STELLARVUE®

TELESCOPE OPERATORS MANUAL

SVX152T PREMIER APO TRIPLET

The mission of Stellarvue is to inspire a healthy interest in science and astronomy by handcrafting the finest telescopes on the planet.

STELLARVUE®
SEEING IS BELIEVING

A Division of Auburn Precision Optics
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SPECIFICATIONS

Objective Lens: Air spaced 152 mm, 1200 mm focal length (f-8) fully multi-coated, apochromatic triplet using a combination of an extra low dispersion (FPL53) center element and a Lanthanum rear element. Lens is mounted in an adjustable steel cell. Extremely high Strehl ratio as with all SVX series lenses. Zygo test report included.

Tube Assembly: All aluminum, Instrument White, fully baffled, 6.125” diameter tube. Telescope is 44.5" long with dew shield retracted and 52" long when extended.

Dew Shield: 7 3/8" diameter, 11 3/4” long retracting aluminum dew shield in Instrument White with black anodized fittings.

Weight: OTA: 23.2 pounds. Rings weigh 1.4 pounds each.

Focuser: Stellarvue's highly rated 3.5" dual speed, rack and pinion focuser with 2" and 1.25" threaded adapters. Includes our standard FBB dovetail shoe for use with our finderscope rings.

Rings: Very heavy duty, American made CNC mounting rings using 6061 T6 aluminum plate. Five threaded 1/4-20 holes top and bottom spaced 1.5" and 60 mm apart with one in the center. 5 mm side hole for reflect finder mounting.

Case: C130L Thickly padded, heavy duty case. Optional C130HC hard case available as an upgrade.

Diagonal: Optional. Please note, you can save $50 when you buy our best 2” star diagonal with the telescope.

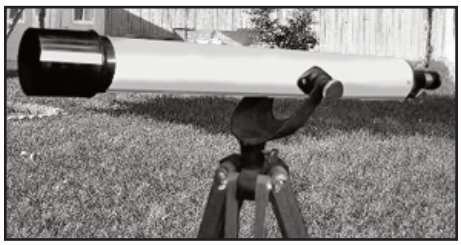
Photographic Field Flattener: Optional. SFF4-152T-35SV Image at 1200 mm f-8, full frame.

Photographic Field Flattener/Reducer: Optional. SFFRR.72-152-48. Converts telescope to a 912 mm f-6 full frame Astrograph.

Light Gain: 345 X (human eye = 1)

Contrast & Color Correction (1-10): 10

A MESSAGE FROM STELLARVUE FOUNDER VIC MARIS

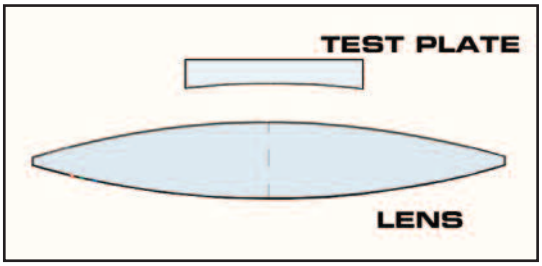


When I was a child, I developed a love for astronomy. My parents wanted to encourage my interest, so they bought me a 60 mm refractor. Like many store-bought telescopes it was poorly made, showed very little detail, and was difficult to use. I struggled for months and became very discouraged. Then, I learned it was possible to make a telescope. Using my allowance, I saved and purchased parts, ground and polished a 6" mirror, and made my first handcrafted telescope.

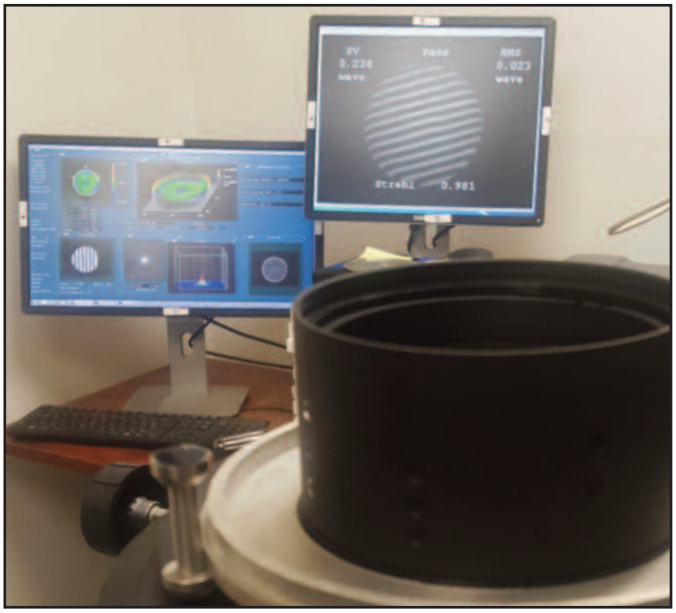
At the age of 16, I went on to grind and polish a two-element, 5" achromatic lens. I learned a great deal in these early years and discovered first-hand the importance of excellent optics combined with mounts that were mechanically stable. Viewing the night sky using my handcrafted telescopes fed my interest, and inspired me to continue learning more about astronomy and making telescopes.

Realizing that there was a need for high-quality refractor telescopes on the market, I began Stellarvue in 1998. We have since invested in high-end computer numeric controlled equipment and a state of the art testing facility. I am proud to say that each employee currently working at Stellarvue is committed to making the best telescopes possible. Today, we deliver the finest apo-triplet refractors available, and we strive to maintain a very high standard of customer service.

Stellarvue telescopes are individually made, and each optic is tested multiple times to ensure perfection. Please store and use it as you would any optical device. If dust accumulates on the lens, you may use a bulb type blower to remove it. Always be careful to avoid marring the lens.



Stellarvue refractor lenses are fully multi-coated to increase light transmission and contrast. Lenses are accurately hand-figured and glass test plates are used to ensure accuracy. A test plate is a separate optic that is figured to the precise curve required for a particular optical surface. We make test plates for every surface on every optic we make. These plates are placed on top of the surface of the lens to ensure it is polished to the exact curve. When the curve on the lens matches the curve on the test plate, straight lines will show under an UV testing light. Placing these glass plates on the surface of the lens may result in some very fine cosmetic lines or marks which do not affect performance in any way. This is normal in a high Strehl lens that is continually tested during polishing.



Stellarvue strives to ensure the highest optical accuracy. While many companies producing mass-produced lenses rely solely on test plates, we confirm the accuracy of each optical surface using our Zygo phase-shifting laser interferometer and extremely high precision test spheres that measure the entire clear aperture of the objective lens.

With our SVX series telescopes we map the optical surface and hand correct any imperfections in its figure. This increases the accuracy of the objective to the highest possible levels. This work is done in our optical shop under tightly controlled conditions.

MAKING WORLD-CLASS OPTICS

At Stellarvue we believe you 'get what you pay for,' and cater to those who are looking for a high-quality product with reliable optics. While making commercial grade mass-produced optics is relatively easy and fast, it results in unreliable products. That's why we take the time to make each apo-triplet lens as close to perfect as possible.

Alex our Production Manager using Stellarvue's Zygo Phase Shifting Laser Interferometer to test and adjust a Stellarvue Objective lens.

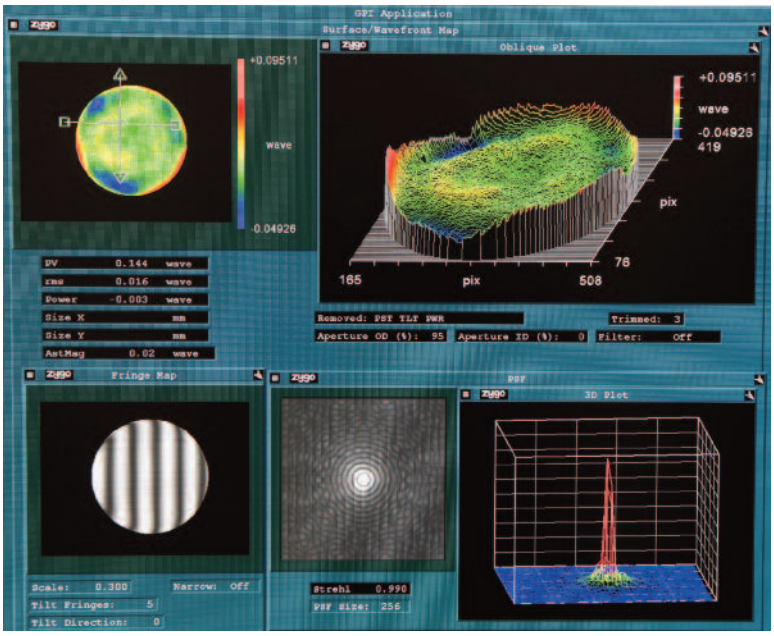
People often ask us what type of glass we use, which is the wrong question. While we use the best, lowest-dispersion glass made, glass type says nothing of its consistency or homogeneity. Bad glass makes bad optics, which is why it is important to test each optic individually.

