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**William Optics Corp.**

# **FluoroStar 110**

**INSTRUCTION MANUAL**



*Crafting the Earth's Finest Astronomical Instruments*

Thank you for choosing a William Optics FLUOROSTAR 110, William Optics flagship refractor.

This simple step-by-step instruction manual is designed to provide FLT-110 owners with a better understanding of how to operate their new telescope by providing precise, updated information. These instructions will also guide you through how to properly maintain the FLT-110, and how to operate it at its maximum capabilities.

Please carefully familiarize yourself with your telescope's parts and functions before operating it for the first time.

## WARNING!

DO NOT USE THIS TELESCOPE UNDER ANY CIRCUMSTANCES TO DIRECTLY VIEW THE SUN.

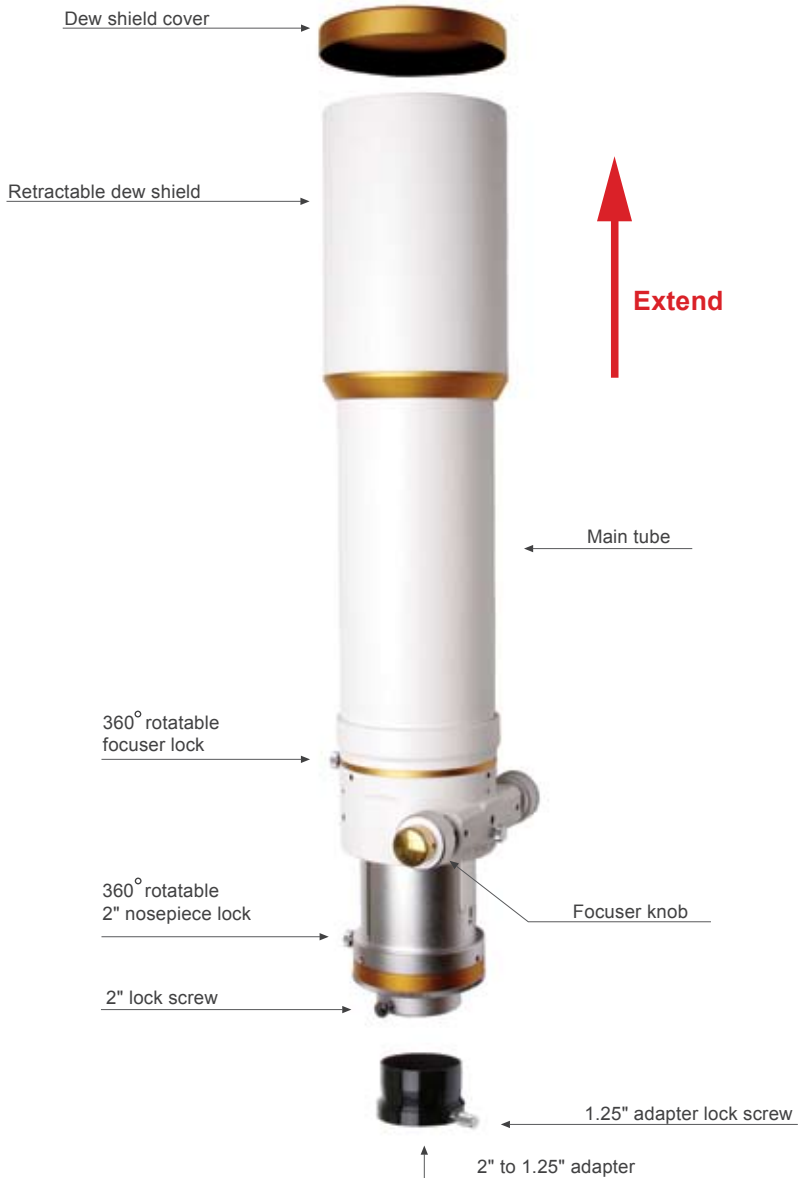
It could easily cause instant blindness or serious damage to your eyes. To view the sun, use only appropriately designed solar filters that will reject 99.96% of the sun light and heat. Educate your family on how to use this telescope properly during day and night time observations. For further information please contact your local dealer.



