

INSTRUCTION MANUAL

Orion Deluxe Mini 50mm Guide Scope with Helical Focuser

#13022



 **ORION**
TELESCOPES & BINOCULARS

Providing Exceptional Consumer Optical Products Since 1975

OrionTelescopes.com

Customer Support (800) 676-1343

E-mail: support@telescope.com

Corporate Offices (831) 763-7000

89 Hangar Way, Watsonville, CA 95076

© 2011 Orion Telescopes & Binoculars

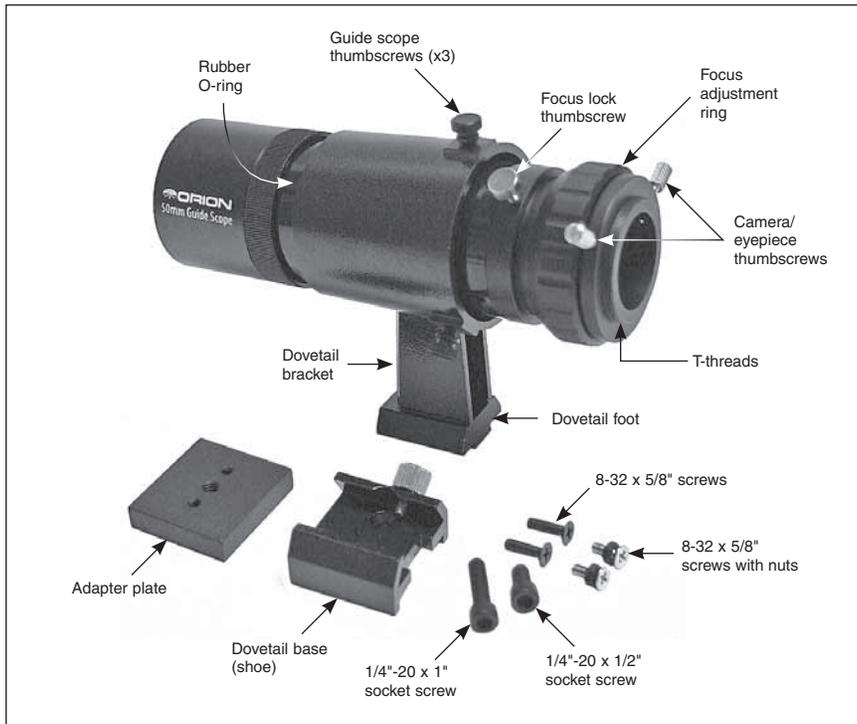


Figure 1. The Deluxe Mini 50mm Guide Scope with Helical Focuser and included components

Congratulations on your purchase of the Orion Deluxe Mini 50mm Guide Scope with Helical Focuser. It's a wonderfully versatile, compact, and lightweight guide scope designed for use with the Orion StarShoot AutoGuider, Orion StarShoot Planetary Imager & AutoGuider, or similar small-chip CCD cameras. It's ideal for guiding long-exposure astrophotographs with short to medium focal length telescopes up to about 1500mm focal length. This deluxe model features a machined, "non-rotating" helical focuser that enables the user to quickly achieve sharp focus of guide stars with your autoguiding camera. The guide scope's bright, wide-field optics serve up lots of potential guide stars on your autoguider's CCD sensor, and it's small enough to stash in an accessory case! What's more, this scope can also function as a 50mm illuminated finder scope, with the addition of the optional #8450 Orion 12.5mm Illuminated Plössl eyepiece!

