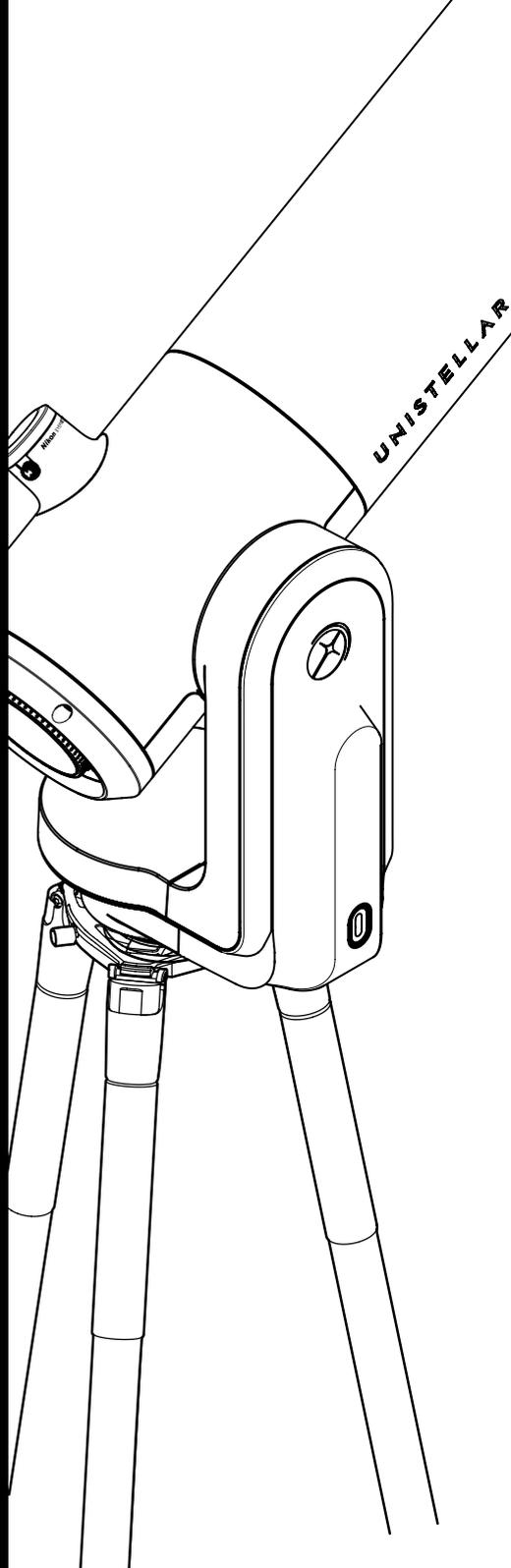


Who is this user guide for?

This guide is intended for all members and users of the Unistellar community, whether you are a beginner, an experienced astronomy enthusiast, or simply excited about making new discoveries. This guide will help you set up your telescope correctly and observe the sky under the proper conditions so that you can get the most out of your telescope and produce beautiful images.

How is it organized?

In this user guide, we will guide you through each feature and setting, step by step, to help you get the most out of your telescope. You will learn how to get the best possible experience out of each observation session. You will also learn more about the Unistellar mission and the scientific projects to which you can contribute.



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Introduction

Unistellar's mission

Unistellar was founded in 2017 by two former laureates of the Nobel Prize in Physics 2018, a visionary industrial engineer and a world-renowned astronomer from California. The four of them are united by a common goal: to make astronomy more accessible and exciting for everyone and, in general, to bring the universe closer.

Unistellar is revolutionizing the astronomy industry by offering consumer-level telescopes that are both simple to use and powerful enough to reveal the wonders of the cosmos and lead to new scientific discoveries. This fun and educational instrument provides access to thousands of objects. Whether you're looking at the night sky from a balcony in the city or out in the country, Unistellar telescopes are the most portable, fastest, and most user-friendly option.

Our telescopes provide an unrivaled user experience. Not only are they simple to use, but they also take just minutes to set up. They can even be controlled through your smartphone and can automatically point to thousands of objects in our catalog.

Our user community can easily upload and share data. This paves the way for novel experiences like sending valuable scientific data to professional astronomers or taking pictures of the sky with a large group of people at the same time.



WARNING



PROHIBITED!

Never use a telescope to look at the Sun without an appropriate filter! Looking at the sun or getting close to it can cause irreversible damage to your product. Do not point the telescope at or near the Sun. Children must always be supervised by an adult when observing the sky.



WARNING!

Never charge the telescope at temperatures below 50°F.

This could cause irreversible damage to the telescope's battery. Always charge it at a temperature between 50°F and 104°F.



WARNING!

Never leave the telescope's battery connected without using the telescope for more than a month. This could cause irreversible damage to the battery. Always remove the battery when storing the telescope for a prolonged period of time



Your telescope and its accessories are not toys. Allowing small children to play with them may result in injury to themselves or others, as well as damage to your equipment. Keep your device, including all its parts and accessories, out of the reach of young children.



Your telescope is not designed for use in a damp environment. As with any electronic item (with the exception of waterproof items), your telescope can be permanently damaged if water or any other liquid gets inside it. Turn it off immediately and dry it.



Do not look at the Sun without an appropriate filter. Your telescope can be permanently damaged, even after a short exposure. There is also a significant risk of fire. Also, do not expose your telescope to temperatures above 104°F or below 50°F; extreme temperatures may impair its performance.



Your telescope is fragile and should not be dropped. If it is dropped, this may cause permanent damage.

