

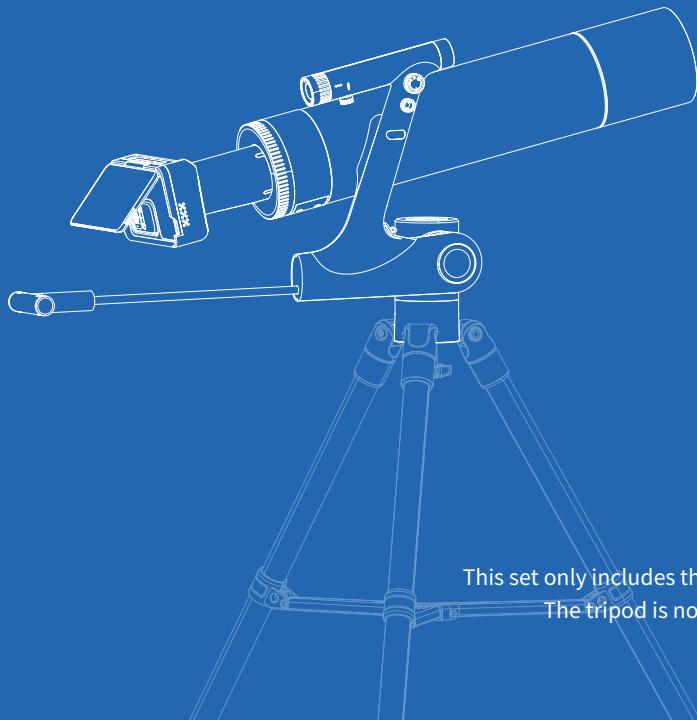
SMART TELESCOPE (FINDER TW2)

NEOMIX

DDL-TW2 Instruction Manual

Please read the instructions in detail

Please keep this instruction manual in a safe place



Special Reminder

Do not look directly at the sun when it is not used together with the "Solar Filter". Otherwise, the image sensor may be burnt.

WiFi password: 12345678

This set only includes the main telescope and standard accessories.
The tripod is not included and can be purchased separately.

Contents

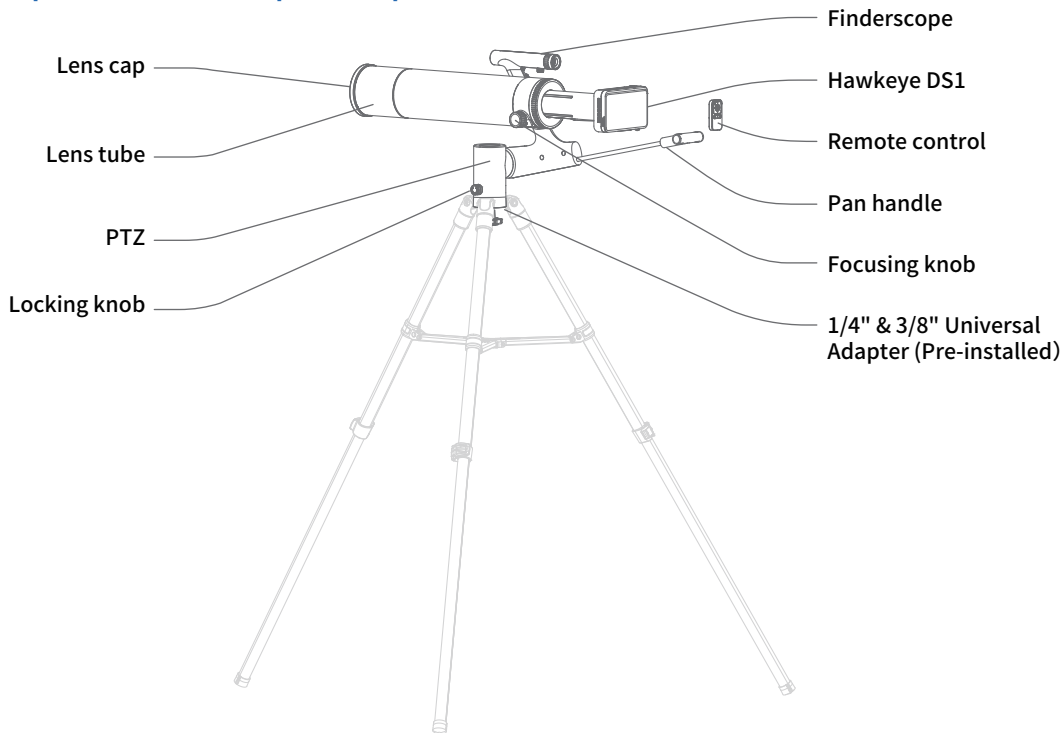
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01 Product Overview

Thank you for purchasing the Smart Telescope Finder TW2. Please read the instructions carefully before use and keep it properly.

For ease of reading, the Hawkeye DS1 will be referred to as DS1 throughout this manual.

Description of Telescope Composition



Description of Telescope Knob

Left/right fine-tuning knob for finderscope red dot

Fine-tuning of red dot to the left in clockwise.

Fine-tuning of red dot to the left in counterclockwise.

Upper and lower fine-tuning knobs of finderscope red dot

Fine-tuning of red dot to upward in clockwise.

Fine-tuning of red dot to downward in counterclockwise.

Finderscope red dot switch

Brightness fine-tuning knob.

Red dot is brighten for fine-tuning in clockwise.

Red dot is darken for fine-tuning in counterclockwise. OFF.

