical telescope has no memory and needs to insert a memory card to use it. The memory card is not included in the package, please prepare it separately. Supports external TF card with a maximum capacity of 512 GB. It is recommended that users use high-speed cards of Class 10 or above.

Turn off the astronomical telescope before inserting or removing the memory card. Be sure to align and position the card correctly when inserting. Do not try to force the memory card into the slot if you feel resistance.

The card insertion steps are as follows:

- Turn off the telescope.
- Find the rubber cover at the bottom of the telescope and open it, then you will see the Micro SD card slot.
- Insert the memory card and close the rubber cover.
- To remove the memory card, tap the edge of the card.

3.3. How To Format The Memory Card

It is important to format the memory card when using this astronomical telescope for the first time. All data will be deleted, including protected files. Be sure to download important files to your computer before formatting.

- Turn on the device, in the photo/video mode, tap the MENU button to enter the settings menu.
- Tap the up or down button to select [Format].
- Tap the up or down button to select [Yes], then tap the Shutter/OK button to confirm formatting the memory card.

3.4. How To Select a Language

Before using the telescope for the first time, be sure to select a language and set the date and time.

- Turn on the power button. In the photo/video mode, tap the MENU button to enter the menu settings.
- Tap the up/down button to select [Language], tap the Shutter/OK button to start the sub-menu.
- Tap the up/down button to select the desired language, tap the Shutter/OK button to confirm and tap the MENU button to exit the menu.

3.5. How To Set The Date And Time

- Turn on the device, in the photo/video mode, tap the MENU button to enter the settings menu.
- Tap the Up / Down button to select [Date and Time], then tap the OK button to enter the sub-menu.
- Tap the Up / Down button to change the highlighted value. Tap the MODE button to move the cursor between settings.
- Tap the Shutter/OK button to confirm the setting and close the menu.

Please note: After setting, it is best to press the power button to turn off once and the settings will be saved without powering off.

4. How To Use The Telescope

4.1. Turn ON and turn OFF

Long press the power button to turn on the Astronomical telescope, the green status indicator lights up and then press power button again for 3 seconds to turn it off.




To save battery power, you can set the "Power Save" function in the menu to change the shutdown time.

4.2. How To Focus Clearly

Mount the Astronomical telescope on the included tripod or a self-purchased professional tripod with good stability. Press the power button to turn on the Astronomical telescope. Aim the objective lens at the target to be viewed. Then gently pinch the objective lens focusing wheel between your thumb and index finger. Be gentle and turn the wheel slowly to adjust the focus. After tuning, release your fingers. Let the device stand still for a while and then tuning again. Watch the display and eyepiece until the target is clearest. Avoid shaking due to strong force.

4.3. Changing the modes

The night version has 3 different modes: photo mode, video mode and playback mode. Press the MENU button can change mode.

- | | | |
|---|---------------|---------------------------------|
|  | Photo Mode | For taking still photos. |
|  | Video Mode | For recording video. |
|  | Playback Mode | For playing the recorded files. |

- Photo mode: Tap the MODE button to switch to the photo mode. Tap the Shutter/OK button to take a photo.
- Video mode: Tap the MODE button to switch to the video mode. Tap the Shutter/OK button to start recording and tap the Shutter/OK button again to stop recording.
- Playback: Tap the MODE button to switch to the playback mode and tap the Up/Down button to browse the saved photos and videos. When playback a video, tap the Shutter/OK button to play, tap the Shutter/OK button again to pause and tap the MODE button to stop playing. Tap the MODE button again to exit the playback mode.