# CONTENTS

<b>Getting to know your telescope</b>	<b>01</b>
<b>FluoroStar 110 Specifications</b>	<b>02</b>
<b>FluoroStar 110 Accessories Chart</b>	<b>03</b>
<b>Connection Instructions (Mounting Rings)</b>	<b>04</b>
<b>Connection Instructions (2" Diagonal Mirror)</b>	<b>05</b>
<b>Connection Instructions (Erecting Finderscope)</b>	<b>06</b>
<b>Connection Instructions (Aligning Finderscope)</b>	<b>07</b>
<b>Usage</b>	<b>08</b>
<b>Important Notice</b>	<b>09</b>
<b>Storage and Cleaning</b>	<b>09</b>
<b>Caution for Safety</b>	<b>10</b>
<b>Bundled Equipment</b>	<b>10</b>
<b>Optional Equipment</b>	<b>11</b>
<b>Recommended for This Scope</b>	<b>12-16</b>

## Getting to know your telescope



## FluoroStar 110 Triplet APO Specifications

Aperture	110 mm
Focal Ratio	F / 7.0
Focal Length	770 mm
Objective Type	3 elements air-spaced, TMB design, STM coatings
Resolving Power	1.05"
Limiting Magnitude	12.0
Lens Shade	Retractable
Focuser	4" 360° Rotating Camera-angle Adjuster with 1:10 microfocuser 1.25" Adapter Included
1.25" Adapter	Brass Compression Rings
Tube Diameter	115 mm
Tube Length	630 mm (24.6") Fully Retracted
Tube Weight	6.55 kg (14.5 lbs.)
Case	High Quality Aluminum Case
Case Dimensions (WxHxD)	81.5cm x 24.5cm x 20cm (31.8" x 9.6" x 7.8") (Total interior length 740mm)
Case Weight	5.3 kg

# FluoroStar Accessories Chart

www.william-optics.com



Above diagram is only for future connectivity purposes.  
Please contact our Authorized Dealers for accessories purchase.

## Connection Instructions

### ( Mounting Rings )

#### Step-1



Safely secure the 115mm mounting rings to the WO dovetail.

#### Step-2



Fully extend the dewshield cover before placing the OTA in the rings.

#### Step-3

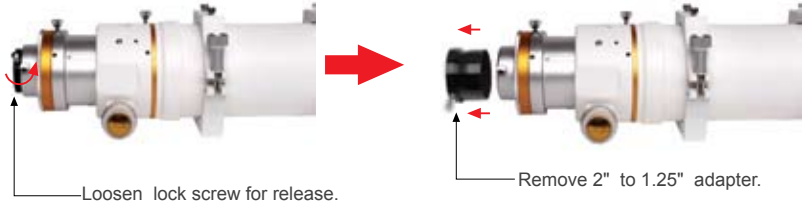


Remember to insure that the mounting rings knobs are tight before operations.

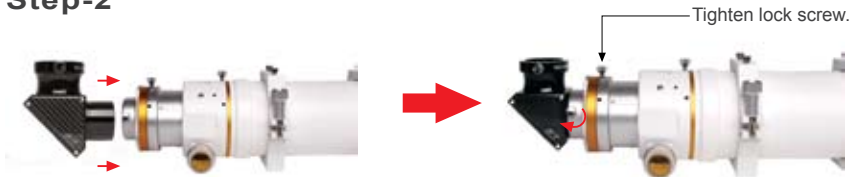
## Connection Instructions

### ( 2" Diagonal Mirror )

#### Step-1



#### Step-2



#### Step-3





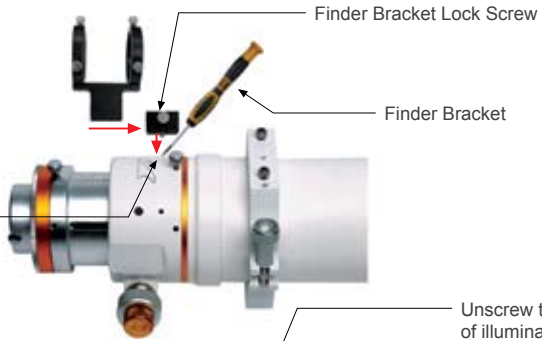
## Connection Instructions

### ( Finderscope )

#### Step-1

Extract the black plastic screw and place the finder bracket on FluoriteStar 110 focuser and attach with lock screw.