Stellarvue is a division of Auburn Precision Optics (APO). In addition to making telescopes we make optics for defense and space science. This has allowed us to expand our optical and CNC machine shops here in Auburn, California. Using state of the art testing equipment has significantly improved the optical prowess of all SVX telescopes.

Mechanical quality is of extreme importance in making a world-class instrument. Using CNC machines and high-quality materials makes a substantial difference. Our mounting rings for apo triplets 80 mm and bigger, for example, are machined in our shop using 6061-6 aluminum and stainless steel. These rings are far stronger than imported cast aluminum rings.

What makes the *SVX Premier* Series so unique?

Each SVX refractor telescope is individually assembled and tested using our advanced equipment to ensure they meet our highest optical and mechanical standards. Our entire SVX line of telescopes use optics that are hand figured in our optical shop in Auburn, California. After machine polishing we map the optical surfaces using our Zygo Phase Shifting Laser Interferometer. This equipment is capable of measuring surfaces far more accurately than test plates or other conventional methods. Using these data, we then make fine corrections by hand and machine using special tools to eliminate zones, trefoil, and other optical defects as we bring up the optical accuracy as high as possible. When all of this work is completed and the lens is essentially perfect, we take one final measurement of the objective and print the report for the customer who buys it. All SVX objectives are accompanied with its unique Zygo test report, boasting an extremely high Strehl ratio with a smooth figure. SVX Premier Apo Triplets are for the discerning (experienced) astronomer who recognizes the crème de la crème when they see it.



Sample screenshot taken during our Zygo Interferometer testing. Your SVX152T telescope came with a printout just like this but it is of its own test to verify its high optical standard.

This is your telescope's report card.

Why designate this series with an "X"?

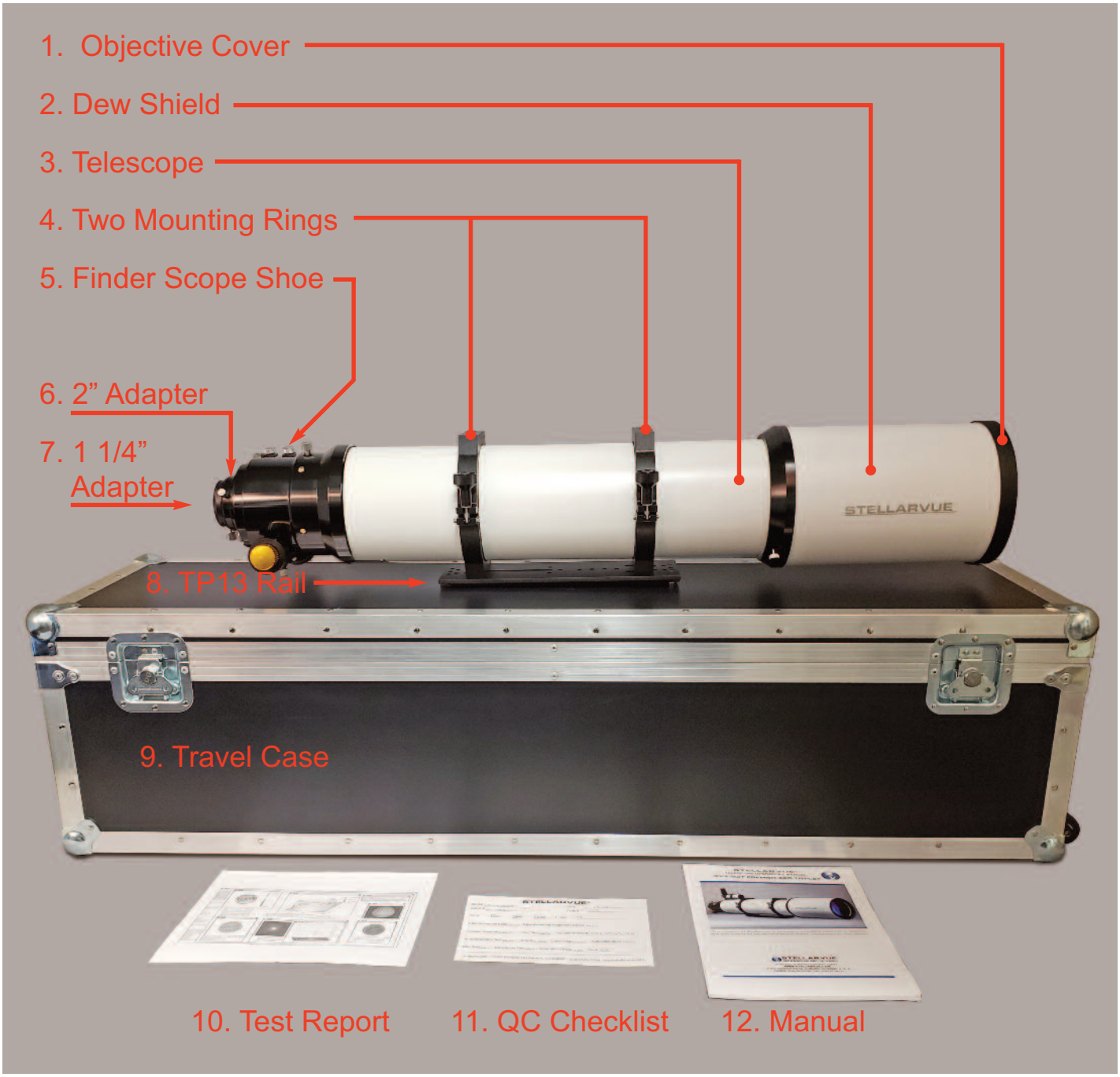
We have made a number of significant breakthroughs these past two years in developing this series. It took a major investment in staffing, CNC machines, conventional spindles and a great deal of individual commitment to reach this extreme level of accuracy in a production instrument. For this reason, we decided to differentiate these telescopes with an "X" to signify extreme. These are the telescopes to buy if you wish to view the universe visually and image it using matched field flatteners that turn these exceptional lenses into wide field astrographs.

UNPACKING

Stellarvue telescopes are securely boxed or double boxed in a padded case. Be careful when using a blade to open the shipping box. This will avoid damaging the case inside with your knife. Carefully remove the telescope from the cardboard box, and set it on a secure surface. Unzip or unlatch the case to reveal the telescope inside.

WHAT IS INSIDE THE CASE

Unpack the telescope from its case and make sure you have all the necessary parts:



ATTACHING THE MOUNTING RAIL

The telescope attaches to the telescope mount using a dovetail mounting rail. The dovetail mounting rail is attached to the bottom of the mounting rings using 1/4-20 socket cap head screws supplied with the rail. Generally telescope mounts use one of two different style mounting rails. Select the proper size of rail for the mount you are using.

Smaller mounts use the Vixen-style mounting rail, which is about 1 3/4" wide. Mounts using this size rail include the Celestron AVX mount, Vixen mounts and many other Chinese import mounts.

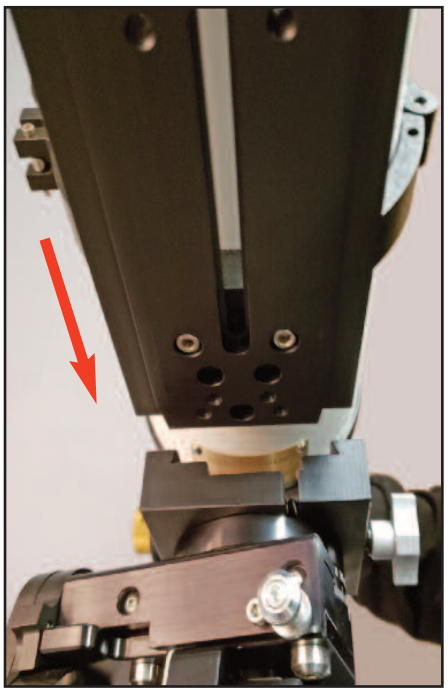
Most larger mounts use the larger Losmandy-style rail, which is 4" wide. Mounts using this size rail include the Stellarvue mounts with our TDLV shoes, Paramount, Losmandy, Mathis, Discmounts, and larger Celestron mounts.

Screw the rail securely to the bottom of the rings. Vixen rails use one screw per ring, Losmandy rails use either one or two screws per ring. Using two screws in one ring and one in the other as shown in the picture to the left will securely hold the telescope in place.

