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William Optics Corp.



WILLIAM OPTICS

Crafting the World's Finest Astronomical Instruments

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FLT-98 APO F/6.3
INSTRUCTION MANUAL



Crafting the World's Finest Astronomical Instruments

Thank you for choosing a William Optics FLT 98CF APO high-quality short tube refractor. This simple step-by-step instruction manual is designed to provide FLT 98CF APO 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 98CF APO, 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.



CAUTION!!

CONTENTS

Getting to know your telescope	01
FLT 98 CF APO Specifications	02
Getting to know your telescope	03
FLT 98 Aluminum APO Specifications	04
Accessories Chart	05
Connection Instructions (Mounting Rings)	06
Connection Instructions (2" Diagonal Mirror)	07
Connection Instructions (Erecting Finderscope)	08
Connection Instructions (Aligning Finderscope)	09
Usage	10
Storage and Cleaning	11
Caution and Safety	12
Bundle Equipment	12
Recommended Products	13-20

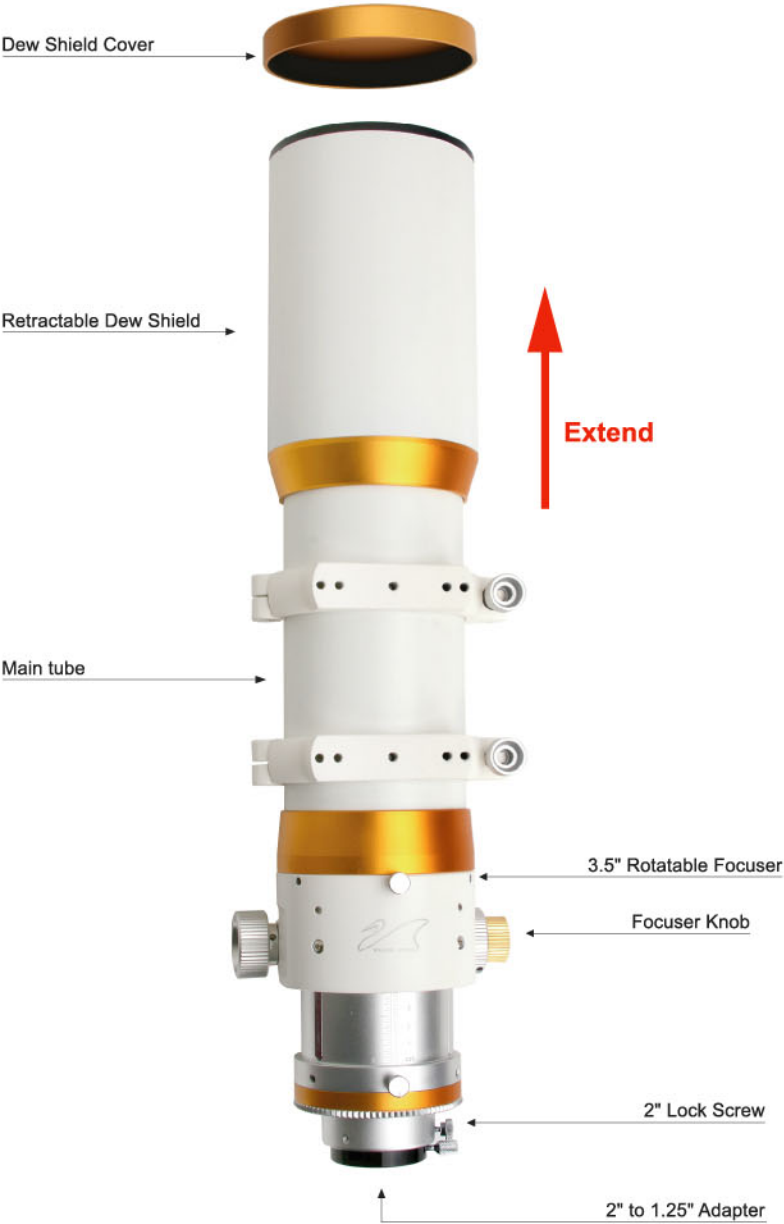
Getting to know your telescope



FLT-98 Carbon Fiber Triplet APO Specifications

Clear Aperture	98mm
Focal Ratio	F/6.3
Focal Length	618 mm
Objective Type	Air-spaced Triplet, Apochromatic objective
Resolving Power	1.16"
Limiting Magnitude	14.5
Lens Shade	Retractable
Focuser	2.5" Focuser, rotatable design Intergrated 1:10 fine focus 80 mm Focuser Travel Length
1.25" Adapter	Provided
Tube Diameter	124mm