Connection point for finderscope bracket.

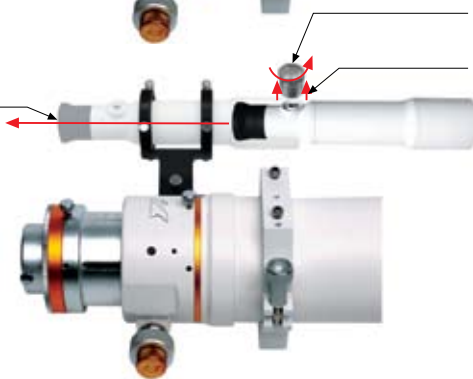


#### Step-2

Insert finderscope into finder bracket.

Unscrew the knob of illuminator.

Remove the knob from finderscope.



#### Step-3

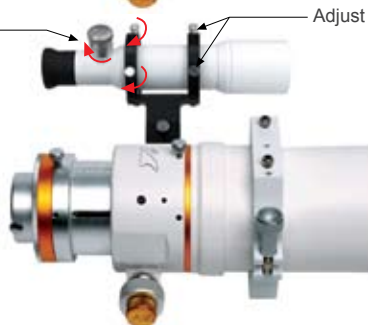
Insert illuminator into finderscope.



#### Step-4

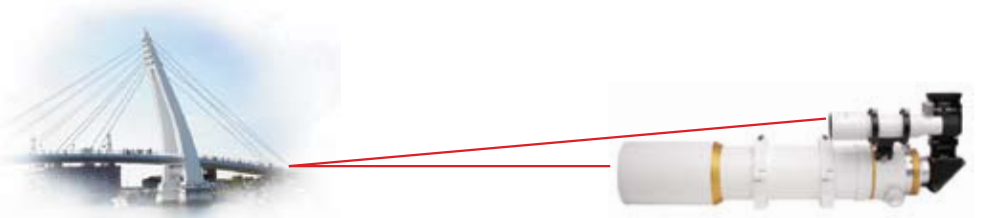
Tighten the knob on finderscope.

Adjust the alignment screws.



