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Astromania SKU_AM_AFM1

Astromania 1.25 Inch Imaging Flip Mirror User Manual

Model: SKU_AM_AFM1

1. INTRODUCTION

The Astromania 1.25 Inch Imaging Flip Mirror is a versatile accessory designed for telescopes, enabling precise focusing and centering for both real-time astronomical naked-eye viewing and astrophotography. This device allows for simultaneous observation through an eyepiece and imaging with a camera, ensuring that both are in focus at the same time.



Figure 1: Astromania 1.25 Inch Imaging Flip Mirror

Key Features:

- **Precise Focusing:** Facilitates finding the exact focus point and correct position for astrophotography. The movable flip mirror diverts the light path 90 degrees upwards for visual observation or allows it to pass unhindered to the camera.
- **Simultaneous Sharpness:** When the mirror is tilted to a 45-degree position, the object appears in the eyepiece. The helical focuser on the flip mirror ensures the eyepiece and camera are parfocal, meaning both are in focus simultaneously.
- **Accurate Centering:** An object centered in the eyepiece will be simultaneously centered in the camera's field of view, eliminating uncertainty about object positioning on the sensor.
- **Enhanced Astrophotography:** Addresses the challenge of positioning and focusing objects on camera sensors without a traditional finder, allowing remote centering and focusing via the eyepiece.
- **Broad Compatibility:** Features a 1.25-inch connector for standard telescopes, a helical focuser for standard 1.25-inch eyepieces, and a T-2 thread on the camera side for standard camera fittings.

2. PACKAGE CONTENTS

Verify that all components are present in your package:

Adjusting the Flip Mirror Stop Angle



Flip Mirror Stop Angle Adjustment Set Screw



2.5mm hex wrench (for gift)

To adjust the flip mirror stop angle:

- 1) Locate the socket head set screw on the bottom of the flip mirror body.
- 2) If the subject is above the center of the field of view (when facing the rear of the flip mirror), turn the set screw clockwise. If the subject is below the center of the field of view, turn the set screw counter-clockwise.
- 3) Check your adjustment by comparing the CCD camera view with the eyepiece view. The subject should be centered in both views.

Flip Mirror Stop Angle Adjustment Set Screw Lever Tension Adjustment Screws

Adjusting the Lever Tension

Keep the flip mirror lever in the “up” position to let the telescope focus on the camera. Flip the mirror to the “down” position to let the telescope focus on the eyepiece. With the flip mirror lever in the “up” position, focus your CCD camera using your telescope’s focuser.

1. Locate the two silver socket head set screws (one on each side) located above the lever.
2. Using the 1.5mm hex key (not include), loosen or tighten the set screws as needed to reach the desired lever tension.

Lever Tension Adjustment Screws



Figure 2: Included Components

1. Flip Mirror
2. Camera Adapter
3. Rotation Lock Ring
4. 2.5mm Hex Wrench
5. Camera Adapter Dust Cap
6. 1.25" Nosepiece
7. Dust Caps
8. 1.25" Eyepiece Holder with Helical Focus Mechanism

3. SETUP AND INSTALLATION

3.1 Component Identification

Product Details



Figure 3: Product Details and Labeled Parts

Familiarize yourself with the various parts of the flip mirror, including the 1.25" Eyepiece Holder with Helical Focus Mechanism, Eyepiece Holder Thumbscrew, Focus Lock Thumbscrew, Lever Tension Adjustment Screws, Removable 1.25" Nosepiece, Camera Adapter with Knurled Lock Ring, Flip Mirror Lever, and Flip Mirror Stop Angle Adjustment Set Screw.

3.2 Connecting to the Telescope

The flip mirror can be connected to your telescope's 1.25" focuser using either the included 1.25" nosepiece or T-threads, depending on your telescope's configuration.

Double Telescope Connections

Connections to the 1.25" focuser of telescope can be made via 1.25" nosepiece or T-threads depending on demand.



Please note: Flip-mirrors are not suitable for use with Newtonian telescopes, as the focal point can no longer be reached. Their use on refractors or catadioptric systems - SCTs, ACFs, Maksutovs - is no problem however.

Figure 4: Double Telescope Connections

Note: Flip mirrors are not suitable for use with Newtonian telescopes, as the focal point cannot be reached. They are compatible with refractors or catadioptric systems (SCTs, ACFs, Maksutovs).

3.3 Connecting a Camera

The flip mirror offers dual options for camera connection, primarily via an M42x0.75 female thread (T-2 thread) for astrophotography.

Dual Options for Camera Connection

Choose to connect CCD camera or other camera with T-ring for astrophotography as needed.