Specifications

Model: eVscope telescope

Mirror specifications: aperture 114 mm, focal length 450 mm, material BK7

Battery specifications: Lithium-ion: (6 x 18650), capacity 15,000 mAh (55.5 Wh)

Power supply unit (PSU): 100-240V ~50/60 Hz 0.6A Max; Output: 5.0 VDC, 2.4 A

WiFi frequency and bandwidth: 2.4 GHz, 72.2 Mbps

WiFi range: 150ft unobstructed

Input/output: USB-C (PSU); USB-A (smartphone charger)

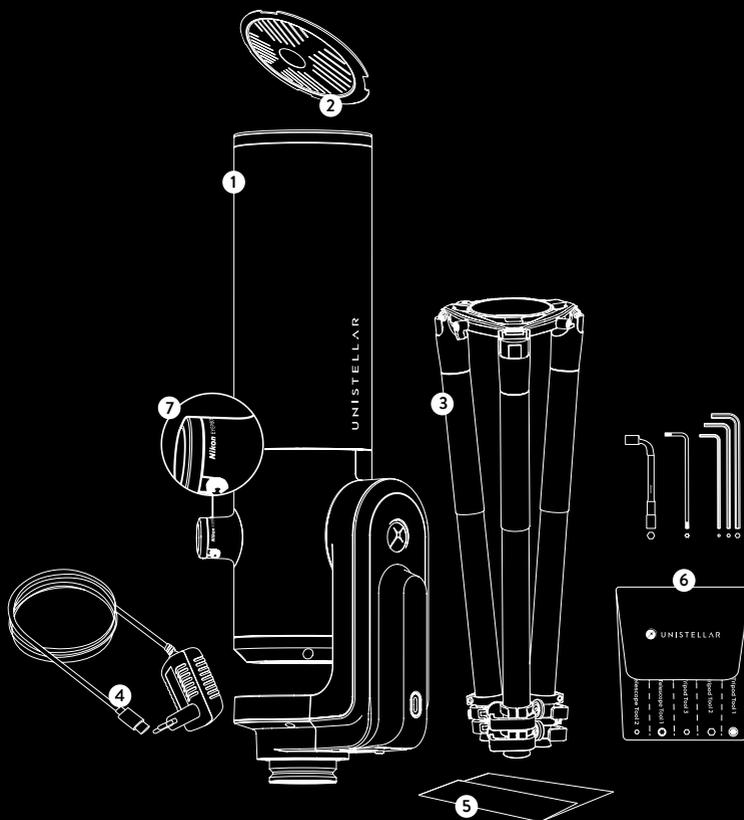
Tripod: aluminum, adjustable height; designed for the telescope

Contents of the box

- 1 Telescope
- 2 Bahtinov mask (located in the cap cover)
- 3 Tripod
- 4 Charger with adaptors (UE, USA, UK)
- 5 Official documentation
- 6 Box of accessories and tools

(Tripod tool 1 (8 mm socket wrench) / Tripod tool 2 (M5,5 Allen wrench) / Tripod tool 3 (M4 Allen wrench)
/ Telescope tool 1 (T20 Torx wrench) / Telescope tool 2 (M3 Allen wrench)

- 7 Eyepiece cover (eVscope 2 only)



Before you begin:

Getting to know the eVscope product line

What is the eVscope?

Enhanced Vision

Enhanced Vision is a proprietary, patent-protected technology that makes it possible to observe low-light objects in real time by accumulating the light we receive from them. Galaxies, nebulae, and comets are now visible, colorful, and detailed. Depending on the observation conditions (light pollution, moon phase, weather, etc.) and the objects you're viewing, it can take just a few seconds to begin seeing the beautiful colors and shapes of galaxies and nebulae that are normally invisible, even through the eyepiece of a large conventional telescope.

Smart Light Pollution Reduction

Light pollution, or the presence of excessive and unwanted artificial lighting, renders celestial objects invisible to the human eye. It even challenges cameras and computers by blurring objects, distorting shapes, and adding noise to images. Unistellar's proprietary software quickly reduces the impact of light pollution and allows distant objects to be observed in sharp detail, even in bright urban environments, delivering the best possible image settings and results. Regardless of how bright the sky is, users can enjoy more realistic images with enhanced contrast and color.

A powerful scientific device with a global community

Unistellar explorers can conduct valuable space science research in collaboration with astronomers from the SETI Institute and other institutions, such as protecting the Earth, detecting a dangerous asteroid, discovering and confirming the existence of a celestial body around a distant star, or even unraveling the mystery of a comet or supernova.

What makes the eVscope so easy to use?

Field recognition

With this telescope, you'll spend less time setting up and calibrating the telescope and more time observing space. Our system can instantly identify the objects in its field of view by comparing what it sees against a database with information on tens of millions of stars. This enables the telescope's automated tracking and pointing system to be extremely accurate and simple to use, resulting in the most user-friendly telescope on the market.

Dedicated app

With the touch of a button on the app, your Unistellar telescope can recommend the most spectacular targets for deep space observation, all in a matter of minutes. Use the app to learn about and identify cosmic objects, including the most relevant objects to observe from your location, with a catalog of over 5,000 objects to choose from. Through the use of our smart technology, you can capture and share your experience with others, in person or remotely.

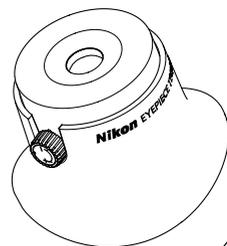
The Unistellar app offers engaging educational content and automates your observing experience, allowing even beginners to enjoy their telescope right away. The application also offers manual commands for advanced users.

1 Technical specifications :

Getting to know the eVscope 2

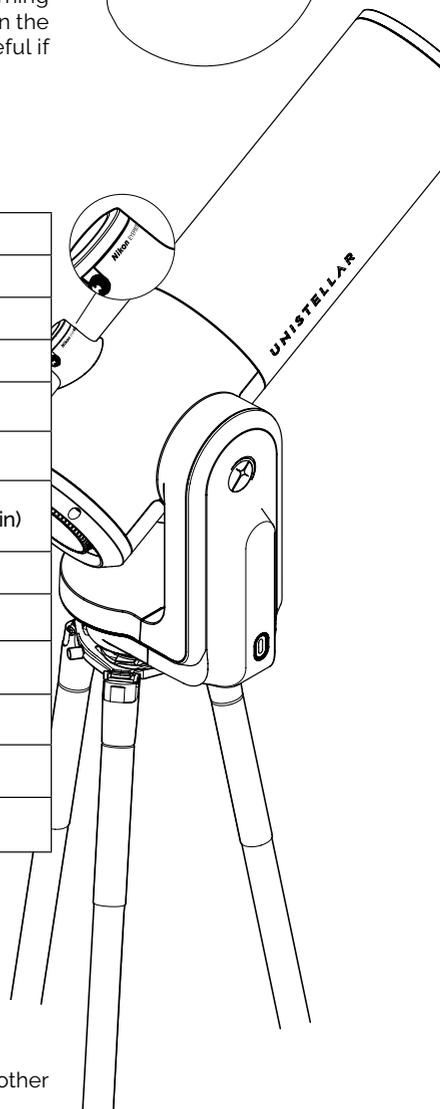
Eyepiece

The OLED screen features extremely high contrast and deep blacks, as well as an optical configuration designed to diffuse the sensor view. The end result is a stunning visual quality for your dark sky observations. By turning the side dial, you can adjust the diopter and sharpen the image to suit your eyesight, which is especially useful if you wear glasses or contact lenses.