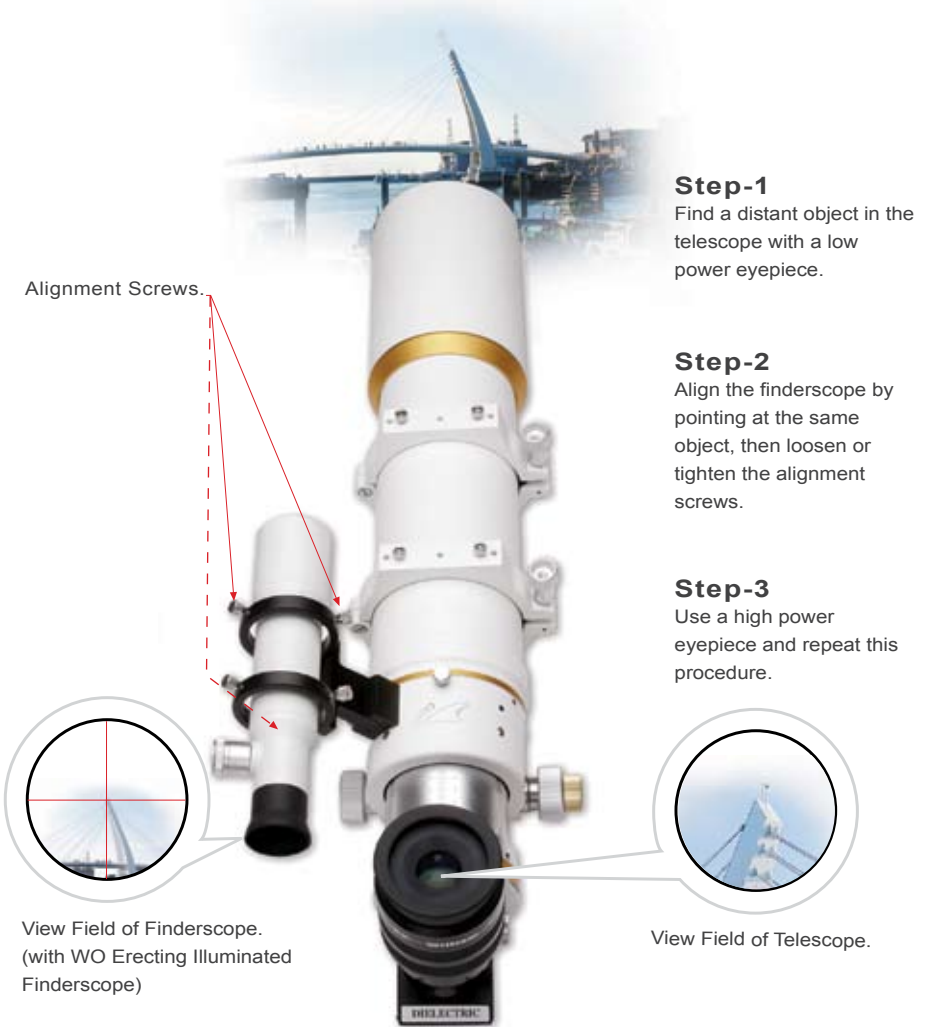
## Connection Instructions

### ( Aligning Finderscope )



Align the finderscope pointing at the same object as the telescope.

Alignment Screws.



#### Step-1

Find a distant object in the telescope with a low power eyepiece.

#### Step-2

Align the finderscope by pointing at the same object, then loosen or tighten the alignment screws.

#### Step-3

Use a high power eyepiece and repeat this procedure.

View Field of Finderscope.  
(with WO Erecting Illuminated  
Finderscope)

View Field of Telescope.

## Usage

The Fluorostar 110 is designed to work with both 1 1/4 inch and 2 inch diameter eyepieces in various focal lengths, for both daytime and nighttime viewing. Because the Fluorostar 110 is well suited to viewing nebulae, clusters, large galaxies and comets, we recommend the use of high quality wide angle eyepieces. The WO SWAN ( 72° ) and UWAN ( 82° ) series eyepieces are available in a variety of focal lengths. Viewing the moon and planets is also impressive at magnifications of 120X when seeing conditions permit.

This telescope is also well suited for higher power observations with planetary eyepieces.

To calculate the magnification of your telescope and eyepiece combination, divide the telescope focal length in mm by the eyepiece focal length in mm.

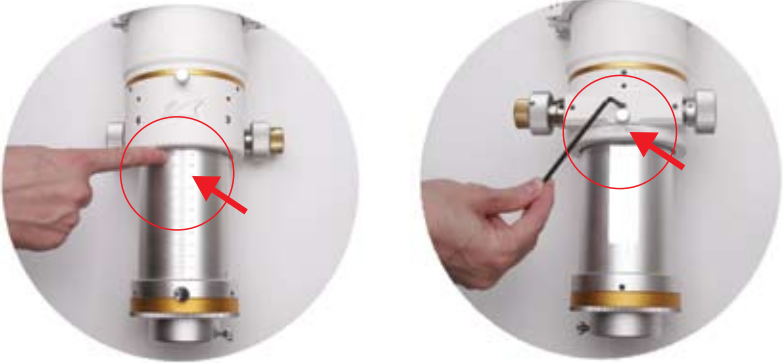
Keep in mind that the atmosphere plays an important role in seeing conditions, and only the best seeing conditions will support high power viewing. Additional power under less than ideal seeing conditions will not result in an increase in viewable details, and lower powered eyepieces should there be used under those conditions. It's easiest to locate objects using low power eyepieces (20X magnification) and then zoom in by switching to higher powered eyepieces. The largest field of view will be seen using a 12X low power-wide field of view eyepiece. Also remember to let the telescope reach thermal stability for optimal results. A triplet lens takes longer than a doublet to cool down. A stable tripod or mount is recommended for optimal viewing. This includes high quality photography tripods, and German Equatorial mounts, which are designed for astronomical use and include precise tracking of celestial objects. William Optics is marketing a very practical Alt-Az mount too, which will perfectly complement any of its refractors.