M42x0.75 Female Thread



Figure 5: Dual Options for Camera Connection

You can connect CCD cameras directly or other cameras using a T-ring (not included) that matches your camera's mount type. The camera adapter with the knurled lock ring secures the camera connection.

How to Change Camera Orientation:

1. Release the camera counterclockwise and adjust it to the desired orientation.
2. Rotate the knurled lock ring counterclockwise to secure the camera tightly.

3.4 Connecting an Eyepiece

The 1.25" eyepiece holder with helical focus mechanism accepts any standard 1.25-inch eyepiece. The eyepiece can be inserted from 90 degrees vertically or 180 degrees horizontally based on your viewing preference.

Double Eyepiece Connection Choice

Eyepiece can be choosed to insert from 90 degrees vertically or 180 degrees horizontally depending on needs.



1.25" Eyepiece Holder with Helical Focus Mechanism
【 Fits for 1.25" Eyepiece 】



1.25" Eyepiece Adapter (Not Included)
【 Fits for 1.25" Eyepiece 】

Figure 6: Double Eyepiece Connection Choice

3.5 Overall Connection Methods

Astromania 1.25" Astrophotography Flip Mirror

- The flip mirror for precise focusing





| | | | |
|---|---|--------------------------------|-----------------|
|  |  | Connector (at camera end): | T2 |
| | | Connection (to the telescope): | 1.25" |
| | | Material(s): | Alluminum Alloy |
| | | Color: | Matte Black |

Figure 7: Installation and Connection Methods

This diagram illustrates the various ways to connect your CCD camera, other cameras with T-rings, and eyepieces to the flip mirror, and then to your telescope.

4. OPERATING INSTRUCTIONS

4.1 Basic Operation

The flip mirror allows you to switch between visual observation through an eyepiece and imaging with a camera. Use the flip mirror lever to change the light path.

Your browser does not support the video tag.

Video 1: Demonstrating how to achieve simultaneous focus for eyepiece and camera.

4.2 Adjusting the Flip Mirror Stop Angle

The flip mirror stop angle may need adjustment to ensure the object is centered in both the eyepiece and camera views.

Flip Mirror Stop Angle Adjustment

Check the adjustment by comparing the CCD camera view with the eyepiece view after using the socket head set screw on the bottom of the flip mirror body.

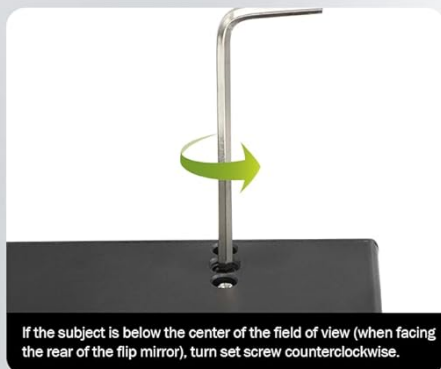
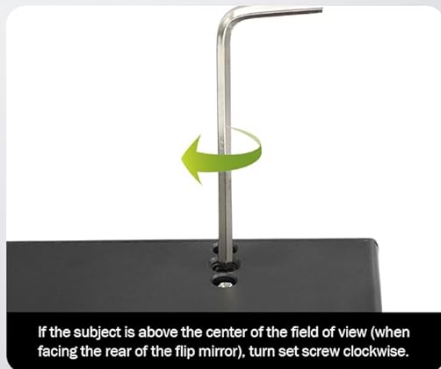


Figure 8: Flip Mirror Stop Angle Adjustment

1. Locate the socket head set screw on the bottom of the flip mirror body.
2. If the subject appears **above** the center of the field of view (when facing the rear of the flip mirror), turn the set screw **clockwise**. If the subject is **below** the center of the field of view, turn the set screw **counter-clockwise**.
3. Check your adjustment by comparing the CCD camera view with the eyepiece view. The subject should be centered in both views.

4.3 Adjusting the Lever Tension

The tension of the flip mirror lever can be adjusted to your preference.

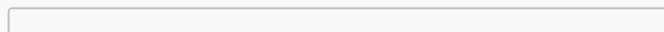


Figure 9: Lever Tension Adjustment Screws

1. Keep the flip mirror lever in the "up" position to let the telescope focus on the camera. Flip the mirror to the "down" position to let the telescope focus on the eyepiece.
2. Locate the two silver socket head set screws (one on each side) located above the lever.

- Using the 1.5mm hex key (not included), loosen or tighten the set screws as needed to reach the desired lever tension.

5. CARE AND STORAGE

Proper care and storage will prolong the life and performance of your flip mirror.