Telescope specifications :

Aperture	4.5 inches
Focal Length	17.7 inches
Focal Ratio	f/3.9
Mount	Azimuth
Optical Design	Newtonian
Image resolution	7.7 Mpx
Sensor's field of view	0.75 x 0.56° (34x47 arcmin)
Weight	9 kg
Maximum magnitude	18
Battery life	9h
Eyepiece	Nikon Viewer
Dimensions	2.13 ft x 0.75 ft
Storage capacity	64 Go



⚠ Warning: Do not mount the telescope on any other tripod.

1 Technical specifications:

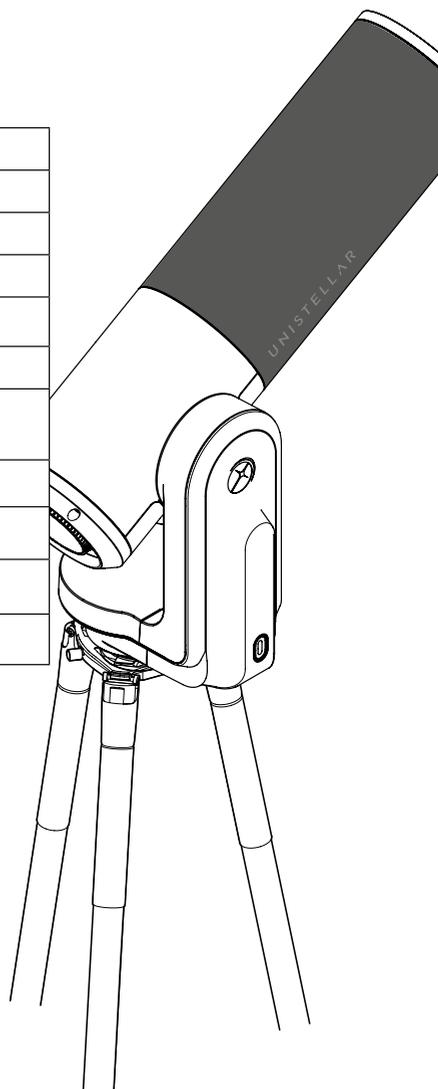
Getting to know the eQuinox

The eQuinox eVscope allows you to enjoy the beauty of deep space, protect the planet from near-Earth asteroids, conduct hands-on science experiments, and much more.

All of this with one smart, fast, portable, and connected device.

eQuinox specifications:

Aperture	4.5 inches
Focal length	17.7 inches
Focal ratio	f/39
Mount	Azimuth
Optical design	Newtonian
Image resolution	4.9 Mpx
Sensor's field of view	30 arcmin
Maximum magnitude	18
Dimensions	2.13 ft x 0.75 ft
Storage capacity	64 Go
Weight	9 kg



1 Technical specifications:

Getting to know the eQuinox 2

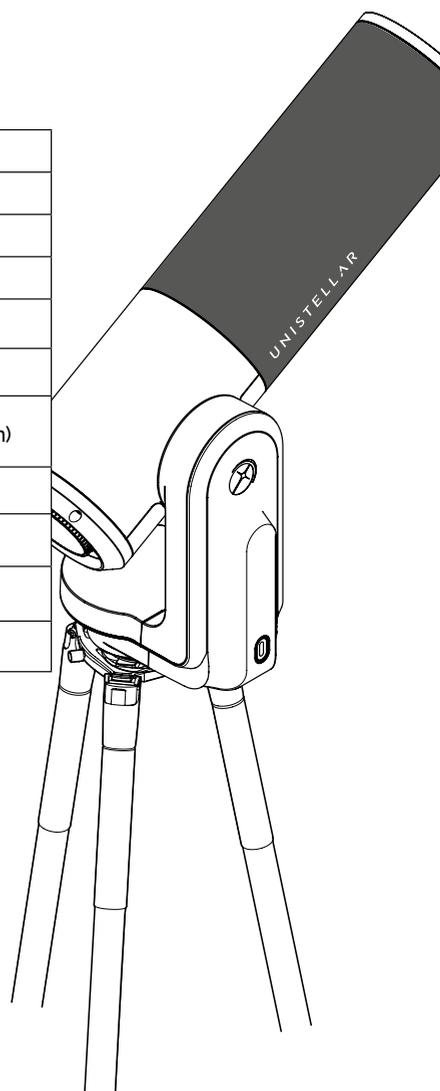
The improved eQuinox 2 sensor provides for more detailed observations, allowing you to see everything from Jupiter's big red spot to the inner details of the Orion Nebula, our nearest stellar breeding ground.

The eQuinox 2 sensor has a higher resolution than that of the eQuinox. Your images will now be 27% more detailed.

You will be able to observe the full Moon directly in your eyepiece, as well as the three galaxies of the Leo Triplet, thanks to this new sensor and its wider field of view.

eQuinox 2 specifications:

Aperture	4.5 inches
Focal length	17.7 inches
Focal ratio	f/39
Mount	Azimuth
Optical design	Newtonian
Image resolution	6.2 Mpx
Sensor's field of view	0.75x0.56° (34x47 arcmin)
Maximum magnitude	18
Dimensions	2.13 ft x 0.75 ft
Storage capacity	64 Go
Weight	9 kg



1 Technical specifications:

Accessories

Tripod:

Designed for deep sky observations, this tripod has a bubble level at the top of the three leg locks that can be adjusted to different angles, next to where the telescope attaches. Your observations might be slightly off if your tripod isn't perfectly level.

IMPORTANT: Tighten the screws on your tripod, but don't overtighten them, as this could damage them and make the tripod unstable. Also, make sure that the legs are properly locked before transferring your telescope to the tripod.

⚠ WARNING: The tripod must not be used for any purposes other than for holding your telescope.

Tripod specifications :

Dimensions : 1.93 ft x 0.42 ft - 4.1 ft max height and 3.2 ft max when opened

Weight : 4.41 lbs

Backpack

The backpack is a separate accessory, not included with the telescope.

How is the telescope backpack made?

The telescope backpack is made using a durable fabric that has been reinforced and padded with high density foam to protect your telescope..