WARNING: *Never look directly at the Sun through your telescope or its finder scope – even for an instant – without a professionally made solar filter that completely covers the front of the instrument, or permanent eye damage could result. Young children should use this telescope only with adult supervision.*

Parts List

- 1 50mm guide scope optical tube with precision helical focuser
- 1 Dovetail finder scope bracket, aluminum
- 1 Dovetail base (shoe), aluminum
- 2 #8-32 x 3/8" Phillips head screws, and 2 hex nuts
- 2 #8-32 x 5/8" Phillips head screws
- 1 Adapter plate
- 1 Socket head screw, 1/4"-20 x 1"
- 1 Socket head screw, 1/4"-20 x 1/2"

Assembly

The Deluxe Mini 50mm Guide Scope with Helical Focuser (DMGS) comes fully assembled and mounted in the dovetail bracket. Refer to **Figure 1** to familiarize yourself with the features and parts of the guide scope.

Mounting the Deluxe Mini Guide Scope

The DMGS's mounting bracket has a dovetail foot that fits the Orion dovetail finder scope base included on many Orion telescopes. The guide scope also comes with a separate dovetail base, or shoe (Orion part #7214), with two #8-32 x 3/8" flat Phillips-head screws and two hex nuts, for custom installations.

To mount the DMGS on a dovetail plate such as Orion's Wide or Narrow Universal mounting plates, or similar plates produced under other brand names, we've included an adapter plate that makes it easy (**Figure 1**). The DMGS can then be piggybacked on top of your main instrument's tube rings, or on a side-by-side plate, for autoguiding.

On the adapter plate there are three threaded holes. The two outer holes are for attaching the dovetail base to the adapter plate using the two included #8-32 x 5/8" Phillips head screws (**Figure 2a**). (These are the longer of the four #8-32 screws.) Once the dovetail base is securely attached, you can mount the adapter

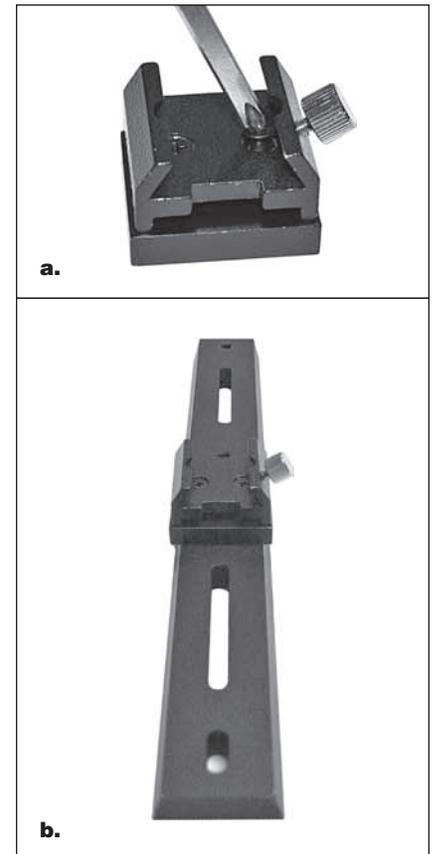


Figure 2. a) The dovetail shoe threads into the adapter plate with two screws. **b)** The adapter plate attaches to an optional dovetail bar with one of the included socket head cap screws.



Figure 3. a) Installing the DMGS on an optional dovetail bar. **b)** Ready for mounting on telescope tube rings or side-by-side saddle.

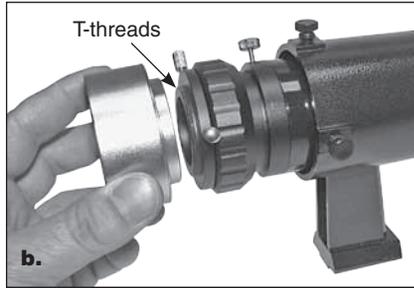
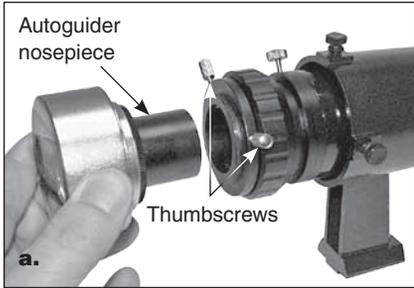