4.4. Taking still images

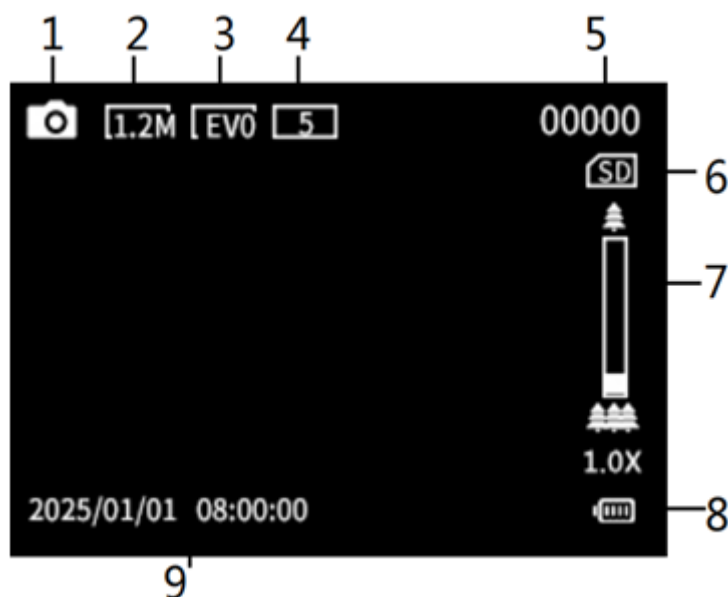


Fig.3. Taking still images

- | | |
|--|-------------------------|
| 1. Camera icon | 2. Resolution |
| 3. Exposure | 4. LCD brightness |
| 5. Display of the number of photos available | 6. Memory card inserted |
| 7. Zoom value | 8. Battery display |
| 9. Date Stamp | |

- Turn on the telescope, the default mode is Video , tap the MODE button to switch it to Photo mode.
- Zoom: Long press the "Up/EV+/Zoom In" or "Down/ EV-/ Zoom Out" button to zoom in or out. The zoom factor value will be displayed on the LCD screen.
- Keep the telescope steady, then tap the Shutter/OK button to take a photo.
- The number of photos that can be taken will be displayed on the LCD screen.

4.5. Recording Video

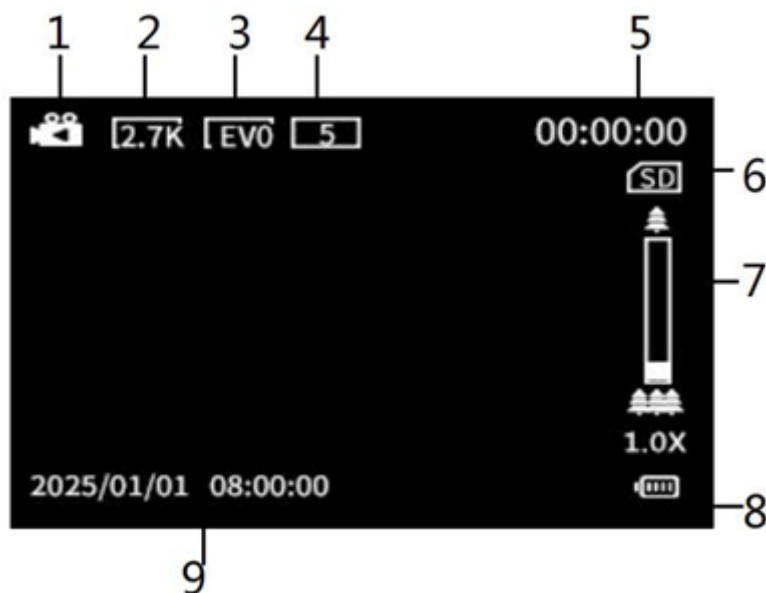


Fig.4. Recording video

- | | |
|--------------------|-------------------------|
| 1. Video icon | 2. Movie size |
| 3. Exposure | 4. LCD brightness |
| 5. Recordable time | 6. Memory card inserted |
| 7. Zoom value | 8. Battery display |
| 9. Date Stamp | |

- Turn on the telescope, the default mode is Video, if not, tap the MODE button to switch it to video mode.
- Zoom: Long press the "Up/EV+/Zoom In" or "Down/ EV-/ Zoom Out" button to zoom in or out. The zoom factor value will be displayed on the LCD screen.
- Tap the Shutter /OK button to start recording.
- Tap the Shutter/OK button again to stop recording. If the memory is full, the device will automatically stop recording when the card is full.