⚠ WARNING: The backpack is not waterproof

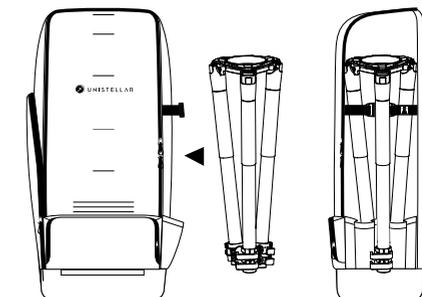
Backpack specifications :

- Integrated foam inserts that fit the shape of your telescope.
- An inside strap to secure the instrument during transport.
- A removable rain cover (to protect against rain and moisture) located in the pocket of the backpack.
- Adjustable padded shoulder straps and belt help distribute the load.
- 5 small inside pockets: 2 with zippers, 2 capable of holding the telescope's cap and the eyepiece cover.
- Ventilated back panel.
- 2 large outside pockets with zippers and 1 belt-level pocket with a zipper

Dimensions :

2.36 ft x 0.73 ft x 0.95 ft
(H x L x P)

Weight : 4.41 lbs

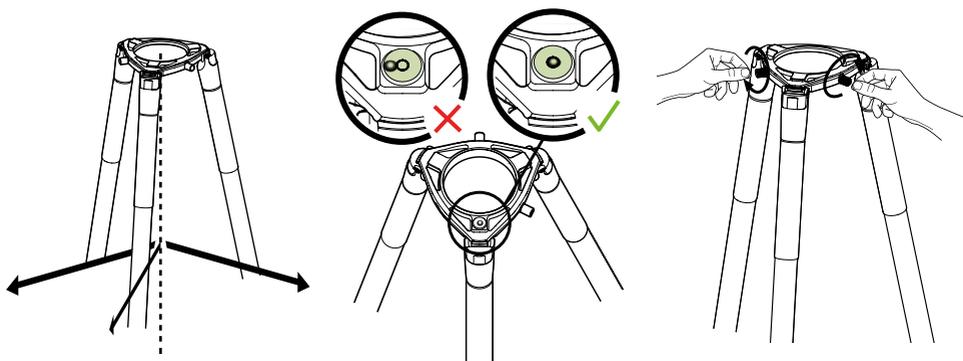


2 Using your telescope

Prerequisites

⚠ WARNING: The screws in the legs of the tripod may loosen during transport or use. Please verify that all the screws are in place. If they are not, tighten them with the tool provided in the accessory kit.

Installing and adjusting the tripod



Open the legs of the tripod and adjust its height. Always use your tripod on a firm surface.

Locate the bubble level at the top of one of the three multi-angle tripod locks (top). Adjust the legs so that the bubble level is inside the black circle.

Unscrew the two screws on the crown of the tripod.

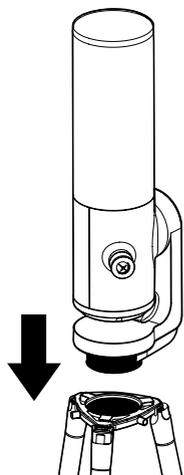
Verify that the legs of the tripod are secure.

IMPORTANT: TO ENSURE THE PRECISION AND ACCURACY OF YOUR OBSERVATIONS, ALIGN AND RE-CENTER THE BUBBLE EVERY TIME YOU MOVE YOUR TELESCOPE.

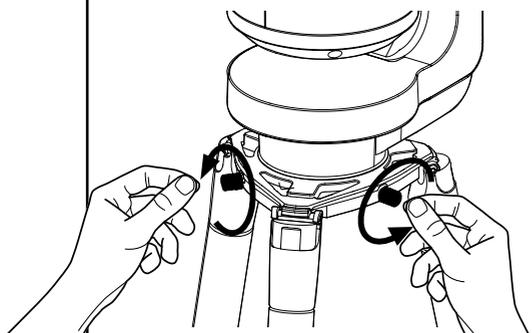
Tighten the tripod screws with the tools included in the box to prevent the telescope from falling, as they can loosen over time.

Installing and turning on the telescope

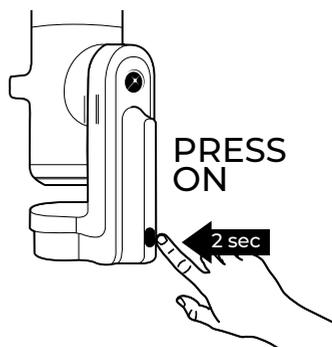
A - Install your telescope vertically on the tripod. Check that the tripod base is properly inserted and fits snugly into the tripod crown. **It should be stable—not loose or wobbly.**



B - Tighten the screws in the crown of the tripod to secure your telescope. Be careful not to overtighten the screws, which can damage the threading.

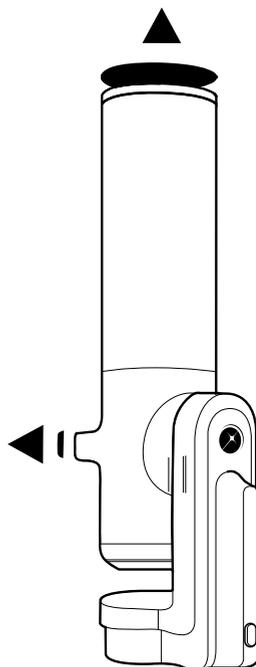


C - Turn the telescope on by pressing the ON button for 2 seconds. The LED turns purple, then red.



(You may not see the button light up when using your telescope in daylight because it is not very bright.)

D - Remove the caps from the telescope's optical tube and its eyepiece.



Thermalization

What is thermalization?

Thermalization is the process of balancing the temperature of your telescope's components and its surrounding environment.

Why should I thermalize my telescope?

When the telescope's mirror reaches thermal equilibrium, it performs at its best. This step is critical to ensuring that the mirror and tube do not warp while in use, potentially causing changes in focus and image quality.

How do I thermalize my eVscope?

If there is a temperature difference between the outside and the room where your telescope is stored, turn on your telescope and place it outside for 15 to 30 minutes before your observation, depending on the temperature difference.

Weather and temperature

If the sky is cloudy, you will not be able to observe with your telescope. The telescope is highly sensitive to wind because it causes vibrations that can interfere with the enhanced vision.