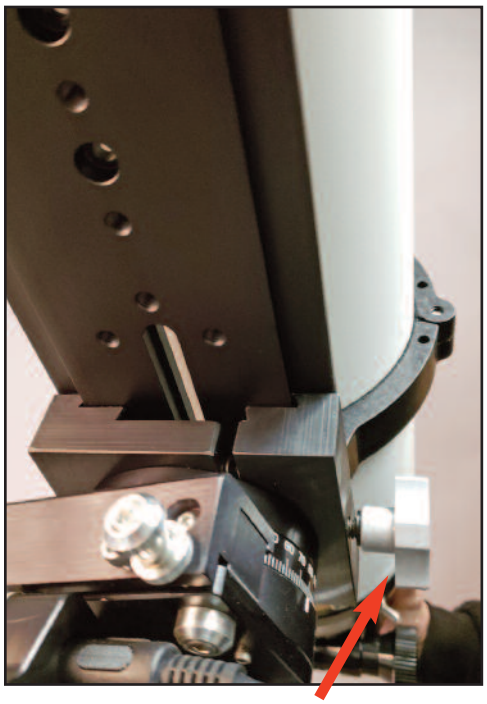
ATTACHING THE TELESCOPE TO THE MOUNT

With the mounting rail securely attached to the rings, slide the rail into the dovetail shoe on the telescope mount. Make sure you secure the rail to the mount with the hand screws on the mount. If you do not secure the rail tightly, the telescope may slide out of the mount, causing serious damage to the telescope.

Step 1: Loosen the hand knob(s) on the mount's dovetail shoe.



Step 2: Slide the mounting rail into the shoe until the telescope is balanced.



Step 3: Tighten the knob(s) securely.

SETTING UP FOR VISUAL USE

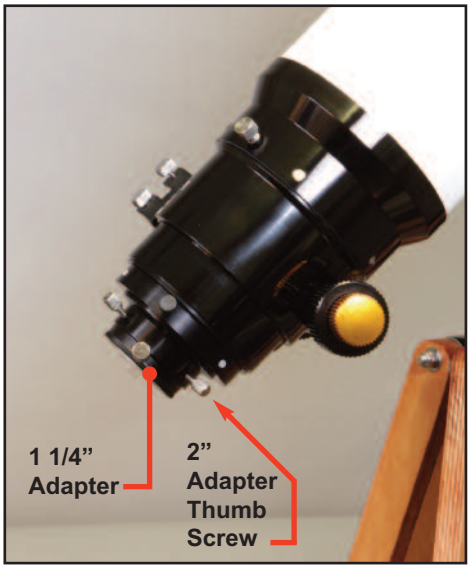
Now that you have securely attached the telescope to the mount, you will need to balance it in both axes. The mount manual explains how to do this. If you are using an equatorial and/or go-to computerized mount, you will need to align the telescope according to the mount manual to get it ready for use. Once the telescope is balanced and the mount aligned, you are ready to observe!

Two additional optical components are necessary to be able to view through your telescope at night: a star diagonal and an eyepiece.

* The star diagonal reflects the light 90 degrees. Without it the viewer would be forced to look upward when viewing and this would be extremely uncomfortable.

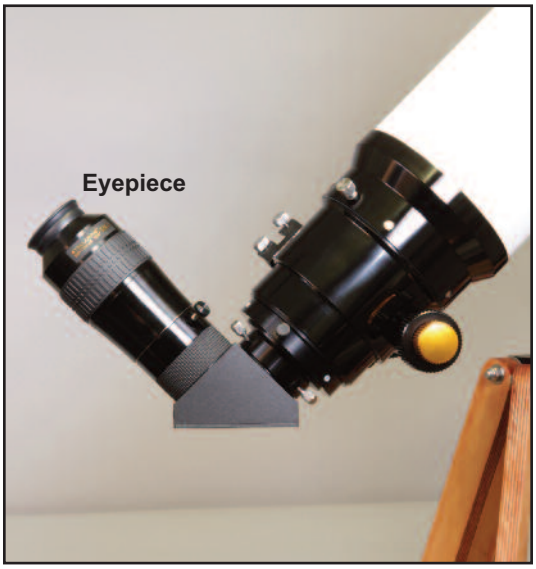
* The eyepiece is needed to focus and magnify the image.

The star diagonal is inserted into the focuser, and the eyepiece is then inserted into the star diagonal.



Loosen the three 2 inch adapter thumb screws and remove the 1 1/4" adapter.

Install the star diagonal and make sure it is held in place tight by securing the three 2" adapter thumb screws.



Insert the eyepiece into the star diagonal as shown. Make sure the thumb screw on the diagonal holds the eyepiece in place securely.

Stellarvue #D1040Q two inch dielectric quartz star diagonal

The Star Diagonal: The Stellarvue D1040Q diagonal uses a thick and accurate 1/10 wave low expersion quartz mirror with a 99% dielectric coating. These diagonals are assembled and tested here at Stellarvue to ensure they maintain your telescope's performance. Astronomers prefer mirror star diagonals over prisms because they are sharper and provide the highest contrast. Mirror star diagonals present an image that is right side up but reversed left to right. If you are new to using an astronomical telescope this will take a little practice, but it is worth the effort because it will allow you to see more detail at night.

If you wish to use your telescope during the day as a high quality spotting scope you may purchase an erecting prism. The erecting prism will provide a correctly oriented view through the eyepiece. While we do not recommend an erecting prism for star gazing, it will work exceedingly well during the daylight hours.

Stellarvue #D1035 two inch erecting prism.

Eyepieces: While the telescope's light-gathering power depends on the size of the telescope's objective lens, its magnification power depends on the eyepiece used. In order to see objects clearly at the proper magnification power, we recommend having four or more eyepieces.

1. Low-power, wide-field eyepiece: You need a low-power, wide-angle eyepiece to more easily locate objects in the sky and to observe extended objects like the Andromeda galaxy. Our best wide field eyepiece is the Stellarvue Optimus 20.

2. Medium-power eyepieces: Boosting the power darkens the sky background and shows more detail in deep sky objects such as nebulae, star clusters and galaxies. We recommend the Stellarvue Optimus 9 and 13.5 eyepieces as the best for medium-power deep sky viewing.

3. Two High-power eyepieces: Viewing planets, close double stars, and small craters on the moon requires a high-power eyepiece. We recommend having two high-power eyepieces because the atmospheric seeing conditions cannot always support the highest power. Having two high-power eyepieces of different focal lengths will allow you to adjust the magnification based on the seeing conditions. We recommend the Optimus 3.6 and 4.7 eyepieces.

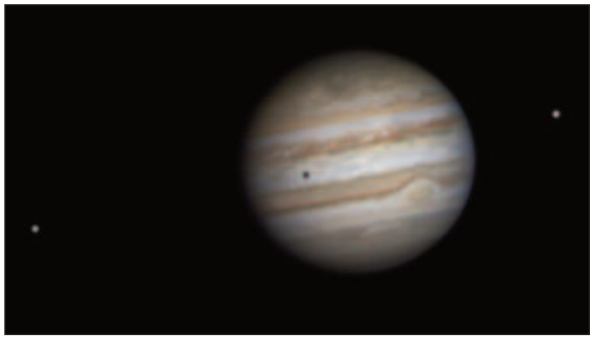
OPTIMUS EYEPIECES

The amount of magnification is determined by dividing the focal length of the telescope by the focal length of the eyepiece. The SVX152T has a 1200 mm focal length. A 20 mm eyepiece, when used with this telescope, will provide a magnification of 60 power (1200 mm/20 mm). This means objects appear 60 times closer. The smaller the focal length of the eyepiece, the higher the power becomes. So our 4.7 mm eyepiece provides 255 power (1200mm/4.7mm).

The ability of a telescope to magnify is limited by:

A. The accuracy of the optics
B. The steadiness of the atmosphere

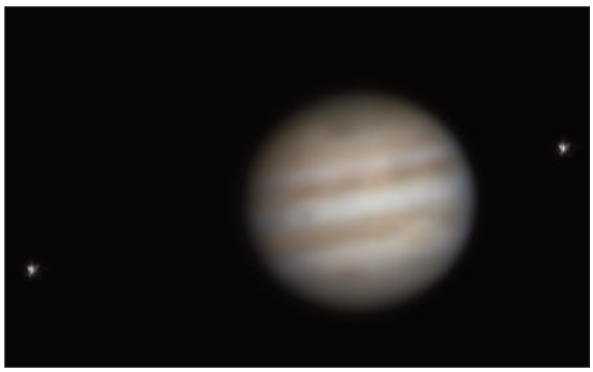
Under perfect conditions the SVX152T is capable of magnifying objects 30 - 500 times. Unfortunately, the air is often unsteady due to air turbulence. This causes the stars to twinkle and limits the ability of any telescope to show fine details. Adding more power only increases the size of the burry image. This is referred to as "empty magnification" since it is too high of a power for the conditions and actually shows you less. Under turbulent conditions, it is best to use a lower magnification eyepiece.



Jupiter appears sharp under steady skies and its moons appear as disks.

If you purchased the entire set of Optimus eyepieces you may notice that on a given night the planetary views through the 3.6 mm eyepiece may be soft. This indicates that the seeing conditions are not optimal, so it is wise to switch to the 4.7 mm eyepiece. The image will be smaller but sharper.