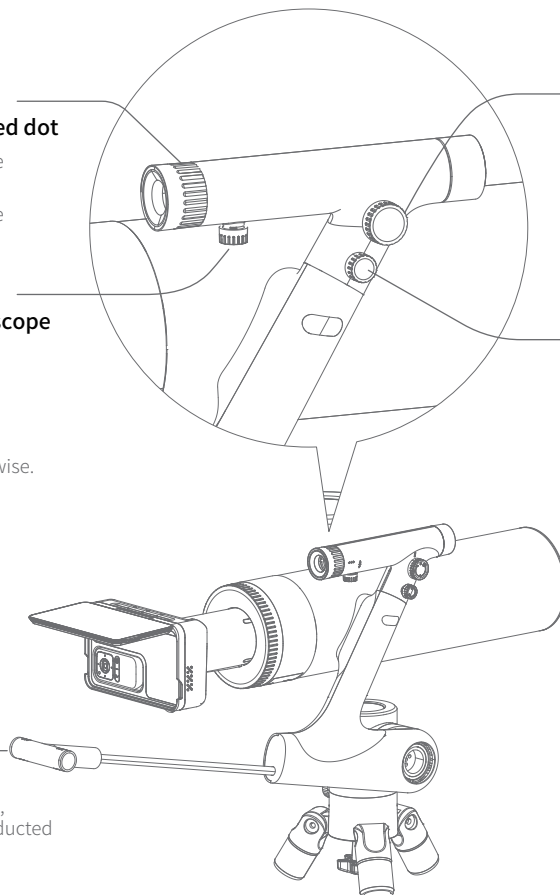
Fixed locking knob of finderscope

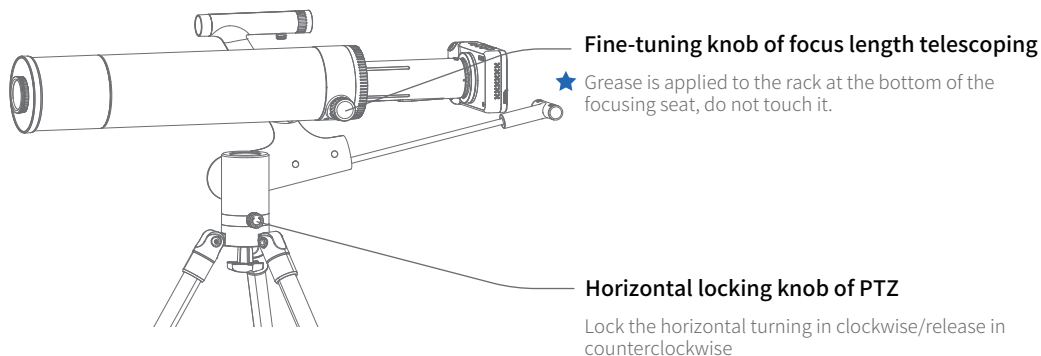
Lock the finderscope in clockwise.

Release the finderscope in counterclockwise.

Pan handle

Locking pitch in clockwise/
release in counterclockwise,
pitch operation can be conducted
via holding the handle.





02 Operation Instruction

- When the telescope is not in use, please cover the lens cap and camera cover to keep the equipment clean.
- If not used, lock the mechanisms of the PTZ tightly so that the astronomical telescope does not rotate under the force of gravity.
- Please use it at a temperature of -10°C - 45°C .
- The product is not waterproof, please avoid getting wet with any liquid.
- Please keep away from flames and heat.
- The product is a precision instrument, please avoid impact and severe vibration.
- In the case of low temperature, the battery's available capacity will be attenuated to varying degrees, which is the characteristic of lithium battery so that it is a normal phenomenon.

Special Warning

- Do not observe the sun directly when the solar filter is not installed, which will cause the chip of DS1 to burn out.
- Minors should use it accompanied by an adult.
- Do not modify the telescope without authorization.

03 Quick Setup & Installation

Upon receipt of the product, the user is required to complete the overall assembly of the product.

Quick Setup & Installation

Mounting to a Third-Party TripodThe telescope comes pre-installed with a universal 1/4" & 3/8" dual-compatible interface at the bottom of the PTZ, allowing direct connection to most photographic or astronomical tripods.

Prepare your own tripod and ensure it is placed on a stable, level surface.

Align your tripod's mounting screw (either 1/4" or 3/8") with the threaded hole at the bottom of the telescope's PTZ adapter.

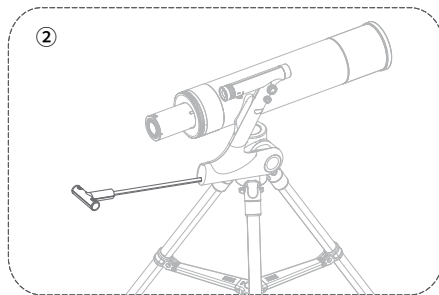
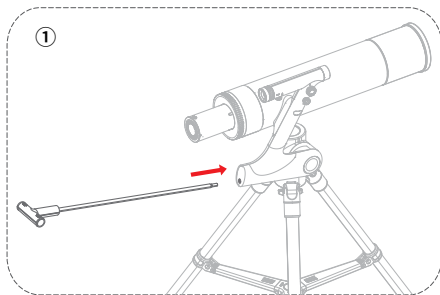
Rotate and tighten the screw clockwise to secure the telescope firmly.

★ **Reminder:** Please ensure your third-party tripod has sufficient load capacity to support the telescope securely.

【Notice】 Using the Official NEOMIX Tripod (Optional Accessory SKU):

If you have purchased the official NEOMIX Tripod accessory separately, please use a coin or screwdriver to remove the pre-installed 1/4" adapter from the bottom of the PTZ. Then, use the locating pins and release lever included in the tripod package to assemble.