We recommend using your telescope within the following temperature range:

- Off: 50°F to 104°F
- During use and charging: 50°F to 104°F
- During use: 32°F to 104°F



3 Downloading and installing the Unistellar app

The Unistellar app is your portal to the Unistellar experience and our user community. You can use the app to:

- Control the telescope.
- Discover recommended objects with your telescope.
- Share your observations with other members of the community and see theirs.
- Keep up with the latest news and scientific discoveries related to outer space.
- Contribute to scientific discoveries by participating in our observation missions.

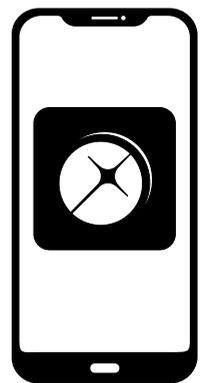
ACTIVATE YOUR GPS BEFORE DOWNLOADING THE APP.

Where can I find the Unistellar app?

In the Google® Play Store and the Apple® App Store (on smartphones or tablets) by searching for Unistellar. The app lets you control your wireless telescope over WiFi.



Scan the QR code to watch a video tutorial.



Minimum settings required to download the app:

- Android 6 or iOS 12 operating system
- Touch screen
- WiFi
- 140 MB available

*The app is not supported on FireOS devices. If you are unable to download the app on your smartphone, check your device's operating system. **Update the app whenever a new version is available in the Apple® App Store (iPhone/iPad) or Google® Play Store (Android).***

Did You Know?

The telescope creates its own WiFi network; it does not use your home's WiFi/internet. No internet connection is needed for your telescope to work.



4 Collimating your telescope

What is collimation?

Collimation refers to the process of aligning the sensor and the mirror's optical axis. You do not need to carry out a collimation every time you use your telescope if it has not been transported in a way that involves lots of movement, such as in the trunk of a car. We recommend that you perform this operation once and then periodically check for shifts.

If you are having difficulty focusing as described in the preceding sections or if you are having difficulty achieving high precision focus with your Bahtinov mask, your telescope may require collimation.

How often should I collimate my telescope?

Collimation is rarely necessary. It should be done primarily when you transport your telescope in a way that involves lots of movement, like after a trip in the trunk of a car.

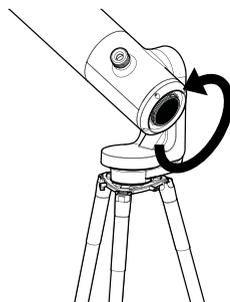


Check the collimation for the first time right after receiving your telescope.

Point your telescope toward a bright star, selecting **the first star that is recommended in the catalog.**

Center it using the joystick in the app.

Turn the wheel counterclockwise as far as it will go.

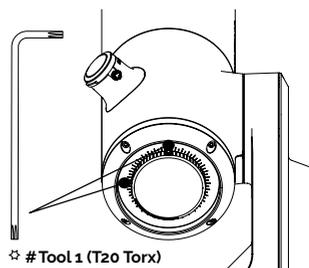


How do I collimate my telescope?

Collimate your telescope using the two screws located on the bottom of the optical tube. Turning these screws adjusts the position of the mirror. The top screw is used to move the star vertically, while the left screw is used to move it horizontally.

For this procedure, you will need:

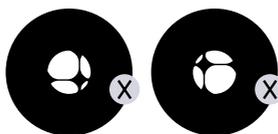
- 1- The T20 Torx wrench (telescope tool 1) supplied in the toolbox.
- 2- A clear sky with bright, fully visible stars.



Look directly into the eyepiece for this procedure.



If the black cross appears as shown here, your mirror is correctly aligned.



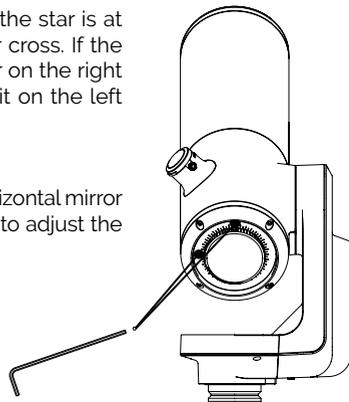
If the black cross appears as shown here, you need to realign your mirror.



Use the T20 Torx wrench (telescope tool 1) in the toolbox.

Use the joystick arrows to move the telescope so that the star is at the edge of your screen. Which edge depends on your cross. If the cross is right of center, use the joystick to place the star on the right edge of the screen; if the cross is left of center, place it on the left edge, and so on.

Once the star is on the correct side, turn the vertical or horizontal mirror mount screw with the T20 torx wrench (telescope tool 1) to adjust the mirror and re-center the star on the screen and eyepiece.



REPEAT THE PROCEDURE UNTIL THE CROSS IS CENTERED. SEVERAL ATTEMPTS MAY BE REQUIRED.

Turn the focus wheel to align the visual mark. Orient the telescope toward a target and enjoy the view.



Use caution with the screws. If you are a beginner, take your time and do not skip any steps.



Scan this QR code to be redirected to our video on collimating your telescope.

5 Adjusting the focus

What is the focus?

The focus is the distance between the mirror and the sensor, which allows rays of light from the object to converge correctly. The image will be blurry if the light rays converge before or after the sensor.

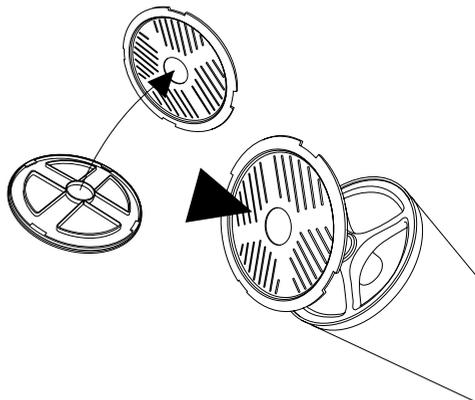
How often should I adjust the focus?

Adjust the focus before any observation, including after leaving the telescope outdoors to thermalize. You may need to readjust your focus during long nights of observation if the temperature has dropped dramatically or if your other observation parameters have changed.

How do I use the Bahtinov mask for high-precision focusing?

Did You Know?

The Bahtinov mask has three grills at three different angles. It creates points of diffraction that allow for precise focusing.