The Fluorostar 110 has been specifically designed for astrophotography; it will produce excellent results when used with the proper equipment. Being this a high-end astrophotography telescope, it should be mounted on a good mount. Please see our website for examples of photos taken with these telescopes. The Accessories Chart on page 3 provides additional details on photographic accessories for various CCD, digital and film cameras.

Optional accessories from WO include mounting rings and plates, super high-quality 2" Quartz star diagonals, and 2" Erecting Prisms (45° and 90° ), all of which provide for superior viewing and high quality images.

Never aim your telescope or finderscope at the Sun without proper Solar filters installed on the front of the telescope. Doing so for even a moment may permanently damage your vision. Proper Solar filters consist of a filters made by reputable manufacturers, designed to fit tightly over the front of the dew shield. Solar eyepiece filters are not considered safe, and should not be used. With proper front mounted Solar filters, the telescope will not be harmed by viewing the Sun. Contact your Authorized WO Dealer for further information on the brands, sizes, and prices of proper solar filters.

## Important Notice



William Optics warranty does not cover damage to the focuser due to inappropriate tension setting.

This focuser is designed to hold many pounds without problems. If nonetheless your setup requires additional tension adjustment, please use the tension allen screw under the focuser. In order to avoid sagging or denting of the focuser steel reinforcement, it is necessary to adjust tension **ONLY** when the drawtube is **FULLY EXTENDED**.

**Extend the focuser drawtube to its full 115 mm as in the picture here above before performing adjustment.**

## Storage and Cleaning

- ▶ We suggest placing all accessories inside an airtight container with desiccative control. Secondly, remember to store the telescope in a non-humid environment, never leave it in a hot heated environment. If not properly stored, it may develop mildew growth and other preventable build up.  
Be particularly careful after a night observation that the lens has no dew on it before storing the telescope away.
- ▶ In case the lens surface becomes dusty, smeared, or gets fingerprints or fungus build-up on it, first of all, remove any surface particle by using an air blower, then carefully proceed to wiping the lens gently with a lint-free proper soft cloth. Use a lens liquid cleaner to get the best cleaning result. Make sure you change your cloth to a new one from time to time. The above-mentioned indications are not necessary if you carefully protect your telescope.
- ▶ The multi-layer paint white finish of your Fluorostar 110 is easy to ruin. Please take care of the exterior body tube by wiping it down with a slightly damp soft cloth from time to time. Water should be enough to do the job. Please do not use any organic solvent on your telescope, for example alcohol, benzene and other hazardous chemical as this might ruin it.

## Caution for Safety

### ▶ **Caution! Never directly view the Sun with your telescope!**

Do not aim your telescope at the Sun without a front mounted high quality professionally manufactured solar filter. Viewing the Sun without the proper protection may result in permanent severe damage to your eyes, and even cause blindness. Contact your Authorized WO Dealer if you are interested in purchasing a compatible and proper solar filter.

- ▶ Always place the telescope on a flat surface, to prevent it from falling and injuring yourself or others.
- ▶ Never use the telescope in the rain or in conditions where it may get wet. The telescope is not designed to be waterproof. If the telescope accidentally gets caught in the rain, immediately wipe off all water using a clean dry soft cloth. If the telescope gets totally soaked in water, immediately contact your Authorized WO Dealer for service instructions.
- ▶ Do not disassemble or attempt to repair your telescope without a written authorization from William Optics Corp., as this violates the warranty terms under the limited product warranty, and negates any guarantee.

## Bundle Equipment

1. Aluminum carrying case.
2. Gold plated dew shield cover.
3. 115mm mounting rings.
4. 2" to 1.25" adapter.
5. Various accessories depending on the package.