Stellarvue optics are extremely accurate. If details are soft when you observe through it, you either did not let the optics cool down enough or you are observing under less than favorable conditions. Be patient. On a steady night you will see magnificent detail.

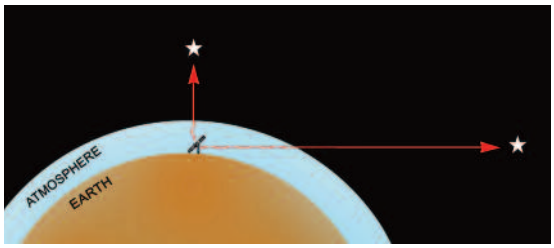


Unsteady air distorts the moons and Jupiter is soft with little detail

Magnification is not as important on larger extended objects. Many amateur astronomers switch from planets to star clusters and nebulae when the air is unsteady.

OBSERVING TIPS

Cool down: Optics are affected by temperature changes, so it is not recommended to take a telescope from a warm room to the cold night and immediately observe with it. The objective lens must settle down to the ambient temperature before it performs as it should. It is best to leave the telescope outside for a couple of hours to let it cool down and acclimate.

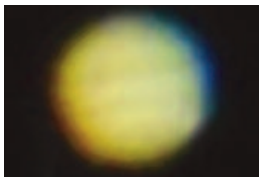


Plan out your observing session: Use a good planetarium program to see what celestial objects are viewable in your location when you are observing. Observe dimmer deep sky objects after it gets completely dark and planets when they are as high in the sky as possible. Planets and stars will be less affected by air turbulence and atmospheric refraction when they are higher in the sky. This is because you are looking through less atmosphere.

Dark adapting: It takes at least 15 minutes for your eyes to adapt to the darkness so you can see faint objects. If you use white light at night you will ruin your night vision. The human eye is less impacted by red light, so always use a red observers flashlight when observing. If a car approaches, avoid looking at the headlights. If your observing session includes the moon you may want to do it last as it will seriously impact your night vision. A good moon filter is recommended when observing the moon to filter out 80% of the moons glare. It is reflected sunlight, after all!

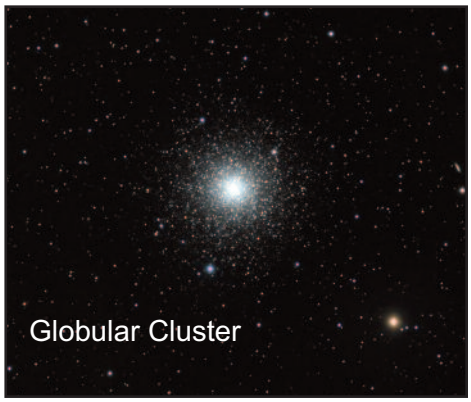
Record your observations: It is fun to try your hand at sketching planets, clusters and other deep sky objects. Check out the Astronomical League https://www.astroleague.org/ for more information.

Heat sources: Avoid looking at planets, the moon, or close double stars when they are positioned above a house roof or other structure that gives off heat. It will distort the views at higher powers.



Atmospheric Diffraction: The atmosphere can cause your telescope to exhibit false color. That color is not in the telescope, but above you. Moisture in the atmosphere may act like prisms, and brighter objects will appear with a reddish color on one side and a green-blue color on the other. This is the atmosphere, not your telescope.

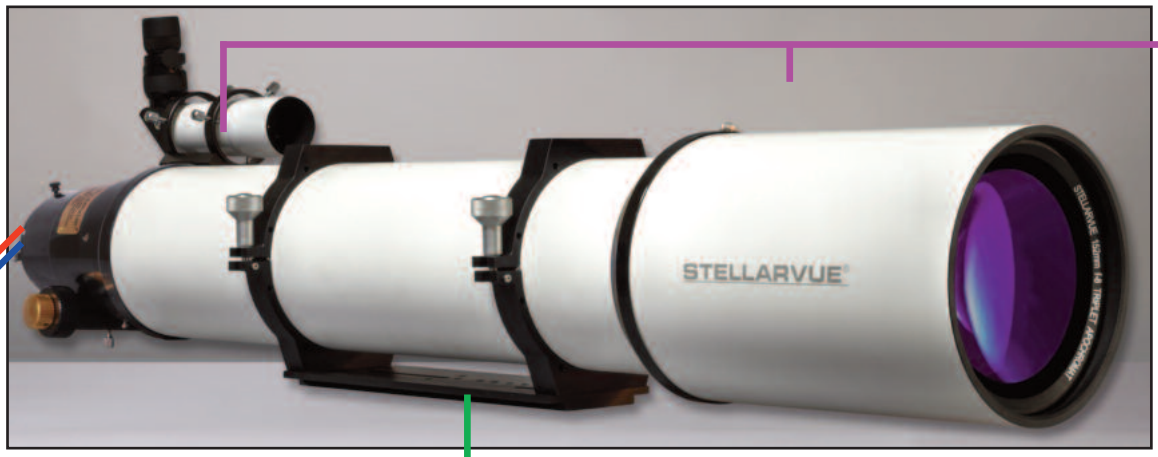
Observing deep sky objects: Deep sky objects like nebulae and galaxies can be very hard to discern for new hobbyists.The more experience you have, the more of them you'll be able to see. Avoid observing when you are tired or after consuming alcohol or drugs. With time, you will become more able to see these very low contrast, diffuse objects. Try using averted vision, where you look to one side of the object where your eye is more sensitive. If you are looking at a diffuse object and you are not sure you are seeing it, lightly tap the side of the telescope and as the stars vibrate, so will the object. When observing deep sky objects, if you want to focus the telescope better, focus on the brightest star in the eyepiece, not the diffuse object. Finally, when observing objects like gobular star clusters make sure you are not touching the telescope. Even a small vibration can render dimmer stars invisible.



Comfort: Dress warmly enough for the night air, if you are cold you will not see as much. This is particularly true for your ears. Cover your ears and you will retain more body heat. Use a comfortable chair and position yourself so you are not craning your neck or twisting your back. If you have a refractor that requires you to get down on your knees, use a padded kneeling mat.

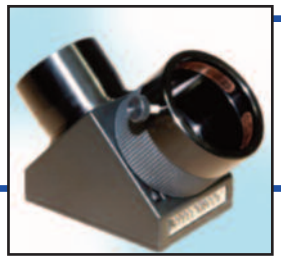
Putting it all away: Always keep the telescope capped and/or covered when not in use. After a night under the stars, bring your telescope inside and let it acclimate to the indoors. If dew has formed on your lens, uncap both ends and let it air dry before putting it away. Do this in a room that is dry and relatively dust free. Putting your telescope away wet can encourage mold growth and while that is rare, it is something you should always avoid.

ACCESSORIES CHART



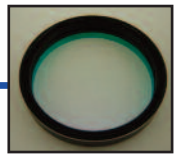
MOUNTING

VISUAL ACCESSORIES

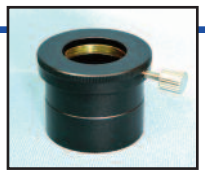


Stellarvue 2” Dielectric Diagonal #D1040Q

2” Eyepieces

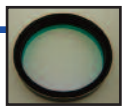


Optional 2” Filter

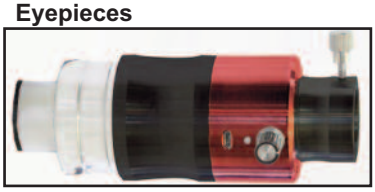


FA2 1.25” Adapter

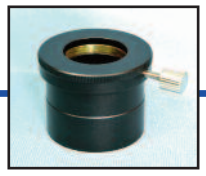
1.25” Eyepieces



Optional 1.25” Filter



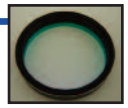
Optional Quark Solar Filter with UVIR Energy Reduction Filter



FA2 1.25” Adapter

Stellarvue 1.25” Diagonal #D1030ED

1.25” Eyepieces



Optional 1.25” Filter

IMAGING ACCESSORIES

Remove 2” adapter on focuser and thread into focuser drawtube

SFF4-152 Field Flattener

T-Ring → DSLR Camera

Extension tubes required for your CCD camera (call Stellarvue for assistance) → CCD Camera

Remove extension in front of focuser. Reattach focuser and remove 2” adapter on focuser. Thread into focuser drawtube.