Figure 4. a) An autoguider with a 1.25" nosepiece can be inserted into the focuser and secured with the two thumbscrews. **b)** Threading an autoguider directly onto the T-threads is the most secure mode of attachment. **c)** The StarShoot AutoGuider makes a perfect match for the DMGS.



plate onto a dovetail mounting plate (**Figure 2b**) by inserting one of the supplied 1/4"-20 socket head screws up through an unthreaded hole or slot in the dovetail plate and into the 1/4"-20 hole in the center of the adapter plate. Tighten with a 3/16" Allen wrench (user supplied). We have provided two different socket head screws for your convenience, one is 1/2" long, the other 1" long. Choose the one that best fits your mounting plate. **Figure 3** shows the DMGS being mounted on an optional Orion narrow dovetail plate.

Attaching Your Autoguiding Camera

A guide camera can be coupled to the focuser either by a) inserting the camera's 1.25" nosepiece into the focuser as far as it will go and securing it with the two thumbscrews (**Figure 4a**), or b) if your camera is equipped with female T-threads, by threading the camera directly onto the male T-thread flange of the

focuser. **Figure 4b** shows the Orion StarShoot AutoGuider being threaded onto the T-threads of the helical focuser, and then fully installed (**Figure 4c**). Using the T-threads is the most secure mode of camera attachment.

Focusing with the Deluxe Mini Guide Scope

The DMGS features a precision helical focuser that makes it easy to focus your guide stars quickly and precisely (**Figure 5**). The focuser, made of machined, anodized aluminum, is the "non-rotating" variety, meaning the guide camera does not rotate when focus is adjusted, but rather moves in or out in fixed orientation, which is important for hassle-free focusing. You don't want stars rotating in the field of view when you're trying to focus! Drawtube travel is 12mm and the motion is extremely smooth and fine – less than 1mm of travel per one full rotation of the helical focusing ring.

Make sure your autoguider camera is powered on and connected to your laptop computer, and that the software you will use for autoguiding is up and running. Also, make sure the focus lock thumbscrew (see **Figure 5**) is not tightened down. With the imaging software set to take continuous exposures, rotate the grooved focusing adjustment ring clockwise or counterclockwise while you watch the stars or reference numbers (e.g., FWHM) on your laptop screen. When the stars are reasonably sharp, or you've reached approximately the lowest FWHM, you're done!

Once focus is achieved, the focus lock thumbscrew can be *lightly* tightened to ensure the drawtube remains set at that position, although this may not even be necessary. There's no need to tighten this thumbscrew firmly since most guide cameras are relatively lightweight, and doing so could put sideways pressure on the drawtube that might knock your carefully set focus off a bit.

For best results we recommend focusing the guide camera at the beginning of your imaging session, following the focusing procedures in the imaging software you use for astrophotography, such as MaxIm DL, PHD Guiding, or Images Plus.

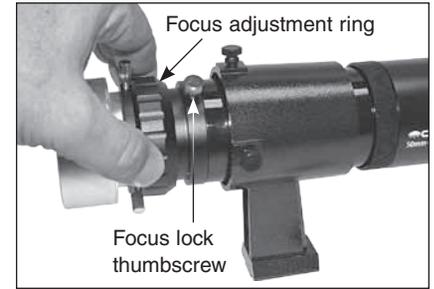


Figure 5. Rotate the focus adjustment ring until guide stars come into focus.

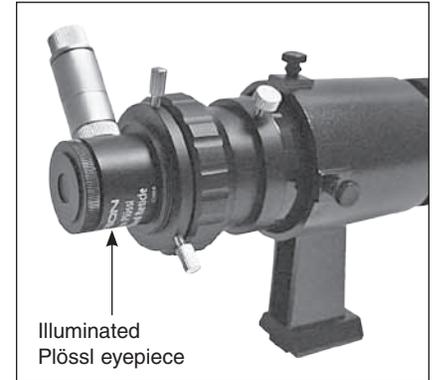


Figure 6. With the addition of an optional Orion 12.5mm Illuminated Pössl Eyepiece, the DMGS doubles as a crosshair finder scope.