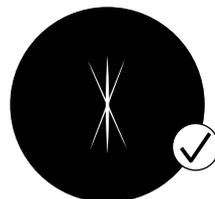
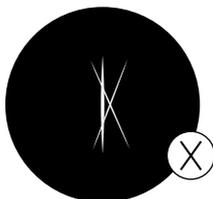
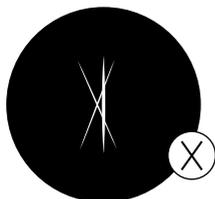
Go to the **first star recommended in the catalog** because it will be the brightest star available to you.

Separate the Bahtinov mask from the cover. Place it on the telescope's tube, turning it gently if necessary to fit onto the tube.

This creates an X-shaped pattern visible in the eyepiece and on your screen. Pinch and zoom on your device to see the X clearly.

If the pattern you see resembles the image below, your focus is complete.

Slowly turn the wheel until the line is centered in the X image.





The default "auto" settings are usually too bright. Adjust these settings manually by deactivating "auto" mode.

DO NOT ACTIVATE ENHANCED VISION MODE WHILE ADJUSTING THE FOCUS.



Scan this QR code to be redirected to our video on adjusting the focus with the Bahtinov mask.

REMEMBER TO REMOVE THE BAHTINOV MASK ONCE THE TELESCOPE HAS BEEN FOCUSED.

6 Observation tips

Orientation or Autonomous Field Detection (AFD)

What is AFD?

Autonomous Field Detection (AFD) is an algorithm that accurately identifies any object in the telescope's field of view by using an internal map containing tens of millions of star coordinates.

What does AFD do?

AFD automatically points to objects in the night sky, making it easier to look for targets. It also provides information about what you are observing, such as the distance from Earth, the size, the age, and more.

Sensor calibration (or dark frame)

What is the purpose of a dark frame ?

In digital photography, taking a dark frame means recording an image with no signal or noise. This process improves your observations as well as the quality of your images. A dark frame enables the telescope's onboard computer to analyze and correct the sensor's inherent electronic noise.

Did You Know?

Noise can occur during long exposures or strong variations in temperature. The appearance of hot pixels (red, blue or green spots) on your images can reveal the effects.

At what frequency should I take a dark frame?

Dark frames can be taken at any frequency you like. We recommend taking at least one in the winter and one in the summer, as changes in temperature and altitude can cause imperfections in the images. A dark frame should also be taken before each scientific observation.

How do I take a dark frame?

To take a dark frame, leave the cap on the telescope and make sure that you are in a dark place. Do not expose the telescope to direct light.

Go to the user tab: My eVscope.

If an error message appears, try again later, ideally in a darker setting. It may be that too much light was detected on the image.

7

Software suite

The telescope's software uses its onboard computer to stack and process images. It produces an enhanced image and projects it in real time using an algorithm that adjusts for the movement/rotation of the Earth. This makes it possible to get long exposure times for observed objects.

Enhanced Vision

What is Enhanced Vision?

Enhanced vision is a system that uses a low-light sensor to continuously accumulate light by stacking short exposure images. Enhanced Vision increases the brightness and detail of the objects you observe over time.

It may take a few seconds to a few minutes to see the colors and shapes of objects using Enhanced Vision, depending on the observation conditions (light pollution, moon phase, weather, etc.) and the objects you are observing.

Did You Know?

The telescope stacks images every 4 seconds.

Visible Sky Area

You can use the telescope on a balcony or in a garden, in the city or out in the country. We recommend at least 45 degrees of open sky.

Depending on your location, various factors can affect the quality of your observations, such as the quality of the night sky, the Bortle scale position, light pollution, atmospheric interference, altitude, and your position relative to the equator.



Scan this QR code to be redirected to our video on observing a target that is not included in the object catalog.



Set your portion of the open sky in the app so that the catalog shows only objects that are visible to you.

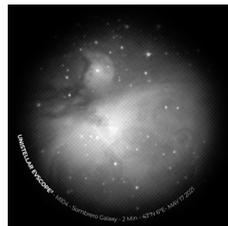
Light pollution

Even in areas with lots of light pollution, you will be astounded by the quality of your observations with your telescope and what is visible in the night sky.

To lessen the impact of light pollution, avoid street lights (set up behind a building or trees), building and security lights, and any other direct light sources. This will allow you to appreciate objects like the Dumbbell Nebula, the Ring Nebula, and the Whirlpool Galaxy.

Frame

You can save images with or without frames by indicating your preference in the app settings. The frame shows the object's name, its coordinates, the date, and the time.



Gain

Gain electronically increases the signal in "Live View" mode. The lower the gain, the better the images; the higher the gain, the brighter the image. Increasing the gain also increases noise. In other words, the objects you see will be less bright, but they will be more distorted.

Exposure time

The exposure time is the amount of time during which the sensor is exposed to light (between 1 ms and 4 s for a single exposure in Enhanced Vision mode).

Zoom

The zoom is set to x50, but it can be increased up to 8 times. Therefore, you can zoom up to a maximum of x400.

A double-tap on the screen zooms in at x150. You can adjust this by swiping with two fingers on your screen. Saving an image in "Live View" or "Enhanced Vision" mode while zooming saves the original image, not the zoomed image.

Storing the telescope

After each observation, use your telescope's "Store" function, available in the "User" menu. This automatically moves it to the zenith position (i.e., the highest point in the celestial sphere) and turns it off.

It is normal for your telescope to not be perfectly vertical when stored.

Put the telescope cover and eyepiece cover back in place before storing your telescope in its backpack.

If you have any trouble with this procedure, please consult the troubleshooting section or visit <https://help.unistellar.com/hc/en-us>.

8 Additional battery information

Charging the battery

To charge the battery, use the supplied USB-C cable and adaptors to connect your telescope to an electrical outlet. A power bank may also be used to charge your telescope. (We recommend a USB 5V power bank.)

For an optimal battery charge, the maximum current used by the telescope is 2.4 A. Avoid using a fast charger, which could fail to charge the battery as the charger might not be detected.

The battery is estimated to last 2 to 10 years, depending on how often it is charged. A full cycle equates to 10 charges of 90% to 100%.

Increasing the battery life

We do not recommend draining the battery (<20%).

Storing your telescope with a charge of 40% to 60% is essential for maximizing your battery life. To avoid draining your battery completely, we recommend charging your battery at least every 3 months. Keep your telescope away from light and moisture.

To increase your battery life, avoid using your telescope at low temperatures (<32°F) or above 104°F, as this may cause damage. Very cold environments may increase battery consumption.