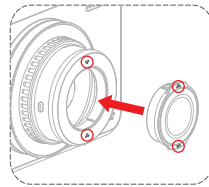
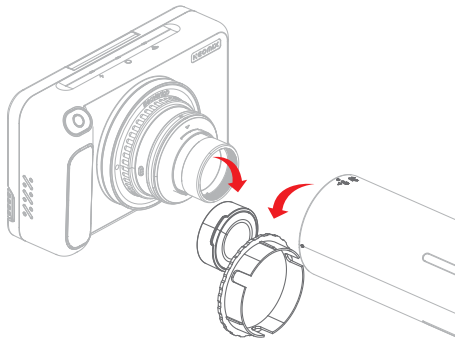
Install the Pan Handle



Align the pan handle with the locking hole and screw it in clockwise

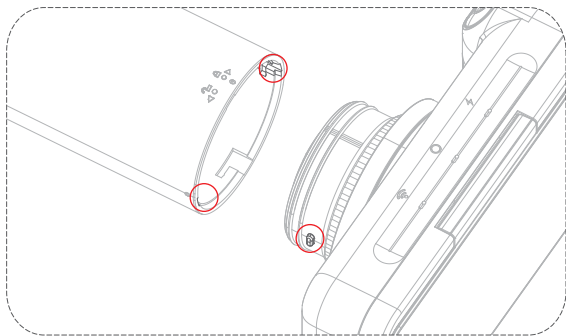
Install the DS1

① Remove the dust cap



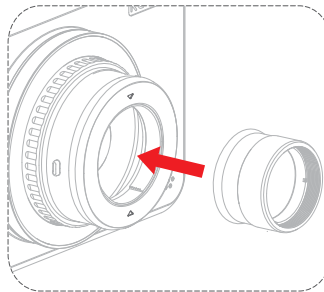
Insert the dust cap by aligning the triangular mark when installing it.

②Align the bayonet position

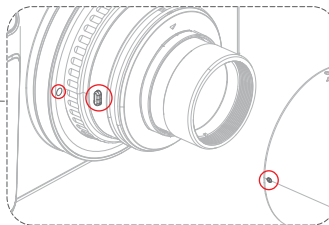
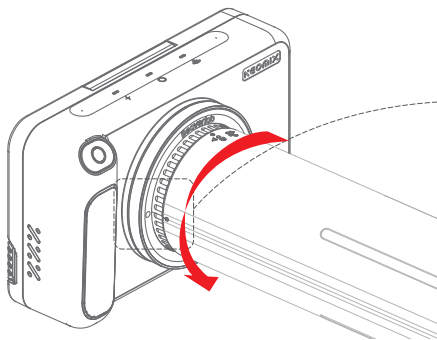


0.5x Focal Reducer

Note: The field of view multiplier is perpendicular to the plane of the mounting port.



★ Reminder: Note that the interface is only suitable for 1.25-inch interface, please confirm before use.



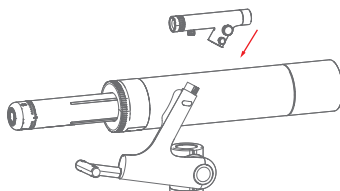
③After the DS1 is snapped into the lens tube, align the marker clockwise

Install the Star Finder

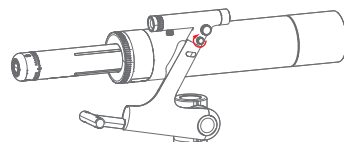
1. Prepare the star finder and align the star finder with the support port. Note the gap in the port.

2. Tighten the fixing knob of the star finder.

Tip: Pay attention to the installation direction of the star finder.



① Insert the star finder into the support interface

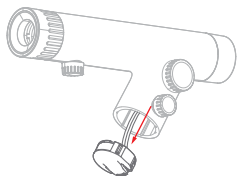


② Tighten the fixing knob of the star finder

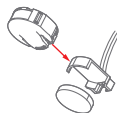
Replace the Battery

1. Remove the finderscope, place the battery in the connector where the finderscope is inserted in the holder, and the whole battery holder is removed with your fingers or tweezers.

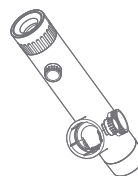
2. The model of battery used for the finderscope is CR-2032. When replacing the button battery, the positive and negative terminals of the battery should be noted.



① Remove the battery holder together (Note to loosen the locking knob)



② Replace the battery, and the positive and negative terminals of the battery should be noted



③ Install the battery holder, and the direction and position should be noted

Calibrate Red Dot Finderscope

1. Find a target 100m or more away with the naked eye.

2. Adjust the lens tube of telescope to find the target, and move it to the centre of the field of view.

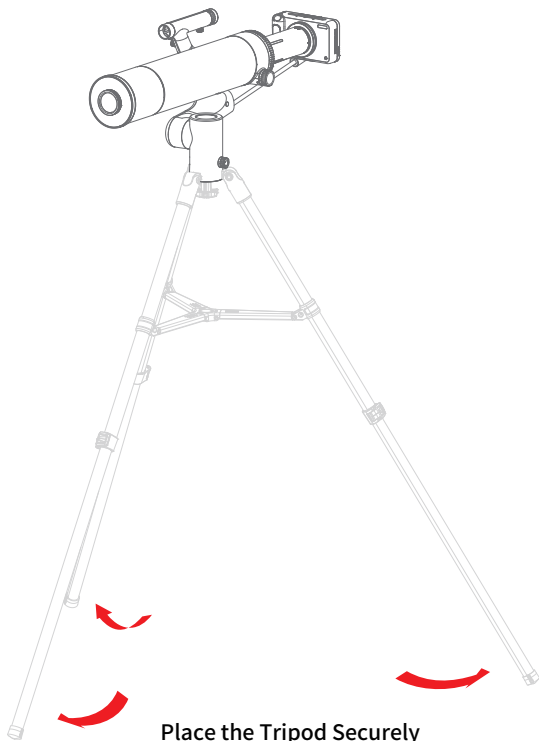
3. Switch on the red dot switch of finderscope and dim the light.