## Optional Equipment

A sturdy tripod for astronomical or spotting scope usage, or a telescope tripod and mount (Equatorial or Alt-Az).

A mirror diagonal or erecting prism (The 2" WO Dielectric model is strongly recommended for high quality astronomical viewing. A top quality Dielectric Quartz model is now also available from WO).

At least one or two high quality eyepieces (9mm to 40mm wide-field recommended) depending on the application.

For astrophotography, a photo adapter plus a T-Mount connection are necessary. William Optics offers a TMB-designed reducer / field flattener optimized for the 110mm TMB Triplet APO lens.

### Also available from WO:

- WO 2" Star Mirror Diagonals.
- WO 2" and 1.25" 45° Erecting prisms.
- 2.5x Apochromatic Barlow lens.
- 0.8x Reducer / Field Flattener with CCD camera adapter (will work ok, but we recommend the FLT field flattener instead).
- Super wide angle SWAN / UWAN Eyepieces, 1.25" or 2" versions.
- DCL 52, 28, 4337 series "Digital Camera adapter Lens for Digital Cameras and Digital Video".
- Digiscoping adapter: universal adapter for any type of digital camera.
- WO 2" VR-1 filter improves seeing on bright objects like the Moon.
- WO 115 mm mounting rings, saddle plate, dovetail plate combo for equatorial mounting.
- WO 2" Extension Tube.

## Recommended for This Scope

### Diagonal Mirrors



#### 2" Quartz Dielectric Diagonal

High-quality dielectric coating (99% reflectivity), precision-polished quartz flat in our much-admired, patented mechanics.

Our 2" Diagonals are what you need for your best observing sessions. Only from William Optics.



#### 2" Dielectric Carbon Fiber Diagonal

99% reflectivity with 1/10 lambda high-precision mirror surface, with elegant exterior design, with 1.25" adapter.

## ZenithStar 80 II ED Doublet APO



The newest ZenithStar II generation Doublet APO is a 80mm ED refractor ideal for everyone who needs an excellent back-up scope / guiding scope at an excellent price, or a great first APO refractor, which you can use for planetary work, wide-field imaging, and crisp, high power observations.

## SWAN Eyepieces



### 1.25" Eyepieces

Super Wide Angle (72°).

9mm, 15mm, 20mm focal lengths.

5 elements in 4 groups, fully multi coated.

Parfocal.



### 2" Eyepieces

Super Wide Angle (72°).

25mm, 33mm, 40mm focal lengths, FMC.

Generous eye-relief.

## UWAN Eyepieces



Ultra Wide Angle (82°),  
28mm (2"), 16mm (1.25"),  
7mm (1.25"), 4mm (1.25").



## Binoviewer



Enjoy the pleasures of BaK4 quality binoviewers with compressions rings in your refractor, SCT or Newtonian. The value package includes 2 eyepieces (1.25" WA 66 20mm ) and 1.6x corrector Barlow!

You can reach focus using WO 1.25 diagonal and a 1.6x barlow nosepiece.

## Red Dot Finder (R.D.F.)



This very practical r.d.f. comes with a handy, quick-release bracket included in the price. Centering your objects in the sky has never been easier!

## 45° Erecting Prisms



2" 45°



1.25" 45°  
with 2" Barrel



1.25" 45°

Perfect both for astronomical and terrestrial observations.  
Revolutionary and sophisticated design, extra-smooth feel.

## 2" 90° Erecting Prism



High quality prism, coating and finish, for  
good correct-image views of celestial  
objects. Perfect in daylight too.

## Photo Adapter

Anodized 2" camera adapter for prime focus photography. Standard T ring thread.



## EAZY-Touch Alt-Az Mount

What is that you prize the most for your wide-field refractor? It's ease of use: EAZY TOUCH is the mount you need, without sacrificing stability, looks and portability. Made in Switzerland by our partner company AOK, this mount allows you to be ready to go in 5 minutes even with a 4" telescope!





# **WILLIAM OPTICS USA**

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