Battery specifications

- Lithium ion (6x18 650)
- Capacity: 15 000 Ah (55,5 W.h)
- Normal use: *@-68°F : ~50% (5,5 hr)
- Charging time: 6,5 hr

The battery should not be removed by the user without prior inspection by Unistellar.

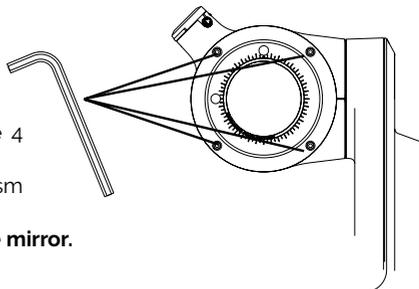
Lithium in airplanes

Lithium-ion batteries with a capacity of less than 100 W/h can be packed in checked luggage like a portable electronic device.

9 Storage and maintenance

Maintaining and storing the telescope

Store the telescope in its original packaging or in its backpack.
Store your telescope with the eyepiece cover and cap to prevent dust from getting into the device.
Do not store the telescope with an empty battery.
Do not store the telescope in a damp location. Do not store your telescope in temperatures below 50°F or above 104°F.
Do not store it in sunlight.



Maintaining the mirror

The mirror can be removed by unscrewing the 4 screws located on the back of the adjustment mechanism using the M3 Allen wrench (telescope tool 2).
It is important to use gloves when handling the mirror.
Once the system has been removed, the mirror can be cleaned with dry compressed air.

Do not use liquid or a wet tissue to clean the mirror.

Maintaining and storing the tripod

The tripod screws may loosen with use. Verify that they are well tightened prior to each use.
The tripod comes with three different tools for tightening the screws. Do not store the tripod in sunlight.
Do not store the tripod in a damp location.

Traveling with the telescope

If you have to travel by plane, do not put your telescope in the checked backpack. It could be damaged during transport, which would not be covered by the warranty. Use a hard case to ensure that your telescope remains completely safe.
The telescope weighs 15.4 lbs, the tripod 4.41 lbs, and the backpack 4.41 lbs.

IMPORTANT: THE BACKPACK IS TOO LARGE TO BE USED AS A CARRY-ON FOR MOST AIRLINES.

Lithium-ion batteries with less than 100 W capacity are allowed in checked bags if they are attached to the device itself.

Warranty

The telescope is covered worldwide by a two-year warranty.

The warranty does not cover damages caused by dropping your telescope, even accidentally.
If you damage your telescope or need replacement parts, please refer to our [FAQ](#).

10 Exploration and more

Catalog

Our catalog recommends **galaxies, nebulae, stars, and comets** depending on the time and your position. It lists thousands of objects, including:

- The main planets
- The Moon
- 110 Messier objects
- 2,500 new targets from the general catalog (CGN)
- Comets
- Thousands of small bodies in the solar system, including main belt asteroids, Jupiter, Trojans, and the dwarf planets ($V \leq 15.5$).

Source: NED - NASA/IPAC Extragalactic Database ned.ipac.caltech.edu

You can point to targets that are not yet in the catalog by entering the coordinates using the Alt/Az or Ra/Dec button in the app's Explore tab.



Objects like the Veil Nebula are difficult to observe and require a dark sky to be visible. For beginning users, start with the brightest objects, like M51 or NGC 891.

Data

Why should I share my data with Unistellar?

HELPING TO IMPROVE THE OBSERVATION EXPERIENCE AND PARTICIPATING IN SCIENCE (ACTIVELY OR PASSIVELY).

First of all, sharing your observation data is not mandatory—we have no access to it if you choose not to share it with us.

The data collected by the telescope for each observation are stored in its memory and includes raw data (images) of objects observed in Enhanced Vision mode or during scientific missions, as well as metadata (geolocations and time stamps).

All data gathered by our users is securely stored in our database, allowing us to continuously improve the observation experience.

By sharing your data, you can also help us make scientific discoveries. Visit our website for more information about our active and passive scientific programs.

Data storage information:

The SD card has a capacity of 64 GB. Do not change the SD card.

You can free up storage space by downloading your data on a regular basis. Your telescope can download at a rate of 6 Mbps on a 2.4 GHz network and 8 Mbps on a 5 GHz network. It will take at least 30 minutes to download 12 GB.

Your observation images are saved to your smartphone. You can always save images to the gallery if your memory is full (100% data storage used). The telescope will continue to work normally, but you will not be able to participate in community events or citizen science campaigns.



Start downloading your data after each night of observation. The telescope will turn off once the transfer is finished.

How do I upload my data?

With your smartphone connected to your telescope, open the "User" tab in the Unistellar app and go to "My eVscope".

Tap the "Upload data" button. (The button will be grayed if there is no stored data.)

Enter your "Wi-Fi information" (your home WiFi network or your phone's hotspot). Enter the SSID (your network's name) and your password. **The password is case-sensitive and may include special characters.**

BE CAREFUL WHEN ENTERING THIS INFORMATION. 8 TIMES OUT OF 10, A FAILED DOWNLOAD IS CAUSED BY A TYPO IN EITHER OF THESE FIELDS.

- Click "OK". The telescope's LED will go from red to bright flashing yellow, indicating that the telescope is trying to connect to the selected network.

Your device will no longer be connected to the telescope, and information like the name or storage use will no longer be accessible in the app. The LED will flash steadily.

Once connected to the selected network, the light becomes:

- **Green and flashing rapidly between 1 and 6 times, then steady green for one minute** if the download was successful.

- **Steady orange for one minute**, which means that an error occurred. If this happens, see Section 9 – Troubleshooting in this user guide.

Once the transfer has finished, connect your phone to the telescope again and go back to the "My eVscope" tab in the app. You should see "Storage: 1% used". The remaining 1% is used for dark frames and for internal files needed for the telescope to operate.

Did You Know?

The number of flashes indicates how much data is being transferred. The higher the number of flashes, the more data there is to transfer.

We are working to make RAW images accessible for post-processing.

Sign up for our newsletter to stay informed.

There is no USB or Ethernet port for reading images. Images can be saved and shared on a smartphone connected to the telescope. They are in PNG format.



Scan this QR code to be redirected to our FAQ for more visual content, including a video on how to download your data: help.unistellar.com

11 Actively contribute to science

Did You Know?