SFFR.72-152-48 Focal Reducer/Field Flattener

T-Ring → DSLR Camera

Extension tubes required for your CCD camera (call Stellarvue for assistance) → CCD Camera

FINDERSCOPES

FINDERSCOPE RINGS NEEDED *(see page 12)*

50 mm Optical Finderscope

60 mm Optical Finderscope

80 mm Optical Finderscope

REFLEX SIGHTS

(see page 11)

Red Dot Finder

Deluxe Red Dot Finder

Losmandy Style Rail (TP13)

The SVX152T is supplied with a TP013, Losmandy style rail. We recommend this for its greater rigidity. We recommended the following mounts for the SVX152T:

1. Losmandy G11
2. Paramount MYT or MX Plus
3. Astro-Physics Mach 1GTO

Telescope mounts using the Losmandy sized rail.

The SVX152T is supplied in a heavy-duty, American made hard case with 3/8" plywood walls and heavy duty foam lining. Wheels and a handle make it easy to move the telescope out to your observing location.

CARE AND MAINTENANCE

Your telescope is a precision optical device that should be handled with care. Store it in a cool, dry place that is as dust free as possible. Do not drop the telescope, accidently strike a door frame or subject it to excessive vibration. When sitting on its mount on a hot day, cover it with a Telegizmos cover to keep it cool.

Bringing a telescope inside after observing in the cold night air can cause condensation to form on the lens and tube. Never put a telescope away wet, let it air dry in a warm room before putting it away. Never store a telescope in a sealed case as this could lead to mold formation. The soft case we provide with our telescopes allows them to breathe while keeping dust at bay. Use the case your telescope came in for storage.

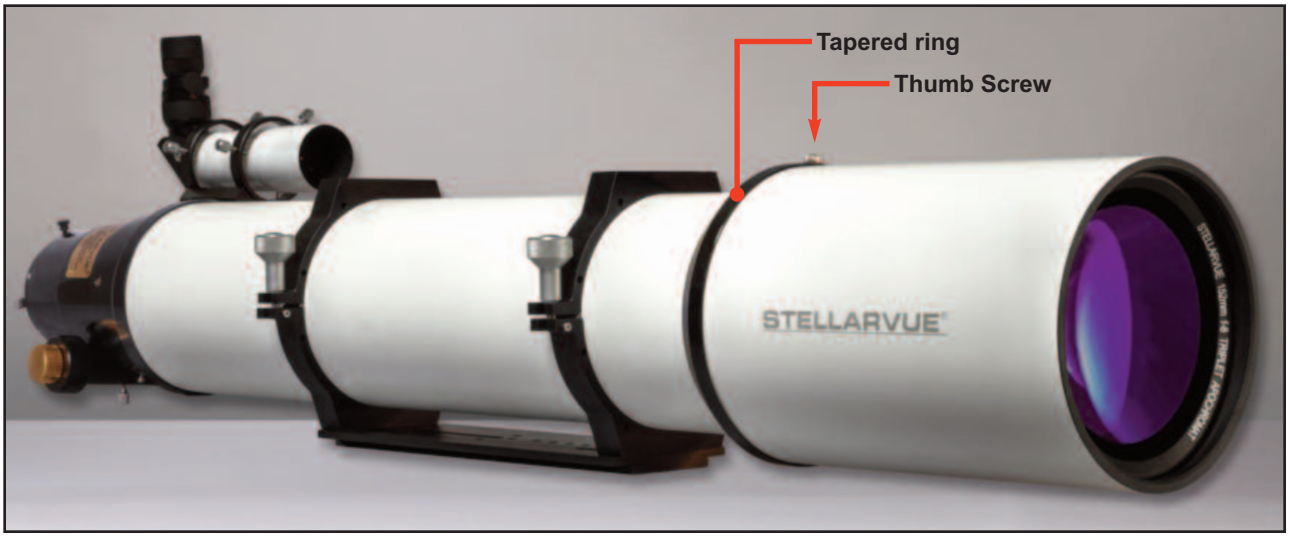
LENS CLEANING

- Lens cleaning should be done very infrequently. A small amount of dust or small spots on a lens will not affect performance. If dust accumulates on the lens, blow it off with a large bulb syringe like a “Rocket Blower.”
- If the lens needs cleaning, make sure you blow all the dust off the lens with the bulb syringe. **Never use canned air as it can damage the surface.**
- Use a 1” wide, fine camel hair brush to gently brush off dust when blowing with the syringe.
- Dust particles can be hard and scratch glass. So every bit of dust should be removed before you use a lens cloth.
- Once the lens is clear of any particles, use Stellarvue lens cleaner on a Kimwipe or optical cleaning cloth to clean the lens, followed by a dry wipe. **Never spray directly onto the lens as the liquid could migrate around the lens to the inside.** Apply a small amount to the cloth and gently wipe. Follow with a dry cloth to remove streaks.

The tube exterior can be cleaned with a lint free cloth and a commercial cleaner like “Fantastic.”
As with any cleaner, follow the instructions on the container. The tube and dewshield may be waxed with a automotive wax designed for gel coat finishes. Do this very infrequently to avoid scatching the tube and clean off all wax debris when finished. You do not want to get any of it on the lens.

ADJUSTING THE RETRACTING DEW SHIELD

Your telescope comes with a retracting dew shield. Velvet is used to provide a smooth motion. After a while, the velvet may compress slightly and the dew shield may slip down when the telescope is pointed upward. In this case, you need to simply tighten the set screws located on the tapered ring behind the dew shield. Do not over-tighten these set screws. Turn them only 1/4 turn at a time and tighten it only enough to keep the dew shield from dropping down when the telescope is pointed upward.



REFLEX SIGHTS AND FINDER SCOPES

Reflex sights and finder scopes are small viewing devices attached to the side of a telescope to help the user acquire objects in the eyepiece of the telescope. They serve the same purpose as a rifle scope, ensuring that your telescope is pointed directly at the object you wish to view. Since telescopes have a relatively narrow field of view, these sights and finder scopes make locating objects much easier.

REFLEX SIGHTS

Reflex sights do not magnify but have an optical window with a red dot or crosshair pattern displayed on it.

#F001 Red Dot Finder: The simplest reflex sight to use is the Stellarvue Red Dot Finder #F001. This is an inexpensive, plastic reflex finder that projects a red dot on a glass window. Use the F001EF base to mount the F001 to one of the mounting rings on your telescope. Adjust the red dot finder according to the instructions that come with it.

http://www.stellarvue.com/red-dot-finder/

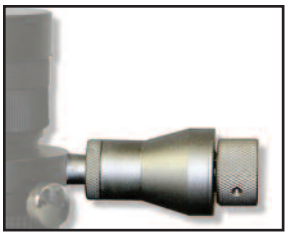
Red Dot Finder mounted to a hinged ring

#F0012 Multi-reticle Finder: The multi-reticle finder #F002. This finder permits the user to select one of four desired reticle patterns including a red dot (two sizes), a circle, or a crosshair pattern. *The F002 Multi-reticle finder uses the standard rifle-scope mount. Use the F002E base to mount the finder to one of the two telescope mounting rings. While the brightness is controlled with a 7 position switch, some users feel it is too bright to use under the darkest conditions.*

http://www.stellarvue.com/deep-sky-mrf-deluxe-red-dot-finder-f002/

OPTICAL FINDERSCOPES

Vic Maris designed the Stellarvue optical finderscopes. These are top rated because they use good optics, full multi-coatings on all optical surfaces, are lighter weight and can be used with a variety of eyepieces. Optical finderscopes have the advantage of gathering more light than the naked eye. Deep sky observers prefer these when looking for faint objects. We designed our finder scopes with a 90-degree, fully multicoated, correct image erecting prism, rotator and a 1.25” helical focuser (so other 1.25” eyepieces could be used).



The included crosshair reticle eyepiece has a port that accommodates and optional #EI002 illuminator. This battery operated illuminator is highly recommended as it makes the cross hair reticle easier to see. The illuminator has a brightness control that allows the user to adjust the amount of brightness making it useable under a wide variety of conditions.

Finderscopes come in three sizes, 50 mm, 60 mm and 80 mm.

50 mm Finder Scope Comes in black or white

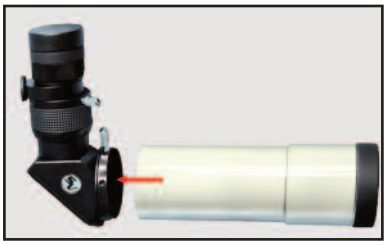
60 mm Finder Scope

80 mm Finder Scope

FINDER MOUNTING RINGS

Your finderscope will need adjustable mounting rings that fit your model of telescope. Our 50 mm and 60 mm finders use the R50 DA rings. Our 80 mm finder will require the R80DA rings.

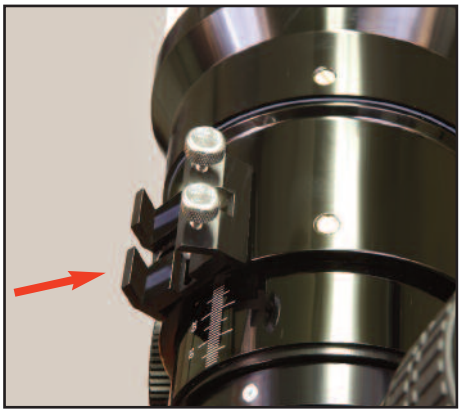
The specific model number of rings that fit the shoe on your telescope is the R50DA (shown to the left) or R80DA depending on the size of finder you order.