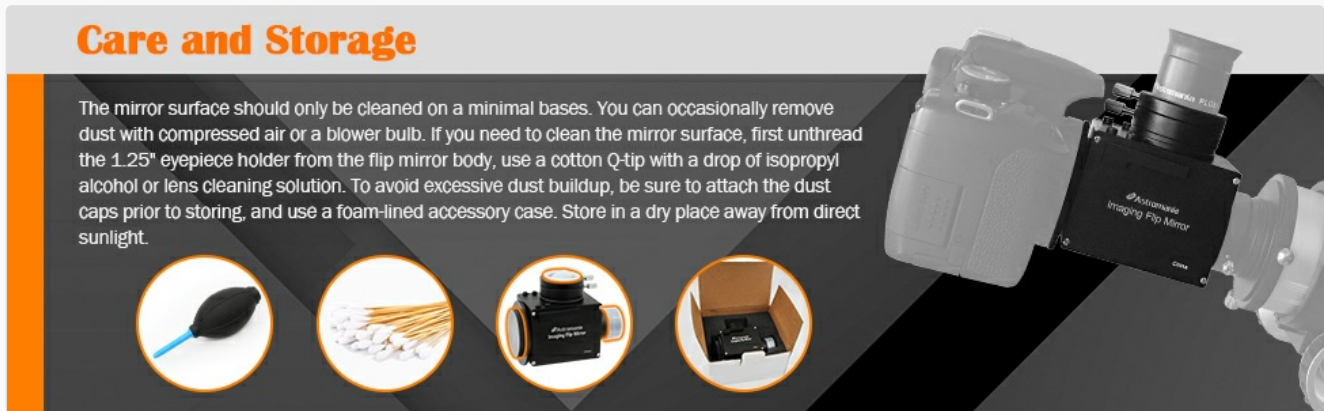


Figure 10: Care and Storage

- The mirror surface should only be cleaned on a minimal basis.
- You can occasionally remove dust with compressed air or a blower bulb.
- If you need to clean the mirror surface, first unthread the 1.25" eyepiece holder from the flip mirror body. Use a cotton Q-Tip with a drop of isopropyl alcohol or lens cleaning solution.
- To avoid excessive dust buildup, ensure to attach the dust caps prior to storing.
- Store the unit in a dry place away from direct sunlight, preferably in a foam-lined accessory case.

6. TROUBLESHOOTING

This section addresses common issues you might encounter with your Astromania Imaging Flip Mirror.

6.1 Focusing Issues

- **Problem:** Eyepiece and camera are not simultaneously in focus (not parfocal).
Solution: Ensure the helical focuser on the 1.25" eyepiece holder is properly adjusted. Slowly rotate the helical focuser until the eyepiece image is sharp. The design aims for parfocal operation, so fine-tuning the eyepiece focus should align it with the camera's focus.
- **Problem:** Cannot achieve focus with certain eyepieces or cameras.
Solution: The flip mirror's optical path length might require specific back focus. If you cannot reach focus, consider using a different eyepiece or camera, or explore additional extension tubes if your setup allows.

6.2 Centering Issues

- **Problem:** Object centered in the eyepiece is not centered in the camera's field of view.
Solution: Refer to Section 4.2, "Adjusting the Flip Mirror Stop Angle." Use the socket head set screw on the bottom of the flip mirror body to fine-tune the mirror's angle until the object is centered in both views.

6.3 Mechanical Issues

- **Problem:** Flip mirror lever is too loose or too stiff.
Solution: Refer to Section 4.3, "Adjusting the Lever Tension." Use a 1.5mm hex key to adjust the two silver

socket head set screws located above the lever to achieve the desired tension.

- **Problem:** Camera connection feels unstable or has 'slop'.

Solution: Ensure the camera adapter with the knurled lock ring is fully tightened. If using a T-ring, ensure it is securely attached to both the camera and the flip mirror's T-2 thread.

7. SPECIFICATIONS

| Feature | Detail |
|------------------------|--|
| Brand | Astromania |
| Model | SKU_AM_AFM1 |
| Item Weight | 9.1 ounces |
| Product Dimensions | 5.98 x 5.27 x 3.09 inches |
| Telescope Connection | 1.25 inch (via nosepiece or T-threads) |
| Camera Connection | T-2 thread (M42x0.75) |
| Eyepiece Compatibility | Standard 1.25 inch eyepieces |
| Material | Aluminum Alloy |
| Color | Matte Black |
| Special Features | Simultaneous Real-Time Astronomical Viewing and Astrophotography |

8. WARRANTY INFORMATION

Warranty information for the Astromania 1.25 Inch Imaging Flip Mirror is not provided in the available product data. Please refer to the manufacturer's official website or contact Astromania customer support for detailed warranty terms and conditions.

9. SUPPORT

For technical assistance, troubleshooting, or any inquiries regarding your Astromania 1.25 Inch Imaging Flip Mirror, please contact Astromania customer support through their official website or the retailer where the product was purchased.