SETI InSTITUTE

In July 2017, the SETI Institute and Unistellar joined forces to develop science applications for the telescope network. You have the potential to make a significant contribution to a wide range of research topics such as **planetary defense, exoplanets, occultations, and the study of many transient astronomical events.**

The SETI Institute is dedicated to scientific research, education, and public outreach. Its mission is to explore, understand, and explain the origin and nature of life in the universe and to apply the knowledge gained for the purposes of inspiring and guiding current and future generations.

Scientific campaigns

Subscribe to our citizen science emails or join our Slack group to interact with our community on scientific observations.

You'll soon become a citizen astronomer and contribute to scientific discoveries.

Planetary Defense

Our planet is not free from danger. Our solar system is home to other celestial bodies such as asteroids and artificial objects. Asteroids sometimes cross the Earth's orbit. Some of these near-Earth asteroids are "**potentially hazardous asteroids**," meaning that they could crash into the Earth. The Planetary Defense program aims to locate, track, and characterize these near-Earth objects (NEOs) in our solar system. Each month, Unistellar scientists suggest different targets to observe with your telescope.

Asteroid occultation

Asteroid occultation detection entails observing an asteroid pass between a bright star and your location on Earth. The telescope's recording of the star's blinking provides valuable data that astronomers can use to learn more about an asteroid's trajectory, size, shape, and composition.

When launching an observation campaign, scientists invite telescope users to join their search by activating "Occultation Mode" on their device. Observe the sky with your telescope, send this data to scientists, and help keep the world informed about and aware of asteroids. You will then receive the results of your occultation.

No matter where you live in the world, there is probably an occultation that you can observe.

12 Troubleshooting

Logging in

Unable to log into the app

Verify whether you are logged into your telescope. WiFi should be enabled on your device, and the telescope should be on and less than 5 m away. You can also log into your telescope manually by selected the WiFi from the available networks. If the problem persists, reinstall the app.

The WiFi connection may be disrupted for various reasons:

- Too much distance between you and your telescope
- The WiFi signal is blocked by a thick wall
- An insulating layer installed on the telescope
- Automatic locking of your device
- The WiFi preferences in your OS (If you have iOS, verify that local networks are allowed and that private networks are off.)
- A communication error between the telescope and the phone
- Your telescope's LED light is purple

There is no way to increase the telescope's WiFi signal. You can try using an extender with the same SSID as the telescope to extend its range. If you encounter connectivity problems, disable the automatic connection options for unknown networks.

WiFi indicates "no internet connection"

Once connected, some WiFi networks indicate that there is no internet connection. This means that you cannot access the app or use your telescope. Depending on your device's settings, you may not be able to have an external internet connection.

If you use your telescope far away from any internet network, you can use your app because the telescope generates its own WiFi. The catalog will not receive updates, but you will be able to observe without any problem.

LED COLORS

If everything is good, the ON button changes from purple to red after a being on for a few seconds.

Red: Your telescope is on and ready for observing.

Flashing red: The telescope is in the process of pointing or in Enhanced Vision mode.

Flashing blue: The telescope is off and charging. It flashes between 1 (fully charged) and 6 (fully drained) times.

Flashing yellow: The telescope is updating.

Flashing green: Data is being transferred.

Green: The data transfer was successful.

Orange: The data transfer failed.

Purple: The onboard software is turning on or off. If the LED remains purple without changing color, please contact support.

Flashing purple: The telescope is out of battery. Please charge it.

White: An error occurred. Please contact support.

NOT POWERING ON

The telescope is not powering on

The push button is not working. *Please contact support.*

The telescope turns on but does not charge

1 - Your charger is defective or broken:

The charger uses a standard USB-C port. Please try using another compatible charger in the USB-C port. If the telescope is off and the LED is flashing blue, the original charger is defective or broken.

2 - The telescope does not charge even though the charger works fine:

Please turn on your telescope, insert the charger, and then turn off your telescope. If the telescope still does not charge after following these steps, the USB-C port is defective or damaged. *Please contact support.*

The telescope does not charge or turn on

Please keep the charger inserted for 3 days. If the telescope still does not charge, *please contact support.*

Images

The stars are not round and defined.

The telescope is out of focus. *Please refer to the section [USING YOUR TELESCOPE | Adjusting the focus](#)*



Stars are distorted

The collimation is not optimized. *Please refer to the section [COLLIMATING YOUR TELESCOPE](#)*



Stars are blue and red

This is caused by electronic noise.

You should put the cover on top of the telescope and take a dark frame. This image reveals the electronic noise that is inherent to the sensor. The noise will then be subtracted from the final image, and you will no longer have colored pixels.

[OBSERVATION TIPS | Sensor calibration \(or dark frame\)](#)

Enhanced Vision stops

The Enhanced Vision mode stops or does not work. You may receive one of the following messages:

- "Major impact detected – Please check and realign the level." A major impact has been detected (e.g., a kick to the tripod). Readjust your bubble level and follow the focusing procedure, as explained in the quick start guide.

- "Too close to zenith – Please realign to a lower altitude." The telescope is close to the zenith position. Follow the focusing procedure.

- During your observation, you may see the message "Enhanced Vision abandoned." One of the images cannot be saved due to its poor quality and should be disregarded in order to preserve the quality of your observation.

Two specific messages may appear :

- "Enhanced Vision abandoned. Vibration detected.": A minor impact was detected (e.g., bump to the eyepiece or a gust of wind).

- "Enhanced Vision was interrupted. Too bright.": An image was polluted by light (e.g., nearby flashlight or smartphone)

Data download failed

In 8 instances out of 10, there is a typo in the network name (SSID) or password, but there may be other factors causing this problem. For example, the maximum number of devices allowed on the network has been reached, there is MAC filtering in place, or there is a WiFi channel incompatibility. In the case of a WiFi channel incompatibility, simply restart the WiFi connection on your router/device to resolve the problem. For the other two problems, you will need to log into your home WiFi network using another device to enable other devices or add the eVscope's MAC address to the list.

5 flashes: 81% - 100% remaining to download

4 flashes: 61% - 80% remaining to download

3 flashes: 41% - 60% remaining to download

2 flashes: 21% - 40% remaining to download

1 flashes: 1% - 20% remaining to download

● Keeping in touch

Need help ?



Website : ***help.unistellar.com*** (scan the QR code)

Contact support : ***support@unistellaroptycs.com***

FAQ : ***help.unistellar.com***

 ***@unistellar***

 ***@unistellar***

 ***@unistellarscope***

 ***@unistellarscope***