4.6. How To Take Time-Lapse Video

1. Turn on the telescope, the default mode is Video, if not, tap the MODE button to switch it to video mode.
2. Tap the MENU button to find the Movie Options in the menu and select Time Lapse Recording. Tap the Shutter /OK button to confirm and exit. Then select the Time Lapse Setting, tap the Up/Down button to browse the sub-menu and tap the Shutter /OK button to enter the selected sub-menu. Select the Size you want to set and tap the Shutter /OK button to exit. Select the Time in the sub-menu, tap the Up/Down button to choose the interval time you need. Tap the MODE button to move the cursor. Tap the Shutter /OK button to confirm.
3. After you tap the Shutter /OK button and then countdown 5 seconds, the screen will go off to start shooting Time-lapse video.

4. Press the power button to stop the time-lapse recording and turn on the device.

4.7. How To Adjust The Eyepiece

After turning on the device, check whether the display shows the internal screen or the external screen. If it shows the external screen, please press the Internal and external screen conversion button to switch the display to the eyepiece (internal screen) display. When you in any mode, tap the MENU button to enter the MENU. Check the eyepiece (internal screen). If the menu font is not clear enough, adjust the eyepiece dioptre adjustment wheel until the menu font appears clear. Press the Menu button again to exit the menu. Then, slowly adjust the objective lens focusing wheel according to the actual distance of the viewed object to focus until the screen display is clear.

4.8. How to adjust the display Angle

The display screen is divided into an internal screen and an external screen. You can press the Internal and external screen conversion button to switch . The outer screen can be freely rotated by 90° and the Angle can be adjusted as you needed.

4.9. How To Use The Menu In Record Mode

When the menu display, use the Up /Down to browse and OK button to select the desired setting.

Menu in photo mode:

- 1: Turn on the telescope and set it to photo mode.
- 2: Tap the MENU button to display the menu and tap the Up/Down button to browse the desired menu.
- 3: Tap the OK button to enter the sub-menu.
- 4: Tap the Up/Down button to browse the desired sub-item.
- 5: Tap the OK button to confirm the Settings and close the menu.

Menu	Function	
Resolution	Set the resolution of the picture. Options:30MP 1.5°x1.1°,24MP 1.5°x1.1°, 16MP 1.5°x1.1°,8MP 1.5°x1.1°, 5MP 1.5°x1.1°,1.2MP Moon viewing, VGA view of universe	
Shooting	Single	Take a single photo
	Continuous	Take multiple pictures in a row. Options:3 Photos/ 5 Photos/ 10 Photo
	Self Timer	Automatic photo taking, Options: off /3 seconds /5 seconds /10 seconds
Anti-Shake	Options: On/Off/Cancel	
Effect	Set the colour effect and add tones to the picture. Options: Normal/Black and White / Green/Negative	

Sharpness	The clarity of the images taken by the camera can be set; The level of clarity determines whether the edges of objects in the image are clear. Options: Sharp/Normal/Soft
Contrast	Options: High/Normal/Low
ISO	Options: Auto/100/200/400/800/1600/3200
Exposure	Manually set the exposure value to compensate for the light in different shooting environments. Exposure compensation ranged from -3.0 to +3.0 with an increment of 1
LCD Brightness	The screen brightness can be adjusted as needed. Options: Backlight 1/ Backlight 2/ Backlight 3/ Backlight 4/ Backlight 5/ Backlight 6/ Backlight 7
Language	Select the screen display language. Option:[English]/[Deutsch]/ [Français]/ [Español]/ [Italiano]/[Türkiye]/[Русский]/ [Portugués]/[Nederlands]/[简体中文]/[繁体中文]/[日本語]/[Polski]
Set Date	Set the time and date of the device. Press the Up /Down button to adjust the time, press the MODE button to move the cursor between Settings, tap the OK button to confirm and exit the editing
Date Stamp	Add a date tag to a photo or video file. Options :[Off]/[Date]/[Date & Time]
Split Selection	Various cross sight lines. Options :Split 1/ Split 2/Split 3/Split 4/Split 5/Frame Off
OSD auto clear	Automatically clear all icons on the display screen, only showing the viewed image. After clearing, press any button to restore it. Options: Off /10 Sec. /20 Sec. /30 Sec. /60 Sec
Power Save	To save power, if not operated, the camera will automatically shut down after a period of time. Options :Off/ 1 Min./ 3 Min./ 5 Min
Beep	The sound when you operate the buttons. Option: On/Off
Power indicator light	Option: On/Off
Frequency	Set the frequency of the light source to match the local power supply frequency to prevent interference. Options: [60Hz]/ [50Hz]/ [Cancel]
Format	All data stored on the memory card (if you are using the memory card) will be deleted, including protected files. Be sure to download the important files to your computer before formatting. Options: [Yes]/[No]
Default	Reset the entire menu and button operation settings to the initial default values. Options: [Yes]/[No]