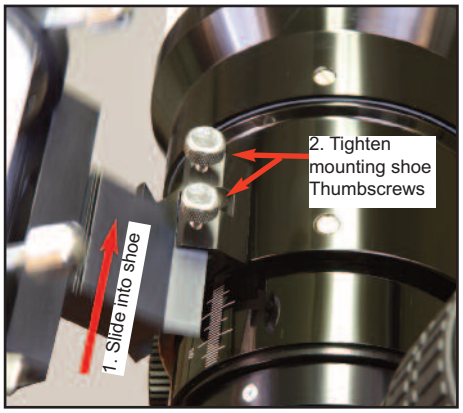
To install the finderscope into the rings, you must first remove the entire back end assembly including the finderscope's focuser, prism and rotator. Never remove the dewshield on the finder as this will cause the lens to fall out of the tube.

Loosen the thumb screws on the finder rings enough to slide the finderscope into the rings then tighten the screws until they contact the finderscope. Thread the rear assembly back on the finderscope. Slide the finderscope with rings into the mounting shoe on the telescope focuser. Secure the mounting shoe thumbscrews tightly so the finderscope and rings do not slip out of the shoe.

50 mm Finderscope mounted in rings



Finderscope mounting shoe



Mounting finderscope and rings

There are six thumb screws that hold the finderscope. These thumb screws allow the user to adjust the finderscope up/down, left/right so it is pointed directly at the same spot in the sky as the main telescope. To make the adjustment loosen one thumb screw and tighten the other two on the same ring which will shift the finderscope's position. It makes sense to adjust the finderscope during the day so it is ready and accurately aligned to the telescope before nightfall. Follow this procedure to adjust the finderscope:

Place your lowest power eyepiece in your telescope. Point it at a distant object like the top of a power pole. In this example shown to the right, we are placing the left top electric insulator in the center of the eyepiece. You can use any distant object like the top of a flagpole or a building on the top of a hill.

With the object placed in the center of the telescope eyepiece look through the finderscope eyepiece and adjust the thumb screws on the finderscope mounting ring until this distant object is positioned where the two crosshairs in the reticle intersect. Make sure all six thumbscrews are tight when you finish aligning it. You are now ready to observe at night using the finderscope. When objects are placed behind the cross hairs in the finderscope they should be centered in the telescope using your lowest power eyepiece.

For more information on our finder scopes and rings visit http://www.stellarvue.com/finder.
Still not sure? call us at (530) 823-7796 or Email us at mail@stellarvue.com.

SOLAR VIEWING

There are three basic, safe ways to look at the sun through this telescope.

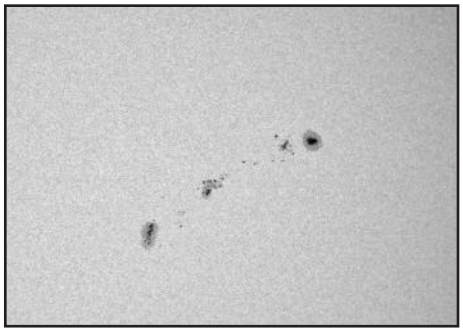
1. Approved full aperture solar filter:

This filter is secured around the front of the dewshield and blocks 99.999 percent of light from entering the telescope.

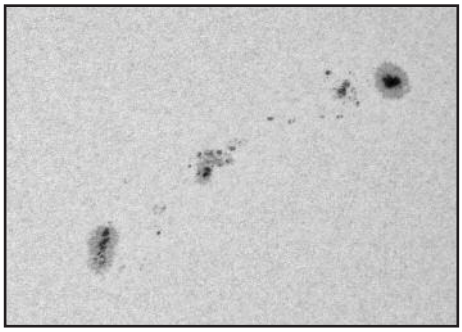
DO NOT use the old eyepiece solar filters that screw onto the eyepiece. These will be subjected to extreme heat and crack! For more information on solar filters visit: http://www.stellarvue.com/solar-filters/

2. Hershel Wedge:
A good Hershel Wedge is used like a star diagonal. Insert it in the focuser and the eyepiece into it. These provide the most detailed white light view of the sun. They are significantly more expensive than simple glass or mylar full aperture filters but hard core solar observers swear by them as they show extremely fine detail in sunspots and faculae on our nearest star.

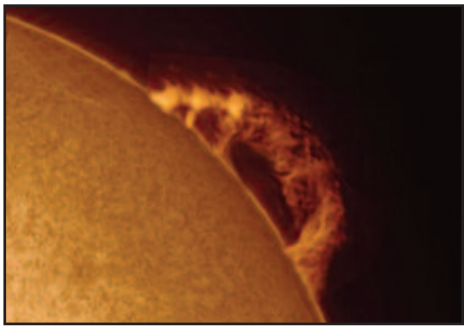
3. Daystar Chromosphere and Ha filters:
Observe prominences and surface (Chromosphere) details using a simple plug in device that fits between the 2" star diagonal and the eyepiece. Check with the manufacturer to ensure this is all you will need with the particular telescope you are using.



Sunspots seen through a full aperture solar filter



Sunspots and faculae seen through a Hershel Wedge



Solar prominence through the Daystar Chromosphere Filter

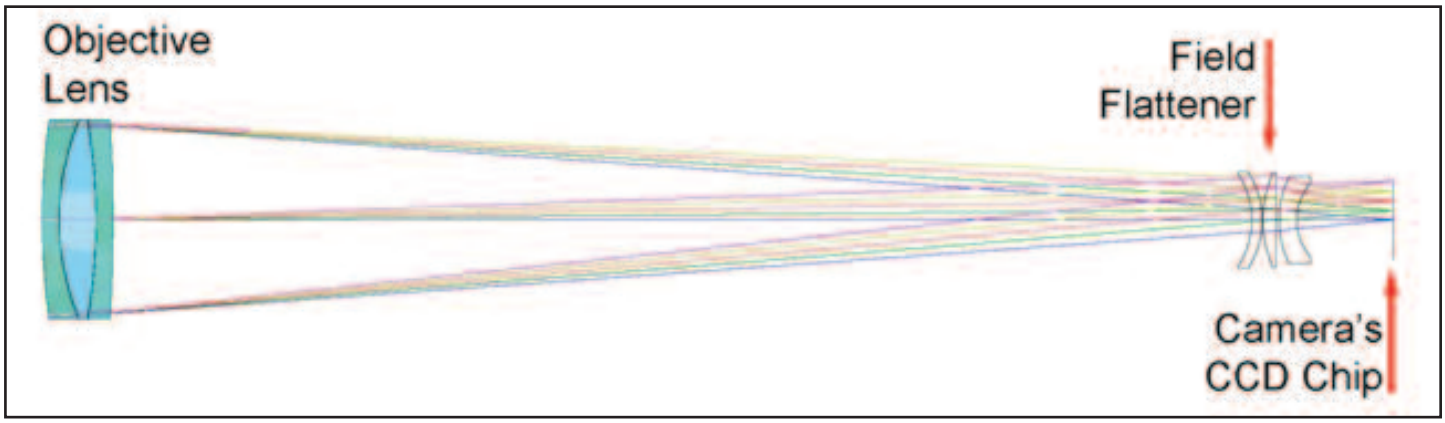
WARNING:

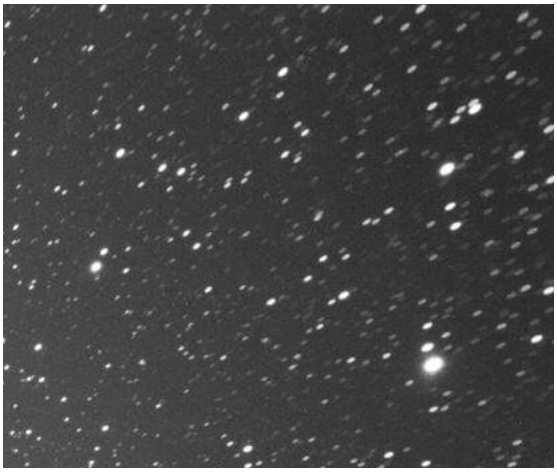
LOOKING AT THE SUN CAN CAUSE SERIOUS EYE INJURY AND BLINDNESS. NEVER POINT A TELESCOPE OR BINOCULARS AT OR NEAR THE SUN. VIEWING THE SUN WITHOUT A PROPER SOLAR FILTER MAY RESULT IN BLINDNESS, AS WELL AS DAMAGE TO THE INSTRUMENT.