Tube Length	505 mm (Fully Retracted) 600 mm (Fully Extended)
Tube Weight	3.5 kg
Case	High Quality Aluminum Case
Case Dimensions	W70cm x H24.5cm x D29.5cm (W27.5" x9.6" xD11.6")
Case Weight	Case Weight 7.5kg

Getting to know your telescope



FLT-98 Aluminum Triplet APO Specifications

Clear Aperture	98mm
Focal Ratio	F/6.3
Focal Length	618 mm
Objective Type	Air-spaced Triplet, Apochromatic objective
Resolving Power	1.16"
Limiting Magnitude	14.5
Lens Shade	Retractable
Focuser	3.5" 360 Rotating Camera-angle Adjuster 1.25" Adapter Included 100 mm Focuser Travel Length
1.25" Adapter	Provided
Tube Diameter	124mm
Tube Length	502 mm (Fully Retracted) 600 mm (Fully Extended)
Tube Weight	4.7 kg
Case	High Quality Aluminum Case
Case Dimensions	W70cm x H24.5cm x D29.5cm (W27.5" x9.6" xD11.6")
Case Weight	Case Weight 7.5kg

FluoroStar Accessories Chart



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 105mm mounting rings to the WO dovetail.

Step-2



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

Step-3

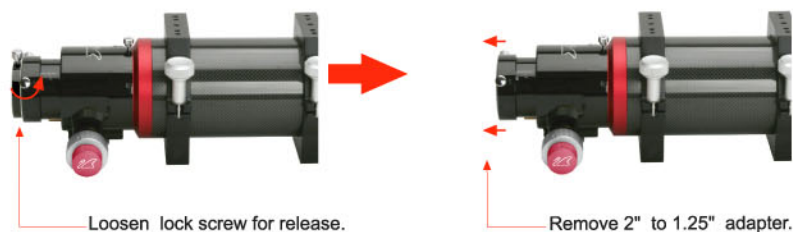


Remember to insure that the mounting rings knobs are tight before operations.

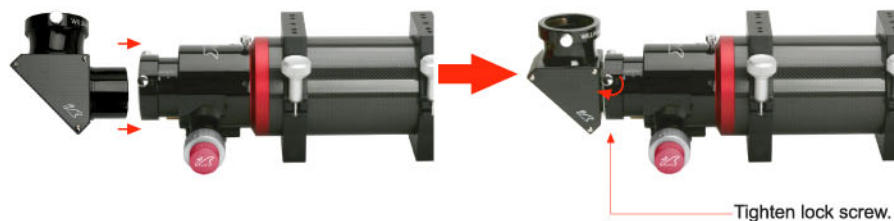
Connection Instructions

(2" Diagonal Mirror)

Step-1



Step-2



Step-3



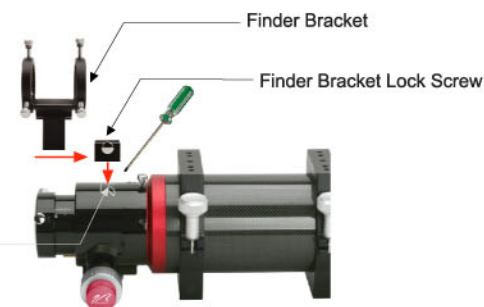
Connection Instructions

(Finderscope)

Step-1

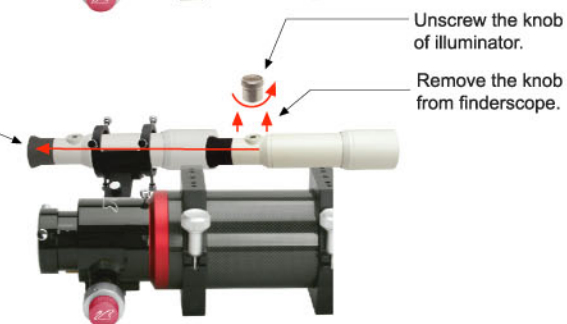
Extract the black plastic screw and place the finder bracket on FluoriteStar 98 focuser and attach with lock screw.

