



A TELESCOPE IS
ONLY AS GOOD AS
ITS MOUNT

CHOOSING YOUR MOUNT

A mount does far more than simply support the telescope. It determines how stable the telescope is, how smoothly it moves, how easily objects can be found and whether the telescope can accurately follow celestial objects as the Earth rotates. For anyone considering astrophotography, the mount is the single most important part of the entire system.

Like telescopes, there is no single mount that's perfect for every application. Understanding the different types of mounts and how they work will help you choose one that matches both your observing goals and your budget.

BUYING GUIDE #3

While it's easy to focus on the telescope, experienced astronomers know that the mount is the most important element in their setup. This buyers guide is designed outline the role of the mount, introduce different types of mounts, key features, their advantages and disadvantages.



THE MOUNT IS THE
UNSUNG HERO OF
EVERY VISUAL AND
ASTROPHOTOGRAPHY
RIG

WHAT DOES A MOUNT DO?

A good astronomical mount should:

- Support the telescope and all accessories safely and securely; have sufficient payload capacity to hold the full weight of your visual or astrophotography rig. Generally, most amateur astronomers limit their total rig weight to 2/3 of the maximum advertised payload capacity of the mount.
- Allow smooth, accurate movement across the sky.
- Minimize vibration when focusing or changing eyepieces.
- Track celestial objects as the Earth rotates.
- Provide sufficient unused load capacity for new equipment to be added to your rig as your interests develop.

While all mounts perform most of these basic tasks, they achieve them in very different ways.



POINT, OBSERVE,
ENJOY.

ALT-AZIMUTH MOUNTS

The Alt-Azimuth (Alt-Az) mount is the simplest and most intuitive design. It moves in two directions: altitude (up and down) and azimuth (left and right), much like a standard camera tripod. Because these movements are familiar and natural, Alt-Azimuth mounts are often recommended for newcomers. They are widely used with refractors and smaller reflectors

- **ADVANTAGES**

Alt-Azimuth mounts are generally lighter, simpler and less expensive than equatorial mounts. Since there is no need for polar alignment, they can usually be ready to observe within minutes. Motorised versions equipped with GoTo systems can automatically locate and track thousands of astronomical objects, making them an excellent choice for those less familiar with the night sky and star-hopping.

- **DISADVANTAGES**

Because an Alt-Azimuth mount moves in two axes to follow celestial objects, the orientation of the telescope slowly changes as the sky rotates. This effect, known as field rotation, limits their suitability for long-exposure astrophotography, although they perform well for visual observing and planetary imaging.



FINDING CELESTIAL
OBJECTS HAS NEVER
BEEN EASIER

DOBSONIAN ALT-AZ BASE

Dobsonian telescopes are simply Newtonian reflectors mounted on a specialised Alt-Azimuth base, deserving a special mention because they offer some of the best value in amateur astronomy. The simple Alt-Azimuth mount makes it possible to support very large Newtonian telescopes at a fraction of the cost of an equivalent equatorial system. While traditional Dobsonians relied on the observer locating objects manually by star hopping. Modern Push-To systems, specifically innovations such as Celestron's StarSense Explorer have made them far more accessible to newcomers as the system guides the observer to objects while retaining the simplicity, stability and affordability that have made Dobsonian telescopes so popular. Sky-Watcher offers Dobsonian telescopes with a motorized Alt-Azimuth base now making long exposure astrophotography possible.

EQUATORIAL MOUNTS

Equatorial (EQ) mounts are designed specifically to compensate for the Earth's rotation. Once aligned with the celestial north pole, the right ascension (RA) and declination (DEC) axes point your telescope and track your chosen target, keeping the object centered by moving mainly one axis to match the Earth's rotation. While equatorial mounts appear more complicated than Alt-Azimuth mounts, this design provides the accurate tracking needed for serious astrophotography.

- **ADVANTAGES**

Equatorial mounts provide accurate sidereal tracking, allowing astronomical objects to remain centred in the eyepiece for extended periods. This makes visual observing more enjoyable, particularly at high magnifications, and is essential for long-exposure astrophotography. Most equatorial mounts can accommodate heavier telescopes, making them popular with astronomers who expect their equipment to evolve over time.