NEVER ALLOW CHILDREN TO USE BINOCULARS OR TELESCOPES DURING THE DAYLIGHT HOURS, UNLESS THEY ARE SUPERVISED BY AN ADULT WHO UNDERSTANDS THE DANGER OF POINTING ANY OPTICAL INSTRUMENT IN THE GENERAL DIRECTION OF THE SUN.

ASTROPHOTOGRAPHY

While telescopes are designed to be used visually, they may be easily converted into a super photographic lens using one of our dedicated photographic correctors. You remove the eyepiece, star diagonal and 2" adapter from the focuser and you replace it with either our field flattener or focal reducer/field flattener.

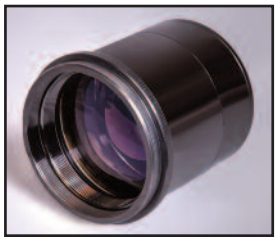




Without a corrector, stars will become elongated away from the center

With a properly spaced corrector stars will appear as they should

Important! When using a field flattener or flattener/reducer, it is essential that the camera's sensor (CCD chip) is positioned at a precise distance from the back of the field flattener or flattener reducer. If you see elongated stars in the corners you will need to adjust this spacing. Call or e-mail us if you need assistance!



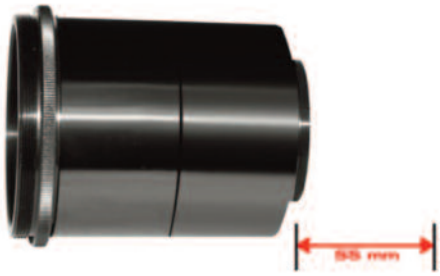
There are two types of correctors made for the **SVX152T**, one is a flattener and one is a reducer/flattener.

SFF4 Flattener: The SVX152T is an f-8 optical system with a 1200 mm focal length. The SFF4-152 will convert your telescope into a 1200 mm focal length f-8 super telephoto lens. The SFF4 works with cameras with full frame and smaller sensors.

SFFRR .72 Reducer/Flattener: The large SFFRR .72 reducer flattener will flatten the field and reduce the photographic speed. Using it you will be shooting at 912 mm, f-6. This reducer/flattener will work with cameras using full frame or smaller sensors, same as above.

The use of this reducer/flattener requires more inward focus. With this telescope simply rack the focuser inward. (See page 16 for more detail)

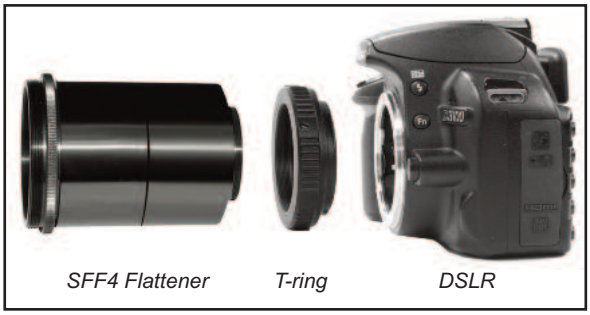
IMPORTANT: It is essential that these corrector optics (field flattener or reducer/flattener) be placed at a precise distance from the sensor in your camera. The sensor in your camera is where the image is made. If the sensor is not the correct distance from the flattener, the stars around the edge of the field will be distorted. The first thing you need to know is the "backfocus" of the camera you will be using. The backfocus of the camera is the distance from the attachment thread on the camera to its sensor. In most DSLR cameras with the necessary T-ring added, this distance is 55mm.



Your field flattener or reducer/flattener also has a backfocus specification. Its backfocus is the distance from its rear of the flattener or reducer/flattener to where the field is precisely flat. It is important that the backfocus of your camera matches the backfocus of the flattener or reducer/flattener.

On CCD cameras this distance varies widely so you may need to add spacer rings and/or extension tubes. It may be necessary to adjust the spacing by no more than half a millimeter to obtain optimal results.

With Single Lens Reflex Cameras (DSLR's) remove the lens and replace it with a T-ring that has the same size thread as the flattener or reducer/flattener. The backfocus must include the T-ring that is attached to the camera in place of the camera's lens. When you add a T-ring to your Canon or Nikon DSLR, this distance from the thread on the T-ring to the sensor in the camera is about 55 mm. Our flatteners may be ordered with a "55 mm backfocus." Use one of these if you are shooting with a DSLR. Attaching your DSLR camera to the telescope using the SFF3 is easy.



STEP 1: Remove the camera lens

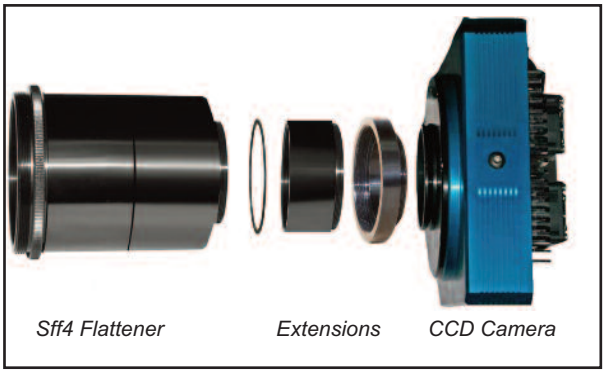
STEP 2: Install an oversized (48 mm) T-ring

STEP 3: Unthread the 1 1/4" and 2" adapters from the drawtube but leave the M75 Adapter in place.

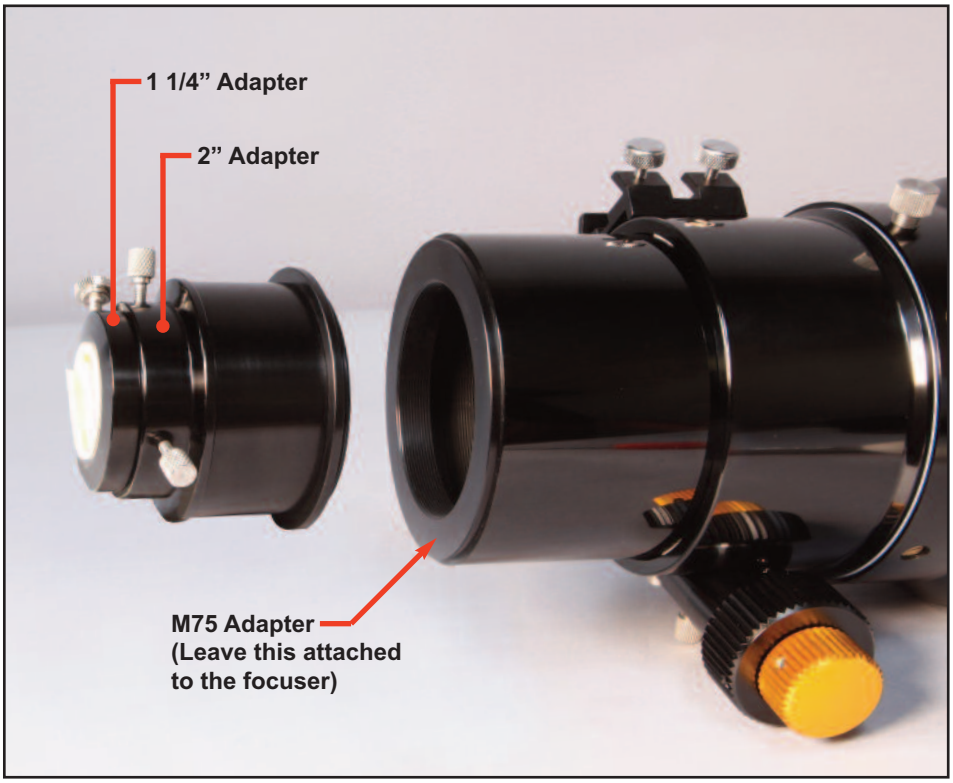
STEP 4: Thread the flattener to the drawtube & camera to flattener.

With other CCD cameras, the backfocus distances vary. Check with the maker of the camera to determine the backfocus of your camera. If the distance is less than 55 mm you will need to add extension tubes and/or spacer rings to make up the difference. For example, if your camera has a 35 mm backfocus you will need 20 mm of extension tubes to get the flattener 55 mm from the sensor in the camera.

Stellarvue produces a variety of spacer rings and extension tubes. Visit our astro-photography accessory page on the web at: http://www.stellarvue.com/astro-photography/



USING THE SFFR.72 LARGE REDUCER/FLATTENER WITH THE STELLARVUE SVX152T-35SV (3.5” FOCUSER)



The optional SFFRR .72X - 152T reducer/flattener converts your SVX152T into a full frame astrograph for wide field deep sky photography. It reduces the focal length to 912 mm and the photographic speed from f-8 to f-6. To install and use it follow these simple steps:

1. Unthread the rear assembly including the 1 1/4” adapter, the 2” adapter and the rotator.

2. Make sure to leave the M75 adapter in the focuser.

3. Thread by hand the reducer/flattener into the focuser’s M75 adapter.

4. Thread by hand the camera onto the reducer/flattener. Make sure the sensor in the camera is spaced correctly from the reducer/flattener (see page 15).

