DÖRR Delta 1000

DÖRR Delta 1000 Mirror Telescope Instruction Manual

Model: Delta 1000

Introduction

This manual provides detailed instructions for the assembly, operation, and maintenance of your DÖRR Delta 1000 Mirror Telescope. The Delta 1000 is a Newton reflector telescope designed for both ambitious beginners and advanced users, featuring a D114/F1000mm optical system, a sturdy aluminum stand, and a parallactic EQ-1 mount. Please read these instructions carefully before using your telescope to ensure proper setup and optimal viewing experience.

Package Contents

Before beginning assembly, verify that all components listed below are present in your package.

- Newton Mirror Telescope (D114/F1000mm optical tube)
- Sturdy Aluminum Tripod
- Parallactic EQ-1 Mount
- Viewfinder tube (5x24)
- Eyepieces:
  - SR4mm Super-Ramsden Eyepiece
  - SR6mm Super-Ramsden Eyepiece
  - H12.5mm Huygens Eyepiece
  - H20mm Huygens Eyepiece
- 2x Barlow Lens
- Moon Filter
- Accessory Tray
- Counterweight
- Tools for assembly

Image: All components included in the DÖRR Delta 1000 package.

Setup Instructions

Follow these steps to assemble your DÖRR Delta 1000 telescope.

1. Assemble the Tripod

1. Extend the tripod legs to a stable position.
2. Attach the accessory tray to the tripod spreader bars. Ensure it is securely fastened to provide stability.

Image: Tripod assembly with accessory tray.

2. Mount the Equatorial Mount

1. Place the EQ-1 equatorial mount onto the tripod head.
2. Secure the mount using the provided locking screw from underneath the tripod head.
3. Attach the counterweight shaft and the counterweight to the mount. The counterweight helps balance the telescope.

Image: Equatorial mount with counterweight.

3. Attach the Telescope Optical Tube

1. Carefully place the telescope optical tube into the mounting rings on the equatorial mount.
2. Secure the tube by tightening the screws on the mounting rings. Ensure the tube is firm but do not overtighten.

Image: Telescope optical tube mounted.

4. Install the Finderscope

1. Slide the 5x24 viewfinder tube into its bracket on the main telescope tube.
2. Tighten the small screws on the bracket to hold the finderscope in place.

Image: Finderscope installation.

5. Insert an Eyepiece

1. Loosen the thumbscrews on the focuser.
2. Insert the desired eyepiece (e.g., H20mm for lowest magnification) into the focuser.
3. Tighten the thumbscrews to secure the eyepiece.

Image: Fully assembled telescope.

Operating the Telescope

1. Aligning the Finderscope

The finderscope provides a wide field of view to help locate objects before observing them with the main telescope.

- During daylight, point the main telescope at a distant, stationary object (e.g., a treetop or building).
- Look through the main telescope with a low-power eyepiece (e.g., H20mm) and center the object.
- Now, look through the finderscope. Adjust the finderscope's alignment screws until the same object is centered in its crosshairs.
- This alignment ensures that whatever is in the center of your finderscope is also in the field of view of your main telescope.

2. Focusing

Once an object is centered, turn the focuser knobs slowly until the image appears sharp.

3. Using Eyepieces and Magnification

The magnification of your telescope is determined by the focal length of the telescope divided by the focal length of the eyepiece. The DÖRR Delta 1000 has a focal length of 1000mm.

- **H20mm Eyepiece:** 1000mm / 20mm = 50x magnification. Ideal for wide-field views and locating objects.
- **H12.5mm Eyepiece:** 1000mm / 12.5mm = 80x magnification. Good for general planetary and lunar observation.
- **SR6mm Eyepiece:** 1000mm / 6mm = 167x magnification. For more detailed views of planets and the Moon.
- **SR4mm Eyepiece:** 1000mm / 4mm = 250x magnification. For high-power observation of specific features.

Note: The recommended maximum useful magnification for the DÖRR Delta 1000 is approximately 228x. While higher magnifications are technically possible, atmospheric conditions often limit the clarity of images beyond this point.

Image: Included eyepieces and Barlow lens.

4. Using the 2x Barlow Lens

The 2x Barlow lens doubles the magnification of any eyepiece it is used with.

- Insert the Barlow lens into the focuser first.
- Then, insert your chosen eyepiece into the Barlow lens.
- **Example Magnifications with Barlow Lens:**
    - SR4mm + Barlow: 250x * 2 = 500x
    - SR6mm + Barlow: 167x * 2 = 334x
    - H12.5mm + Barlow: 80x * 2 = 160x
    - H20mm + Barlow: 50x * 2 = 100x

Remember the note about maximum useful magnification. High magnifications with the Barlow lens may result in less sharp images due to atmospheric conditions.

5. Using the Equatorial Mount (EQ-1)

The EQ-1 mount allows you to track celestial objects as they move across the night sky due to Earth's rotation.

- **Polar Alignment:** For accurate tracking, the mount's polar axis should be aligned with the celestial pole (near Polaris in the Northern Hemisphere). This is a more advanced step and detailed

instructions can be found in dedicated astronomy guides.

- **Slow Motion Controls:** Use the slow-motion control cables to make fine adjustments to the telescope's position in Right Ascension (RA) and Declination (DEC) axes. This allows for smooth tracking of objects.

Image: Equatorial mount controls.

Maintenance

- **Optics Cleaning:** Dust on the mirror or lenses can reduce image quality. Use a soft brush or compressed air to remove loose dust. For stubborn smudges, use a specialized optical cleaning solution and a microfiber cloth designed for optics. Avoid touching optical surfaces with bare hands.
- **Storage:** When not in use, store the telescope in a dry, dust-free environment. Cover the telescope with dust caps to protect the optics.
- **Mechanical Parts:** Periodically check all screws and bolts for tightness. Do not overtighten.

Troubleshooting

- **Image is blurry:**

- Adjust the focuser knobs slowly until the image is sharp.
- Ensure the eyepiece is fully inserted and secured.
- Check for condensation or dirt on the eyepiece or main mirror.
- Atmospheric turbulence can cause blurring, especially at high magnifications.

- **Cannot find objects:**
  - Ensure the finderscope is properly aligned with the main telescope.
  - Start with the lowest magnification eyepiece (H20mm) for a wider field of view.
  - Practice locating bright objects like the Moon or bright stars first.
- **Image is dim:**
  - Ensure the dust caps are removed from both the main telescope and the finderscope.
  - High magnification eyepieces will naturally produce dimmer images.

Specifications

Model Name	Delta 1000
Optical Design	Newtonian Reflector (Mirror Telescope)
Objective Lens Diameter	114 mm
Focal Length	1000 mm
Focal Ratio	f/8.8
Magnification Range	50x - 500x (with included accessories)
Recommended Max. Magnification	228x
Eyepieces Included	SR4mm, SR6mm (Super-Ramsden); H12.5mm, H20mm (Huygens)
Barlow Lens	2x
Finderscope	5x24
Telescope Mount	EQ-1 Equatorial Mount
Tripod	Aluminum, adjustable height (approx. 121 cm - 131 cm)
Accessory Connection	1.25 inch
Item Weight	6 kg
Product Dimensions (L x W x H)	121 x 46.5 x 131 cm (assembled)
Manufacturer Part Number	566012

Warranty and Support

For warranty information and technical support, please refer to the documentation provided with your

purchase or contact DORR customer service directly. Keep your proof of purchase for warranty claims.