4. Find the red dot inside the circular viewing port on the back side of the finderscope.

5. Adjust the position of the red dot by using the knob next to the finderscope until the red dot coincides with the target. Upon the calibration, the entire assembly is finished.

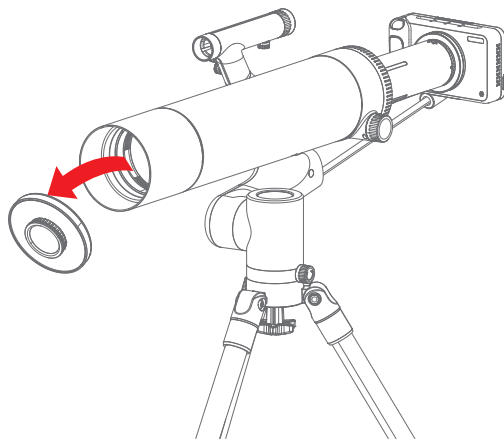
Tip: Please switch off the red dot of the finderscope after observing.

Place the Tripod Smoothly

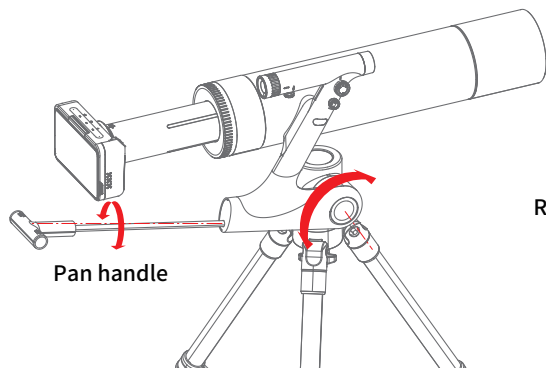


Place the Tripod Securely

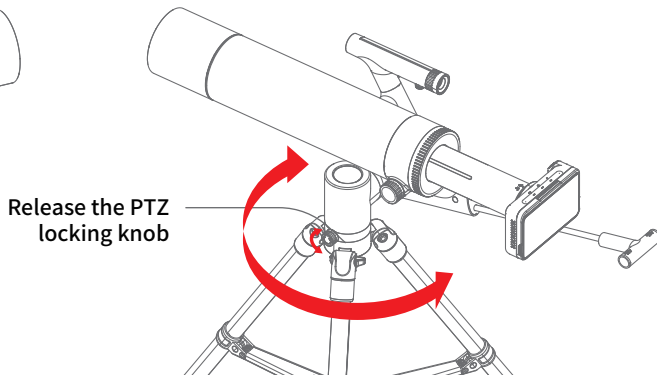
Remove the Lens Cap



Pan Tilt Adjustment

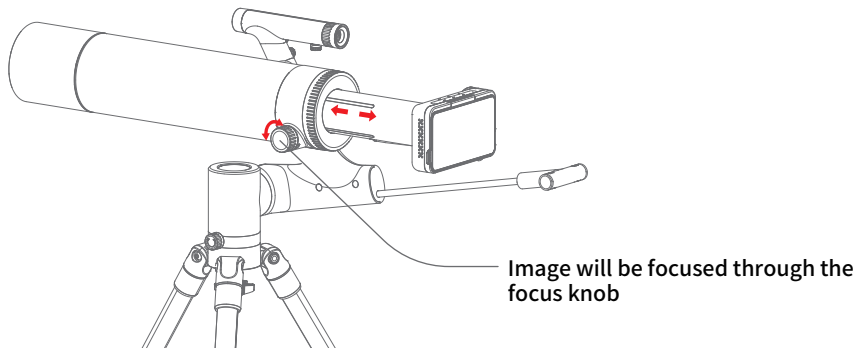


Horizontal Turning Adjustment



Release the PTZ locking knob and pan handle to confirm the target observed

Focus on the image with the focal length adjustment knob to make the image clearer