This giant reducer/flattener will convert the SVX152's f-8 visual optical system to a 152 mm f-6 (912 mm focal length), full frame imaging system. If the camera’s sensor is not spaced correctly from the reducer/flattener stars in the corners will appear elongated. The SFFRR.72-69 reducer flattener has a 65 mm back focus using an M69X1 rear thread. Purchasing various versions of this reducer/flattener with the appropriate extension tubes and spacer rings will enable it to be used effectively with various cameras on the market. The SFFRR.72-48 has a 55 mm backfocus with M48 thread and is made for use with a DSLR and 48 mm T-ring.

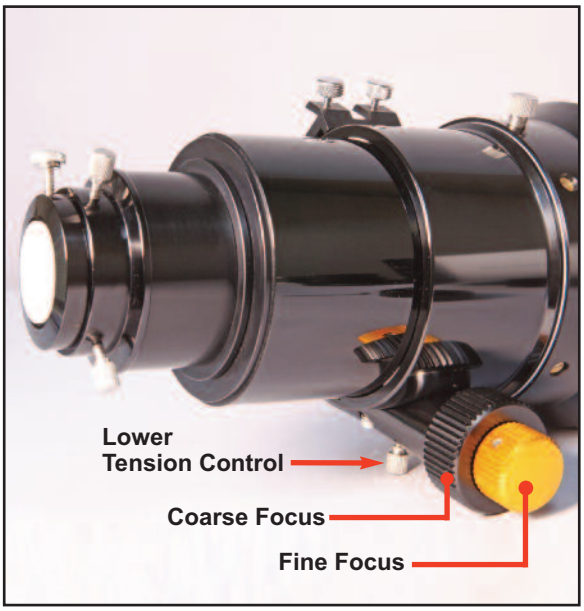
If you are not sure how to properly configure your reducer/flattener and camera, call us at (530) 823-7796 or email us at mail@stellarvue.com. We want you to get the most out of your system so if you are ever having difficulties we want you to call and let us help.

THE FOCUSER

Stellarvue focusers are oversized and designed to be accurate, very smooth, and stable. They can lift far more weight than is necessary so heavier accessories may be used.

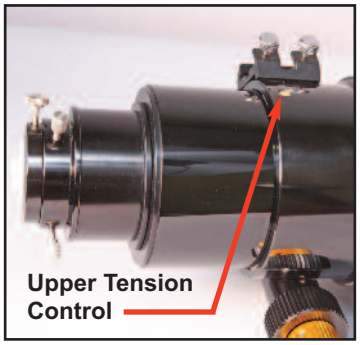
The focuser may be rotated 360 degrees so the user can put the focuser knobs in the most convenient position. To rotate the focuser, loosen the rotator lock thumb screw slightly and turn the rotator. Once it is positioned where you want it, lock the thumb screw. The white screws around the rotator serve as bearings. They should all be maintained at the same tension so the rotator is stiff.

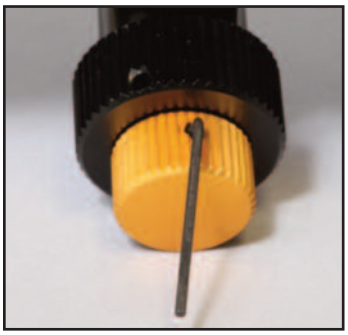
The coarse focus knobs on either side of the focuser move the drawtube in and out smoothly to attain focus. On one side there is a separate brass colored fine focus knob. This knob rotates 7 - 10 times with every single rotation of the coarse focus knobs. This permits extremely minute adjustments necessary to focus precisely at higher powers.



Adjusting the Focuser: The lower tension control thumb screw is located under the focuser as shown in the image above. Use this to adjust tension for your various accessories. Place your heaviest diagonal and eyepiece (or camera) in the focuser. If there is sideways movement when you focus or if the focuser drawtube slips, increase the tension by slightly tightening the Lower Tension Control. Do not over-tighten or the focuser will be harder to focus.

Upper Tension Control: There is an upper tension control that applies additional pressure to the drawtube and makes it more stable especially when imaging with a heavy camera. This tension control may be a set screw (as shown) or a thumb screw. Tighten this screw very slightly if needed to stabilize the drawtube. Use this adjustment screw only when necessary.



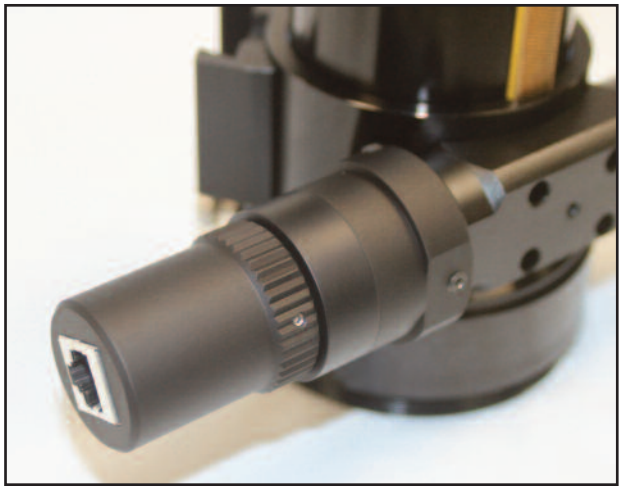


Focus Knobs: If there is a little play in the focusing knobs, use the supplied Allen wrench and tighten the set screw in the knob. This will fix the problem.

If the focus knobs make a noise when they are turned, they may be rubbing on one another or against the side housing. To eliminate this, loosen the knobs with the Allen wrench and pull them slightly apart from each other and the side housing. This will eliminate any rubbing.

Motorizing your focuser: Optec Inc. has developed some great motorized focus systems for all Stellarvue focusers. They offer a motor that can convert the focuser from manual to electronic with the turn of a lever. They also offer their FocusLynx controller and fully ASCOM compliant FocusLynx Commander software that works in conjunction with higher client level software such as FocusMax, Maxim D/L as well as CCDSoft and The Sky X.

Contact us if you have any questions and visit their website at: www.optecinc.com.



STELLARVUE ®

LIMITED WARRANTY FOR U.S.A. END PURCHASERS ONLY

Stellarvue (SV) warrants that each SV brand telescope and accessory shall be free from defects in materials and workmanship for two years from the date of purchase. SV will repair or replace such product or part thereof, which upon inspection by SV is found defective in materials or workmanship. As a condition to the obligation of SV to repair or replace such product, the product must be returned to SV as specified in this warranty.

Register your new telescope online now. It's fast and easy:

http://www.stellarvue.com/warranty-registration/

THIS LIMITED WARRANTY, AND ANY IMPLIED WARRANTIES THAT MAY EXIST UNDER STATE LAW APPLY ONLY TO THE ORIGINAL PURCHASER AND LASTS ONLY AS LONG AS THE PURCHASER OWNS THE PRODUCT.

Return Requirements

· Proof of purchase acceptable to SV must accompany any return.
· A return authorization must be obtained from SV in advance of return.
E-mail Stellarvue at mail@stellarvue.com or call (530) 823-7796 to receive the authorization & packing instructions.
· The authorization code must be written on the outside of the container.
· All returns must be accompanied by a written note stating the model number of the product, authorization code, name, address, e-mail address and daytime telephone number of the owner, and an explanation of the problem. Replaced parts shall become the property of SV.
· The customer shall be responsible for all costs of transportation and insurance, both to and from SV.

SV Requirements

· SV shall use reasonable efforts to repair or replace any product covered by this limited warranty within thirty days of acceptance. If repair will take longer, SV shall notify the customer.
· SV may replace any product that has been discontinued with a new product of comparable value and function.

Products that have been damaged, dropped, disassembled, abused, misused, mishandled, subjected to temperature or weather extremes, subjected to wear or modified in any way will not be covered by this warranty. This includes but is not limited to such activities as replacing the focuser, disassembling the objective lens, etc. In these instances, this warranty shall be null and void.

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WARNING: LOOKING AT THE SUN CAN CAUSE SERIOUS EYE INJURY AND BLINDNESS. NEVER POINT A TELESCOPE AT OR NEAR THE SUN. VIEWING THE SUN WITHOUT A PROPER SOLAR FILTER MAY RESULT IN BLINDNESS, AS WELL AS DAMAGE TO THE INSTRUMENT. NEVER ALLOW CHILDREN TO USE BINOCULARS OR TELESCOPES DURING THE DAYLIGHT HOURS, UNLESS THEY ARE SUPERVISED BY AN ADULT WHO UNDERSTANDS THE DANGER OF POINTING ANY OPTICAL INSTRUMENT IN THE GENERAL DIRECTION OF THE SUN.