- **DISADVANTAGES**

Equatorial mounts are generally heavier, more expensive and take longer to set up than comparable Alt-Azimuth mounts. They require polar alignment before they can track accurately.



ENGINEERED FOR
PRECISION ASTRONOMY



I AM CONSTANT AS THE NORTHERN STAR

Julius Caesar, Act III, Scene I
William Shakespeare

POLAR ALIGNMENT

Polar alignment (PA) is the process of pointing your EQ mount's Right Ascension (RA) axis towards at the Celestial North Pole, which lies close to Polaris (the North Star) in the Northern Hemisphere. Once alignment has been completed, the mount can accurately follow celestial objects with small motor-driven changes to the axes. Even the most sophisticated GoTo mount cannot track accurately if it has not first been polar aligned. Poor alignment can cause objects to drift across the field of view and, during long photographic exposures, produce elongated stars or image rotation.

Fortunately, modern mounts offer a variety of tools to simplify this process, including polar scopes, electronic polar alignment cameras and software-assisted alignment routines. Don't confuse polar alignment with GoTo alignment. Polar alignment aligns the mount with the Earth's axis of rotation, allowing accurate tracking. GoTo alignment teaches the mount where it is pointing so it can accurately locate astronomical objects. Although related, they are two separate processes.



IMPORTANT CONSIDERATIONS

- **MANUAL VS MOTORIZED**

Both Alt-Azimuth and equatorial mounts are available in manual and motorized versions. Manual mounts rely entirely on the observer to point and follow objects across the sky. They are simple, reliable and generally the most affordable option. Many astronomers enjoy using manual mounts because they encourage learning the constellations and developing star-hopping skills. Motorized mounts use electric motors to track the movement of the sky automatically. Most also include GoTo technology, allowing the mount to locate thousands of objects from an onboard database after a simple alignment procedure. For newcomers, GoTo systems significantly reduce the challenge of finding faint galaxies, nebulae and star clusters, particularly under light-polluted skies where fewer stars are visible.

- **TRACKING**

As the Earth rotates, astronomical objects appear to be in constant motion, moving across the night sky. Without tracking, objects gradually drift out of the eyepiece, particularly when observing at high magnifications. Motorized tracking keeps objects centred automatically, allowing observers to spend more time enjoying fine detail rather than constantly adjusting the telescope. Tracking is especially valuable when observing the Moon and planets, sharing views with friends or family, or conducting public observing sessions.

For astrophotography, accurate tracking is essential. During long exposures, the camera may collect light for several minutes. Without precise tracking, stars quickly become blurred and images lose detail.



SOMEWHERE,
SOMETHING INCREDIBLE
IS WAITING TO BE
KNOWN

Carl Sagan

WHICH MOUNT SHOULD YOU CHOOSE?

If your primary interest is visual astronomy and you value simplicity and portability, an Alt-Azimuth mount is often the best choice. They are quick to set up, intuitive to use and tend to be relatively inexpensive.

If you intend to explore long-exposure astrophotography, an equatorial mount is the preferred option. Although it requires more time to learn the set-up procedures, accurate tracking makes it possible to capture the spectacular images of galaxies and nebulae seen in magazines and online.

If your budget allows, a motorised GoTo mount can make astronomy significantly more enjoyable by automatically locating and tracking celestial objects. While manual mounts remain an excellent way to learn the night sky, GoTo technology has made astronomy more accessible than ever before.

Remember, a quality mount is a long-term investment. Many astronomers upgrade their telescopes, cameras and accessories several times while continuing to use the same mount for many years. It's often said that the mount is the one component where it's worth "buying once, crying once." While a better mount may seem expensive initially, it usually provides greater stability, improved tracking and enough capacity to support future upgrades, saving both money and frustration in the long run.

ABOUT NSO

Our Vision

We envision a world where anyone with an interest in astronomy can begin their journey with confidence and enjoy rewarding first light experiences. Where choosing equipment is exciting rather than overwhelming, expert guidance is always within reach, and every astronomer has a trusted partner throughout their journey under the stars.

Our Commitment

We believe our responsibility doesn't end with a sale. We are committed to supporting our customers throughout their astronomy journey.

- Expert Guidance
- Carefully Selected Stock
- Accessible Value
- Long-Term Partnership