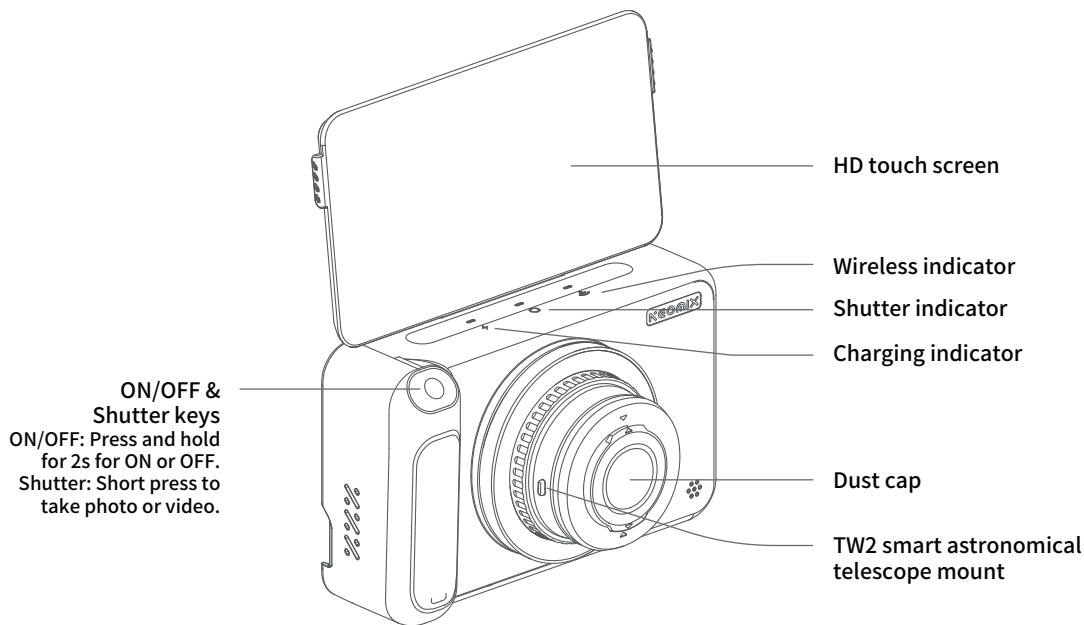


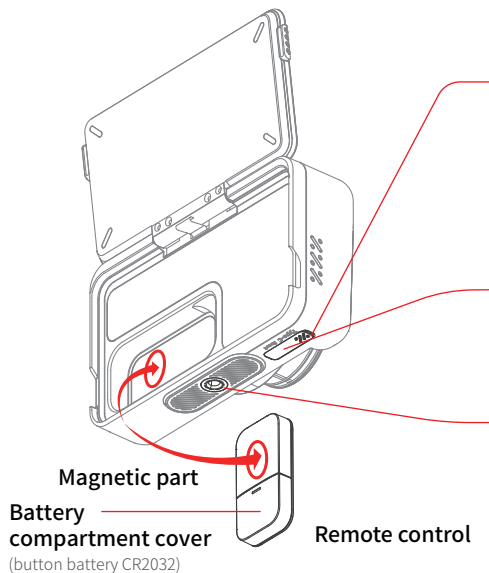
Use of DS1:

The product is equipped with a DS1.

Wireless and wired observations are supported (the user shall be provided with OTG adapter, however wired connection is not supported by Apple system).

Description of DS1 Composition





Type-C interface

Charging: When the DS1 is at low power, the power indicator flashes. At this point, please connect the adapter through the Type-C charging cable, and the power indicator light is kept ON when fully charged.

Image and video transmission: Connect to computer, and start the software to watch the relevant image and video in real time.

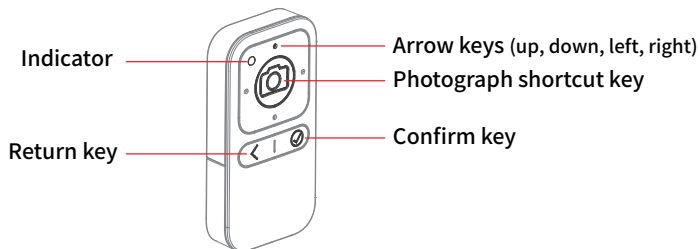
Reset button

Press and hold the Reset button to reset. After the successful reset, the network enters the pending connection state, and each indicator flashes once.

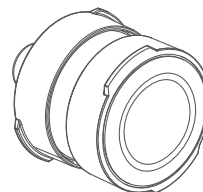
1/4" Threaded Hole

Can be mounted directly onto standard 1/4" photographic tripods or extension poles.
(JB/T8249.2-2016 / ISO 1222:2010)

Remote Control



Magnification Reduction Lens

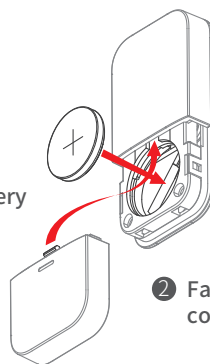


0.5x Focal Reduce

Replace the Remote Control Battery

★ **Reminder:** Note the orientation of the positive and negative terminals of the battery, with the positive terminal facing outward.

① Install button battery



② Fasten the battery compartment cover

Charging of the DS1

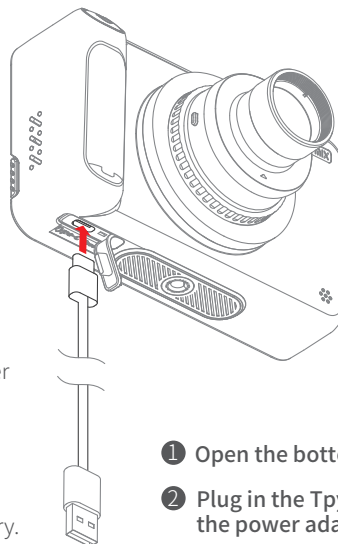
★ **Reminder**



The DS1 can be charged using a charger adapted for 5V $\overline{\text{DC}}$ 2A.



Do not charge for more than 12 hours to avoid affecting the cycle life of battery.



① Open the bottom rubber plug.

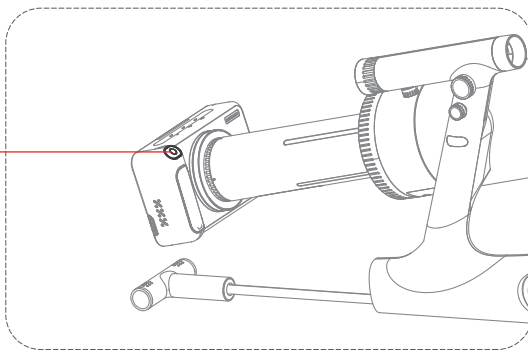
② Plug in the Type-C charging cable with the power adapter for charging.