Aiming the Deluxe Mini Guide Scope

The DMGS is mounted in a dovetail bracket that has three black thumbscrews to secure the guide scope tube in place. The tube is secured to the front of the bracket with a rubber O-ring. Although you may never need to do it in order to find a guide star, you can adjust the direction the guide scope is pointed within the bracket by alternately loosening and tightening the three thumbscrews. Just make sure that all three thumbscrews are tightened before you begin guiding. Do not over-tighten them, however, or you could strip the screw threads.

Using the Deluxe Mini Guide Scope as a Finder Scope

The DMGS can double as a 50mm illuminated finder scope with the addition of the optional Orion 12.5mm Illuminated Plössl eyepiece (**Figure 6**). Some other 1.25" telescope eyepieces may also work, while others may not reach focus when inserted all the way into the focuser. (With some eyepieces, backing them out a few millimeters and securing the barrel with the two thumbscrews will allow you to achieve focus. A 1.25" parfocal ring can assist in setting the focus position on the eyepiece barrel, if desired.) But the 12.5mm Illuminated Plössl comes in very handy because it has a double crosshair reticle that is illuminated by a red LED with adjustable brightness. Magnification with this eyepiece is 13x. If a lower magnification is desired, a longer focal length eyepiece can be used. For example, a 20mm eyepiece will yield 8.1x magnification.

Caring for the Deluxe Mini Guide Scope

To keep dust from getting inside the guide scope and from accumulating on the objective lens, keep the front and rear caps installed when the guide scope is not in use. We recommend storing the guide scope in a padded accessory case.

Cleaning the Lens

Although it shouldn't need cleaning very often, you can clean the front lens of the guide scope with any quality optical lens cleaning tissue and optical lens cleaning fluid designed for multi-coated optics. Never use regular glass cleaner or cleaning fluid designed for eyeglasses. Before cleaning with fluid and tissue, eject any loose particles from the lens with a blower bulb, compressed air, or a soft brush such as a LensPen. Then apply some cleaning fluid to a lens tissue, never directly on the optics. Wipe the lens gently in a circular motion, then remove any excess fluid with a fresh lens tissue. Oily fingerprints and smudges can be removed using this method. Use caution, as rubbing too hard may scratch the lens. Never re-use the same tissue.

Specifications

Aperture:	50mm
Type:	Achromat (doublet)
Focal length:	162mm
Lens coating:	Multi-coated
Focuser:	Helical, non-rotating
Focuser material:	machined aluminum
Focus travel:	12mm
Camera attachment:	Via T-threads or nosepiece holder
Length:	6-13/16 inches
Weight:	19.2 oz.

One-Year Limited Warranty

This Orion Deluxe Mini 50mm Guide Scope is warranted against defects in materials or workmanship for a period of one year from the date of purchase. This warranty is for the benefit of the original retail purchaser only. During this warranty period Orion Telescopes & Binoculars will repair or replace, at Orion's option, any warranted instrument that proves to be defective, provided it is returned postage paid to: Orion Warranty Repair, 89 Hangar Way, Watsonville, CA 95076. If the product is not registered, proof of purchase (such as a copy of the original invoice) is required.

This warranty does not apply if, in Orion's judgment, the instrument has been abused, mis-handled, or modified, nor does it apply to normal wear and tear. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state. For further warranty service information, contact: Customer Service Department, Orion Telescopes & Binoculars, 89 Hangar Way, Watsonville, CA 95076; (800) 676-1343.



OrionTelescopes.com

89 Hangar Way, Watsonville, CA 95076

Customer Support Help Line (800) 676-1343

© 2012 Orion Telescopes & Binoculars
