Explore Scientific FirstLight 130mm

Explore Scientific FirstLight 130mm Newtonian Reflector Telescope User Manual

Model: FirstLight 130mm (FL-N130600EQ3)

1. Introduction

This manual provides detailed instructions for the assembly, operation, maintenance, and troubleshooting of your Explore Scientific FirstLight 130mm Newtonian Reflector Telescope with Equatorial Mount. Please read this manual thoroughly before using your telescope to ensure proper setup and optimal performance. This telescope is designed for observing celestial objects such as planets, the Moon, and deep-sky objects like galaxies and nebulae.

Image 1.1: The Explore Scientific FirstLight 130mm Newtonian Reflector Telescope, fully assembled on its equatorial mount and tripod.

2. Package Contents

Verify that all components listed below are present in your package:

- 1x Telescope Optical Tube (130mm Newtonian Reflector)
- 1x Equatorial Mount (EXOS Nano EQ3 German Equatorial mount)
- 1x Tripod (Full size with accessory tray)
- 1x 25mm Plössl Eyepiece
- 1x Red-Dot Finder
- 1x Smartphone Camera Adapter
- 1x Focuser (40mm draw tube)
- 2x Flexible Slow-Motion Control Shafts
- 1x Counterweight (2.5 lbs)

3. Setup and Assembly

Follow these steps to assemble your telescope. It is recommended to perform the initial assembly indoors in a well-lit area.

3.1. Tripod Assembly

1. Unfold the tripod legs and extend them to your desired height. Secure the leg locks.
2. Attach the accessory tray to the center brace of the tripod. This tray provides stability and a convenient place for eyepieces.

Image 3.1: The tripod and equatorial mount assembled, showing the accessory tray and counterweight shaft.

3.2. Equatorial Mount Attachment

3. Place the equatorial mount head onto the tripod's mounting platform. Secure it using the large knob or bolt located underneath the tripod head.
4. Thread the counterweight shaft into the mount. Slide the 2.5 lb counterweight onto the shaft and secure it with the locking screw.
5. Attach the two flexible slow-motion control shafts to the appropriate gears on the Right Ascension (RA) and Declination (DEC) axes of the mount. These allow for fine adjustments.

Image 3.2: A detailed view of the equatorial mount, highlighting the slow-motion control shafts and the counterweight system.

3.3. Optical Tube Installation

6. Locate the mounting rings on the optical tube. Open the rings and place the telescope tube onto the equatorial mount's dovetail plate. Close and tighten the rings securely.
7. Ensure the telescope is balanced on the mount. Adjust the position of the optical tube within the mounting rings and the counterweight on its shaft until the telescope remains stable when the RA and DEC clutches are disengaged. This prevents strain on the mount and allows for smoother tracking.

3.4. Finderscope and Eyepiece Installation

8. Attach the Red-Dot Finder to its designated bracket on the optical tube. Ensure it is securely fastened.
9. Insert the 25mm Plössl eyepiece into the focuser. Secure it with the thumbscrew on the focuser.
10. If desired, attach the Smartphone Camera Adapter to the eyepiece. Follow the adapter's instructions for securing your smartphone.

4. Operating the Telescope

4.1. Aligning the Red-Dot Finder

The red-dot finder helps you locate objects in the night sky. It must be aligned with the main telescope before use.

1. During daylight hours, point the main telescope at a distant, easily identifiable object (e.g., a distant tree or lamppost). Center the object in the telescope's eyepiece.
2. Turn on the red-dot finder. Look through the finder and use its adjustment screws to move the red dot until it is centered on the same object you see in the main telescope's eyepiece.
3. Once aligned, the red-dot finder will accurately indicate where the main telescope is pointing.

4.2. Polar Alignment (for Equatorial Mount)

For accurate tracking of celestial objects, the equatorial mount must be polar aligned. This means aligning the mount's polar axis with the Earth's rotational axis (towards Polaris in the Northern Hemisphere).

1. Set up your telescope in a location with a clear view of the northern sky (if in the Northern Hemisphere).
2. Adjust the mount's latitude setting to match your geographical latitude.
3. Loosen the azimuth and altitude adjustment knobs on the mount.
4. Point the polar axis of the mount towards Polaris (the North Star). Use the altitude adjustment to raise or lower the axis, and the azimuth adjustment to move it left or right.
5. Once Polaris is centered in the polar axis (or as close as possible without a polar scope), tighten the azimuth and altitude knobs.

Precise polar alignment is crucial for astrophotography and extended visual observation without constant manual adjustments.

4.3. Locating and Observing Objects

1. With the red-dot finder aligned, use it to point the telescope at your desired celestial object.
2. Look through the main telescope's eyepiece. The object should be visible, though perhaps not perfectly centered.
3. Use the slow-motion control shafts on the RA and DEC axes to center the object in the eyepiece.
4. Adjust the focuser knob until the image is sharp and clear.

5. As the Earth rotates, objects will drift out of view. Use the RA slow-motion control to track them, keeping them centered in the eyepiece.