Connection point for finderscope bracket.



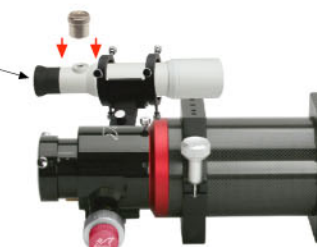
Step-2

Insert finderscope into finder bracket.



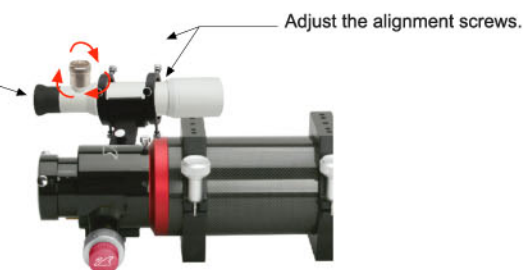
Step-3

Insert illuminator into finderscope.

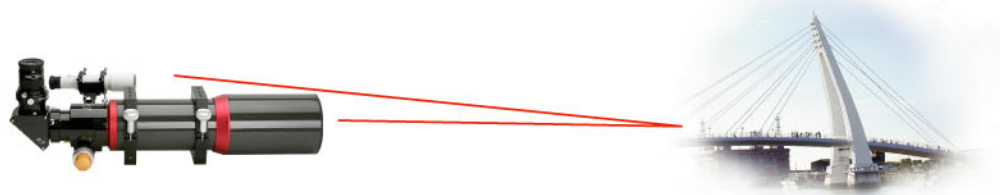


Step-4

Tighten the knob on finderscope.



Connection Instructions (Aligning Finderscope)



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



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.

Usage

The FLT 98 CF APO 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 FLT 98 CF APO 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 140X 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. German Equatorial mounts are recommended for optimal viewing, which are designed for astronomical use and include precise tracking of celestial objects.

The FLT 98 CF APO 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.

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 to 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 beautiful finish of your FLT 98 CF APO is not easy to ruin. Nonetheless 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 case.
2. Red plated dew shield cover.
3. 105mm mounting rings.
4. 2" to 1.25" adapter.
5. Various accessories depending on the package.

Recommended Products

Diagonal Mirrors



NEW!

2" Carbon Fiber
Diagonal Dura-Bright

2" Quartz
Dielectric Diagonal

2" Dielectric Carbon
Fiber Diagonal

1.25" Dielectric
Carbon Diagonal

Dielectric Diagonals

New Dielectric Diagonals with Carbon Fiber Plates (2" and 1.25"). Minimum 99% reflectivity 10mm thick oversize flat for optimal image stability for those who need just the best, Quartz mirror version, with even higher polishing accuracy and reflectivity. 2" Adapters with compression rings and SC telescope adapter included in 2" versions.

ZenithStar 66SD APO PACKAGE



ZenithStar 66SD APO

A small-aperture but extremely-portable APO at a GREAT price. Sharp to the edge and color free, no other scope will beat the ZS 66 SD price/quality ratio! Excellent mechanics and fit and finish, Crayford 2-speed fine focuser, super-high transmission multi-coating, aluminum case. Fast focal ratio makes it your ideal fast set-up for travel astrophotography or piggybacking.

Flattener IV



Adjustable Flattener Reducer IV **NEW!**

This revolutionary new WO AFR-IV Adjustable Flattener/Reducer was made for 500-1000mm refractors.