Use of DS1

ON/OFF

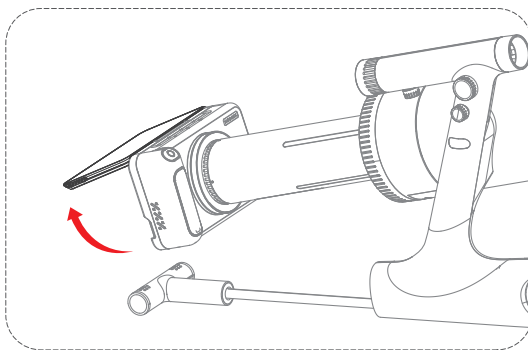
Press and hold the power key for 2s for ON/OFF.

ON/OFF / Shutter keys

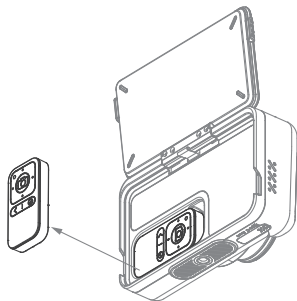


Shooting

Flip the touch screen at the right viewing angle.



① Remove the remote control.



② Switch on the remote control: Press and hold the ON/OFF & shutter keys for 2s, the remote control is switched on/off. When the remote control is switched on, it automatically connects the DS1. (*Note that the remote control is close to the Smart Telescope camera)

ON/OFF & Shutter keys



Remote control shooting operation:

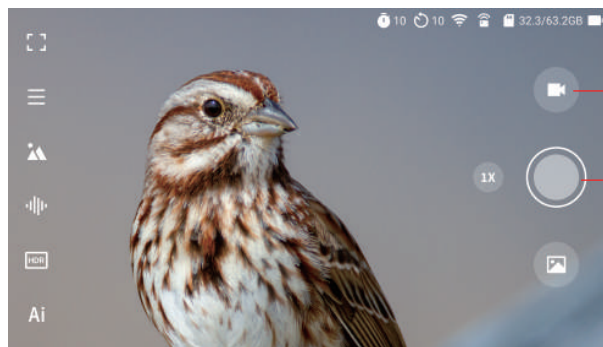
After the remote control is automatically and successfully connected to the DS1, click the shutter button to realize the shooting work. The arrow keys can be used to switch between photo and video modes, real-time image zoom operation, enter the photo album view.

● DS1:

Short press the ON/OF and shutter keys for shooting directly.

● Touch screen operation:

Click the shooting and video keys in the screen to achieve the photographing work.

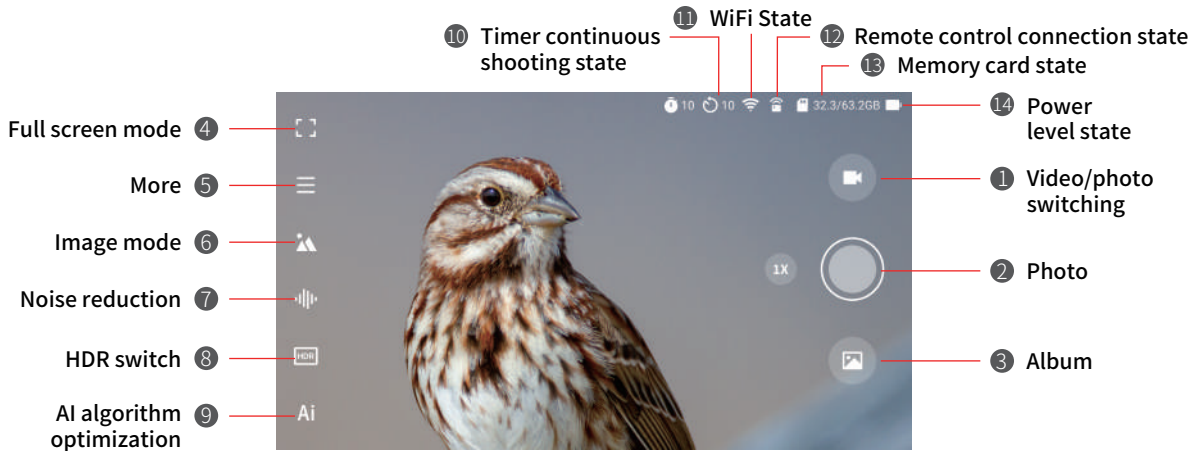


Auto Shutdown

(Touch Screen Interface)

In the WiFi connection or wired mode connection state, it enters the standby state if there is no operation for 3min. Short press the power key/photo key to wake up the machine. If not woken up for more than 15min, it is automatically switched off.

Description of Main Functions of the Screen



(Touch Screen Interface)

- ① **Video/photo switching:** Switch the photo/video functions;
- ② **Photo:** Short press to start taking photos or videos, and save the files to the album when finished. When there is not enough memory, it reminds the user that the memory card is full and terminates the taking of photos and videos, and saves the images and videos that have been taken;
- ③ **Album:** Picture and video classification, viewing and video preview, and deletion functions;
- ④ **Full screen mode:** In full-screen mode, elements that affect observation such as the settings menu bar on the left and the status bar on the top are hidden, and the exit full-screen icon and photo (video) icon are retained in the interface;

⑤ **More:**

Lens switching: There are three lens modes switching: wide angle, medium focus, telephoto;

Grid line: Three modes totally: Off/ Square grid/ Cross grid;

Continuous shooting setting: To set the number of consecutive shots, simply set the framing frame, press the shutter, and the camera will take consecutive shots at the set number of shots;

timed photographing: To set a timer to take a picture, simply set the framing screen, press the shutter, and the camera will automatically take the picture at the end of the selected time countdown;

WiFi switch: On the WiFi switch;

⑥ **Image mode:** manual, landscape, moon, sports, cloudy, night, starry night mode;