4.10. Menu In Video Mode

- Turn on the telescope and set it to Video mode.
- Tap the MENU button to display the menu and tap the Up/Down button to browse the desired menu.
- Tap the OK button to enter the sub-menu.
- Tap the Up/Down button to browse the desired sub-item.
- Tap the OK button to confirm the settings and close the menu.

Menu	Function	
Movie Size	Set the video resolution. Options: 4K 1.5°X0.9°/ 2.7 K 1.4° X 0.9°/ FHD 1.3° X0.8° / 1080 p 1.5° X1.1° / HD 1.5° X0.9° / HD 60 FPS 1.5° X0.9° / HD Moon Viewing/VGA view of Universe	
Movie Options	Normal	Take the normal video
	Time Lapse Recording	Take time-lapse video
Time Lapse Setting	Size	Options:5MP 1.5°X1.1° /8MP 1.5°X1.1°
	Time	Tap the Up/Down button to choose the interval time you need. Tap the MODE button to move the cursor. Tap the Shutter /OK button to confirm.
Effect	Set the colour effect and add tones to the picture. Options: Normal/Black and White / Green/Negative	
Sharpness	The clarity of the images taken by the camera can be set; The level of clarity determines whether the edges of objects in the image are clear. Options: Sharp/Normal/Soft	
Contrast	Options: High/Normal/Low	
Exposure	Manually set the exposure value to compensate for the light in different shooting environments. Exposure compensation ranged from -3.0 to +3.0 with an increment of 1	
Display Mode	Options: Full-screen display/Normal	
LCD Brightness	The screen brightness can be adjusted as needed. Options: Backlight 1/ Backlight 2/ Backlight 3/ Backlight 4/ Backlight 5/ Backlight 6/ Backlight 7	
Power indicator light	Option: On/Off	
Set Date	Set the time and date of the device. Press the Up /Down button to adjust the time, press the MODE button to move the cursor between Settings, tap the OK button to confirm and exit the editing	
Date Stamp	Add a date tag to a photo or video file. Options: [Off]/[Date]/[Date & Time]	
OSD auto clear	Automatically clear all icons on the display screen, only showing the viewed image. After clearing, press any button to restore it.	

	Options: Off /10 Sec. /20 Sec. /30 Sec. /60 Sec
Power Save	To save power, if not operated, the camera will automatically shut down after a period. Options: Off/ 1 Min./ 3 Min./ 5 Min
Beep	The sound when you operate the buttons. Option: On/Off
Language	Select the screen display language. Option: [English]/[Deutsch]/ [Français]/ [Español]/ [Italiano]/[Türkiye]/[Русский]/ [Portugués]/[Nederlands]/[简体中文] /[繁体中文]/[日本語]/[Polski]
Frequency	Set the frequency of the light source to match the local power supply frequency to prevent interference. Options: [60Hz]/ [50Hz]/ [Cancel]
Format	All data stored on the memory card (if you are using the memory card) will be deleted, including protected files. Be sure to download the important files to your computer before formatting. Options: [Yes]/[No]
Default	Reset the entire menu and button operation settings to the initial default values. Options: [Yes]/[No]

4.11. Playback

- Turn After turning on the telescope, set it to playback mode.
- Tap the MENU button to display the menu. Tap the Up/Down button to browse the desired menu. Tap the OK button to confirm the settings and exit the menu.

Playback menu list :

Menu	Function
Delete	Delete the current file in memory card. Options:[Yes]/[No].
Delete All	Delete All Delete all files in memory card. Options:[Yes]/[No].
Lock This	Lock This Lock the current file in memory card. Options:[Yes]/[No].
Unlock This	Unlock the current file in memory card. Options: [Yes]/[No].
Lock All	Lock the all files in memory card. Options: [Yes]/[No].
Format	Format the memory card. Options: [Yes]/[No].