4.4. Using the Smartphone Camera Adapter

The included smartphone adapter allows you to capture images through the telescope.

1. Attach the adapter to the eyepiece as per its instructions.
2. Secure your smartphone to the adapter, ensuring the camera lens is aligned with the eyepiece.
3. Open your smartphone's camera app. Adjust the phone's position on the adapter until the telescope's view is centered on your screen.
4. Use your phone's camera controls to adjust exposure, focus, and capture images or videos.

5. Maintenance

Proper care will ensure the longevity and performance of your telescope.

5.1. Cleaning Optics

- **Dust:** Use a soft camel hair brush or a can of compressed air (held upright to prevent propellant discharge) to gently remove loose dust from the primary mirror and eyepiece lenses.
- **Smudges/Fingerprints:** For stubborn marks, use a specialized optical cleaning solution and lens tissue. Apply a small amount of solution to the tissue, not directly to the lens, and gently wipe in a circular motion from the center outwards. Avoid excessive pressure.
- **Never touch optical surfaces with bare fingers.**

5.2. General Care

- Store the telescope in a dry, dust-free environment when not in use. Use dust caps for the optical tube and eyepieces.
- Avoid exposing the telescope to extreme temperatures or sudden temperature changes, which can cause condensation.
- Periodically check all screws and bolts for tightness, especially on the mount and tripod. Do not overtighten.

6. Troubleshooting

Here are solutions to common issues you might encounter:

Problem	Possible Cause	Solution
Image is blurry or out of focus.	Focuser not adjusted correctly.	Adjust the focuser knob slowly until the image is sharp. Ensure the eyepiece is fully inserted and secured.
Cannot find objects.	Red-dot finder is not aligned.	Re-align the red-dot finder with the main telescope during daylight hours (refer to Section 4.1).
Objects drift out of view quickly.	Equatorial mount not polar aligned or RA clutch loose.	Perform polar alignment (refer to Section 4.2). Ensure the RA clutch is engaged. Use the RA slow-motion control for tracking.

Problem	Possible Cause	Solution
Image appears dim or faint.	Light pollution, atmospheric conditions, or object is inherently faint.	Observe from a dark-sky location. Allow your eyes to adapt to the dark. Some deep-sky objects are naturally faint and require patience.

7. Specifications

Feature	Detail
Optical Design	Newtonian Reflector
Aperture	130 mm
Focal Length	600 mm
Focal Ratio	f/4.6
Focuser	40mm Draw Tube
Eyepiece Included	25mm Plössl
Finderscope	Red-Dot Reflex Finder
Mount Type	EXOS Nano EQ3 German Equatorial Mount
Tripod	Full-size with accessory tray
Counterweight	2.5 lbs
Included Accessories	Smartphone Camera Adapter
Item Weight	13.5 Pounds (approx. 6.12 kg)
Dimensions (LxWxH)	34.45 x 9.45 x 20.08 inches (approx. 87.5 x 24 x 51 cm)

8. Warranty and Support

8.1. Warranty Information

This Explore Scientific FirstLight 130mm Newtonian Reflector Telescope comes with a**Limited USA One Year Warranty**. Please retain your proof of purchase for warranty claims. For specific terms and conditions, refer to the warranty card included with your product or visit the official Explore Scientific website.

8.2. Customer Support

For technical assistance, troubleshooting beyond this manual, or warranty service, please contact Explore Scientific customer support. Contact information can typically be found on the manufacturer's website or on the product packaging.

Related Documents - FirstLight 130mm

	National Geographic RT70400 70mm Reflector Telescope Instruction Manual Comprehensive instruction manual for the National Geographic RT70400 70mm Reflector Telescope with Panhandle Mount, covering assembly, usage, safety, cleaning, troubleshooting, and observing tips.
	Explore Scientific 10" Truss Tube Dobson Telescope User Manual & Guide Comprehensive user manual and guide for the Explore Scientific 10" Truss Tube Dobson telescope (Model 0116925), covering setup, operation, maintenance, and safety.
	Buki France 40-Activity Telescope: Explore the Starry Night Sky Discover the universe with the Buki France 40-Activity Telescope. This comprehensive guide provides setup, usage, and engaging activity instructions for young astronomers aged 8 and up to explore stars and space.
	Manual del Telescopio Dobson Explore Scientific 10" Truss Tube Manual de instrucciones completo para el telescopio Dobson Explore Scientific 10" Truss Tube, que cubre la configuración, alineación, seguridad, mantenimiento y especificaciones técnicas.
	National Geographic RF360MM 50mm Portable Refractor Telescope Instruction Manual This instruction manual provides detailed guidance for the National Geographic RF360MM 50mm Portable Refractor Telescope with Panhandle Mount. It covers setup, operation, safety precautions, troubleshooting, and technical terms related to telescope use.
	Pegasus Astro FocusCube v2 Operating Manual This operating manual provides a comprehensive guide to the Pegasus Astro FocusCube v2, a high-precision digital focuser designed for astrophotography. Learn about its features, setup, software control, and troubleshooting for optimal telescope focusing.