⑦ **Noise reduction:** Noise reduction switch is used for fusion elimination of noise;

⑧ **HDR switch:** Highly dynamic image mode switch suppresses image over-burst and over-darkness, thus retaining richer image details;

⑨ **AI algorithm optimization:** Wide Dynamic Range (WDR), Motion-Compensated Temporal Filtering (MCTF), Defogging (DF);

⑩ **Timer continuous shooting state:** Displays the currently selected number of continuous shots;

⑪ **WiFi State:** Displays whether the currently connected WiFi status is normal or disconnected;

⑫ **Remote control connection state:** After the DS1 and the remote control are switched on, they will be automatically connected to the remote control (note the battery level). At this point, the connection status of the remote control can be viewed at the DS1. If the status of the remote control is shown as disconnected, please check the power level of the remote control in time, or the remote control shall be as close as possible to the DS1;

⑬ **Memory card state:** Displays the current used capacity and maximum capacity of the memory card;

Mobile Phone Wireless Connection

1. APP Download and installation:

1. The DS1 should be fully charged before use. If the observation time needs to be extended, it can also be equipped with charging devices such as mobile charging bank to charge in time during the observation.
2. Scan the QR code below to download the APP (search "Beaver Point" in App store or Google Play to download the APP)



Android

Scan here to download APP

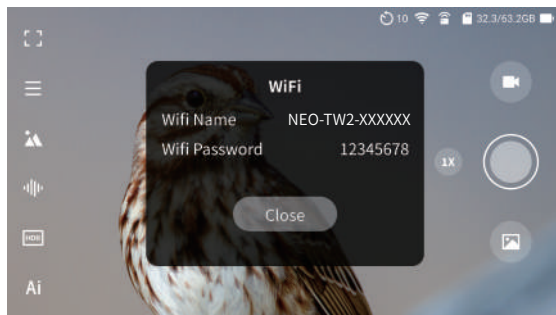


iOS

2. Equipment connection

Connect WiFi of Smart Telescope Finder TW2 (More → WiFi Switch → Connect WiFi of Smart Telescope Finder TW2)

WiFi name: NEO-TW2-XXXXXX; Password: 12345678

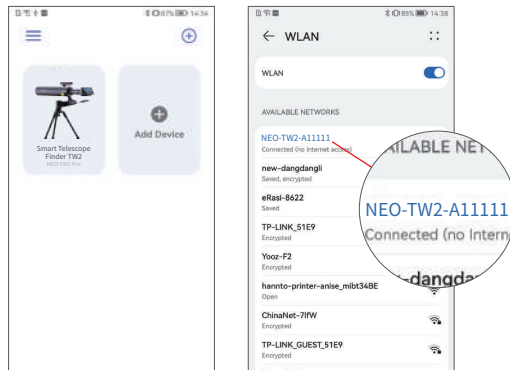


Start the APP → select the corresponding Smart Telescope Finder TW2 → corresponding WiFi name (e.g. NEO-TW2-XXXXXX) and connect it → click to enter if connected.

WiFi name: NEO-TW2-XXXXXX.

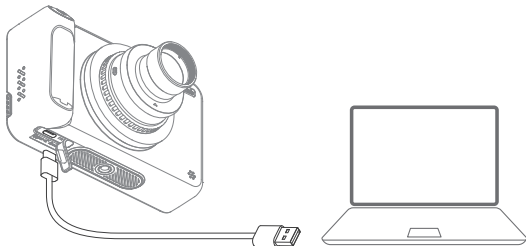
WiFi password: 12345678

Open the home page and click the Start Observation button to enter the interface of real-time transmission.

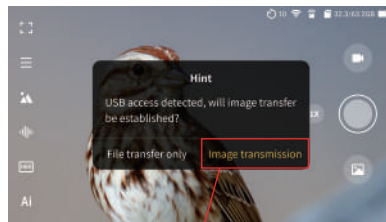


PC Wired Connection

- 1 Connect PC to the DS1 via USB cable.
- 2 After the software detects the USB port, click the "Image Transmission" button in the pop-up window.

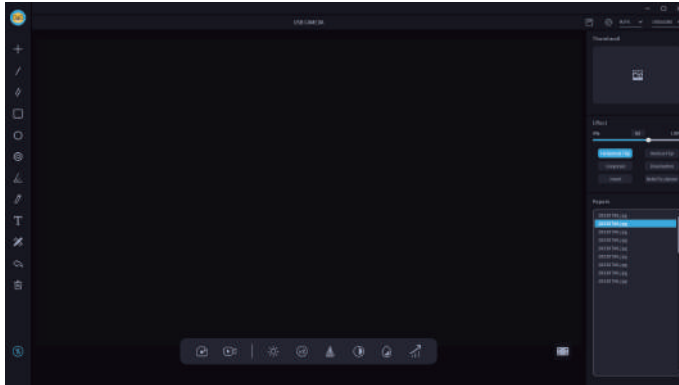


Connect PC Via USB Cable



Click the "Image Transmission" Button

- 3 Open the Windows software and select the device to observe.



Computer users can download the Windows version of the software to our official website (www.beaverlabtech.com)

Astronomical Observation

Moon observation guideline

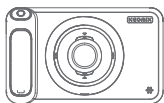
- 1.Connect: On a clear and moonlit night, check the device and ensure that it is fully charged, and connect the device via your mobile phone for real-time image transmission.
- 2.Search the moon: Turn on the switch knob of the red dot finderscope and locate the red dot, use the finderscope to locate the moon and overlap the red dot with the centre of the moon target by turning the PTZ.
- 3.Watch the moon: Adjust the focus knob until the image is clear.