5. Download files to PC

There are two ways to download files from the device to a computer:

1. By inserting the memory card into a card reader.
2. By connecting the device to a computer using the supplied TYPE-C USB cable.

6. Using a card reader

1. Eject the memory card from the device and insert it into a card reader. Then connect the card reader to a computer.
2. Open [My Computer] or [Windows Explorer] and double-click the removable disk icon that represents the memory card.
3. Copy images from the card into a directory of your choice on the computer's hard disk.

7. Connecting the device to a PC through the USB cable

1. Connect the astronomical telescope to the computer using the included Type-C USB cable, then long press the power button to turn it on. The telescope screen will display the mode Settings "Portable Hard Drive" and "PC Camera" interface, indicating a successful connection.
2. Tap the Up /Down button to select "Portable Hard Drive", then tap the OK button to confirm. Enter the portable hard drive mode and open "My Computer" or "File Explorer". Double-click the move disk icon representing the memory card. Telescope image file stored in the "DCIM" folder, check and copy telescope image file.
3. Select "PC Camera" and tap the OK button to confirm, then enter the computer camera mode. Open the video tool on your computer and you can make a video connection.

8. Notes on cleaning

1. If there is dust or dirt on the objective lens, eyepiece or display screen, please gently wipe it with a clean and soft lint-free cloth (such as a microfiber cloth).
2. Please fully charge and discharge the battery at least once every three months.
3. This device is a precision device. Please do not drop it or subject it to strong impact or vibration.
4. This digital astronomical telescope is equipped with touch buttons. Just touch it lightly with your finger to avoid excessive pressing.
5. It is a normal phenomenon that the body and screen of a telescope will get hot after long-term use.

9. Troubleshooting

1. Failure to power on
 - a. Please check whether the battery is charged or connect the charger to see if it can be turned on.
 - b. Try to reset by gently inserting a paper clip into the reset hole.
2. Failure to charge
 - a. If the charging indicator light does not light up, it indicates that the charger is not plugged in. Please check whether the charger is connected properly.

- b. It is recommended that the battery be charged in an environment with a temperature ranging from 10°C to 30°C.
- c. Please try replacing the charger or charging cable.
3. The battery life is too short
 - a. Check if the battery is fully charged.
 - b. If the ambient temperature drops below 10°C, the battery power will be exhausted very quickly.
 - d. Battery life may vary depending on the usage mode.
4. Memory card cannot be recognized.
 - a. A. Please check whether the memory card conforms to Micro SD card (level 10 or above).
 - b. Check whether the memory card is inserted incorrectly.
 - c. The memory card is used on the camera for the first time, unformatted.
 - d. You can try to format the Micro SD card on the computer first and then insert the camera to format it.
 - e. Replace the memory card.
5. Unable to connect to the computer
 - a. Check whether the USB cable is correctly connected
 - b. Check whether the USB port of the computer works properly or try to replace another USB port on the computer.
 - c. Check the compatibility of your computer system.

10. Warm tips

1. The objective lens Angle of the digital astronomical telescope is very small. Even the slightest mechanical shake can cause the viewing image to shake. It is necessary to use a professional tripod with good stability and try to use it in a sheltered place.
2. When focusing, gently hold the focusing wheel of the objective lens with your fingers, move gently and focus slowly. Make a slight adjustment and then release your fingers. Let the camera stand still for a while and then adjust again. Observe the display screen and eyepiece until the target is the clearest. Avoid shaking caused by excessive force.
3. It is recommended to use the automatic photo-taking function for taking photos to avoid the camera shaking and blurry photos caused by touching the buttons.
4. Setting appropriate EV parameters based on different target scenarios will yield better results.
5. When used in strong outdoor light, the lens hood of the objective lens needs to be pulled up and the outer screen lens hood should be installed. It is recommended to view through the inner screen of the eyepiece.
6. This telescope is equipped with touch buttons. Occasional accidental touches during button operation are normal phenomena.
7. Do not look directly at the sun with your naked eyes or through a telescope, as it may harm your eyes.