Fully multi-coated 2-element unit was designed and produced by William Optics, the inner flattener lenses can be set at the optimum 66mm-86mm back focus by simple hand twist (Distance from flattener lens to film or CCD plane).

This accessory is a must-have for astrophotography.

Digital Camera adapter Lenses



DCL-52

This innovative digital adapter len is designed for large-len digital camera and digital video cams users' needs. It can be connected to any 2" diagonal or erecting prism through a 2" to 1.25" adapter.

EAZY-Touch Alt-Az Mount



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

Telescope & Camera Tripod



The William Optics Light-Medium Tripod is for the photographer or observer who wants everything he needs without killing his wallet!

In fact, the WO tripod offers everything you need in a tripod and more. A working height range of 30.9 to 74 inches means you can find the perfect angle, high or low, to capture your objects. And it comes with a 3 section leg, which will give you all the stability you'll ever need.

It is entirely aluminum made, with a stylish finish. The leg material and leg lock type are made of high quality aluminum. The tripod weighs 6.6lbs and offers great stability without compromising its portability and ease of use.

Using our WTR-188 quality tripod, you can easily mount up to (7 lbs) maximum on it. That means that any small telescope like 66mm William Optics that any small telescope like 66mm William Optics for example is perfect and easily handled. For larger or heavier scopes -or for high power observations-, we recommend our EZ Touch ALT-AZ Mount with wooden tripod instead.



Digital Camera adapter Lense

This innovative digital adapter len is designed for large-len digital camera and digital video cams users' needs. It can be connected to any 2" diagonal or erecting prism through a 2" to 1.25" adapter.



2" Extender

This 2" extension tube is designed for "close-up" viewing or photography purpose.



Vixen-style Dovetail

William Optics' new Dovetail Plate expands your options: you can now choose a fully-anodized, WO product to mount your telescopes on Vixen-style mounts.



Vixen-style Dovetail Long Version

This new Vixen-style dovetail plate has been designed to fit our EAZY-Touch Alt-Az mount perfectly.



Dovetail+Saddle Plate COMBO

A mount is only half of the equation. Actually less than half. The best telescope and the best mount, still need a versatile mounting plate to go with. William Optics Combo plate (dovetail and saddle plate) is elegant, solid, and machined to the highest standards, as any WO product.

Erecting Prisms



45° Erecting Prisms

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

Red Dot Finder



Red Dot Finder (R.D.F) with Quick Release Bracket

This very practical R.D.F. comes with a handy, quick-release bracket included in the price. Centering your object in the sky has never been easier!

Finder Bracket



New Style 50mm Finder Bracket

This excellent new quick-release 50mm finderscope bracket is easy to use, very convenient and great value. It's a perfect addition to your telescope: no need to waste time mounting the bracket and finderscope every night! Both suitable for 6x30 and 7x50 Erecting Finder Scope.

Erecting Finder Scope



6x30 Erecting Finder Scope

An unique, high-quality erecting illuminated-reticle finderscope that fits perfectly on your Megrez or ZenithStar. It's 6 deg. of field paired with illuminated reticle will make finding that faint star a cinch. 50 mm finder bracket can also fits other 50 mm finder scope.

SWAN Eyepieces



1.25" Eyepieces
super Wild Angle(72°).
9mm,15mm,20mm focal lengths.
5 elements in 4 groups, fully multi coated.
Parfocal.



2" Eyepieces
super Wild Angle(72°).
25mm,33mm,40mm focal lengths, FMC.
Generous eye-relief.

UWAN 82° Eyepieces



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

SPL Eyepieces



SPL
EYEPieces

1.25" Eyepieces
Super Planetary Long eye-relief (55°)
3mm, 6mm, and 12.5mm focal lengths, Internally baffled, All lenses' edges and
internal spacers blackened, Fully multicoated.

Zoom Eyepiece



Zoom Eyepiece 22.5-7.5 mm
Finally a zoom eyepiece at a price everyone can afford! Experience the
convenience of 5 eyepieces in one at the price of half! New-design, long eye
relief, 66° high quality wide angle eyepiece.