If you need to observe other stars, you can find them manually through astrolabe type software or configured star-finding disc.

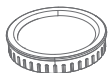
The astronomical telescope is equipped with a compass. Combined with the complimentary Planisphere, the current sky chart can be confirmed, and the specific stars or nebulae can be searched to observe with reference to the sky chart.

For details on how to use it, please refer to the instructions of the Planisphere.

04 Accessories and Tools



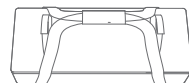
DS1



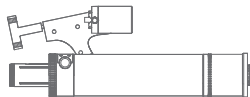
Solar Filter



Data Cable



Carry Bag



Optical Tube



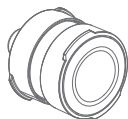
Finder Scope



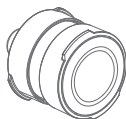
Remote Control



Manual



0.5x Focal Reduce



1.25-inch adapter

05 Faults and Troubleshooting Method

Problem	Cause	Treatment Methods
Finderscope red dot is OFF	Low battery power	Replace the battery
Failure to charge equipment	1.Charging port is not plugged firmly. 2.Power is not connected 3.Device fault.	1.Re-plug the interface 2.Turn on the power.
The equipment cannot work normally	1.Smart Telescope camera Power On Lack of Power. 2.The Smart Telescope camera is short-circuited due to water drenching. 3.The Smart Telescope camera is subject to system crashed.	1.Instant charging. 2.Need Maintenance. 3.Press the Reset button once.
Unclear image quality	1.Fogging of the lens due to radical changes in ambient temperature. 2.Image collector lens filter is dirty.	1.Wait for the temperature to stabilize Do not use it until the mist is removed. 2.Wipe the filter with a cotton swab moistened with alcohol.
The shell is broken and cracked due to drop and impact	Damage due to external use	Need Maintenance
The product cannot be switched off or the button is not working	Device Crash	Press the Reset button once

The Smart Telescope is a precision optical device with a high degree of specialization. It is recommended to do the following work during normal use to ensure that your telescope is in top condition:

1. When not using this product, please cover the lens cap on the lens to protect the lens and prevent dust. If there is dust on the telescope, it is recommended to use lens brush or use air blower to remove the dust.
2. Whenever possible, do not clean the optical lens, fine dust on the lens has little effect on the overall imaging.
3. Keep the telescope in a cool and ventilated place.

Warning: Do not use chemical lens cleaning solution, which may damage optical parts.

06 Trademark and Legal Statements

“**NEOMIX**” is a trademark applied or registered by Beaver Innovations Inc in the worldwide, and used on this product. Without the permission of the trademark owner, no person or organization shall use the above trademark logo on unapproved goods without authorization.

This manual is produced by Beaver Innovations Inc and has a copyright. No organization or individual may reproduce or distribute all or any part of this manual without permission. Due to the continuous improvement of product functions, design changes and other reasons, this manual may not match the product you purchased. Please refer to the actual product.

FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction

Battery Precautions

1. The product uses rechargeable batteries.
2. Rechargeable batteries must be charged under adult supervision.
3. Please use the recommended charger.
4. Power supply electronics shall not short circuit

Notes

1. The product is not for children under 3 years old.
2. The built-in battery cannot be removed or replaced. If it is damaged, please contact after-sales service for repair.
3. The charger should be used by adults or under adult supervision.
4. Regularly check the charger's wires, plugs, casing and other parts for damage. If any damage is found, stop using it until it is repaired.
5. Disconnect the charger before cleaning the product and wipe the surface stains with a dry cloth.
6. This manual contains important information, please keep it for future use.

If you use a power adapter to supply power, you should purchase a power adapter that has obtained CCC certification and meets standard requirements.

- The battery of this device is not removable and will be scrapped if it is removed.
- Only use batteries approved by the manufacturer. Use of unapproved batteries is prohibited.
- Do not expose the battery to high temperatures, such as sunlight, open flames, microwave ovens, ovens, etc.
- Do not disassemble, impact, squeeze or cut the battery. It is strictly forbidden to damage the battery with sharp objects, screw cutters, etc.
- Do not expose the battery to low pressure, which may cause leakage, gas leakage or even explosion.
- Do not continue to use the battery if it is severely swollen, leaking or leaking.
- Do not swallow the battery or directly contact the damaged battery. If this happens, please seek medical assistance in time.
- Keep children away from the battery and avoid any contact.
- Please dispose of used batteries in accordance with local regulations.

07 Global Parameters

Brand	NEOMIX
Product Name	Smart Telescope (Finder TW2)
Product Model	DDL-TW2
Product Color	Black
Aperture	F/6.1
Focal length	500mm
Type	Refracting Telescope
Image collector	
Battery capacity	6000mAh
Charger	DC5V $\leftrightarrow$ 2A
Charging port	Type-C



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Smart Telescope

Product Name: Smart Telescope (Finder TW2)

Product Model: DDL-TW2

Product Net Weight: About 2.3kg

Package Size: 582x168x247mm

Input Voltage: DC5V --- 2A

Operating Temperature: -10°C ~45°C

FCC ID: 2A6VM-DDL-TW2

Brand Company: Beaver Innovations Inc

E-mail: support@beaverlabtech.com

YouTube: <https://www.youtube.com/channel/UCU-prXLB>

QS-DdJa-iEJ9Njg

Facebook: <https://www.facebook.com/people/BEAVERLAB-US/100093065594303/>

Website: www.beaverlabtech.com

INS: <https://www.instagram.com/beaverlabtech/>

Twitter: <https://twitter.com/BEAVERLABOS>

